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UNIVERSITY OF ASTON IN BIRMINGHAM  
Interdisciplinary Higher Degrees Scheme

&

Management Centre : Department of  
Organisational Behaviour

MODELLING AND MEANING OF THE FACTORS AFFECTING EMPLOYEE  
TURNOVER AND THE FEASIBILITY OF DEVELOPING PREDICTORS  
FOR ITS DIAGNOSIS AND CONTROL

VOLUME 1

by

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331:126 HUB  
204634 51 APR 1977

A thesis submitted in fulfilment of the requirements for  
for the Degree of Doctor of Philosophy

November, 1976.

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## SUMMARY

This thesis examines the feasibility of developing predictors of employee turnover to facilitate its diagnosis and control. The study was conducted within the Dunlop Organisation and carried out under the University of Aston's Interdisciplinary Higher Degrees Scheme.

Most research has been undertaken from a single disciplinary standpoint owing to the diversity of issues involved. Therefore, not surprisingly, conflicting findings have been reported. The research objective is to collate all relevant disciplines, as far as available practical data permits, so that a general method of diagnosis and control of employee turnover may be developed.

In Dunlop the annual cost of employee turnover may be several millions of pounds. Consequently an investigation which aims at improving methods of controlling these costs may prove very beneficial.

The research strategy is developed around the issues and problems for further investigation identified by past research and the availability and coverage of relevant information. It consists of a quantitative analysis of those factors which are easily measured and available within the factory situation, and a qualitative analysis of the more subjective issues involved.

The existence of a general predictor model of employee turnover is demonstrated using multiple regression techniques. Specific measures of unemployment, age and service distributions, and earnings yielded the highest levels of accountability of variance in turnover rates of various employee types. Local factors were most significant for manual employees, whilst non-manual employees were

influenced slightly more by regional factors.

Exit interviews conducted amongst terminees revealed many qualitative issues as disclosed in reasons for leaving. These reasons were found to be largely dependent on an employee's orientation to work.

Finally both analyses are combined to form a general scheme for measuring, analysing, diagnosing and controlling the turnover of various employee types.

### ACKNOWLEDGEMENTS

I would like to acknowledge the help and co-operation received from the Managers and Staff in Dunlop and supervision from Aston University. In particular I thank Professor John Child, Mike Hussey and Roland Sparks for their guidance and assistance.

Special thanks go to my wife Sandra, who has remained extremely patient and understanding throughout the study.

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## PREFACE

I would like to inform the reader that this research differs in some respects from the traditional doctorate research with regard to the overall environment in which it was undertaken and its general objectives.

The study was sponsored jointly by the Science Research Council and Dunlop Limited which provided the research context, and was carried out under the University of Aston's Interdisciplinary Higher Degrees (I.H.D.) Scheme. The objectives of this scheme are to investigate current 'live' organisational problems, from a multi-disciplinary standpoint, by incorporating a carefully supervised experience of problem solving in a collaborating organisation.

The advantages of such a form of research are as follows:-

(a) The researcher assumes a dual status as full-time research student and employee of the sponsoring organisation. This duality permits access to both academic and industrial expertise in the relevant areas of research. By virtue of receiving both academic and industrial supervision a greater opportunity exists for the pursuit of both theoretical and applied objectives.

(b) Since there is an implicit multi-disciplinary training in this scheme of research, the 'problem' under investigation may be studied from more than one relevant perspective. The main implication of this approach for the nature of the thesis is that every effort is made in designing the research strategy to ensure that any findings have practical significance in addition to extending the boundaries of theoretical knowledge.

PART ONE

INTRODUCTION

CONTENTS

CHAPTER 1 : Introduction and Research  
Objectives

## CHAPTER 1

### INTRODUCTION AND RESEARCH OBJECTIVES

#### 1.1 INTRODUCTION

The principal aim of this chapter is to delineate the problem in terms of its nature, magnitude (in cost terms), and implications both within the organisation under study and against the national setting.

The project outline and requirements as initially perceived are described and suggested directions of research to meet these requirements are developed. Thus permitting the general purpose of the research, in terms of the theoretical and applied objectives, to be drawn-up.

Finally, some background information about the research context, i.e. the Dunlop Organisation is presented.

#### 1.2 THE PROBLEM - Its nature, magnitude and implications

##### 1.2.1 Its Nature

The company is frequently alerted by accelerating employee costs, particularly during the past decade or so, and the control of these is believed to be one of the most important keys to its continued viability. From this awareness the need for a thorough investigation of those areas within which managers may exercise some measure of control was deemed essential.

The Personnel Planning\* section was assigned the task of locating those areas of employee costs where a study would prove most 'profitable.' Careful interrogation of personnel statistics over the previous six-year period yielded some very startling information regarding the magnitude of employee wastage within the organisation as a whole.\*\*

Employee wastage being defined as the temporary or permanent loss of current manpower. Specific examples of each type of wastage are listed below:

- (a) Permanent wastage
  - employee turnover
- (b) Temporary wastage
  - employee absence
  - hours lost as a result of industrial disputes
  - industrial accidents
  - bad time-keeping

#### 1.2.2 Magnitude

The following statistics were revealed for the six year period 1968-1973 (minima and maxima).

- (i) All employee turnover:- 25-35% annually
- (ii) Absence (all manual employees):- 6-8% of planned working hours lost annually
- (iii) Industrial disputes (all manual employees):- 0.2-3.5% of planned working hours lost annually
- (iv) Industrial accidents:- 0.3-0.4% of planned working hours lost annually (all manual employees)

(The company does not maintain statistics for non-manual employee absence and time lost by bad time-keeping)

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\* A section in the Central Personnel Division

\*\* In the U.K. only

What do these statistics represent in real terms?

- (a) Between ten and fifteen thousand employees leave the company annually.
- (b) Between three and four-and-a-half million planned working hours are lost by absence annually.
- (c) Up to two million planned working hours may be lost by industrial action annually.
- (d) Nearly a quarter of a million planned working hours are lost by industrial accidents annually.

1.2.3 Implications of these statistics

These figures indicate that employee wastage within Dunlop is considerable, especially in the form of turnover and absence. Moreover a factory-by-factory analysis of these forms of wastage over the same six-year period revealed the following information.

All employee turnover:- 10-120% annually

All manual employee absence:- 2-14% annually

In addition to this inter-factory variation in wastage rates differences in rates for both sexes and various employee types, i.e. manual and non-manual were observed.

In terms of absolute magnitudes in Dunlop, employee turnover and absence represent the most devastating forms of employee wastage. One of the basic objectives of this research is to identify the controllable or preventable aspects and their cost to the company. Previous investigations, both within the company and outside, into absence and turnover have indicated that excessive turnover is potentially more detrimental than absence to profitability for the following reasons.

- (a) The proportion of absence which is accompanied by a doctor's note or managerial permission (i.e. uncontrollable absence) represents well over a half of the total absence rate.\* Therefore, the scope for improvement in the controllable proportion is limited.
- (b) The proportion of uncontrollable turnover, e.g. marriage, retirement, death, pregnancy and redundancy rarely accounts for more than half of total turnover, but usually represents about a quarter. By this virtue there are potentially more in-roads to the reduction of preventable turnover.
- (c) Furthermore, Pilch<sup>1</sup> refers to an estimated cost of controllable employee turnover in one industry that exceeds that of sickness, absence and industrial disputes, all put together. He also refers to a Government Actuarial study in 1963 of people leaving pensions schemes in which 96 per cent of cases left voluntarily.

Since there is greater scope for investigation and improvement in the levels of employee turnover, the research primarily focuses on this aspect of wastage. Moreover, absence records are only maintained for manual employees within the company, thereby imposing a further restraint on an investigation into absence. However, turnover, absence and hours lost by industrial disputes are referred to collectively as and when appropriate, since they are considered by some people to represent varying degrees of 'withdrawal from work' and may arise from similar causes.

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\* From the findings of an absence investigation conducted by Dunlop in 1969.

Therefore any improvements in the levels of employee turnover resulting from successful remedial action may also be accompanied by improvements in the levels of absence and industrial disputes.

1.3. The Cost of employee turnover - Nationally and in Dunlop

The majority of companies do not specifically calculate the direct costs of employee turnover. These costs are usually submerged in other accounts.

However, excessive employee turnover is not unique to Dunlop, it is a national problem. This is quite apparent from the number of publications from the 'National Economic Development Office' NEDO over the last ten years. Some of the booklets are listed below and have been compiled for NEDO by an 'Economic Development Committee' EDC\* for that particular industry.

- (i) 'Costing your labour turnover' Rubber Industry EDC
- (ii) 'Labour turnover in Food Manufacturing' Food Manufacturing EDC
- (iii) 'Staff Turnover' Hotel and Catering EDC
- (iv) 'Labour losses in the Electronics Industry' Electronics EDC
- (v) 'Labour turnover - a manager's guide to action' NEDO
- (vi) 'Labour turnover in the Clothing Industry' Clothing EDC
- (vii) 'Cost of labour turnover in the Wool Industry' Wool EDC

The consensus of opinion from these NEDO publications is that employee turnover costs are variable and depend on a number of factors, e.g. age, service, training received,

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\* Composed of managers and trade union representatives from companies within a particular industry

type of work, difficulty of recruiting. In spite of the difficulty involved in financially assessing some of the detrimental outcomes of excessive turnover, e.g. poor morale, strain on supervision and lowered quality leading to fall in demand; the Electronics EDC published the following list of costs, some of which are readily quantifiable.

Separation payments (e.g. in lieu of notice, holiday pay, redundancy payments)

Recruitment and advertising costs

Candidates interview expenses

Joiners' re-location expenses

Candidates interview expenses

Loss of productivity of leaver prior to leaving

Cost of exit interview and leaving routines

Loss of productivity whilst post is vacant

Personnel department expenses and overheads

Managers' time interviewing applicants

Clerical costs of joining

Issue of personal tools, protective clothing, etc.

Loss of induction training

On the job training costs

Material wastage and mistakes by newcomers

Loss of productivity during training period and while newcomer is building up experience

On this basis the report quoted costs per leaver for one firm in the industry to vary from £150 for clerical and female manual employees to £300 for male manual employees, and over £800 for managers and other professional staff. Pilch quotes an average figure of £300 per leaver from a study undertaken by the University of Bradford, which appears

to be generally accepted at present.

Assuming this figure to be realistic, it may be applied to the employee turnover levels in the Dunlop organisation, as follows:

For the period 1968-1973

	<u>Minimum</u>	<u>Maximum</u>
No. of leavers	10,000	15,000
Cost per leaver	£300	£300
Total annual cost	£3.0 <u>MILLION</u>	£4.5 <u>MILLION</u>

These figures are quite startling, but may overstate the situation, since some turnover is inevitable and desirable. Dunlop participated in the NEDO study performed by the Rubber EDC and its committee agreed that an acceptable or target level of unavoidable turnover should be around 15%. (It was stated that any such opinion was highly subjective since unavoidable turnover varies according to local circumstances) However, on this basis a more realistic estimate of the cost\* of turnover in Dunlop would be:-

Cost of Controllable Turnover in Dunlop = £1.2 to 2.4 MILLION\*\*

Even this 'amended' cost is quite staggering and must surely provide justification for an in-depth study into those areas of employee turnover within which managers can exercise some measure of control.

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\* These estimates are in no way intended to be absolutely accurate, they are to be used to appreciate the order of magnitude of the problem.

\*\* These figures are based on 1973 prices. The retail price index has almost doubled now (May 1976). Therefore this estimate is considerably greater now.

Moreover, this 'cost' is not only suffered by Dunlop. The Rubber EDC states that 'high labour turnover is a national problem. The rate for the country as a whole is high - over 30%'. Figure 2 below, illustrates this point by comparing the annual rates of employee turnover in Dunlop with corresponding rates for the rubber industry and all manufacturing industries\*, during the period 1971-1973 inclusive.

Figure 2 - Employee turnover rates in Dunlop, Rubber Industry, and all manufacturing industries.

YEAR	EMPLOYEE TURNOVER RATES (%)		
	DUNLOP	RUBBER ** INDUSTRY	ALL ** MANUFACTURING
1971	32	28	33
1972	24	25	28
1973	30	33	34

\*. Turnover rates for the Rubber Industry and all manufacturing industries are derived from statistics published quarterly in the Department of Employment Gazette. They are based on discharges per 100 employees obtained from employers for a four week period every third month. To compute the annual turnover rate the discharge rates for the four quarterly four-week periods are averaged and the result multiplied by 13.

\*\* These turnover statistics tend to understate the true levels of turnover since employees joining and leaving within the four-week analysis period are not included in the figures. Pilch quotes a remark by a civil servant regarding this significant omission .. 'It is like producing statistics of crime which left our murder.' Since it is a well known empirical fact that turnover is most prevalent amongst short-service employees.

#### 1.4 Project Outline and Requirements

##### 1.4.1 Project Outline - Initially proposed by the Personnel Planning Section

'In Dunlop the variation in measures of employee turnover as between factories and employee types is considerable. If it is desired to use these measures as an indicator of managerial efficiency, it is necessary to establish the feasibility of establishing standard levels of turnover for each factory and employee type, and ascertain when variations from these levels indicate that managers need to <sup>take</sup> remedial action.

Since the factors influencing employee turnover are numerous the need for an in-depth study of turnover and possible remedies is essential. For staff employees (non-manual) the newly updated computer personnel file offers an opportunity for such a survey, whilst Personnel Returns published quarterly may form the foundations of a similar survey for manual employees (operatives).'

The feasibility of using measures of employee turnover as a management control was the central theme.

##### 1.4.2 Project Requirements

- (a) 'that employee turnover rates be determined for both staff and operatives by sex on a factory-by-factory basis.'
- (b) 'that the reasons for variations of employee turnover between factories and employee types be investigated.'

- (c) 'that the possibility of establishing 'norms'\* or standard levels of employee turnover be investigated.'
- (d) 'that the influence on the 'norms' of various factors, e.g. changes in earnings, recruitment, be ascertained.'
- (e) 'that the feasibility of using variations from the 'norms' as a means of measuring the effectiveness of managers' personnel policies be established.'

Generally speaking the research objective from the managerial standpoint is to understand more fully the possible reasons why different employee types in a single factory and the same employee type across many factories suffer turnover in varying degrees, i.e. to understand more fully and locate those factors which most strongly influence turnover, and in particular those which are within their control. Ideally, some type of analytical frame-work or model is desired so that effect of changes in personnel policy on levels of turnover can be anticipated to some extent. Therefore, the cost of any required remedial action may be compared to savings from the anticipated reductions in turnover as a result of such action.

#### 1.5 DISCUSSION OF THE PROJECT OUTLINE AND REQUIREMENTS

The project outline and requirements were discussed with both academic and industrial supervisors. The aims of this discussion were:-

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\* 'norms' or standard or acceptable levels of turnover would represent that part which is uncontrollable from a managerial standpoint, i.e. that turnover which results from factors external to managerial control.

- (a) To examine and identify the disciplines involved.
- (b) To examine closely the proposed objectives and assess how far they were consistent with the pursuit of research aimed at addressing significant theoretical issues.
- (c) To develop initial plans for investigating the problem.
- (d) To determine what statistical information is available within the company and the extent of industrial co-operation required.

#### 1.5.1 Disciplines Involved

As described in the Preface the intention of an I.H.D. project is to investigate a real organisational problem from a multi-disciplinary standpoint, i.e. from all angles. After careful examination of the project proposals it was felt that the study of employee turnover necessitates this approach. The following disciplines were considered to be most relevant:-

- (i) Economics - external factors related to employee turnover.
- (ii) Accountancy - determination of the costs of employee turnover.
- (iii) Statistics - measurement and analysis.
- (iv) Personnel Management - environment in which turnover operates.
- (v) Organisational Behaviour - Social and psychological issues.

#### 1.5.2 Initial Plan for investigating the Project Objectives

Initially a careful and critical examination of previous empirical research findings and associated theoretical conceptualisations is considered essential for the following reasons:-

- (i) Concrete foundations of knowledge on all aspects of employee turnover may be built up.

- (ii) Previous short-comings in methodology and analysis may be identified, i.e. those voids in empirical research that need to be filled.
- (iii) Those factors which have been consistently found to be empirically associated with turnover may be assembled.

In general the purpose of a review of past research is to highlight major issues and problems for investigation. This survey forms the basis of the following chapter. (Chapter 2) Any refinement of the research objectives would be made on completion of this survey.

### 1.5.3 Availability of Statistical Information with the Company

There are three sources of statistical data which were believed to be sufficient for the conduct of the research.

#### (i) Personnel returns.

In their present form they have been published 'centrally' since 1967, on a quarterly basis to 1972, and half-yearly thereafter. Basically such statistics as employment strengths, employee turnover rates, employee absence rates, redundancies, hours and earnings, hours lost by industrial disputes, pertaining to various employee types on a factory, group and company basis are summarised in the report.

#### (ii) Census of age and service

A census of age and service is compiled annually for manual and non-manual employees subdivided by sex, on a factory, group and company basis.

#### (iii) Computerised Staff\* Personnel File

This file contains personal information relevant to

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\* non-manual employees

staff employees only. The categorisation is on an individual basis, and contains such information as - age, service, salary, marital status, division and location. However, this information is only reliable during the period January 1st, 1974 to December 31st, 1974, and relates only to monthly-paid staff employees.

The company pledged total co-operation with respect to any further information that would be required, except for matters that were considered confidential.

These three data sources are described and assessed in more detail in Chapter 3 entitled 'The Research Context - The Dunlop Group'. The scope and general usefulness of this data, i.e. what is available in practice, is then examined against the main issues and problems identified by previous investigations, in the general development of the research strategy which is the subject of Chapter 4.

## 1.6 GENERAL PURPOSE OF THE RESEARCH

As the research is undertaken within the context of a 'live' organisational situation it is expected that both theoretical and applied objectives may be investigated together for their joint benefit. These objectives are described below:-

### 1.6.1 Theoretical Objectives

- (a) Classification/endorsement/contradiction of outstanding issues in the field.
- (b) To attempt to fill any gaps in the general field of diagnosis and control of employee turnover which have been exposed by past researchers, by further empirical research.

- (c) To develop new and more informative analytical methods.
- (d) To demonstrate the advantages of applying an interdisciplinary approach to a 'real' problem. (Landsberger<sup>115</sup> has emphasised the importance of this type of approach and the dangers of studying behavioural and non-behavioural sciences from a single standpoint)
- (e) Most research into employee turnover has been conducted from a single disciplinary standpoint, e.g. by economists, statisticians, psychologists, sociologists and industrial practitioners, owing to the diversity of issues involved. Therefore, not surprisingly, conflicting and ambiguous findings have resulted. This research intends to draw together and incorporate all relevant disciplines as far as the available practical data allows. Thus permitting a general method of diagnosis and control of employee turnover for various employee types\* to be developed.

#### 1.6.2 Applied Objectives

- (a) To gain further knowledge and understanding of the contributory causes of employee turnover, and thereby permit greater cost effectiveness in the utilisation of human resources.
- (b) To reveal any serious discrepancies in present company methodology, and recommend more useful methods.
- (c) To increase managerial competence in manpower management and administration.

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\* It is well known that employees vary considerably in their job requirements, and therefore their behaviour may be influenced by different factors. Hence, methods of diagnosis and control of turnover may need to be modified for different employee types.

- (d) To recommend proposals for the control of employee turnover on a factory-by-factory and company basis.
- (e) To provide a clear statement of those factors which are within managerial control, and identify the principal areas of investigation required for any future enquiry into employee turnover.

It is appreciated that harmonising theoretical and applied objectives may create some problems, however, it is felt that the most meaningful and beneficial results and conclusions will be achieved by so doing.

#### 1.7 THE RESEARCH CONTEXT - THE DUNLOP ORGANISATION

Dunlop is a multi-national company employing slightly under 43,000\* people in the United Kingdom, and a little over 50,000\* overseas. The research focuses entirely on Dunlop's U.K. operations. These operations are categorised by a number of 'Groups'\*\* each completely autonomous with regard to profitability. A further breakdown exists in that each 'Group' is divided into a number of 'Product Divisions'\*\*\* which are also responsible for their own profitability. There is a wide diversification of products both with groups and product divisions, e.g. pneumatic tyres, sports equipment, footwear, carpeting and fire engines.

Industrially the research was conducted from the Headquarters of Dunlop in the Central Personnel Division, which is based in London. Generally speaking the Personnel Function is decentralised, however, there are some policies

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\* At January 1st, 1976.

\*\* See Figure 10, p.104 Chapter 3, for details

\*\*\* See Figures 11-14, Appendix A, pages 1-4 for details

from the 'Centre' which must be adhered to. However, for most purposes the 'Centre' adopts an advisory and guiding role as it is appreciated that divisional personnel managers are better placed to solve the majority of 'local' issues. Regarding the structure of the Personnel Function, the Central Personnel Division is headed by the Director of Administration and divided into the following departments:-

- (a) Group Industrial Relations, Salary Administration and Salaries and Pensions.
- (b) Management and Development and Central Training.

The constituent 'Divisions' within each 'Group' have Divisional Personnel Managers, and each factory within each 'Division' has a Personnel Manager or Officer depending on numbers employed.

The foregoing section is intended only to provide schematic information about the company. More precise details of individual factories with respect to location, number employed, products and employee wastage are presented in Chapters 3 and 5.

#### 1.7.1 Communications with the Company

In order to gain credibility regarding the potential benefits from an in-depth investigation of employee turnover, every effort was made to communicate regularly with managers in the personnel function. The type of information exchanged includes any changes or modification of research objectives, progress summaries and feedback relating to these aspects. Regular communication is seen as the key factor in gaining manager's attention and confidence in the project. One could hardly expect policy changes recommended by the research to be implemented or even entertained without their prior involvement.

1.8 SUMMARY

This chapter introduces the problem under investigation in terms of its nature, magnitude and implications both within the research context and against the national setting.

The project outline and requirements as initially perceived by Dunlop are described and developed according to theoretical and applied objectives. Plans for meeting these objectives are drawn-up and include a thorough examination of issues and problems identified by previous research and an assessment of the research context, together with an examination of the data sources available. These topics form the subject matter of Chapters 2 and 3 respectively.

## PART TWO

### DEVELOPMENT OF THE RESEARCH STRATEGY

#### CONTENTS

CHAPTER 2 : Previous Research: Issues and Problems  
for Investigation

CHAPTER 3 : The Research Context - The Dunlop Group

CHAPTER 4 : The Research Strategy

## CHAPTER 2

### Previous Research: Issues and Problems for Investigation

#### 2.1 INTRODUCTION

The introductory chapter emphasised the need for a careful and critical examination of previous research relevant to employee wastage. The following survey concentrates on employee turnover, which has judging by the volume of literature devoted to its study, been the principal area of interest. Other types of wastage will be referred to where appropriate.

One of the earliest references to employee turnover dates back to the beginning of the century, subsequent investigations have examined almost all types of organisations, all types of employee, from a variety of countries. However, most literature has focused on the turnover of manual employees in business organisations in the Western World.

The following areas of past research will be examined in turn:-

- (a) Definition and Measurement of Employee Turnover
- (b) The Correlates of Employee Turnover
- (c) The Determinants of Employee Turnover
- (d) Conceptualisations, Theories and Models of Employee Turnover
- (e) The effects, cost and control of Employee Turnover

Finally, the major problems and issues from each of the above areas are summarised.

## 2.2 DEFINITION AND MEASUREMENT OF EMPLOYEE TURNOVER

### 2.2.1 Definition

Before proceeding to a definition, it is important to consider why 'employee' turnover is used rather than the more often quoted term 'labour' turnover. There are basically two reasons for this. Firstly that the term 'labour' implies 'manual' employees, whereas this study will be examining all employee types both manual and non-manual. Secondly, it is considered that the term 'labour' is derogatory as aptly expressed in an article by Forrester<sup>2</sup> ... 'the basic relationship between a man and his job is of such subtlety that it can only be negotiated by a manager with a close understanding of both ... the common use of the word 'labour', implying as it does an amorphous mass of morons, is a denial of this principle as well as an affront to humanity'.

In spite of the extensive literature afforded to the study of employee turnover very few definitions have been proposed. The British Institute of Management<sup>3</sup> defines employee turnover as 'the process of change in the composition of the labour force'. However, Pearce<sup>4</sup> considered that the process of employee turnover was incomplete until a replacement was recruited and he offered the following definition ... 'the movement in a working force when workers leave and have to be replaced'. Samuel<sup>5</sup> argues that it may be difficult to determine accurately which recruits are replacements.

Perhaps the most explicit definition was proposed by Price<sup>6</sup> who defines employee turnover as 'the degree

of movement across the membership boundary of an organisation'. Price qualifies this definition by emphasising that employee turnover is concerned with movement of individuals. Furthermore the question of 'membership boundary' is closely examined. As most research has centred on administrative organisations membership is determined 'by whether or not an individual receives money, and/or its equivalents, from the organisation'. This definition and its qualifications seem to be most applicable to the type of research being pursued by this study.

The movement of individuals includes members entering an organisation ('recruits' or accessions') and members leaving an organisation ('terminees'). Most literature is concerned with 'terminees' as 'recruits' are usually the 'terminees' from another organisation.

In an attempt to gain an insight into the underlying causes of employee turnover various classifications of 'terminees' have been suggested. Lefkowitz<sup>7</sup> proposed the following categorization:

- (1) Involuntary Unavoidable - Management-initiated terminations such as lay-offs (redundancies) due to uncontrollable economic factors, and dismissals for criminal activities, alcoholism, etc. i.e. those who are unmanageable and disruptive. Deaths are also included in this category.

- (2) Involuntary avoidable - Dismissals as a result of poor job performance due to inadequate selection, training and induction.

(3) Voluntary Unavoidable - Employee resignations due to military service, pregnancy, domestic problems, marriage, etc.

(4) Voluntary Avoidable - Employee resignations as a result of potentially avoidable conditions such as anxiety arising from poor induction and training procedures, and various aspects of job dissatisfaction.

Most researchers and industrial managers are concerned primarily with that part of employee turnover which is considered to be controllable\* from a managerial standpoint. Webber<sup>8</sup> offers another categorisation of terminees which differs slightly from that of Lefkowitz. His classification is as follows:

(1) Voluntary but uncontrollable - the following termination reasons are included; change of vocation, return to school, domestic reasons, moving to a location not in commuting distance of present job.

(2) Involuntary but uncontrollable - Terminations as a result of death, retirement or disability.

(3) Involuntary and controllable - Terminations as a result of redundancies, poor performance, unacceptable conduct, patterns of attendance involving lateness or absenteeism.

(4) Voluntary and controllable - Terminations as a result of resignations because of inadequate pay and career opportunities, conflict either with supervision or contemporaries, unacceptable working conditions.

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\* controllable and avoidable are considered to be synonymous

In terms of avoidable/controllable turnover Lefkowitz' and Webber's classifications are in agreement in most instances, with exception of redundancies (lay-offs). It is the author's opinion that the case for redundancy should be treated as a separate issue, for two reasons which make it difficult to classify it as controllable or not.

(a) The usual explanation for the necessity of redundancies, is for reasons of a decline in demand for a product or the evaporation of raw materials for its manufacture (this usually results in short-time working) due to uncontrollable economic factors.

(b) However the redundancies may also be the result of poor manpower planning on the part of management.

Generally speaking the majority of researchers agree that the most prevalent and significant type of employee turnover is that due to 'Voluntary Controllable' reasons. Van der Merwe and Millar<sup>9</sup> define controllable employee turnover as 'the avoidable loss of personnel, avoidable because management action could have been taken to reduce, minimize or prevent such loss, the loss being the result of an interaction between the characteristics of the employee and the employing organisation'. Within this definition Van der Merwe and Millar exclude turnover due to marriage, illness, death, pregnancy and redundancy. They propose that only employee-initiated terminations and employer-initiated terminations (dismissals) be included in Controllable Turnover. Furthermore they include leavers who have left for domestic reasons on the basis

of a study by Smith<sup>10</sup> who found, on follow-up, that the majority of females leaving for domestic reasons had in fact left for jobs elsewhere.

Many organisations use the British Institute of Managements 'reason for leaving codes' in an attempt to gain a deeper insight into the causes of employee turnover. With reference to Van der Merwe and Lefkowitz the following chart may be constructed. (see Figure 2 overleaf).

The table indicates that there are two principal areas of difference in discriminating between controllable and uncontrollable turnover; these being 'dismissals' and 'domestic reasons'. It is suggested here that the researcher must use his own judgement in these areas, i.e. if the dismissal was for unsuitability then this must constitute controllable turnover as a result of inadequate selection, training and induction procedures. However these particular types of termination usually represent an extremely small proportion of employee turnover and therefore the researcher has the scope to use his integrity in making his selection.

The reasons for leaving referred to are usually elicited at exit interviews. Despite inherent difficulties in obtaining the 'true' reasons, it is possible using a little intuition, to segregate the stated reasons for leaving into controllable and uncontrollable groups, with a reasonable degree of accuracy. However, the stated reason for leaving within the controllable group (if employee initiated) must be treated with caution.

Figure 2: Classification of Reasons for leaving

REASON FOR LEAVING	LEFKOWITZ CLASSIFICATION	VAN DER MERWE CONTROLLABLE YES/NO
<b>A. DISCHARGE (Employer Initiated)</b>		
1. Unsuitable	Involuntary Avoidable	Yes
2. Disciplinary reasons	" Unavoidable	Yes
3. Redundancy (lay-off)		
a) Shortage of materials	" "	No
b) Seasonal fluctuations	" "	No
c) Other reasons	" "	No
<b>B. RESIGNATION (Employee Initiated)</b>		
4. Remuneration	Voluntary Avoidable	Yes
5. Hours of work	" "	Yes
6. Physical working conditions	" "	Yes
7. Dissatisfaction with job	" "	Yes
8. Relationships with		
a) fellow-workers	" "	Yes
b) Supervisors	" "	Yes
9. Personal betterment	" "	Yes
10. National Service	Voluntary Unavoidable	No
11. Transport difficulties	" "	No
12. Housing difficulties	" "	No
13. Domestic responsibilities	" "	Yes
14. Illness or Accident	" "	No
15. Marriage	" "	No
16. Pregnancy	" "	No
17. Move from District	" "	No
18. Retirement	" "	No
19. Death	Involuntary Unavoidable	No
20. Cause unknown	Voluntary Avoidable	Yes

The definition of employee turnover and the segregation of leavers into controllable and uncontrollable groups has been discussed at some length because of the importance in determining those areas over which management exercises control and influence. Precise definition and purpose are essential if meaningful results are to be gained.

#### 2.2.2 Measurement of Employee Turnover

##### (1) Crude Employee Turnover Rates

These rates are the most widely used of all measures of employee turnover. They are based on the numbers entering (recruits) and leaving (terminees) an organisation. The U.S. Bureau of Labour Statistics<sup>11</sup> renders the following methods of calculation of the rates:

- a) Recruitment Rate  
(Accession Rate) = 
$$\frac{\text{No. of new recruits in a period}}{\text{Average no. of employees during the period}}$$
- b) Termination Rate  
(Separation Rate) = 
$$\frac{\text{No. of leavers in a period}}{\text{Average no. of employees during the period}}$$

The analysis periods are generally months or years, the choice depending on the numbers available to yield stable statistics. The average number employed is usually obtained by adding the numbers employed at the beginning and end of the period and dividing the total by two. The quotient is expressed as a percentage by multiplying by 100. The termination rate is more frequently used than the recruitment as a measure of employee turnover, and for subsequent analysis the two will be treated as being synonymous.

Although this index is relatively easy to understand and compute it suffers from two major disadvantages. Brissenden and Frankel<sup>12</sup> indicated one of the shortcomings of the index in the following example:-

An annual employee turnover rate of 100% could imply any of the following conclusions.

- (1) That the entire workforce had turned over once during the year.
- (2) That half the labour force had turned over twice, the other half remaining.
- (3) That a quarter of the labour force had turned over four times, the other three-quarters remaining.
- (4) and so on .....

A further major short-coming of this index is that it does not control for factors which are related to turnover. The most significant of which is tenure or length of service.<sup>a</sup> Most research has found a strong negative correlation between tenure and employee turnover. Therefore employee turnover rates will be biased in favour of short-service employees, thereby submerging the effects of the turnover of longer serving employees.

The exceptionally strong influence of length of service on employee turnover rates has prompted the following researchers (Long<sup>13</sup>, Pearce<sup>14</sup>, Levine<sup>15</sup>, IMS<sup>16, b</sup>, Silcock<sup>17</sup>, Rice, Hill and Trist<sup>18</sup>, Lane and Andrew<sup>19</sup>, Bartholomew<sup>20</sup>, Young<sup>21</sup>, Bowey<sup>22</sup>, Grusky<sup>23</sup>, Knowles<sup>24</sup>, Van der Merwe<sup>25</sup>) to develop and/or use indices of

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a - see the section on correlates of employee turnover

b - Institute of Manpower Studies

employee turnover which control for tenure and thereby indicate where in the service continuum turnover is occurring. Their contributions may be summarised as follows.

(a) Long<sup>13</sup> and Pearce<sup>14</sup>

They use an index of employee turnover called the stability rate which is defined as 'the proportion of employees who remain with an organisation for a specific period of time'. The period of analysis is usually one year, and the rate is expressed as a percentage. Therefore the stability rate for the period Jan. 1st 1974-Dec. 31st 1974 (inc.) would be computed as follows.

$$\text{Stability rate} = \frac{\text{No. of employees who were present on Jan. 1st 1974 and remained to Dec. 31st 1974}}{\text{No. of employees present on Jan. 1st 1974}} \times 100$$

This index has a range of 0-100% by definition, is easy to compute and relatively simple to understand, e.g. a stability rate of 70% indicates that an organisation has managed to retain 70 per cent of its original membership after one year. However, this measure has one major limitation in that it totally omits turnover of those employees who have been recruited during the period. This is a significant short-coming because of the inherently high turnover of short-service employees.

However, because of the supplementary nature of the termination rates and stability rates, they are often used together.

(b) Levine<sup>15</sup>

In his investigation of 'Turnover among nursing personnel in General Hospitals' a measure of employee turnover called the 'instability rate' is used. It is calculated as follows ( cf stability rate)

$$\text{Instability rate} = \frac{\text{No. of employees who were present on Jan. 1st 1974 and left before or on December 31st 1974}}{\text{No. of employees present on Jan. 1st 1974}} * 100$$

The instability rate differs from the stability rate in that it is based on leavers during the period instead of those who remain.

The remarks made about the stability rate are applicable to the instability rate. A further limitation of both these measures has been highlighted by Price<sup>26</sup>, who observes that like turnover rates there is no implicit control for tenure. He suggests that this may be to some extent remedied by clarifying the employees at the beginning of the period by service groups (providing the sample is large enough) and then developing stability and instability rates for each class. i.e. Stability of employees in the 2-5 year service group.

(c) IMS<sup>16</sup> Institute of Manpower Studies<sup>16</sup> (IMS)

In their investigations of employee 'wastage' within different occupational classifications of non-manual employees (clerical and professional staff\*), a type of 'instability index' is used. Their index is based on what they term 'unplanned leavers', these leavers included

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\* staff in this context implies non-manual white-collar employees

those who had left voluntarily, those who had been dismissed, and some who had died or left because of ill-health. 'Planned' leavers, i.e. those who left because of retirement or redundancy were omitted from the calculations.

Further refinements to their index were determined by the nature of the data available, which consisted of a stock of employees at the beginning of the year, new recruits during the year and the leavers during the year from both stock and recruits. To control for length of service, employee wastage rates were analysed separately for groups of employees with different tenures at the beginning of the year, i.e. less than one year, one to two years, two to four years, etc. (Recruits during the year were treated similarly but on a month by month basis).

The current employees at the beginning of the year could be grouped by length of service classes, as well as by occupation, organisation, age, location and sex. This represented the 'at risk' stock of employees.

The wastage of male engineers with between two and four year's service would be calculated as follows:

$$W_{ME}^{2-4} = \frac{\text{No. of 'unplanned' male engineers who left during the year with between two and four years service}}{\text{No. of 'current' male engineers with two-four years service at the beginning of the year.}}$$

W = Wastage

ME = Male Engineers

2-4 = Two to four year service group

The denominator is corrected by the number of 'planned' leavers, and the result is usually expressed as a percentage by multiplying by 100.

This measure of employee turnover is one of the most comprehensive that has been developed to date. It enables turnover to be computed by occupation, sex and other variables, whilst controlling for length of service. The major limitation of this measure is in obtaining sufficient numbers to yield stable statistics. The IMS resolved this problem by assembling a 'data bank' covering employees from both the private and public sector, their sample size was nearly 130,000.

(d) Silcock<sup>17,27</sup>

Silcock felt that the 'crude' employee turnover rates, used as labour stability indices, are so ambiguous that they are best abandoned altogether.

As a measure of employee retention he introduced the 'Survival Index' which is computed as follows:

$$\text{Survival Rate} = \frac{\text{Number of recruits from a 'cohort' remaining in a period}}{\text{No. of new recruits in 'cohort'}}$$

This index is concerned directly with the turnover of new recruits thus remedying the limitations of stability rates. The rate is determined by specifying two independent time periods of analysis. Initially a 'cohort of new recruits' is specified. The 'cohort' refers to all those employees who were recruited during a specified period. This period may be a month, quarter or a year, the choice depending on the numbers available

to yield stable statistics. For example if the 'cohort' was obtained quarterly, a second time period must then elapse before the survival rates can be calculated. Therefore if 5 out of 15 recruits from a quarterly cohort remained one year after the cohort was formed, the survival rate would be 33%.

As a refinement of the 'Survival rates' Silcock introduced an index called 'the half-life' or the 'median length of service of a cohort of new recruits'. This index represents the time taken for a batch of entrants to be reduced by terminations to one half its original size.

Silcock<sup>27</sup> elaborates further on his 'Half-life' index, by examination of the survival pattern of successive cohorts of new members. The concept of 'Survival Tables' is introduced whereby entrants are classified into quarterly cohorts and the number of survivors from each cohort after different periods of time is expressed as a percentage of the original entrant group. Thus successive 'Survival Tables' may be produced and any noticeable deviation from an established pattern will be observed immediately. Therefore analysis, action and future warning productions may be based on present trends.

Rice, Hill and Trist<sup>28</sup> have also developed similar 'Survival Tables' as Silcock<sup>27</sup>. The advantage of this type of analysis are as follows:

- 1) Tenure is controlled for.
- 2) They are easily understood and precise in meaning.

However there are also three short-comings of this index which are largely responsible for its infrequent use:

- 1) No information about leavers in a current period is available.
- 2) There is a limitation of not less than 100 members in a cohort to provide stable statistics. This condition restricts the use of this index to only the largest of organisations.
- 3) This index used alone gives no indication of the behaviour of longer serving employees (assuming that an organisation has just incorporated this index).

(e) Lane and Andrew<sup>19</sup>

As a measure of the stability of the labour force, Lane and Andrew introduced the concept of an 'expectation of service' based on the probability of an employee leaving as a function of his length of service. Their probability of leaving function was derived using either survival or stability curves. Both these are shown to be approximately log-normal and may be used for graphical comparisons of different groups on employee, interpolation and extrapolation (predictive) purposes. The authors conclude that the 'service expectation' index is the best single measure of the stability of a group of men.

(f) Bartholomew<sup>20</sup>

This paper incorporates the work of 'Silcock' and 'Lane' and Andrew' in presenting a method of expressing, in quantitative terms, the relationship between the length of service structure and rate of leaving, of a group of employees.

The idea of turnover as a 'renewal process' is introduced. The turnover rate and length of service distribution are combined to obtain a 'renewal equation'. Using various simplifying assumptions this equation may be solved and predictions about recruitment needs may be made. However, there is a major difficulty in obtaining a length of service distribution which jointly satisfies the following criteria:

- (i) what occurs in practice;
- (ii) in a suitable mathematical form for which the renewal equation may be solved.

Under specified conditions, Bartholomew used the solution of the renewal equation to examine the relationship between crude turnover and the length of service structure. He concludes ... 'the crude turnover rate is influenced very much by the age and recruitment history of the group of employees to which it applies. It cannot therefore be used as a valid method of comparing the stability of groups of men, unless they are similar in these respects'. (Thus emphasising the need for controls: cf Price )

(g) Young<sup>21</sup>

Young uses the 'log-normal' distribution of wastage proposed by Lane and Andrew, in his study of 'entry cohorts' (i.e. clearly definable groups of employees in similar functions e.g. clerical employees who joined in a given period). His principal finding was that a log-normal wastage pattern established by a cohort persists through the history of the cohort. Furthermore, for planning purposes it is possible to predict future losses for each cohort once the parameters of the log-normal wastage distribution have been established. Comparison of the stability of different cohorts may be achieved by graphical representation of their log-normal wastage curves.

(h) Bowey<sup>22</sup>

A 'Cumulative Length of Service Index' is proposed and enables one to consider the present labour force not only in terms of how many members of it were present a year ago, but also two years ago, three years ago, and so on. This index is derived from a curve describing the build-up of a labour force over a number of years called the stability curve. It has further uses in the graphical comparison of stability between different firms.

The area under the 'cumulative length of service curve' gives a direct measure of stability, which is in turn a measure of the organisation's ability to retain labour. Hence, Bowey uses the integral of the curve as a 'stability index'.

In addition, Bowey develops the idea that correlations between a 'Stability Index' and job satisfaction will prove more meaningful and rewarding than those between 'crude turnover rates' and job satisfaction. This is because the 'Stability Index' more appropriately emphasises the behaviour of long service members, as they are more likely to leave because of job dissatisfaction. Whereas the crude turnover index is biased towards short service employees whose decision to leave may not necessarily be related to the general level of dissatisfaction.

(i) Grusky<sup>23</sup>

In his research Grusky makes use of an index of employee turnover termed 'the average length of service of stayers'. This index is based on the length of service of all current employees in the organisation, and is computed by the following method:

$$\text{Average length of service of stayers} = \frac{\sum_{i=1}^{i=N} T_i^s}{N} = \frac{\text{Sum of the lengths of service of all employees}}{\text{Total no. of employees}}$$

where s = stayers

$T^s$  = Tenure (length of service in years) of stayers

N = No. of current employees

Sometimes this average is computed as the median as well as the mean.

This index is relatively easy to compute and understand. However, Price<sup>26</sup> criticises its use because

it is biased towards indicating the behaviour of longer-serving employees. He uses the following example to illustrate this point. The average is calculated on a specific date, when the organisation will be characterised by a large proportion of long-serving employees and an omission of short-serving leavers. Thus the turnover of short tenure employees is not adequately accounted for. A further disadvantage of this index is that it fails to indicate the amount of turnover which is occurring.

(j) Knowles<sup>24</sup>

Instead of calculating the average length of service of 'stayers', Knowles proposed the use of an index which measures the average length of service of 'leavers', which is calculated as follows:

$$\text{Average length of service of leavers} = \frac{\sum_{i=1}^{i=N} T_i^L}{N} \quad \frac{\text{Sum of the tenures of all leavers}}{\text{Total no. of leavers}}$$

similarly:  $T^L$  = Tenure of leavers

$N$  = No. of leavers

$L$  = Leaver

This index is based on the number of terminees in a specific period, e.g. a month, quarter, year. It is slightly more difficult to calculate than the average length of service of stayers since information needs to be collected over a period of time rather than at a single date. Although this index suffers similarly in not indicating the magnitude of turnover, it does provide real clues as to where in the service continuum

the majority of leavers are being drawn. However, it does require sufficient numbers of leavers to provide stable indices.

(k) Van der Merwe<sup>25</sup>

One of the most recent developments in the field of measurement of employee turnover has been devised by Van der Merwe<sup>25</sup>. Basically he utilises the work of Silcock<sup>27</sup> and Knowles<sup>24</sup> in producing a 'Survival of leavers curve'. This is a distribution of leavers from a specified period, by length of service and diagrammatically represented as a 'survival curve'.

He describes the production of such a curve as follows:

Let there be  $L$  leavers from a period of  $T$  months.

Among these leavers  $L$ , are a number  $L_1$ , who have lengths of service of  $d$ , (months) or less, and numbers  $L_2, L_3 \dots L_n$  who served periods of  $d_2, d_3 \dots d_n$ ; such that  $L_1 + L_2 \dots L_n = L$ , and  $d_n$  the service of the longest serving leaver.

Furthermore  $d_2 = 2d, d_3 = 3d$  etc. (where  $d$  = month, quarter or a year)

The curve is constructed by providing a point on a graph which indicates the distribution of leavers (expressed as survivors from a total group  $L$ , after periods  $d, d_2$  etc.

i.e. the 'survivors' at the end of period  $d_1$  =  $\frac{L - L_1}{L}$  per cent

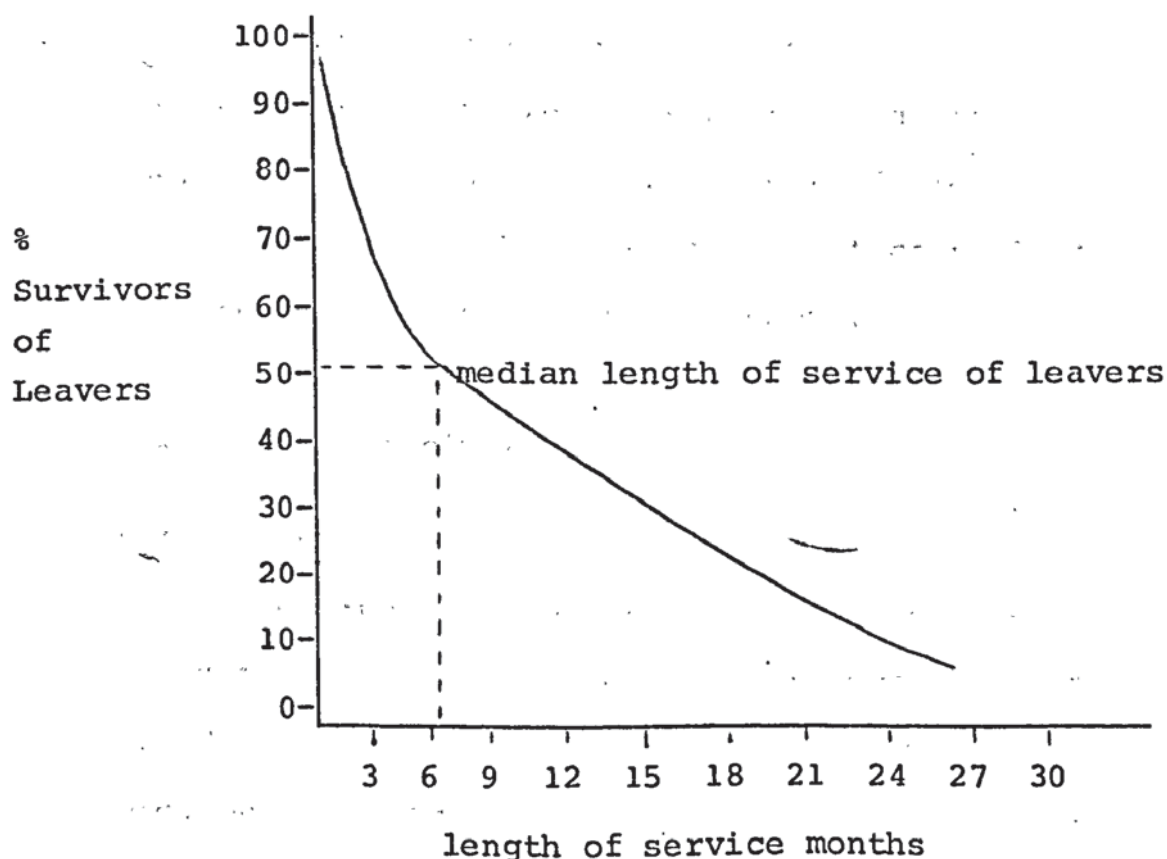
and the 'survivors' at the end of period  $d_n$  =  $\frac{L - (L_1 + L_2 \dots L_n)}{L} = 0$

Figure 3 below shows an example of a 'survival of leavers curve'.

Rather than use this 'curve' on its own as measure of employee turnover, Van der Merwe<sup>25</sup> incorporates the controllable employee turnover rate, thereby providing the following information:

- (i) The rate at which employees are leaving the organisation from a 'controllable' standpoint.
- and (ii) From what section in the work force, in terms of length of service, those leaving are being drawn.

Figure 3: Survival of Leavers Curve



Furthermore, the median length of service of leavers (cf Knowles<sup>24</sup>) may be easily obtained from the 'Survival of leavers curve' as shown in Figure 2.

Van der Merwe<sup>25</sup> also quotes a study by Bell<sup>29</sup> regarding further uses of 'survival curves', and applies them to his survival of leavers curve. Bell<sup>29</sup> groups leavers by the following biographical variables - country of origin, tribal origin, age, marital status, wage, skill, department, etc. thereby allowing survival patterns to be contrasted according to biographical variables, whilst controlling for length of service.

The main limitation of this measure as with most survival indices, is obtaining sufficiently large numbers in reasonable periods of time to provide stable statistics for comparison purposes. However, Van der Merwe<sup>25</sup> has provided a means whereby the turnover characterises different employee types may be compared whilst controlling for the overriding effects of tenure.

### 2.2.3 Summary and Conclusions

#### Definition

The importance of precise and purposeful definition of the phenomenon under investigation was described at some length in relation to previous shortcomings and ambiguities. The underlying theme of this research is in the identification of the controllable aspects of employee turnover, and therefore the constituents of controllable turnover were examined in some detail.

### Measurement

Many indices of employee turnover were described and critically examined. The major consideration centred on controlling for the overriding effects of tenure. Sophisticated mathematical techniques for incorporating the length of service distribution of a workforce into a measure of employee turnover as developed by Lane and Andrew<sup>19</sup>, Bartholomew<sup>20</sup> and Young<sup>21</sup> were described. Finally, the work of Knowles<sup>24</sup> and Van der Merwe<sup>25</sup> were reviewed.

From a practical standpoint the graphical representation of employee turnover as suggested by Van der Merwe<sup>25</sup> seems to incorporate the most useful means of investigation into turnover in the factory situation. Industrial investigations into the turnover of non-manual employees from a variety of occupations are most conveniently undertaken using the approach developed by the IMS<sup>16</sup>.

Finally, it must be borne in mind that all the indices examined assume that the relevant information is close to hand in the factory situation, unfortunately this is not usually the case, especially on an historical basis, therefore the researcher may have to modify his indices in the light of insufficient or inadequate data.

## 2.3 THE CORRELATES OF EMPLOYEE TURNOVER

There is a large volume of research which concerns itself with 'statements of association' regarding employee turnover. It is non-analytic, does not concentrate on causal relationships, and is largely speculative in terms of inference. Such findings are commonly called 'Correlates of Employee Turnover', and usually provide the overall 'context' in which the more analytical investigations are conducted. The principal correlates are discussed and described below.

### 2.3.1 Level of Employment: State of the Economy

A strong positive relationship between the level of employment and employee turnover has been supported by many reviews (Cook,<sup>30</sup> Silcock,<sup>17</sup> Behrend,<sup>31</sup> Knowles,<sup>32</sup> March-Simon,<sup>33</sup> Moffit-Hill<sup>34</sup>.)

The following studies provide empirical confirmation of the proposed relationship (Behrend,<sup>35</sup> Hyman,<sup>36</sup> Crowther,<sup>37</sup> Knowles,<sup>38</sup> Long<sup>13</sup>).

March-Simon,<sup>33</sup> without empirical evidence, propose that 'under nearly all conditions the most accurate single predictor of labour turnover is the state of the economy' i.e. level of unemployment. They explore the relationship in more detail, and suggest that it is necessary to consider the individual's relative employability in terms of static (sex, age, social status) and dynamic (technology of the economy, length of service) factors to explain more of the variance.

Generally speaking, the level of business activity may be viewed as a background which reflects the relative ease of securing alternative employment. It is commonly

found that voluntary turnover is highest in 'boom' periods and lowest in 'slump' periods, redundancies and lay-offs exhibiting the opposite effects. The studies of Crowther<sup>37</sup> and Rice, Hill and Trist<sup>28</sup> have shown that the relationship is most tenable with respect to the local level of unemployment; when investigating the turnover of manual employees.

### 2.3.2 Seasonal Factors

Silcock<sup>17</sup> notes that voluntary turnover is highest in January and lowest in December, peaks in spring and autumn are separated by a trough in summer (these observations are based on the work of Rice et al.<sup>28</sup> Long,<sup>13</sup> and Greystoke<sup>39</sup> in this country).

Van der Merwe<sup>25</sup> observes other seasonal fluctuations of turnover in industries in the Southern Hemisphere, and proposes that 'seasons in themselves are of course not the determinants, but rather the significance of the reason to community involved', e.g. the trough in summer may be due to the effect of coming holidays.

### 2.3.3 Location of the Undertaking

Despite the evidence of Cook<sup>30</sup> and Chapin<sup>40</sup> who found no relationship between location and employee turnover, the majority of researchers find that location is an important factor associated with turnover (Long,<sup>13</sup> Silcock,<sup>17</sup> Behrend,<sup>31</sup> Hill, T.P.<sup>41</sup> and Russell<sup>42</sup>), Hill,<sup>41</sup> in his study of collieries concludes that 'location is probably by far the most powerful single

explanatory variable in a study of labour turnover. Furthermore, Russell,<sup>42</sup> who examined 438 establishments in manufacturing and non-manufacturing organisations found turnover to be generally higher in metropolitan areas than in non-metropolitan areas.

The general conclusion to be drawn is that, as turnover has been shown to be strongly affected by the local level of unemployment, then locality must be taken into account in any investigation into employee turnover.

#### 2.3.4 Departmental Differences

Lefkowitz<sup>43</sup> examines the work of Rice and Trist,<sup>44</sup> and Kerr et al.<sup>45</sup> in demonstrating the limited value of gross turnover rates which apply to an entire organisation. The evidence suggests that there are determinants of departmental turnover which may be relatively independent of the overall turnover of the organisation (e.g. nature of job, styles of supervision, informal work groups).

#### 2.3.5 Proximity of Domicile to Work Place

Both Long<sup>13</sup> and Bucklow<sup>46</sup> have found that excessive distance between the home and workplace adversely affects turnover. This observation is probably most valid for female employees, particularly married women.

#### 2.3.6 Skill

Turnover of unskilled manual employees has been found to be higher than for skilled manual employees in

the following empirical studies (Behrend,<sup>35</sup> Wales,<sup>47</sup> Hyman,<sup>36</sup> Harris,<sup>48</sup> and Young<sup>49</sup>) an additional support of this correlate was noted in many reviews (Silcock,<sup>17</sup> March-Simon<sup>33</sup> and Knowles<sup>32</sup>). However Long<sup>13</sup> found that the turnover of semi-skilled manual employees was in some cases as high as that for unskilled manual employees and as low as that for skilled manual employees.

A study by Behman<sup>50</sup> contradicts the above relationship.

#### 2.3.7 Absenteeism

Many attempts have been made to correlate absenteeism and employee turnover. A positive relationship has been reported by Crowther<sup>37</sup> and Clarke,<sup>51</sup> and is supported by the review of Lyons<sup>52</sup>. However, Kerr's<sup>53</sup> results indicate a negative relationship. March and Simon<sup>33</sup> have put forward some ideas in an attempt to explain this apparent contradiction.

For a negative relationship to exist between turnover and absenteeism they propose that:

- a) extreme penalties are being imposed for absence.
- or b) the ability to leave the organisation is constrained by a situation of high unemployment or by government fiat.

For a positive relationship to exist, they propose that:

- a) Motivation to avoid the demands of the job situation stems primarily from the dissatisfaction with the inducements-contributions balance.
- b) For most people motivation to seek relief through temporary absence occurs at a point related consistently to the point at which

motivation to quit occurs.

- c) The factors contributing to individual dissatisfaction are general to the population of workers rather than to individual workers.

The methods of data analysis incorporated in the empirical studies referred to are not totally similar, some regard absence as preceeding turnover (forerunner), others are based on organisations being characterised by high turnover and high absenteeism simultaneously. These methodological differences may be responsible for the contradictory results.

Herzberg<sup>54</sup> remarks that 'the problems of turnover and absenteeism may be discussed together since in some respects the small decision which is taken when the worker absents himself is a miniature of the important decision he makes when he quits the job.' Furthermore many behavioural scientists, Bass<sup>55</sup> and Bryant<sup>56</sup> view turnover, absenteeism and other forms of employee wastage such as accidents, and strikes as forms of withdrawal from the work situation due to dissatisfaction.

Generally speaking, absenteeism (reflecting attitudinal factors e.g. the odd day off without permission) and turnover are believed to arise from similar sources of dissatisfaction, as described in a recent review by Porter and Steers.<sup>57</sup> However, the decision to quit or go absent depends on a variety of situational factors.

One aspect of absenteeism that is crystal clear

is the immense cost of the phenomenon. The Industrial Society<sup>58</sup> compared the number of employee-days lost by absenteeism with the number of employee-days lost through industrial disputes in the U.K. in 1972.

	<u>No. of employee days lost</u>
Absence	400,000,000
Industrial disputes	25,000,000

The following set of factors are associated with the characteristics of Individual Employees.

#### 2.3.8 Sex and Marital Status

The research concerning the association between sex and turnover has produced very mixed results. Empirical studies by Behrand,<sup>35</sup> Harris,<sup>48</sup> Mackay et al<sup>59</sup> and reviews by Silcock,<sup>17</sup> Hedberg<sup>60</sup> and Young<sup>49</sup> have claimed female turnover to be greater than male turnover.

However, reviews by Cook,<sup>30</sup> March-Simon,<sup>33</sup> and research by Tollan,<sup>61</sup> Katzell et al<sup>62</sup> have found male turnover to be greater than female turnover.


To confuse the issue further, the following reviews find no significant difference between male and female turnover (Knowles,<sup>32</sup> Long,<sup>3</sup> Parnes,<sup>63</sup>)

Despite the conflicting evidence, Van der Merwe<sup>25</sup> has demonstrated the ambiguities and inaccuracies made on the basis of one correlate alone. He shows that there is no simple relationships between sex and turnover, owing to the interaction effects of the following variables - age, length of service and marital status. By using 'Survival of leavers curves' he was able to

demonstrate that married males were the most stable group of employees and he found length of service and age to be closely related to marital status. Marital status was speculated to be the dominant factor.

For female employees, marital status again was speculated to be the dominant factor in determining stability because of a weak relationship between service and age, and turnover. Young single females were found to be the most stable group, followed by older married females and young married females respectively. Thus the significance of controls, especially for age and marital status, in examining the relationship between sex and turnover has been demonstrated.

Van der Merwe's<sup>25</sup> findings may be summarised as follows:

Married male		decrease in stability
Young single females		
Older married females		
Young single males		
Young married females		

In attempting to explain his observations, he considers the different orientations to work of the five groups, and speculates that in the case of young married females domestic and work roles are in greatest conflict.

In a recent publication, Barnes and Jones,<sup>64</sup>

elucidate the relationship between sex and turnover, by distinguishing between male and female 'quitting to exit the labour force' and 'quitting to move to another job'.

Their results may be summarised as follows:-

- 1) Quitting to exit the labour force
  - females greater than males
- 2) Quitting to move to another firm
  - males greater than females
- 3) Total female quitting is greater than male quitting
- 4) Male quitting is more variable
- 5) The relationships of quit level and variability to age and earnings are different for men and women.

#### Length of Service

It is generally accepted that during a given period of time the greatest proportion of leavers are most likely to be found in the low length of service groups, and the number of leavers decreases as length of service increases. Reviews by Cook,<sup>30</sup> Silcock,<sup>17</sup> Knowles,<sup>32</sup> Lefkowitz<sup>43</sup> and empirical evidence by Young,<sup>49</sup> Rice et al.,<sup>28</sup> Harris,<sup>48</sup> Parnes,<sup>63</sup> and Van der Metwe,<sup>25</sup> all provide support and confirmation of a strong negative relationship between length of service and employee turnover.

In his study, Young<sup>49</sup> claims that ... 'There is one criterion, we find, which outweighs all others as a predictor of staff loss in every one of the labour classes we have studied, it is tenure.'

Length of service is also related to age and skill (Brissenden and Frankel<sup>12</sup>), and status (Bucklow<sup>46</sup>) and these factors may in turn influence turnover. However, length of service, age and skill are consistent with one another, in that the same person is likely to be young, low on seniority and unskilled, and the converse is also likely to be true. The main problem is to determine which of the interrelated factors is dominant in any given situation. Price<sup>6</sup> highlights the problem of spuriousness in his review and Bowey<sup>66</sup> uses partial correlation techniques to 'sort out' the factors.

Tavernier<sup>67</sup> speculates that 'a man of 50 is as liable to leave in his third year as a man of 25 in the same circumstances' suggesting that length of service completely overrides age as a determinant of employee turnover.

#### Age

The majority of empirical evidence supports a strong negative relationship between age and turnover (Long,<sup>13</sup> Parnes,<sup>63</sup> Behrend,<sup>35</sup> Ross,<sup>65</sup> Van der Merwe,<sup>25</sup> Bowey<sup>66</sup>). Further support is provided by the following reviews (Silcock,<sup>17</sup> Knowles,<sup>32</sup> March-Simon,<sup>33</sup> and Price<sup>6</sup>). The empirical data has been derived from a variety of organisations, from family service agencies to manufacturing companies.

Despite Tavernier<sup>67</sup> comments, Van der Merwe<sup>25</sup> using his 'Survival of Leavers Curves' concluded that 'ceteris paribus, the older worker is likely to be a more stable employee, irrespective of their length of service in a particular group'.

Intelligence and Aptitude Tests, Interest Inventories,  
Personality Tests, Job Satisfaction Inventories and  
Biographical Data

Schuh<sup>70</sup> has reviewed the research on the predictability of employee tenure based on the above criteria, and makes the following conclusions:

Intelligence and Aptitude Tests

No consistent relationship has been observed between scores on intelligence and aptitude tests to tenure criteria. Brown and Ghiselli<sup>71</sup> found that employees with average scores tended to remain longer than employees scoring either very high or very low on the tests: However, Kreidt and Gadel<sup>72</sup> have successfully predicted turnover among clerical employees from test scores on a clerical speed test.

Interest Inventories

Although no consistent relationship was observed, some interest inventories (Kuder Preference Record<sup>70</sup>) are better predictors of length of service than intelligence or aptitude tests.

Personality Tests

Again, no consistent relationship was found, and it was concluded that their use was no worse than intelligence or aptitude tests.

Job Satisfaction Inventories

Although there is little empirical evidence, it appears that they may have possibilities as potential predictors.

Biographical Data (Personal History Data)

The research indicates that Biographical Data is probably one of the best available predictors of employee turnover, in that out of 21 studies, only two failed to find at least one biographical variable related to tenure.

However, there are many inherent problems in using biographical information as a predictor of tenure.

Lefkowitz<sup>43</sup> in his extensive literature review, lists them as follows:

- 1) Personnel history data show little generalisability
- 2) Many items related to employee turnover in one situation are not related in others.
- 3) Items are often differentially predictive for different job categories within the same organisation (A study by Fitzpatrick and Cullen<sup>73</sup> is quoted)
- 4) Biographical predictors show little temporal stability, as shown in decreased predictability which occurs with successive replications with the same application blank items.

Lefkowitz<sup>43</sup> continues to conclude that 'in general, personal history items have not yielded any consistent description of those employees who are likely to terminate their employ, nor any rationale for the causes involved'. This point is further endorsed by Ronan<sup>74</sup> and states that 'from the point of view of strict prediction such studies are important but they leave something to be desired in the way of explaining turnover behaviour'.

Price's<sup>6</sup> comprehensive review of turnover literature may be summarised by the chart overleaf (see figure 4) where he tentatively attempts to rank the correlates of turnover according to their relative powers of predicting turnover. This is based on the number of modifications, reviews and empirical studies supporting any one correlate.

In his concluding remarks he highlights one of the most important issues associated with erroneous attempts to develop a theory describing turnover. This is the problem of spuriousness of the correlates (cf Van der Merwe<sup>25</sup>). Price<sup>6</sup> emphasises that spuriousness should be more fully examined; by running controls within a single variable, e.g. his correlate 'low seniority members have high rates of turnover than high seniority members'. If a relationship is found for the entire sample, then tests should be conducted for selected categories within the sample (e.g. use age groups as a control). Each of these categories is a control and is selected because of its possible association with seniority. Finally, if the relationship remains significantly unchanged, then the correlate is empirically sound, and it can be said that seniority itself is associated with turnover.

<sup>68</sup>  
Price further concludes that more effort should be made to rank correlates in terms of their ability to predict turnover, providing adequate controls are introduced and data collection covers both manual and non-manual employees. Finally, verification of any theory

FIGURE 4: TABLE ILLUSTRATING PRICES 'RANKINGS' OF THE CORRELATES OF TURNOVER

CORRELATE	NO. OF SUPPORTING CODIFICATIONS	NO. OF SUPPORTING REVIEWS	NO. OF SUPPORTING EMPIRICAL STUDIES	NO. OF CONTRADICTIONARY REPORTS	BASIC UNIT OF ANALYSIS
1) Low seniority members have higher rates of turnover than high seniority members.	7	7	6	0	Individual
2) Younger members have higher rates of turnover than older members	6	8	6	1	Individual
3) Unskilled blue collar members have higher rates of turnover than skilled blue-collar members.	5	5	5	1	Individual
4) Periods of high employment have higher rates of turnover than periods of low employment	7	5	4	0	Society
5) Blue-collar members have higher rate of turnover than white-collar members.	1	1	2	1	Individual
6) Higher educated members have higher rates of turnover than lower educated members.	0	3	3	0	Individual
7) Organisations located in Urban areas have higher rates of turnover than organisations located in rural areas.	2	1	4	2	Organisation
8) The U.S.A. has higher rates of turnover than other Western Countries.	1	2	0	0	Countries
9) Non-administrators have higher rates of turnover than administrators.	0	0	2	0	Individual
10) Lower income members have higher rates of turnover than higher income members.	0	0	1	0	Individual
11) Non-government organisations have higher rates of turnover than Government organisations.	0	3	1	0	Organisation

of turnover should be based on specific organisations, as this will provide the only rigorous test.

### Summary

The research concerned with the correlates of turnover have been carefully examined. The two most often quoted correlates of turnover are:

- 1) Length of Service
- 2) Level of unemployment

The problem of spuriousness of correlates has received attention from Price, Van der Merwe and IMS who have developed methods whereby this problem can to some extent be overcome.

## 2.4 THE DETERMINANTS OF EMPLOYEE TURNOVER

Unlike the correlates, which are concerned only with statements of association between two variables, determinants are concerned with finding the apparent cause(s) of terminations. Determinants are largely theoretical and analytic in nature and may contain more than two analytic variables. They are concerned with the 'dynamics' of the situation, in proposing statements of causation.

### 2.4.1 Job Satisfaction

Job satisfaction has been defined by Price<sup>69</sup> as 'The degree to which members of a social system have a positive effective orientation towards membership in the system'. Satisfaction is a social psychological determinant of turnover and includes such dimensions as job content, pay, supervision,

promotion, relationships with co-workers and morale. Owing to the diversification of dimensions of job satisfaction, there are inherent problems in attempting to qualify it as a common basis. However, the reviews, studies and theoretical work of Herzberg,<sup>54</sup> Lefkowitz,<sup>43</sup> Porter and Steers,<sup>57</sup> Vroom,<sup>75</sup> Price,<sup>76</sup> March-Simon,<sup>33</sup> Ross and Zander,<sup>77</sup> all support the view that overall job satisfaction influences employee turnover. March-Simon,<sup>33</sup> suggest that ... 'The greater the individual's satisfaction with the job, the less the perceived desirability of movement.'

Price<sup>69</sup> suggests that job satisfaction may be conceptualised in cost-benefit terms. Job satisfactions being benefits and job dissatisfactions being costs, the greater the net balance of benefits over costs the greater the likelihood of an individual remaining with the organisation.

Herzberg<sup>78</sup> in his motivation-hygiene theory of job attitudes examines the determinants of job satisfaction and job dissatisfaction. From his interviews the following dimensions of job satisfaction and job dissatisfaction were observed as being the strongest determinants.

Job Satisfaction

- a) Achievement
- b) Recognition
- c) Work itself
- d) Responsibility
- e) Advancement

Job Dissatisfaction

- a) Company policy and administration
- b) Supervision
- c) Interpersonal relations
- d) Salary
- e) Working conditions

The job satisfaction determinants have been described as job content factors, or motivators; whilst the job dissatisfaction determinants are largely concerned with job context, and are called hygiene or maintenance factors.

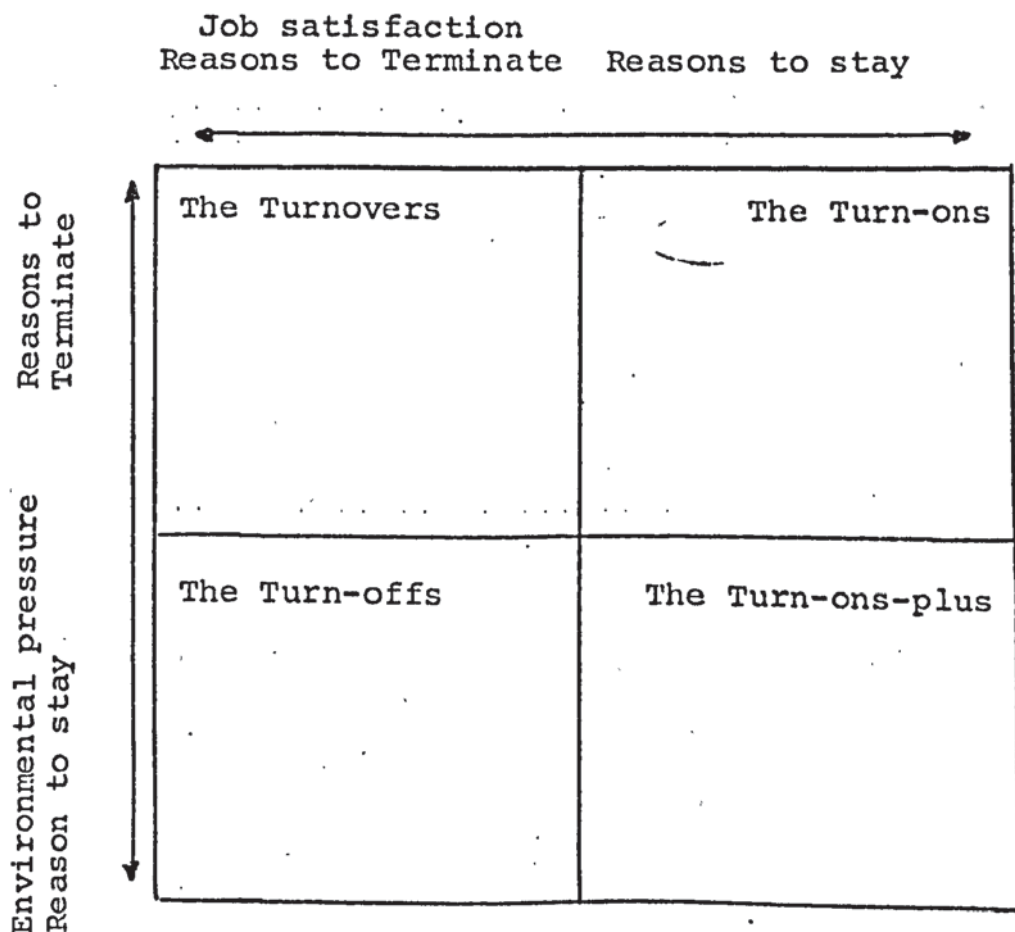
Since job satisfaction has been consistently related to turnover, then it is not surprising that much research on determining the causes of employee turnover has centred on the determinants of job satisfaction and job dissatisfaction. Perhaps the most pertinent comment is made by Lefkowitz<sup>43</sup> who summarises that 'while the observed consistency of the job satisfaction-turnover relationship is remarkable, studies differ with respect to the specific sources of dissatisfaction held responsible.'

To add a further complication to the issue of job satisfaction empirical studies by Katzell et al.<sup>62</sup> and Talacchi<sup>79</sup> have found no relationship between satisfaction and turnover. Moreover the studies by Kerr et al.,<sup>45</sup> Weitz and Nuckols,<sup>80</sup> and Lafitte,<sup>81</sup> have indicated that dissatisfaction may produce turnover but it

is by no means a sufficient cause for people to leave their jobs. This observation is highlighted in a recent publication by Flowers and Hughes,<sup>82</sup> who pose the question 'Why Employees Stay'. In developing their theoretical model they divide the factors affecting the force of separation into job satisfaction and environmental factors (both internal and external to the organisation). Their graphical representation is shown in figure 5 below. Flower and Hughes<sup>82</sup> identify four groups of employee from this representation.

- 1) Turn-offs - no satisfaction but environmental reasons for staying, i.e. they will stay because they 'have to'.
- 2) Turnovers - no satisfaction or environmental reasons for staying, i.e. they will leave.
- 3) Turn-ons - satisfaction but no environmental reasons for staying

Figure 5: Flowers and Hughes representation of job satisfaction and environmental factors.



- (4) Turn-ons-plus - satisfaction and environmental reasons for staying, i.e. they will stay because they 'want to' and 'have to'.

For example a Turned-off employee might have no satisfaction in job with respect to job content, achievement, and advancement, but he feels he must stay because of pension rights, inability to get another job elsewhere, and disruption of family life.

Concluding, Flowers and Hughes<sup>82</sup> emphasize quite strongly ... 'stop finding out why people leave and start investing resources into the positive management of retention. Managers must reinforce the right reasons for staying and avoid reinforcing the wrong reasons ...' and 'understand and respect individuals with values that differ from their own.'

The distinction between employees 'wanting to' and 'having to' stay, and its implications has been noted by Herzberg et al, and Bryant.<sup>56</sup>

They have suggested that job dissatisfaction may not only lead to turnover but can manifest itself in such industrial phenomena as absenteeism, major and minor grievances, slow down, strikes, industrial accidents, bad time-keeping, low productivity and poor quality.

#### 2.4.2 Wages

The most often stated reason for strikes and industrial unrest is employee dissatisfaction with present wage rates. This, coupled with the generally accepted view that industrial managers over-estimate

the importance of wages to the employee, indicates that money is the prime motivator of most employees. However, empirical evidence by Clarke<sup>51</sup> and Van der Merwe<sup>25</sup> provide evidence to the contrary.

In a study of semi-skilled and unskilled non-European male employees in the South African leather industry, Van der Merwe<sup>25</sup> found length of service, age and wages to be inter-correlated variables. He concludes by saying that 'the high wage employee at all length of service categories is less likely to separate than the low wage employee but whether wages or age is the determining variable, independent of length of service must remain a question for further research.' In view of the strong correlation between wages and age, he warns against the use of unsupported employee turnover figures based on wages alone.

Industrial Psychologists, McGregor,<sup>83</sup> Maslow<sup>84</sup> and Herzberg<sup>78</sup> do not regard wages as prime motivators in the work situation. However, it is agreed that a minimum level of subsistence must be provided, once this level or threshold is reached, then wages no longer assume positive motivation. Lefkowitz<sup>43</sup> examines this view in more detail when referring to a study by Appel and Fineberg<sup>85</sup> who found that those most likely to leave were those based on socioeconomic terms, most in need of money.

Van der Merwe<sup>25</sup> findings certainly bear out the theories of the Industrial Psychologists, as exhibited

in these remarks 'The level of wages is not high enough to compensate for the lack of satisfactions in the work itself, nor high enough to enable him effectively to seek satisfactions entirely outside the job situation. The formation of group ties and interactions within the group will, therefore, be relatively more important, and wages are likely to be of secondary importance in such a situation.'

However, in sharp contrast to the above findings, an investigation by Goldthorpe<sup>86</sup> provided evidence to suggest that among a group of skilled and semi-skilled manual employees in the U.K., wages were the predominant motivator. Orientation to work was purely instrumental and need satisfactions were sought not in the work situation but in the social setting of the family and home. This materialistic approach to work, particularly with respect to European and American employees is noted by Lefkowitz<sup>87</sup> who proposes that 'Because of the acculturation process which, in our society, we learn to "place a value" on various aspects of our lives. We become so conditioned to the view that everything can be priced that we will even accept unsatisfactory conditions if we are financially compensated for them. In industry, this often takes the form of wage demands by employees. The actual sources of discontent often are not the wages themselves, but some other factor(s) for which compensation is being sought.'

The foregoing illustrates that the effect of wages on turnover is not clear-cut. In spite of this

many theoretical and empirical studies, Bowey,<sup>66</sup> Burton-Parker,<sup>88</sup> Parker and Burton,<sup>89</sup> Stoikov and Raimon,<sup>90</sup> and Lawler<sup>91</sup> include wages as a determinant of turnover. However, they employ different measures of wages in their conceptualisations. Some of these measures are listed below.

Bowey<sup>66</sup>

In her push/pull model of employee turnover, as a measure of wages she used 'the average earnings of employees as a percentage of the average earnings paid for similar work in other firms in the local labour market'.

Burton-Parker<sup>88</sup>

In their 'Incentives to Quit' theory they use inter-industry wage differentials as a measure of the attractiveness of other firms.

Stoikov and Raimon<sup>90</sup>

Their theory of "The desirability of Quitting or Staying" contains two measures relevant to wages.

- (a) Gross average annual earnings
- (b) Magnitude of recent wage changes

Furthermore Minor<sup>92</sup> and Knowles<sup>32</sup> found that when the expected wages were higher than those actually received, this was a better predictor of turnover than the absolute amount of the wage itself. Lawler<sup>91</sup> argues that employees subjectively compare their pay with the amount received by other employees in similar positions in the company. If it is found that the other employees receive more pay, then employees making the comparisons

perceive themselves to be lowly paid, irrespective of the absolute amount. The converse is also true.

The main conclusion to be drawn from the literature is that the level of financial compensation does quite strongly influence an employee's decision to leave or stay. However, its effect must be singled out from other intercorrelated variables. Moreover, the employee type and his particular orientation to work should be investigated before any final inferences are made. In their extensive review of the literature regarding the importance of pay, Porter and Steers<sup>57</sup> conclude ... '... These studies fairly consistently pointed out the importance of perceived equity and met expectations as important forces in such a decision. The size of the pay rise ... while important in and of themselves, is, in addition weighed by an employee in the light of his expectation, given his level of self-perceived contribution. The resulting determination of his degree of satisfaction or dissatisfaction then apparently inputs in his decision to remain or search for preferable job alternatives.'

#### 2.4.3 Promotion Opportunities

The importance of promotion opportunities could be considered together with pay, as a promotion usually incorporates an increase in pay. However, promotion opportunities are usually limited to a 'select' portion of the work force. For example Telly, French and Scott<sup>93</sup> found no relationship between turnover and perceived inequity of promotion, among hourly production workers.

They believed that as the jobs were highly unionised there was little opportunity for promotion, because of the union contract whereby promotional procedures are based essentially on seniority. Porter and Steers<sup>57</sup> quote a study by Dunnette et al who found that the turnover of young managers was inversely related to meet expectations concerning the rate of promotion.

Gellerman<sup>94</sup> in his paper entitled 'In praise of those who leave' has predicted that mid-career turnover due to the lack of promotion opportunities will begin to accellerate, because 'the 35-45 age group of the future will have a higher percentage of university graduates than todays' (implying inherently unrealistic expectations of promotion among such employees). 'Also many of the great growth companies of the 1950s and 1960s are maturing, and past the point of inflection on their growth curves. Promotion opportunities will dry up, disappointing many ambitious middle managers.'

In conclusion, the need for promotion opportunities may be considered in terms of a need for recognition and growth, and for increased remuneration. The whole concept of promotion is very subjective and dissatisfaction with the lack of it may be the result from a number of reasons.

- (a) Unrealistic expectations on the part of the individual.
- (b) Promotion blockages as a result of a 'top-heavy' work force.
- (c) Organisational Contraction.
- (d) Organisations over-selling themselves in terms of available prospects.

#### 2.4.4 Determinants of the 'Induction Crisis' \*

One of the most strongly supported correlates of turnover was seen to be the fact that 'the turnover of short-service employees is considerably greater than that of long-service employees'. Much research has been conducted in an attempt to determine why this is so.

The following avenues have been explored:

(a) Mismatch between job expectations and job reality

Lefkowitz<sup>43</sup> quotes some studies by the Life Insurance Agency Management Association<sup>95</sup>, who found that those employees who left felt that the management had presented an inaccurate picture of the job at the selection interview. By providing a realistic description of the job in the form of a booklet, turnover was drastically reduced. In one of his suggested methods of controlling turnover, Webber<sup>8</sup> proposes that honest employee recruitment and selection procedures are vital, in communicating the good and bad aspects of a job to a prospective employee, ... 'Instead of being shocked, he may be pleasantly surprised.' A specific example of job expectations not matching job reality as a being a cause of employee turnover has been reported in studies by Minor<sup>92</sup> and Knowles<sup>32</sup>. They noted that the failure to achieve an expected earnings level was a major cause of turnover. Weitz and Mickols,<sup>80</sup> and Weitz<sup>96</sup> provide further evidence of this finding.

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\* See the theoretical conceptualisations of turnover by Rice, Hill and Trist.(28) Page 27; where the 'Induction Crisis' refers to the heavy 'losses' of short-service employees.

(b) Inadequate Induction, Training and Orientation

Van der Merwe<sup>25</sup> found a strong negative relationship between length of service and turnover for male semi-skilled and unskilled employees. He speculates that these findings provide support for his assumption that group cohesiveness (proper induction and integration into the work group) is a major determinant in employee turnover. Since ... 'it can be expected that the longer the contact with the group, the greater the chance that the employee will become integrated with it' as 'a major need satisfier is likely to be that of belonging to a cohesive and rewarding group, and if this is not satisfied, the employee may likely fail to adjust to the situation and will therefore more readily withdraw from it'. (Van der Merwe<sup>9</sup> and Millar)

Some writers (Bucklow<sup>46</sup> and Poidevin<sup>97</sup>) believe that short-service turnover is caused by the inability to perform the job because of inadequate training and 'orientation of the new recruit.' They emphasise that more care in these areas is vital in overcoming the inherent stresses and strains in starting a new job. Furthermore this problem of orientation in the face of new surroundings is not limited to new recruits. Coch and French<sup>98</sup> find that long-tenure employees transferred to other positions within the same organisation turnover one and a half times as rapidly as those not transferred. Lefkowitz<sup>43</sup> quote four studies where revised training programs have resulted in significant decreases in employee turnover.

#### 2.4.5 Physical Working Conditions

The majority of research indicates that too much emphasis has been placed on the maintenance of acceptable levels of turnover by the provision of good working conditions. Poidevin<sup>97</sup> confirms this view in noting that poor working conditions are rarely quoted as a primary reason for leaving. However, Long<sup>13</sup> notes ... 'Good working conditions appear to be conducive towards a low level of turnover, but the results of investigations make it abundantly clear that far from being a guarantee of low turnover, turnover may be extremely low even when the work appears to be hard and unpleasant.' Brown<sup>99</sup> illustrates this point with reference to a basement slaughterhouse in London.

#### 2.4.6 Supervision and Management

Several investigations have found that dissatisfaction with the way employees are treated by supervisors and managers, is a major reason for leaving. For example, a study by Fleishman and Harris<sup>100</sup> examined the relationship between turnover and types of foreman leadership. They found that greatest turnover occurred when the foremen exercised little consideration and a high degree of authoritarianism. The relationship was not linear, as foremen who showed a high degree of consideration were able to become more and more authoritarian and still maintain a fairly low level of turnover; Fleishman and Harris believed that authoritarianism exercised in a climate of high consideration was perceived by subordinates as being 'helpful and supportive' rather than threatening or

restrictive'.

A recent study by Dunnette et al.<sup>101</sup> has investigated the reasons and possible remedies for excessive turnover of graduates entering industry. They found that supervisory and management practices such as:-

- (a) 'breaking the new man in' - by giving him simple childish tasks and/or
- (b) 'proving to the new man that he really isn't so smart after all' - by giving him impossible tasks.

severely frustrated the graduates' hopes and expectations to use their ability. This promoted feelings of discontent, boredom and little hope of advancement, which ultimately led to turnover. Using an 'Individual Motivational Index' the authors found a strong correlation between early job challenge and subsequent effectiveness. They go on to conclude that 'Graduates placed in job situations under managers who successfully utilise and challenge rather than delimit or stifle their abilities, tend to become more effective performers over the long run, than men who are merely either 'put up with' or actually 'put down' in their early jobs.

A specific aspect of supervisory style was investigated by Ross and Zander<sup>77</sup> regarding recognition and feedback. They examined the need and fulfillment of recognition and feedback among a sample of leavers and stayers. Although they found no difference in the 'need' scores of the two groups, a marked difference was detected between the two groups regarding the perceived fulfillment of those needs. In a predictive study by Hulin<sup>102</sup> among clerical women, leavers were much less

satisfied with supervisory treatment than stayers.

The importance of managerial experience in the placement of new recruits was examined by Porter and Steers<sup>37</sup> in their literature review. This aspect was based on an article by Bassett<sup>103</sup> who found turnover to be highest for employees under supervisors with less than 5 years managerial experience.

Webber,<sup>8</sup> a management consultant, has found that certain managerial attitudes and incompetence to be a major cause of employee turnover in fifteen years experience. He comments on the disastrous effects of management transmitting 'the attitude that his employees are part of the machinery to get the job done or that they are non-persons'.

Generally speaking the reviewed literature describes the effects on turnover of various managerial styles and attitudes. Price<sup>74</sup> reviews these effects under the more general headings of 'Communication' and 'Centralisation' (participation in decision-making) in his examination of the determinants of employee turnover.

#### 2.4.7 Specific aspects of job content in relation to employee needs

The general theme to be examined in this section is the fulfilment of the individual's needs by the intrinsic aspects of the job itself. The following aspects will be examined:- self-realisation and role clarity.

##### (a) Self-realisation

Lefkowitz<sup>43</sup> defines self-realisation as - 'the extent to which the individual satisfies his needs for achievement,

responsibility, autonomy, personal growth and advancement'. Empirical evidence rendered by Ross and Zander,<sup>77</sup> compared leavers and stayers with similar expectations regarding the amount of job autonomy required, those who left reported significantly less 'actual' job autonomy than the stayers. Further evidence by Wickert<sup>104</sup> and Tannerbaum and Massarich<sup>105</sup> suggest that the difference between high and low turnover groups was that low turnover groups were able to participate in decisions affecting the day-to-day running of the organisation.

(b) Role clarity

The significance of presenting a clear and accurate picture of the duties to be performed on the job at the selection interview has been referred to before in a study by Weitz.<sup>96</sup>

The consensus of opinion of most researchers in this area is that employees will more readily leave a job if it does not satisfy their own individual needs. Therefore much emphasis has been directed towards careful screening procedures at selection interviews in order to ascertain an individuals needs and relate these to the specific job requirements. This will hopefully provide more congruence between job experience and individual expectations. Furthermore some investigations have examined the value of changing the nature of the job to meet the needs of 'current' employees, e.g. job rotation, job enrichment and job enlargement. However Hulin and Blood<sup>106</sup> believe that merely changing aspects of the job may not result in a reduction of turnover, because of

other intervening determinants.

#### 2.4.8 Organisational Size

Most reviews (Knowles,<sup>32</sup> Moffatt and Hill,<sup>34</sup> Cook,<sup>30</sup> Silcock,<sup>17</sup> Long<sup>13</sup>) and empirical studies by (Russell,<sup>42</sup> Talacchi,<sup>79</sup> Greystoke,<sup>39</sup> Van der Merwe,<sup>25</sup> Ingham<sup>107</sup>) indicate no consistent relationship between organisational size and employee turnover. However, Ingham<sup>107</sup> did find a strong positive relationship between absenteeism and size. The explanation offered is that he believes that absenteeism is a function of employee identification with an organisation, which decreases as size increases due to the gradual disappearance of personal relationships. Furthermore, Greystoke<sup>39</sup> argued that the advantage of membership to large and small companies cancel each other out, i.e. the prestige and personnel management services of large companies cancel out the existence of face-to-face relationships in a smaller company. Another explanation of the lack of a consistent relationship was proposed by March-Simon,<sup>33</sup> who consider that a large amount of intra-organisational transfer in a large company would constitute turnover in a smaller company.

#### Summary

The following determinants of employee turnover have been reviewed in this section.

- (i) Job satisfaction
- (ii) Wages
- (iii) Promotion opportunities
- (iv) Determinants of the 'Induction Crisis'

- a) Midmatch between job expectation and job reality
- b) Inadequate induction, training and orientation
- (v) Physical working conditions
- (vi) Supervision and management
- (vii) Specific aspects of job content in relation to employees needs
  - a) Self-realisation
  - b) Role-clarity
- (viii) Organisational size

It is clear from the diversity of determinants that the process of employee turnover is a very complicated issue. Some researchers have attempted to collate the findings of past investigations in producing conceptualisations, theories and models of employee turnover. The most significant contributions will be examined in the following section.

## 2.5 Conceptualisations, theories and Models of Employee Turnover

### 2.5.1 Rice, Hill and Trist<sup>28</sup>

This was the first of a series of papers reporting on research carried out into employee turnover in one of the factories of the Glacier Metal Company entitled 'The Representation of Labour Turnover as a Social Process'.

The conditions prevailing during the investigation were as follows:

- a) Full employment - majority of terminations were voluntary
- b) The nature of the work contract was short-term indefinitely renewable (weekly)
- c) All manual employee skill levels in the light engineering industry

Employee turnover rates were monitored at one of the factories of the Glacier Metal Company over a period of six years, and at another factory 'X' for control purposes. The observed variability in turnover rates was believed to be the result of:

- (i) Short-term variations directly attributable to the nature of the work contract
- (ii) Longer-term variations caused by gross social and economic forces

Furthermore, having accounted for the variation, there remained a level of turnover which was relatively constant for the factory in which it occurred. These findings led the researchers to introduce the concept of 'labour turnover as a process which is a function of the institution, and which has a particular form in a given factory.' Also introduced in a subsequent paper by Hill<sup>108</sup> was the consideration of employee turnover as a 'Quasi-stationary' process (self-regulating mechanism).

To examine employee turnover as an institutional process, the total process from engagement to termination was represented by a frequency distribution of all leavers from a specific entrant group, by length of service bands. The resulting distribution was found to be generally smooth, with negative acceleration, susceptible to mathematical analysis.\* This provided further support for the concept of a constant institutional process.

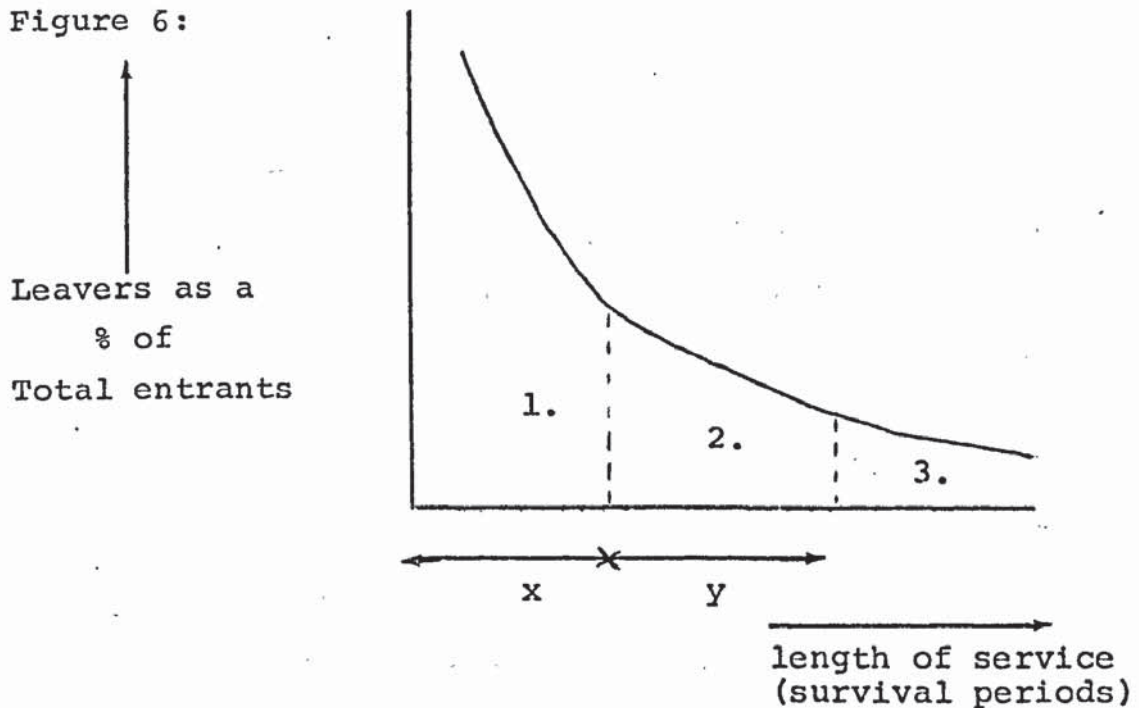
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\* the authors have shown that the general shape of the curve may be approximated by a hyperbolic function of the form

$$Y = bx^{-c}$$

Three principal employment phases were identifiable from the distribution, as indicated in figure 6 below.

Figure 6:



x = length of induction crisis (months)

y = length of differential transit (months)

1. Induction Crisis - the period during which a number of terminations result from the initial interaction between the entrant group and the company.
2. Differential transit - the period during which those who survived the induction crisis, learn more about the company and find out whether they have a place in it.
3. Settled connection - the period during which those who have survived the first two periods assume the identity of quasi-permanent employees.

This graphical representation illustrates the inadequacies of previous theories of employee turnover, which only recognised two groups of employees.

a) Marginal (corresponding to the 'induction crisis') and: b) Hard-core (corresponding to the 'settled connected') thus ignoring the differential transit period.

Turnover at the Glacier factory and factory 'X' were compared using their survival distributions, and the differences between them suggested that the type of survival pattern of the turnover process may reflect the different institutional structures and conditions of attachment and separation.

In a supplementary paper by Rice,<sup>109</sup> departmental employee turnover was examined within the Glacier Company. The results of this study highlighted the problems of induction of the transferred employee. In his concluding remarks he states that ... 'the training and induction to a new department of those transferred deserves at least equal attention to that devoted to the training and induction of new-comers to the factory' and 'it would appear that induction to a particular department may at least have as much relevance to labour turnover as induction to the factory as a whole'. (cf: Section on Correlates of Employee Turnover - Departmental differences and reference to Coch and French).

Further details of the investigation into employee turnover in the Glacier Metal Company are reported in articles by Rice,<sup>109</sup> Trist<sup>44</sup> and Rice<sup>110</sup>).

#### 2.5.2 Bryant<sup>56</sup> - Tavistock Institute of Human Relations

In a recent paper Bryant<sup>56</sup> examines 'The withdrawal

from work hypothesis'. The most dramatic form of 'withdrawal' being the act of leaving. Other forms of withdrawal from the work situation are listed below:

- a) Industrial 'accidents'
- b) Bad time-keeping
- c) Low productivity (restriction of output)
- d) Poor quality (or bad service)
- e) Strikes and go-slows (collective forms of withdrawal which may be either official or unofficial)

Bryant examines two schools of thought regarding the causes of these forms of withdrawal.

1) These phenomena are parallel indicators of poor industrial morale. i.e. one type of withdrawal may be associated with other types of withdrawal in the same organisation.

2) All these forms represent a continua of withdrawal as alternative means to the same end. i.e. withdrawal from an unacceptable work situation for any one or all of a variety of reasons, e.g. stress, frustration, conflict, boredom and monotony. The particular form of chosen withdrawal depends on the organisational climate and personal characteristics of the employees. Under this conceptualisation different forms of withdrawal may well be either positively or negatively correlated depending on the prevailing climate. e.g. In a situation of high unemployment, in which a dissatisfied employee has little chance of securing another job, the only 'break' from the work situation

open to him may be taking the odd day off, and/or arriving late for work.

Bryant<sup>56</sup> examines some specific examples of 'withdrawal from work' behaviour from a variety of industries. His first example is based on the effect of a change in technology in the coal-mining industry which results in very poor morale. The form of escape used in this situation was widespread absenteeism, which became informally 'permissible', and Bryant<sup>56</sup> continues to say that ... 'both the occasions and amount of 'permissible' absenteeism were regulated informally as part of the 'culture' of the work group.'

He also refers to the investigation into the Glacier Metal Company, in which it was proposed that turnover was only one of a number of forms of withdrawal, either temporary or permanent. These types of escape could be best considered as alternatives and not necessarily parallel indicators of dissatisfaction.

Further examples of withdrawal relating to retail delivery roundsmen, bus drivers, and ammunition workers are described in his paper.

The author concludes that these forms of withdrawal are manifestations of employee dissatisfaction, the causes of which must be identified and remedies found. He believes that most dissatisfaction arises from the conflict between the individual needs and organisational requirements. A socio-technical approach is offered as a solution, in which the need for job design to take

into account both the social and technical factors is emphasised. Moreover this approach insists on joint optimisation, rather than maximising the social and technical aspects separately.

### 2.5.3 Price<sup>74</sup>

Price's theory of turnover which is based on a very comprehensive literature survey may be summarised as follows:

He proposed four determinants of turnover

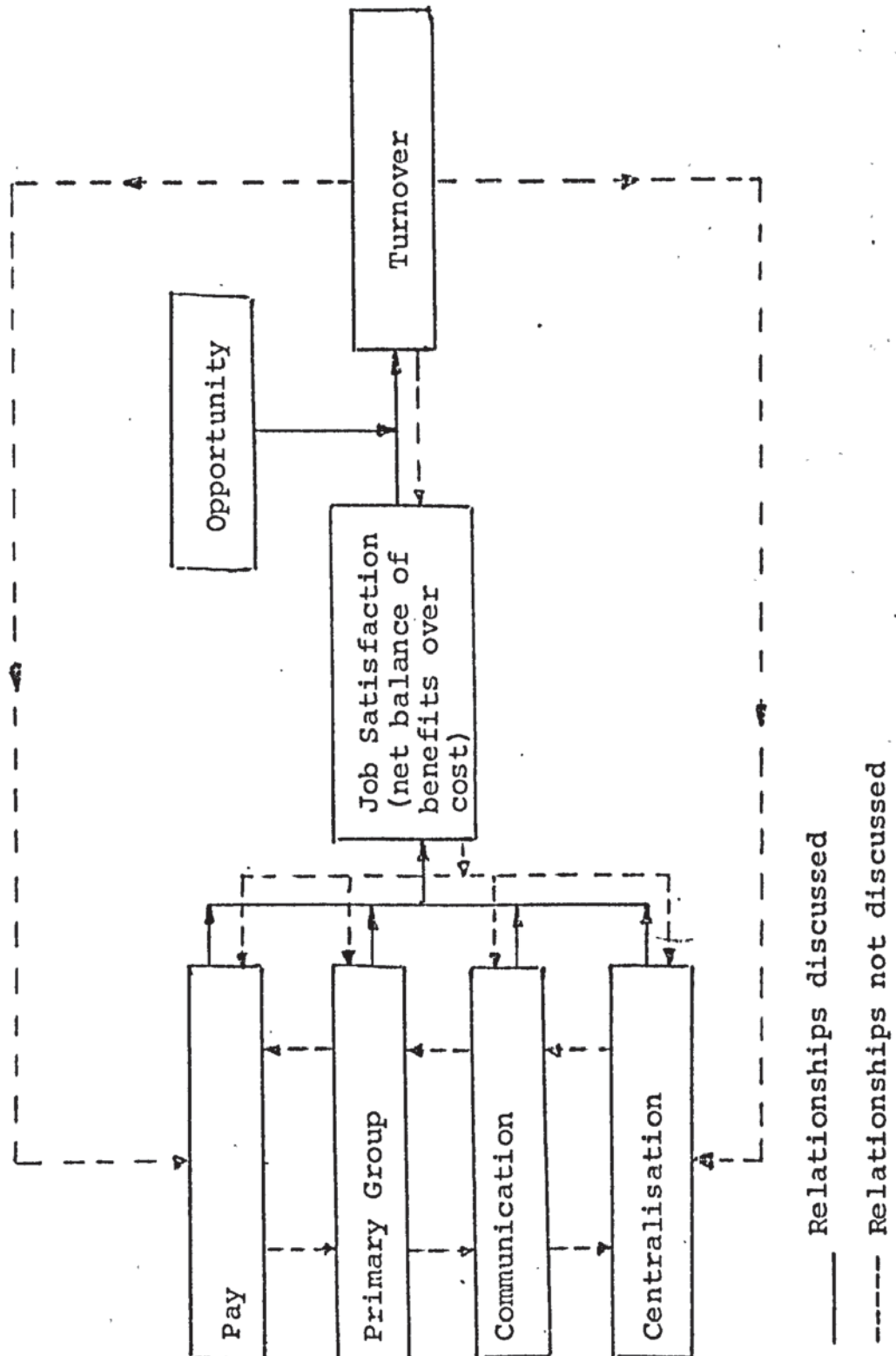
1. If pay is highly important and if the amount of pay received is perceived as relatively high, then successively higher amounts of pay will likely produce successively lower amounts of turnover.
2. Successively higher amounts of participation in primary groups will produce successively lower amounts of turnover.
3. Successively higher amounts of communication will likely produce successively lower amounts of turnover.
4. Successively higher amounts of centralisation will likely produce successively higher amounts of turnover.

There are two intervening variables namely:-

- (i) Job satisfaction
- (ii) Opportunity

The relationships between the determinants and intervening variables is illustrated in Figure 7.

Figure 7: Price - Towards a Theory of Turnover



2.5.4 March-Simon<sup>33</sup>

Perhaps one of the most widely used and adapted models of employee turnover was developed by March-Simon. The authors use the criterion of turnover as a measure of employee participation, and the general postulate of the model is stated as ... increases in the balance of inducement utilities (i.e. what the employee received from the organisation) over contribution utilities (i.e. what the employee contributes to the organisation) decrease the propensity of the individual participant to leave the organisation, whereas decreases in that balance have an opposite effect.'

Basically the inducement-contributions balance is composed of two major components:

- a) The perceived desirability of leaving the organisation
- b) The perceived ease of movement from the organisation

The authors assume that absenteeism and turnover are manifestations of dissatisfaction and hence part a) above holds for both forms of withdrawal. Differences between the two forms are considered to stem from the consequences of the alternative forms of withdrawal. For example, the perceived ease of leaving the organisation depends on totally different factors than 'taking the odd day off' type of absence.

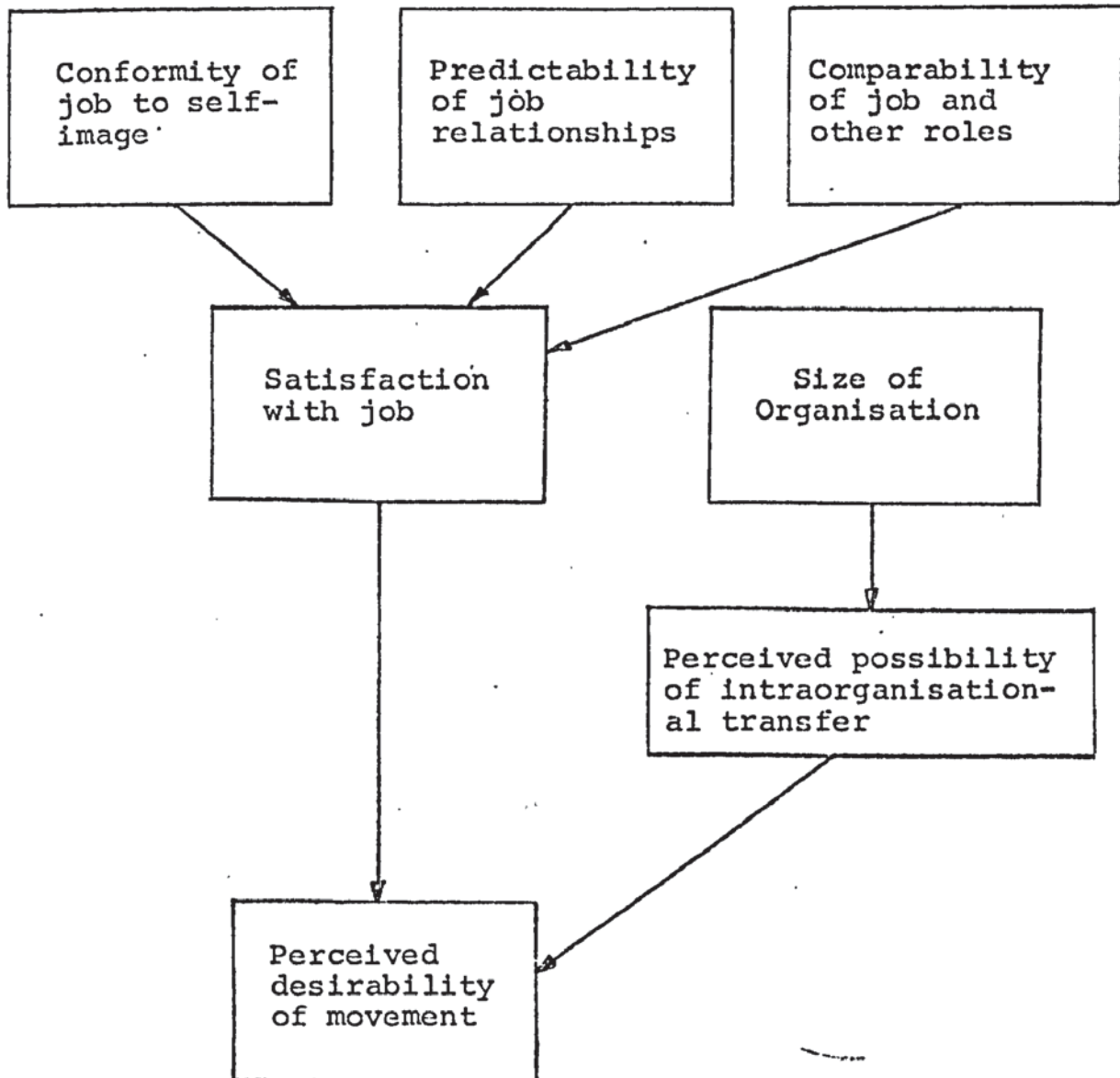
Considering each part of the model in turn:

a) Perceived desirability of leaving the organisation

The model is shown diagrammatically in figure 8a, each of the factors shown has been selected by careful examination of major research findings (e.g. correlates and determinants of employee turnover.

Figure 8a:Major Factors Affecting:-

Perceived desirability of leaving the organisation

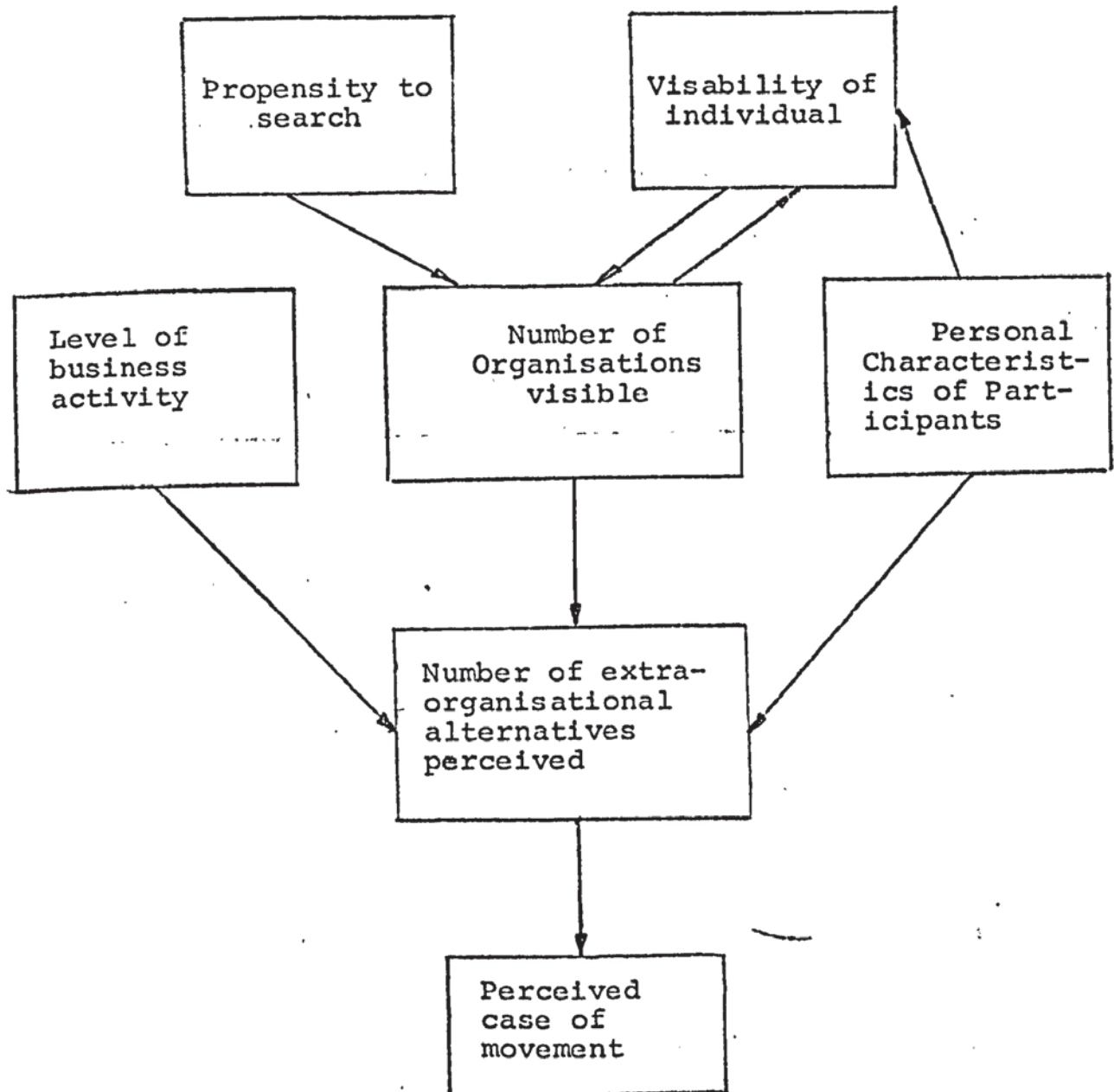


b) Perceived case of movement from the organisation

Similarly this part of the model has been based on an extensive review of the relevant literature, and may be summarised as shown in Figure 8b.

Figure 8b: Major factors affecting:-

Perceived case of movement from an organisation



The propositions referred to in Figures 7 and 8 according to March-Simon constitute the major factors affecting employee participation in an organisation.

### 2.5.5 Bowey<sup>66</sup>

One of the most recent models developed for the analysis of the causes of employee turnover has been submitted by Bowey<sup>66</sup>. From a comprehensive survey of the literature she identifies ten processes leading to 'labour wastage'. Each process is classified as a 'push', 'pull' or 'neutral' process, rather analogous to the March-Simon model.

To each of these processes is assigned a quantifiable parameter(s), and is applicable to employees in the catering industry. Figure 9 overleaf summaries the general model.

The model was used to analyse the employees from a catering establishment which had a very poor record of employee turnover and stability. A two-year period was investigated and monthly turnover and stability rates were computed separately for male and female employees. Correlation coefficients were calculated between each of the parameters and the turnover and stability rates respectively. Correlations were not limited to simultaneous time periods, and the data was arranged to bring out any 'lag' or 'lead' trends.

Having completed the initial correlational analysis, partial correlation co-efficients were determined by holding constant possible interrelated 'independent' parameters in an attempt to eliminate spuriousness. This allowed the major and minor causes

Process leading to Labour Wastage	Pull of Push Process	Parameters for identifying and assessing the different processes contributing to labour wastage	Strategies for affecting the various processes: i.e. managerial action required to alleviate causes of labour turnover
1. Moving for higher earnings	Pull	a) Non-tip earners - a parameter based on the average earnings of employees as a % of the average earnings paid for similar work in other firms in the local labour market. b) Tip-earners - a parameter comparing the no. of meals served by each waiter/waitress over a period of 3 months.	a) If pay low, increase it to local level for similar work.
2. Moving to further one's career	Pull	- a parameter based on the proportion of the total labour force who occupy career jobs and are aged between 19 and 35.	a) Better internal promotion prospects b) Increase pay differentials c) Recruit staff not likely to be promotion seekers
3. The attraction of alternative job opportunities	Pull	- a parameter based on the local level of unemployment, the national level of unemployment and the local level of unemployment in the catering industry.	a) Recruit staff who are less able to take up alternative employment b) Attempt to reduce push process
4. Leaving to avoid the strains of interpersonal conflict	Push	- a parameter based on the frequency of disputes involving emotional outbursts.	a) Improve manager/subordinate relations b) Co-worker conflict - encourage more cohesive group formation. c) Conflicting objectives for different people - try to change structure to avoid this type of conflict.
5. Management's running down of the staff	Push	this parameter - no. redundant + no. sacked - no. recruited average size of labour force	Deliberate management action
6. The induction crisis	Push	this parameter was the product of the length of the induction crisis, the excess turnover and the recruitment rate.	a) Improve training schemes b) Accurate picture of job and wages should be given at selection interview to avoid non-fulfilment of expectations.
7. Loss of unstable recruits	Neutral	a parameter based on the number of previous jobs each employee had	a) Determine no. of previous jobs (true nos.)
8. Pressures from shortage of labour	Push	a parameter calculated from the number of meals served per employee per month	a) Increase manning scale to allow some slack.
9. Leaving due to changed working requirements	Push	this parameter was equivalent to the average number of changes in job requirements per month.	a) Care with frequency of job changes b) Improved by better and more sympathetic training c) Avoid the use of piece rates - as low wages may result during retraining
10. The availability of an alternative role	Pull	this parameter was estimated by considering the proportion of employees in the labour force who may leave their jobs because of some other role attracting them away.	a) Attempt to reduce push processes b) Try to avoid recruiting staff with potential alternative roles

of turnover to be identified. Finally multi-variate analysis, using multiple regression techniques, were employed to determine the amount of variations in turnover and stability explained by a given combination of parameters.

In this particular study of employee turnover in a catering establishment, the following significant results were obtained:-

#### Male Employees

Major causes of wastage

- (i) Leaving for higher earnings
- (ii) Leaving for alternative job opportunities
- (iii) Leaving during the induction period

#### Female Employees

Major contributory causes

- (i) Conflict
- (ii) Induction crisis
- (iii) Leaving because of staff shortages and over-work (an example of this syndrome is presented in an article by Gowler<sup>111</sup>)

Bowey's<sup>66</sup> model for analysing employee turnover illustrates the value of using multi-variate analysis in gaining insight into a complex problem.

#### 2.5.6 An Interdisciplinary approach to the study of Employee Turnover

Pettman<sup>112,113</sup> in his extremely comprehensive review of the research connected with employee turnover (over two hundred references are examined),

uses the March-Simon<sup>33</sup> model as a basis for an explanation and categorisation of the factors associated with turnover. Perhaps in hindsight, Pettman's<sup>112</sup> conclusions on the subject are most relevant and realistic. He states there are four disciplines involved in the study of employee turnover:

- a) Psychology (internal factors)
- b) Economics (external factors)
- c) Accountancy (cost)
- d) Personnel Management (methods of control and/or reduction of employee turnover)

His main criticism of past research is that ... 'specialists allow their specialisms to rule their approach to the exclusion of other disciplines' and his main conclusion is ... 'what is really needed is an interdisciplinary study, before all the factors affecting labour turnover can be suitably described and remedies sought'.

This view of Pettman<sup>112</sup> is supported by Van der Merwe<sup>25</sup> (one of the major contributors in the field). He examines 'Labour Turnover as an Interdisciplinary Concept'. The following disciplines are considered to be most significant.

- a) Industrial Psychology - the role of which is:
  - (i) 'to measure the phenomenon
  - (ii) to establish the forces which underly it, and
  - (iii) To relate those factors to the more effective functioning of industrial organisations, in the broadest sense.'

b) Industrial Sociology - the role of which is:

(i) Examining the behaviour of groups of people

c) Industrial Management - in terms of:

(i) Management attitudes and competence  
implicit in the employing organisation

d) Economics - in terms of:

(i) The background in which turnover operates:  
e.g. levels of unemployment affects the  
supply and demand of workers

Van der Merwe argues that many studies have been undertaken from a single disciplinary standpoint which has resulted in much contradiction concerning the influences drawn from such investigations. He believes that it is essential to establish the interrelated roles of all disciplines involved in any study of employee turnover, since 'It is not unrealistic to assume that Labour Turnover will be affected by, and may be the resultant of, factors in the individual, in the group or groups in which he finds himself, in the employing organisation, and in the economic climate at a given time. It is to be expected therefore, that meaningful information regarding its nature is likely to be obtained through a combination of the disciplines of Industrial Psychology, Industrial Sociology, Industrial Management and Economics.'

Further endorsement of the need for an interdisciplinary approach is inferred from Price's determinants of employee turnover. His model includes Economic, industrial and sociological factors, and he stresses the importance of incorporating Psychological determinants when sufficient evidence is available.

The limitation and dangers of investigating industrial problems from a narrow standpoint, and advantages to be gained from a multi-disciplinary approach are emphasised by Child.<sup>114</sup> He refers to a statement by Landsberger<sup>115</sup> which is of particular relevance - 'Stated positively, our thesis is that all of behavioural science - and the non-behavioural sciences to - are applicable to industry, work and organisations. The student would do best to take a single problem' ... 'to see how the different social sciences have approached its analysis. This is likely to be more enlightening and stimulating than taking a single one of the social sciences ... and examining all the possible and very diverse problems to it'

Generally speaking then, the consensus of opinion concerning the most 'profitable' avenue of investigation of employee turnover, is towards an interdisciplinary approach, i.e. from all angles in the broadest sense.

2.6 The final section of this chapter is devoted to that literature which examines the effects, cost and control of employee turnover. Considering each in turn:-

### 2.6.1 Effects of turnover on an Organisation

Pigors and Myers<sup>116</sup> in their examination of 'Labour Turnover and Internal Mobility' summarise the effects of turnover as follows:

#### a) Stabilizing effects

(i) Bringing new blood into the organisation (and hopefully innovation). This is applicable to the replacement of retirement and ill-health leavers by younger and healthier employees.

(ii) If 'promotion from within' is practised then morale and efficiency may be increased.

#### b) Unstabilizing effects

(i) Disruption of work teams: e.g. changes in routine, undermanning until a replacement is found.

(ii) Speculation and gossip, leading to rumours regarding job security.

(iii) Mutual adjustments when a new employee is recruited.

(iv) Lower production during the recruit's training period, strain may manifest itself in accidents, quarrels, and poor performance. The turnover process may be repeated if the induction and training is unsatisfactory.

(v) Also too little turnover may be just as dangerous as excessive turnover. Since ... 'longer-serving employees may simply be "marking time",

doing enough to get by while waiting for their retirement benefits. If so, they block promotional opportunities for younger, more able people who may leave the organisation for better prospects elsewhere. The work group may lose its more vital members while retaining the less vital.'

The effects of turnover have also been listed by Price<sup>117</sup> according to the volume of relevant evidence. His propositions are as follows:

a) Medium amount of support

(i) 'Successively higher amounts of turnover probably produces successively larger proportions of administrative staff members relative to production staff members' (i.e. non-manual to manual employees; or white-collar to blue collar employees)

(ii) 'Successively higher amounts of turnover probably produces successively higher amounts of formalisation.'

(iii) 'Successively higher amounts of turnover probably produces successively lower amounts of participation in primary groups.'

b) Low amount of support

(iv) 'Successively higher amounts of turnover probably produces successively lower amounts of satisfaction.'

(v) 'Successively higher amounts of turnover probably produces successively higher amounts of innovation.'

(vi) 'Successively higher amounts of turnover among superordinates probably produces successively lower amounts of conformity.'

Price goes on to conclude that, in general, turnover has a negative impact on organisational effectiveness, although the relationship is 'problematic'.

#### 2.6.2 Cost of Employee Turnover

Despite the fact that most companies appreciate that excessive turnover is costly, little effort is made to calculate the actual cost. Most often the component costs of turnover are submerged in other accounts. There are intrinsic difficulties involved in costing the psychological outcomes of excessive turnover, e.g. poor morale, lower quality, and strain on supervision. However, turnover costs associated with advertising, recruitment, re-housing, training, induction, and 'scrap' are recognised by most companies as relatively easy to quantify.

In a booklet published by NEDO,<sup>118</sup> an attempt was made to compute the cost of turnover for rubber industry employees. The following component costs were considered in the analysis (relevant to manual employees only).

- a) wages costs of learning
- b) production time lost and the cost of regaining it (i.e. overtime)

- c) lost opportunity costs
- d) spoilage costs
- e) other costs, e.g. Personnel department and training costs.

The cost per leaver was found to be about £84. (The present cost is more likely to be treble that amount, as the research was undertaken in 1965).

Further articles published by NEDO<sup>118</sup> (1967-1971) have costed the turnover of various employee types for different industries. Estimated costs per reparation range from £150 for clerical staff to £800+ for managerial staff. (Again these costs may be multiplied by a factor of three to bring them up to present day levels).

The general conclusion to be drawn is that excessive employee turnover may be very costly and represents a large proportion of company profit. If its magnitude were presented as a single entity in the annual accounts, it is almost certain that a stimulus for immediate action would be provided.

### 2.6.3 The Control of Employee Turnover

Most of the relevant studies concerning the 'Control of employee turnover' has been undertaken by the organisations themselves and management consultants. Furthermore it is the 'Reduction' aspect of control that is most frequently examined.

Pigors and Myers<sup>116</sup> examined the results of a study by Merchants and Manufacturers Association,<sup>119</sup> who reported twenty-one different methods of controlling employee

turnover. The most frequently used methods were listed as follows:

<u>Method</u>	<u>Frequency</u>
Employee orientation, induction and follow-up	12
Good employee communications (including management communications programs)	11
Sound employee selection policies and procedures	10
The use of exit interviews	7
Management and/or supervisory training	6
Thorough job evaluation and wage and salary administration program	6
Thorough employee reference investigation	5

The U.S. Bureau of Employment Security<sup>120</sup> use a prescriptive approach to the question of 'control' of turnover. For each apparent cause of turnover they propose certain remedial treatment and sources of further information which may be useful. An example drawn from their paper is as follows:

Cause

'Lack of opportunity for advancement'

Remedial Treatment

'Prepare a job and personnel inventory showing the exact nature, distribution and maximum productive possibilities of the workforce. Set up a well-defined system for promotion and transfer, designed to utilize the highest skills of the workers with due consideration for authority.'

Assistance Available

'The reference manual for 'In-plant manpower Planning' issued by the Bureau of Employment Security, outlines procedures for this purpose.'

A new philosophy of employee turnover has been proposed by Gellerman<sup>94</sup> in a recent speculative article entitled 'In praise of those who leave - Turnover can be managed ... frankly, openly and mutually.' He believes that the emphasis should be on 'which employees leave and when' rather than the number who leave. Moreover 'the key to managing turnover lies in identifying those few defectors whose loss leaves the company significantly and irredeemably weaker.' Leavers are classified as follows:

- (i) Replaceable - no lasting damage as a result of him/her leaving.
- (ii) Unclear - difficult to assess due to equivocal evidence.
- (iii) Irreplaceable - 'key' employees.

Having determined which leavers are 'vital' to the organisation, Gellerman<sup>94</sup> suggests that managers, rather than trying to talk employees out of leaving, the strategy should be to re-recruit them in the future. He proposes that informal but frequent contact should be maintained until a suitable appointment can be offered.

On a more general note, Gellerman<sup>94</sup> feels that the system of employment, pensions and compensation is such that turnover is discouraged because it becomes financially

disadvantageous to leave. The immediate consequence is the formation of large numbers of employees 'trapped in jobs they don't want, in companies that do not want them'. The following remedy is proposed 'why not offer bonuses to the thoroughly bored employee, or the one who has no visible future in a company, if they are willing to seek employment elsewhere.'

What Gellerman<sup>94</sup> is really saying is that too many people believe that all turnover is disadvantageous and that all resources should be directed towards its reduction. However, there are situations where turnover should be encouraged as there may be both social and financial gains to be achieved by so doing. He concludes 'Our real problem with turnover is not that we have too much of it (on the contrary, we don't have enough!), but rather that too much of it occurs furtively and desperately, and not enough of it is managed - frankly, openly and mutually.'

## 2.7 Summary

The following section will summarise the major issues and problems that have arisen from past research. Considering each area in turn.

### 2.7.1 Definition and Measurement

This section emphasises the need for precise and purposeful definition of the phenomenon of what constitutes 'controllable turnover', in terms of 'Reasons for Leaving'.

Regarding measurement of employee turnover, the ambiguities and limitations of existing measures were

carefully examined. The major problem is concerned with controlling for the overriding effects of length of service. The indices developed by Van der Merwe and IMS have gone a long way to overcome this difficulty, however they still possess certain practical limitations.

It was concluded that the researcher must examine the available data before deciding on which measure to use.

#### 2.7.2 The Correlates of Employee Turnover

The following correlates were critically reviewed:

- a) Level of employment - in particular local levels of unemployment for manual employees.
- b) Seasonal factors
- c) Location of the undertaking
- d) Departmental differences
- e) Proximity of Domicile to workplace
- f) Job skill
- g) Absenteeism
- h) Sex and Marital status
- i) Length of Service
- j) Age
- k) Intelligence and Aptitude Tests, Interest inventories, Personality Tests, Job Satisfaction inventories.
- l) Other Biographical data

The most often quoted and strongest correlates are; Length of service and levels of unemployment. However, the main problem identified was that of 'Spuriousness' of correlates (inter-correlation). The need for controls was deemed to be of utmost importance in determining the

relative predictive powers of individual correlates.

### 2.7.3 The Determinants of Employee Turnover

This section was concerned with the analytic approach to the underlying causes of employee turnover.

The following determinants were discussed.:

- a) Job satisfaction - in particular overall job satisfaction
- b) Wages - in particular relative earnings (both intra and inter-industry)
- c) Promotion opportunities
- d) Determinants of the 'Induction Costs'
  - (i) Mismatch of job expectations and job reality
  - (ii) Inadequate training, induction and orientation
- e) Physical working conditions
- f) Styles of supervision and management.
- g) Specific aspects of job content in relation to employees' needs.
  - (i) Self-realisation
  - (ii) Role-clarity
- h) Organisational size

The most significant determinants were reported to be a), b), d), f) and g). Furthermore the extensive list of determinants illustrates the complexity of any study of employee turnover. Also, leaving behaviour may result not only from one determinant but a combination of them.

### 2.7.4 Conceptualisations, theories and models of employee turnover

Many researchers have attempted to collate the findings of previous studies in attempting to develop models of turnover. The most significant of which are listed below:

- a) March-Simon - Their model is based on two components

- (i) The perceived desirability of movement from the organisation
- (ii) The perceived ease of movement from the organisation

b) Bowey - Her model comprises of ten processes 'leading to labour wastage'. Each process is assigned a quantifiable parameter. The method of partial correlation is employed to overcome 'spuriousness', and multiple regression techniques are used to determine the variation in turnover or stability accounted for by a given set of parameters, i.e. processes. This research was a major step forward in that a model was developed and tested with some degree of success, in the context of a real organisational situation.

The following conceptualisations and theories of employee turnover were examined:

- (i) Rice, Hill and Trist  
'The Representation of Labour Turnover as a Social Process'
- (ii) Bryant  
'The Withdrawal from Work Hypothesis'
- (iii) Price  
'Towards a Theory of Turnover'

Finally 'Employee Turnover as an Interdisciplinary Concept' was examined. Major contributors in the field believed that the following disciplines should be incorporated into any investigation of employee turnover:

- Psychology - internal factors relevant to individuals
- Sociology - factors relevant to the behaviour of groups of individuals
- Economics - external factors

Statistics - methods of measurement and modelling  
Personnel Management - methods of control of turnover  
Accountancy - cost of turnover

The consensus of opinion was that inspite of the huge volume of research into the subject, progress was slow because of single-disciplinary approaches, and 'what was really needed was in interdisciplinary study, before all the factors affecting labour turnover could be suitably described and remedies sought' (Pettman<sup>112</sup>).

#### 2.7.5 Effects, cost and control of turnover

Generally speaking, if that part of turnover over which management exercises some measure of control, is excessive, then the overall effect on the organisation may be very damaging, in terms of profitability, productivity, company image and morale.

#### General Summary and Conclusions

The general conclusion to be drawn is that excessive employee turnover is very costly and is detrimental to the overall functioning of the organisation.

Management should concentrate their resources on that part of turnover which 'controllable' i.e. 'the avoidable loss of personnel, avoidable because management action could have been taken to reduce, minimise or prevent such loss' (Van der Merwe and Millar<sup>9</sup>).

Employee turnover is an individual problem, and an organisation should examine its own situation and evaluate the remedial action appropriate to its circumstances.

Research studies have shown many factors to be related to turnover, each factor (or combination of factors) assumes varying importance depending on the situation.

The most 'profitable' direction of an in-depth study of turnover has been demonstrated to be interdisciplinary in nature. Furthermore, a multi-variate analysis, seems appropriate to 'screen' the factors apparently associated with turnover, and allow individual factors to be ranked according to predicting power (in terms of variability explained).

It appears that a general theory of turnover, applicable to all organisations and employee types, is unlikely to emerge using a 'blanket approach'. It seems appropriate to investigate particular employee types (e.g. manual and non-manual employees) separately and on a company, factory or departmental basis. The advantage of say, an examination of departmental turnover of male non-manual employees as opposed to a study of turnover in the engineering industry, is that many factors associated with turnover are implicitly controlled for (e.g. departmental differences, factors relating to the locality of the undertaking - unemployment, sex, differences in turnover of manual and non-manual employees, etc. etc.) However, the level of analysis depends very much on the availability and coverage of relevant statistics, in the factory situation.

Therefore, prior to developing the research strategy to investigate the objectives of this study, it is important to look closely into the research context, i.e. Dunlop. The examination of the company reviews its history

employee types, locations and strengths of constituent factories, product diversification, and a breakdown of the quantitative and qualitative data available. This forms the subject matter of the following chapter and will be used to assess how far the issues and problems of previous research as described and discussed in this chapter can be met by relevant information directly available within the organisation.

## CHAPTER 3

### The Research Context - The Dunlop Group

#### 3.1 INTRODUCTION

The purpose of this Chapter is to provide relevant information about the research context, the Dunlop Organisation.

The following topics are described:

- a) The history of Dunlop
- b) Structure of the company in the U.K.
- c) Types of employee
- d) Numbers of employees
- e) Employee wastage in the company 1967-1974
  - (i) Employee Turnover
  - (ii) Employee Absence
  - (iii) Employee Disputes
  - (iv) Employee Accidents
- f) Sources of data available within the company

The material presented in this chapter, together with the major issues identified in the literature survey, provides the background against which the research strategy will be developed in the following chapter.

#### 3.2 A BRIEF HISTORY OF DUNLOP

Following the invention of the first practical pneumatic tyre by John Boyd Dunlop in 1888, the Pneumatic Tyre and Booth Cycle Agency was formed to market and develop it. At the turn of the century the Dunlop Rubber Company Limited was formed and car tyres were manufactured in factories in the Birmingham area.

Further manufacturing and selling companies were established overseas, in Australia, Canada, France, Germany and South Africa. During the next twenty years Dunlop invested in Malayan rubber estates and by 1920 was the largest owner of plantations in that country. A cotton mill was opened at Rochdale to supply tyre cord, and a new tyre factory at Fort Dunlop was built, these expansions took place in 1916.

From 1920 to 1935 the company continued to grow and diversify its product range. They acquired the Charles Macintosh Group of Companies in 1925, adding footwear, hose and belting products to their range. This was closely followed by the invention of 'Dunlopillo' latex foam and the establishment of factories to develop and manufacture it.

By 1940 Dunlop had expanded and diversified still further by the acquisition of the India Tyre and Rubber Company, the formation of Dunlop Semtex to produce a range of flooring materials, and the entry into engineering activities, e.g. aviation, hydraulic systems and wheels.

The post war period saw Dunlop continue to grow, and new factories were set up in the U.K. and overseas. Diversification continued until tyres were only two-thirds of total business. By 1969 the company reached its largest size, in terms of numbers employed, to over 57,000 employees in the U.K. This was achieved largely through the acquisition of factories manufacturing sports wear and sports equipment, and George Angus and Co. Ltd., whose products included fire hose, fire armour, fluid seals, industrial hose and belting.

In 1971 the Dunlop-Pirelli union was formed, however the operation of Dunlop's U.K. activities has remained largely unaffected.

At present the Dunlop Group operates 130 factories throughout the world in twenty-two countries, and provides employment for over 100,000 people, of whom over 44,000 are located in the United Kingdom. It is the U.K. employees in Dunlop with which this research is concerned.

### 3.3 STRUCTURE OF THE COMPANY IN THE U.K.

A detailed breakdown of the company into its constituent product groups, manufacturing factories and products is illustrated in Figures 10 below and 11 to 14 (See Appendix A, pages 1-4).

Briefly, the company is composed of four product groups:-

- a) U.K. Tyre Group
- b) Engineering Group
- c) Industrial Group
- d) Consumer Group

Each of these groups is completely autonomous with regard to profitability and is headed by a main board director. In addition there are administrative headquarters primarily based in London, whose composition is as follows:-

- (i) Main Board Directors and Secretariat
- (ii) Finance Division
- (iii) Administration
  - a) Central Personnel Division
  - b) Group Management Services
  - c) Group Property Development
- (iv) Materials Supply Division
- (v) Corporate Planning

FIGURE 10: DUNLOP U.K. OPERATIONS BROKEN BY PRODUCT GROUPS, AND NUMBERS EMPLOYED IN EACH AS AT 30.6.75

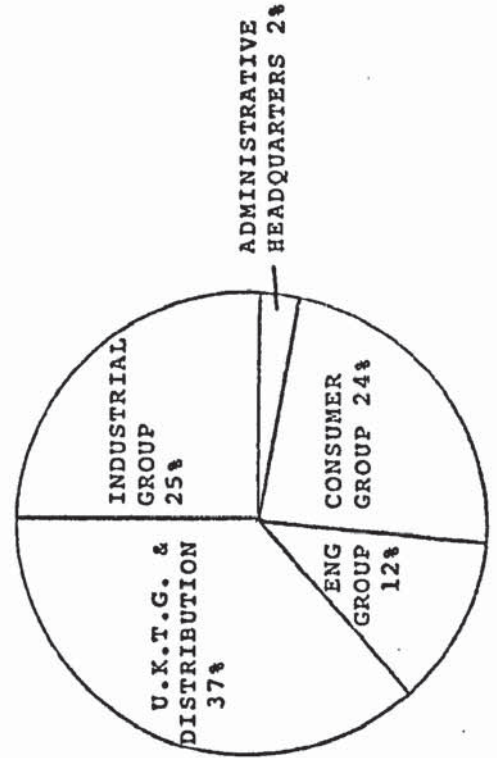
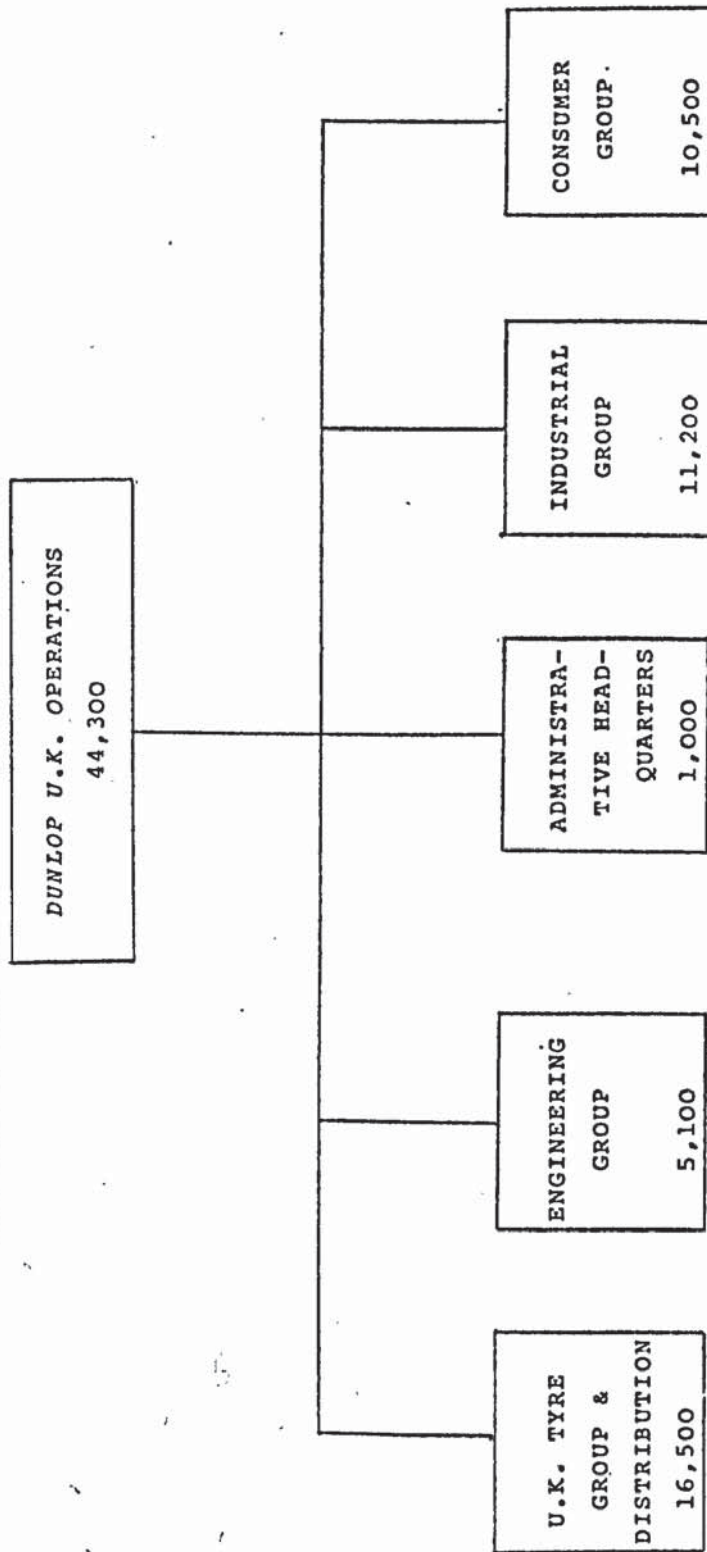


Figure 10a  
Distribution  
of employees  
by Product  
Group

- (vi) Public Relations
- (vii) Central advertising

The company is to a large extent decentralised (less than two per cent of employees are based in administrative headquarters).

### 3.4 TYPES OF EMPLOYEE

Generally speaking, Dunlop classifies its employees into two types:-

- a) Staff employees
- b) Operative employees

The characteristics of each type are as follows:

#### Staff

- (i) Non-manual, white-collar employees
- (ii) The majority are monthly paid
- (iii) The following occupations are included:

Clerks, secretaries, specialists, e.g. in finance, marketing, personnel, buying, etc., and corresponding managers.

#### Operatives

- (i) Manual, blue-collar employees
- (ii) They are hourly-paid
- (iii) The following classifications:
  - a) Engineering and Allied; skilled and semi-skilled
  - b) Process and Miscellaneous; semi-skilled and unskilled

The main differences between the employee classifications lie in the following conditions of employment:

- (i) Pay during absence
- (ii) 'Lay-off' pay
- (iii) Holiday entitlement and pay
- (iv) Shift allowances
- (v) Overtime allowances
- (vi) Redundancy payments
- (vii) Working hours

Until very recently the pension schemes were different.

### 3.5 Numbers of employees

#### 3.5.1 The Company as a whole in the U.K.

Figures 15, 16 show the variation in company strengths for the following employees during the period 1967-1974 (inclusive)

- |                      |   |           |
|----------------------|---|-----------|
| a) All employees     | } | Figure 15 |
| b) All operatives    |   |           |
| c) All staff         |   |           |
| d) Male operatives   | } | Figure 16 |
| e) Male staff        |   |           |
| f) Female operatives |   |           |
| g) Female staff      |   |           |

#### 3.5.2 Constituent factories

Figure 17, tabulates the twenty largest factories in the U.K. (Strengths as at 30.6.75)

FIGURE 15: DUNLOP. U.K. EMPLOYEE STRENGTHS 1967-1974 (INC.)

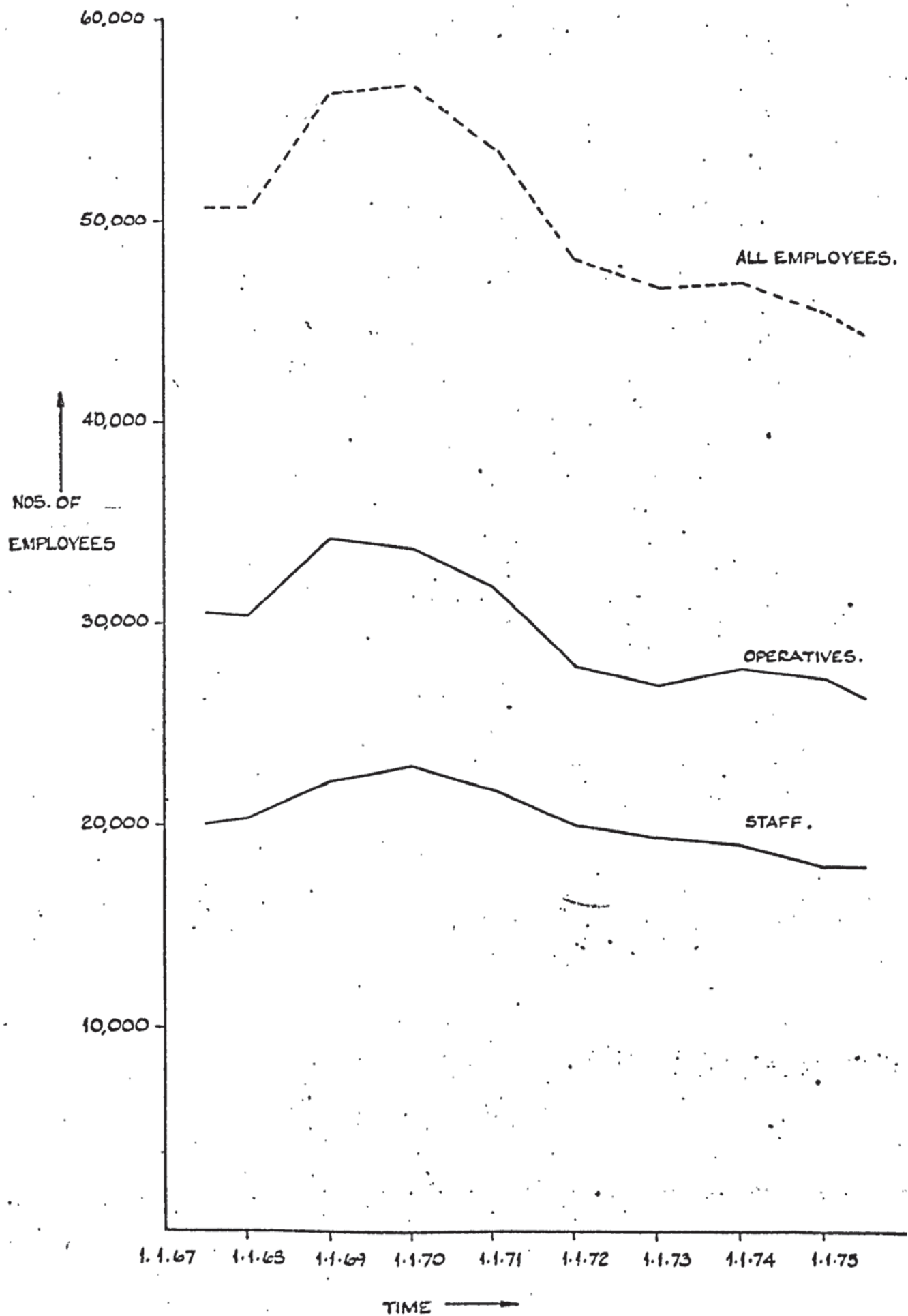


FIGURE 16: OPERATIVE AND STAFF STRENGTHS BY SEX 1967-1974 (INC.)

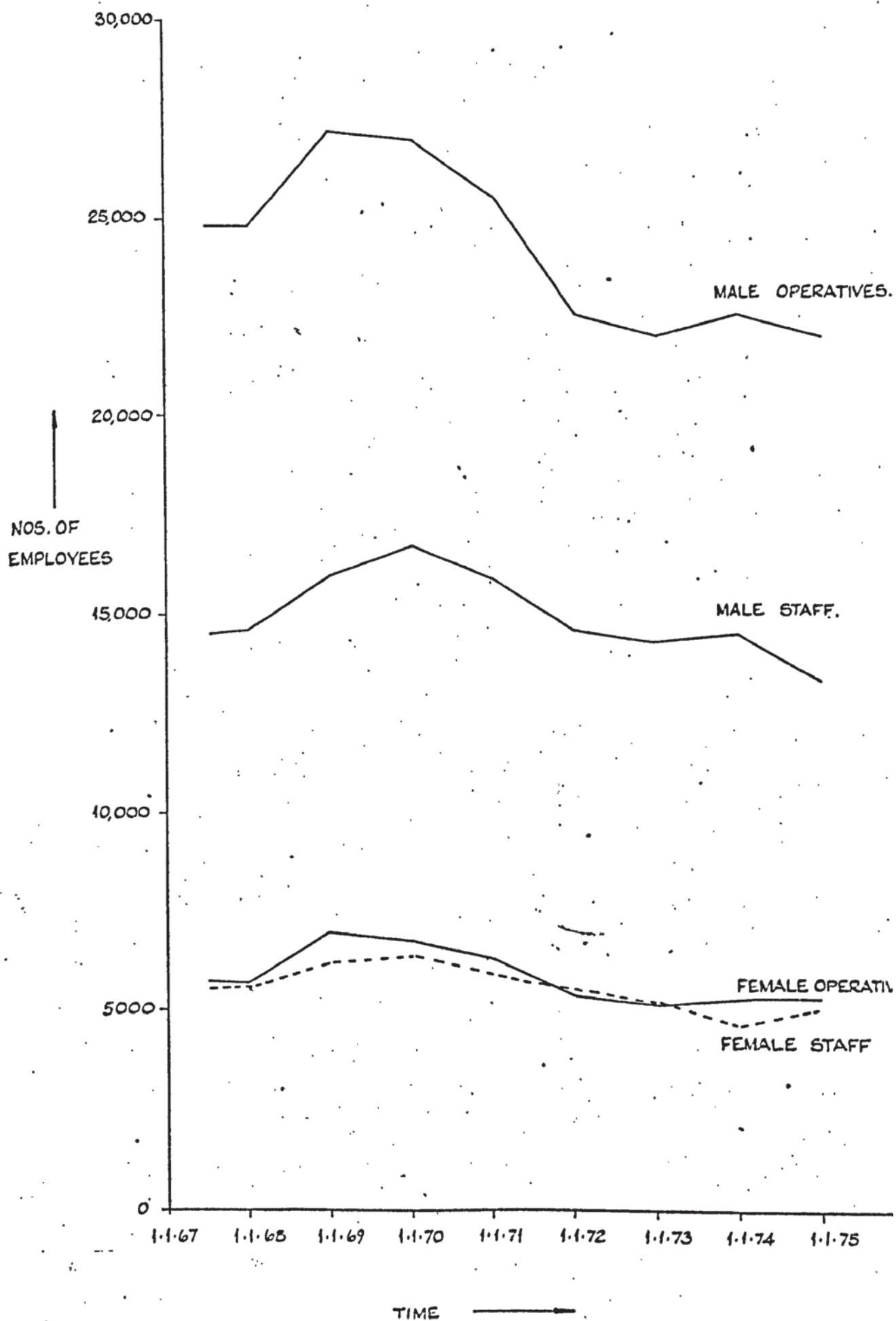


FIGURE 17: EMPLOYEE STRENGTHS AT DUNLOP'S 20 LARGEST FACTORIES IN THE U.K. (at 30.6.75)

FACTORY LOCATION	PRODUCT GROUP	PRODUCT DIVISION	STRENGTHS				
			TOTAL	STAFF	FEMALE STAFF	MALE OPERATIVE	FEMALE OPERATIVE
Birmingham	U.K.Tyre	-	6512	1056	538	4271	197
Coventry	Engineering	-	4427	1279	512	2354	282
Liverpool	U.K.Tyre	-	2311	308	80	1875	48
Leicester	Industrial	Polymer Engineering	1791	632	191	894	74
Manchester	Industrial	G.R.G. <sup>a</sup>	1227	225	96	770	136
Brynmaur	Consumer	Semtex	1223	219	178	775	51
Gateshead	Industrial	Hose	1213	236	81	843	53
Inchinnan	U.K.Tyre	-	1136	207	74	1091	45
Harbury	Consumer	I.S.C. <sup>b</sup>	1112	189	95	403	425
Walton	Consumer	Footwear	996	173	118	382	323
Skelmersdale	Industrial	G.R.G.	798	158	45	440	155
Barnsley	Consumer	I.S.C.	768	48	16	165	549
W.Abbey	Consumer	I.S.C.	679	73	89	260	257
Harrogate	Consumer	Dunlopillo	592	183	69	299	41
Hirwaun	Consumer	"	561	125	49	296	91
Grimsby	Industrial	Oil & Marine	539	139	144	333	23
Liverpool	Consumer	I.S.C.	501	45	23	139	294
Loughborough	Industrial	Precision Rubbers	487	132	70	147	138
Dudley	Engineering	Wheel	430	38	19	302	71
Rochdale	Consumer	Textiles	395	75	41	204	75

a - G.R.G. - General Rubber Goods

b - I.S.C. - International Sports Company

Although Dunlop had enjoyed continued expansion for many years reaching its maximum size, in terms of numbers employed, in 1969, when the total U.K. strength was 57,000, figure 15 shows that the company strength has contracted to 44,000 (a 23% reduction) over the last five years. This is largely due to the economic recession which has mostly affected the Tyre and Engineering Groups. A large proportion of the contraction is attributable to redundancies.

Figure 18a below tabulates the Groups strengths on January 1st 1970 (peak); their present strengths (30th June 1975) and the percentage changes in strength.

FIGURE 18a: CHANGES IN GROUP STRENGTH

PRODUCT GROUP	TOTAL STRENGTHS		CHANGE	
	1.1.70	30.6.75	NOS.	%
U.K. TYRE GROUP & DISTRIBUTION	22,500	16,500	-6000	-27
ENGINEERING GROUP	7,300	5,100	-2200	-30
INDUSTRIAL GROUP	14,500	11,200	-3300	-23
CONSUMER GROUP	11,300	10,500	-800	-7

The table reveals that only the Consumer Group has remained virtually unscathed. Changes in factory strengths over the same period are summarised in Figure 18b below. This table shows that 80% of the largest factories have contracted, (10 factories have contracted by 25% or more) and only 4 factories have expanded. Three of these factories are part International Sports Division of the Consumer Group.

FIGURE 18b: CHANGES IN FACTORY STRENGTH JANUARY 1st 1970  
TO JUNE 1975

FACTORY LOCATION		TOTAL STRENGTHS		CHANGE	
		1.1.70	30.6.75	NOS.	%
Birmingham	U.K.Tyre	8340	6512	-1828	-22
Coventry	Engineering	6311	4427	-1884	-30
Liverpool	U.K.Tyre	2977	2311	- 666	-22
Leicester	Industrial	2382	1791	- 591	-25
Manchester	Industrial	2309	1227	-1082	-47
Brynmaur	Consumer	1608	1223	- 385	-24
Gateshead	Industrial	1219	1313	- 6	-0.5
Inchinnan	U.K.Tyre	1672	1136	- 536	-32
Horbury	Consumer	931	1112	+ 181	+19
Walton	Consumer	1513	996	- 517	-34
Skelmersdale	Industrial	871	798	- 73	- 8
Barnsley	Consumer	400	768	+ 368	+92
W.Abbey	Consumer	569	679	+ 128	+23
Harrogate	Consumer	613	592	- 21	- 3
Hirwaun	Consumer	527	561	+ 34	+ 6
Grimsby	Industrial	589	539	- 50	- 8
Liverpool	Consumer	524	501	- 23	- 4
Loughborough	Industrial	510	487	- 23	- 5
Dudley	Engineering	598	430	- 168	-28
Rochdale	Consumer	715	395	- 320	-45

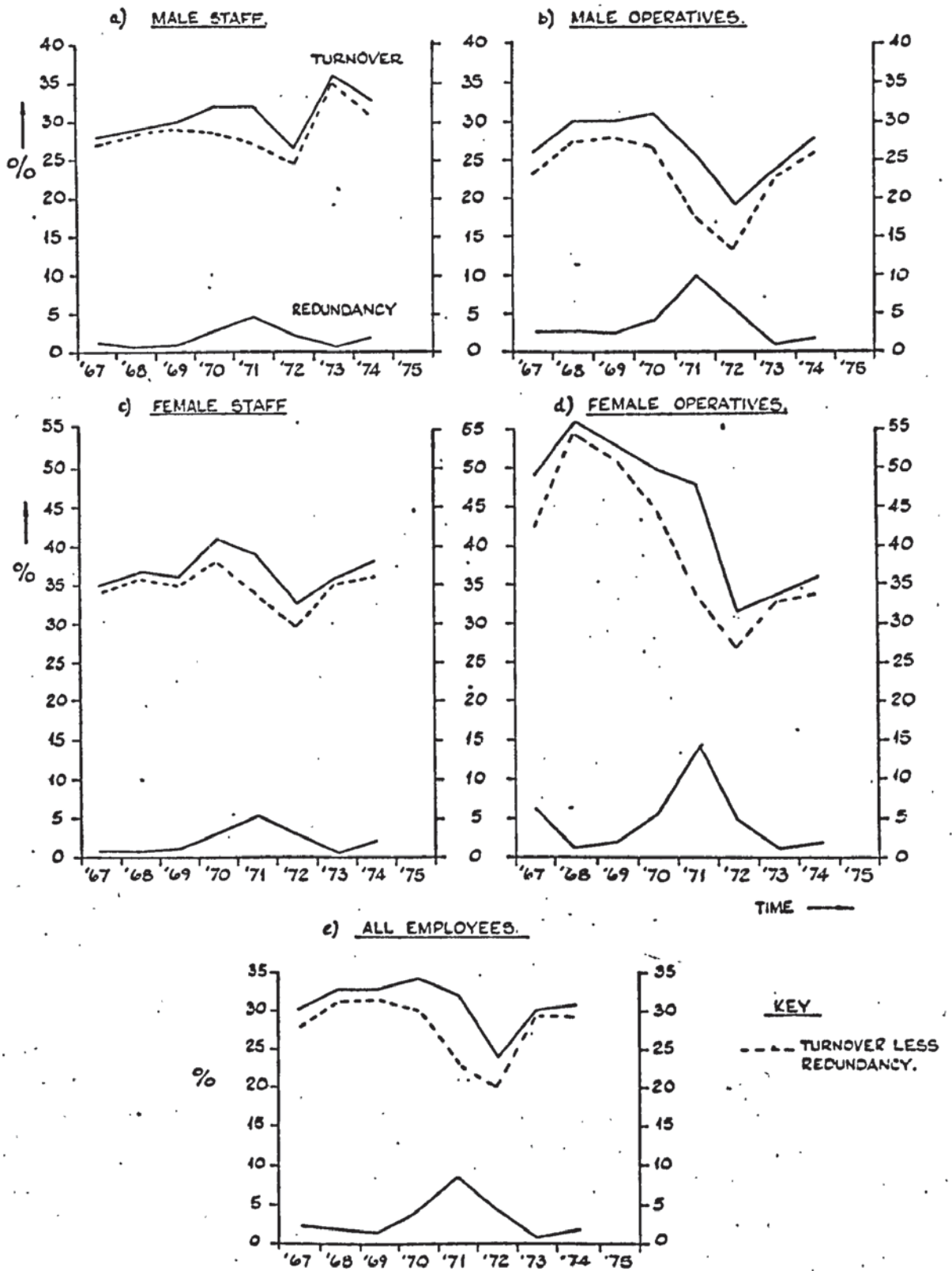
### 3.6 Employee Wastage in the Company 1967-1974

#### 3.6.1 Employee Turnover

Figure 18, summarises the variation in the rates overall turnover, redundancy, and overall turnover less redundancy for the following employee types.

- a) Male staff
- b) Male operatives
- c) Female staff

FIGURE 18: EMPLOYEE TURNOVER AND REDUNDANCY RATES



- d) Female operatives
- e) All employees

### 3.6.2 Employee Absence

Figure 19 summarises the variation in the proportion of working time lost through absence for the following employee types:

- a) Male operatives
- b) Female operatives
- c) All operatives

N.B. The company does not maintain records of staff absences.

### 3.6.3 Hours lost as a result of industrial action

Figure 20, illustrates the variation in the proportion of working time lost as a result of industrial disputes for the following employee categories.

- a) All operatives
- b) All staff
- c) All employees

### 3.6.4 Industrial Accidents

The variation in the proportion of working time lost as a result of accidents is illustrated in Figure 21, for all operatives.

N.B. Records of staff accidents on a company-wide basis are not easily obtainable.

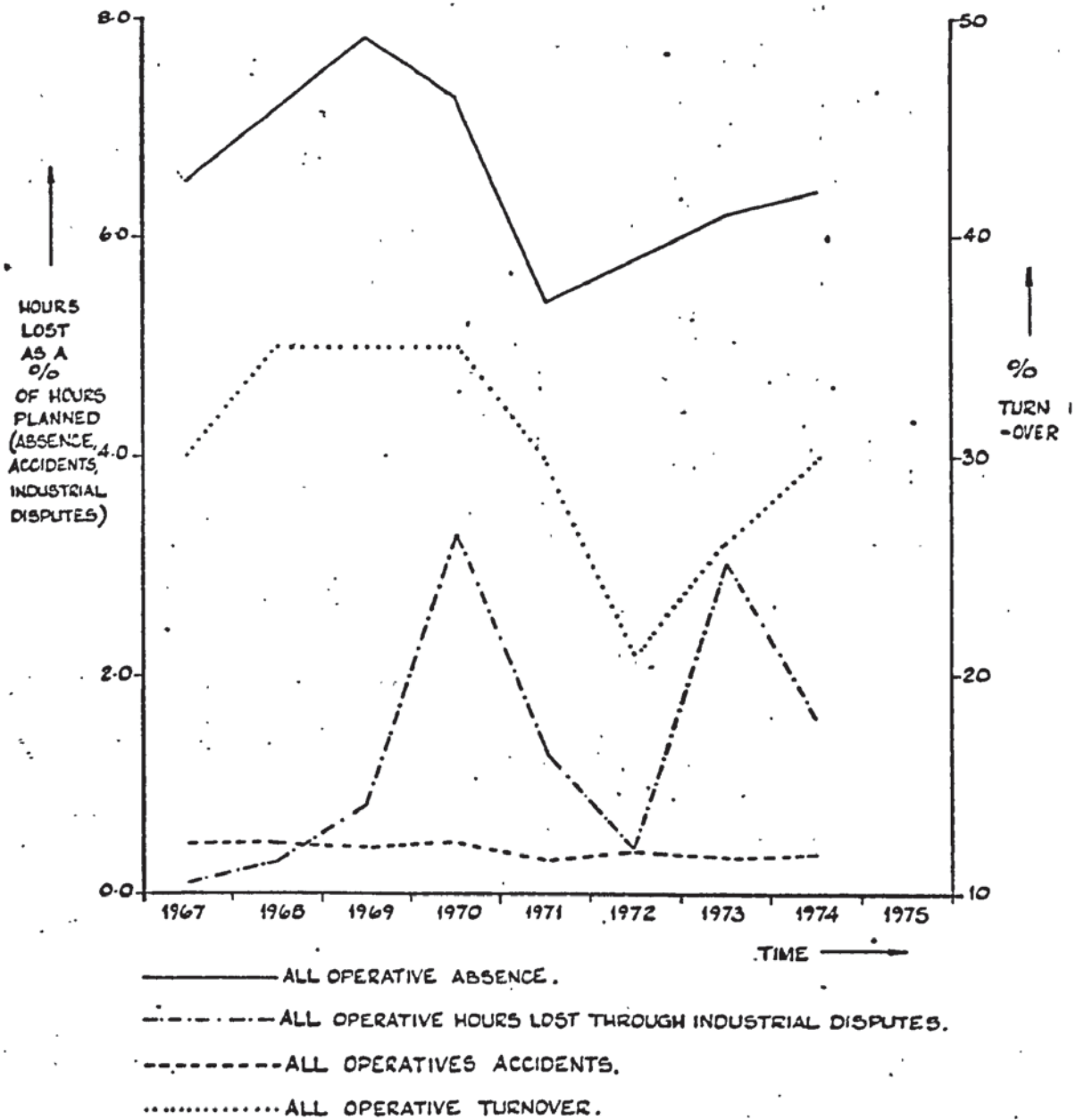
### 3.6.5 Summary chart of the different types of wastage\*

Figure 21a compares the variation in the following forms of wastage:

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\* The source of information for the compilation of figures 15-21 were:- (i) Dunlop at Work - 1969-1974  
(ii) Personnel Returns : published quarterly by the Central Personnel Division

FIGURE 21: COMPARATIVE CHART OF VARIOUS TYPES OF EMPLOYEE WASTAGE FOR ALL OPERATIVES 1967 - 1974 (INC)



- |                        |   |  |
|------------------------|---|--|
| a) Absence             | } | Measured as hours lost<br>as a percent of hours<br>planned |
| b) Accidents           |   |  |
| c) Industrial disputes |   |  |

d) Turnover

- for all operatives

### 3.7 SOURCES OF DATA AVAILABLE WITHIN DUNLOP

The Personnel Research section of the Central Personnel Division is responsible for the collection, collation, interpretation and distribution of all personnel statistics on a company, divisional and factory basis.

The main body of published information is located in the following reports:

- a) Personnel Returns
- b) Census
- c) Computerised staff personnel records file

Considering the contents of each report in turn

#### 3.7.1 Personnel Returns

In its present form, the Personal Return was first published quarterly from April 1967. After 1972 it was issued half-yearly.

This return characterises the company, each product group, and each of the principal factories, by the following variables:-

Employment\* - at the end of period

- a) No. of staff
- b) No. of operatives

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\* Part time employees are counted as whole employees, irrespective of hours worked.

- c) Total employees
- d) % Female staff
- e) % Female operatives
- f) % Female employees
- g) Staff as a % of operatives
- h) Staff as a % of all employees

Variations from previous period (in terms of nos. employed)

- a) Staff
- b) Operatives
- c) Total employees

Hours lost through Industrial Action during the period

- a) Staff
- b) Operatives
- c) All employees

Numbers made redundant during the period

- a) Male Staff
- b) Female staff
- c) Male operatives
- d) Female operatives

Annual Employee Turnover Rate<sup>a</sup> % (for the period)

- a) Male Staff
- b) Female Staff
- c) Male operatives
- d) Female operatives
- e) All employees

---

a - Employee Turnover Rates are calculated as follows:-  
i.e. if the period of analysis is three months

$$\frac{(\text{No. of persons leaving})}{(\text{Opening strength} + \text{closing strength}) \div 2} \times 100$$

- all leavers are included, whatever the reason for leaving.

Absence<sup>b</sup> % - Operatives (for the period)

- a) Male operatives
- b) Female operatives
- c) All operatives

Operatives' Hours and Earnings<sup>a</sup>

Men - Process and miscellaneous

- a) Average £p per week
- b) " hours " "
- c) " pence per hour

Men - Engineering and allied

- a) Average £p per week
- b) " hours " "
- c) " pence per hour

Women - Process and miscellaneous

- a) Average £p per week
- b) " hours " "
- c) " pence per hour

Note: A copy of a typical Personnel Return is enclosed in the Appendix A (see pages 8,9)

Limitations and short-comings of the Personnel Returns

1. Staff salary information is only available from 1971 and not every factory is covered.
2. Employee turnover statistics are based on all leavers regardless of reasons for leaving. However, redundancies are published, allowing the 'raw' turnover statistics to be corrected for them. Therefore an approximation to controllable turnover may be made.

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b - Absence rates are calculated as follows:

$$\frac{\text{Number of normal shifts lost during the period}}{\text{Number of normal shifts available during the period}} \times 100$$

- a - Earnings figures are based on a normal week usually near the end of the period. Only adults who normally work a full week are included. Hours worked may sometimes be affected by short-time.
- 

3. Absence statistics are based on all forms of absence i.e. those with and without management permission, and those with and without doctors' notes. Therefore an approximation of what proportion of the absence is without permission, i.e. controllable, may be difficult to make.

#### Advantages of the Return Returns

1. As there are twenty-seven published reports since 1967, turnover trends on an historical basis (time-series) may be investigated for the company as a whole, and for individual factories.
2. Each return summarises the personnel statistics of twenty factories, turnover trends across time (i.e. Cross-sectional) may be examined.
3. Turnover trends may be investigated not only for all employees, but also for various employee types, e.g. staff and operatives, and further subdivided by sex.
4. Variations in other measures of employee wastage, i.e. absence and hours lost through industrial action may be analysed.

#### 3.7.2 Census

At the end of every year a census of age and company service is compiled for the company as a whole, each produc

group, each product division and each factory; for each category of employee (i.e. male staff, male operatives, female staff, female operatives, and all employees). This report has been published annually for many years. (A copy is enclosed in Appendix A, see page 10).

Basically the census is a cross-tabulation of length of service groups by age groups. From the census the following information may be obtained.

a) Length of service and age distribution of any employee type located in any factory, division, product group, and the company as a whole.

e.g.

- (i) % of male staff with less than 1 year's service at Coventry.
- (ii) % of female operatives between 20-30 years old at the Leicester factory.
- (iii) % of male operatives between 20-25 years old and with 1-4 year's company service at the Barnsley factory.

Furthermore the number of new engagements during the year for each employee type and by group, division or factory, is presented. Thereby allowing recruitment rates to be computed.

### 3.7.3 Computerised staff personnel records file

This file contains information relevant to staff employees only. It was set-up during 1972 and has grown steadily since with the addition of further employee data from various factories.

As opposed to the Personnel Returns which present aggregate statistics on a factory by factory basis etc. the computerised staff personnel file contains data based on individuals. Each individual is characterised by the following variables, at a chosen point in time: e.g. January 1st 1975.

- a) Location code (e.g. 0461 = Birmingham)
- b) Division code (e.g. 037 = Belting)
- c) Job Function code (e.g. A = production, C = Technical)
- d) Marital status (e.g. married, single, widowed)
- e) Sex
- f) Company service
- g) Length of service in present job
- h) Age
- i) Salary

The file also contains information regarding leavers, as in a) to i) above, with an additional code relating to reasons for leaving. The codes used are very similar to those proposed by the British Institute of Management, see Figure 1).

A copy of a typical printout from the file is presented in Appendix A, pages 11, 12.

#### Limitations of the Staff Personnel Records File

(i) Complete employee coverage for twenty factories is available only after January 1st 1974; therefore an analysis of staff turnover is only possible on a cross-sectional basis, because of insufficient historical data.

(ii) Processing of the file was terminated in April 1975, as a result of economic measures within the company.

#### Advantages of the File over Personnel Returns

(i) A more accurate measure of controllable employee turnover may be obtained, as individual reasons for leaving\* are available.

(ii) Staff salary information is available, both for leavers and current employees.

(iii) The data is on an individual rather than aggregate basis.

(iv) A turnover analysis by job function (e.g. personnel, marketing, finance, etc.) is possible.

Given the limitations and advantages of the computerised staff personnel records file, it is best equipped to analyse the turnover trends of staff employees on a cross-sectional basis rather than over-time, as the 'useful' data is only available between January 1st 1974 and January 1st 1975.

The applicability of each source of data is summarised in Figure 22 below.

### 3.8 SUMMARY

The aim of this chapter was to 'set the scene' in which the research was undertaken. The Dunlop Company, formed in the early 1900's enjoyed continued

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\* It is appreciated that some of these reasons may not be authentic. However, they may be used intuitively to gain a closer approximation to the controllable turnover rate.

FIGURE 22: TABLE SUMMARISING THE TYPES OF ANALYSIS POSSIBLE USING EACH OF THE 'COMPANY DATA SOURCES'

DATA SOURCE	TURNOVER ANALYSIS OVER TIME FOR INDIVIDUAL ESTABLISHMENTS					TURNOVER ANALYSIS ACROSS ESTABLISHMENTS DURING THE SAME PERIOD					ANALYSIS OF ABSENCE AND INDUSTRIAL DISPUTES BOTH OVER TIME AND ACROSS TIME		
	M S	F S	M O	F O	ALL	M S	F S	M O	F O	ALL	STAFF	OPERATIVES	ALL
PERSONNEL RETURNS	To some extent	To some extent	Yes	Yes	Yes			Yes	Yes			Yes	
CENSUS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	
COMPUTERISED STAFF RECORDS						Yes	Yes						

MS = Male Staff  
 FS = Female Staff  
 MO = Male Operatives  
 FO = Female Operatives  
 ALL = All employees

expansion for nearly seventy years reaching its maximum size, in terms of numbers employed, in 1969, when the total U.K. strength was 57,000. However, the last five or six years has seen the company contract to a size of just over 44,000 (i.e. a 23% reduction), mainly due to the economic recession, which has mostly affected the Tyre and Engineering Groups.

A diversity of products, based on different technologies, is manufactured by the company, e.g. Tyres, carpets, tennis rackets, footwear, conveyor belts and hoses.

Administratively the company is largely decentralised, each product group and each division within the product groups are responsible for their own profitability.

Regarding employee wastage in the company over the last nine years, Figures 18, 19, 20 & 21 present the following statistics:

a) Employee turnover rates

All employee turnover: 24-34%

b) Absence rates

All operative absence: 5.4-7.8% of planned hours lost

c) Industrial disputes

All employees: 0.1-1.9% of planned hours lost

d) Accidents

All operatives: 0.33-0.43% of planned hours lost

When individual employee categories were examined with respect to the above wastage measures, the following variations

were recorded:

a) Employee turnover rates

- (i) Male staff -: 26-33%
- (ii) Female staff -: 33-41%
- (iii) Male operatives -: 19-31%
- (iv) Female operatives -: 32-56%

b) Absence rates

- (i) Male operatives -: 4.9-7.3%
- (ii) Female operatives -: 7.5-9.7%

c) Industrial disputes (% of planned hours lost)

- (i) Staff -: 0.0-0.09%
- (ii) Operatives -: 0.1-3.3%

Three sources of data available within the company Personnel Returns, Census, Staff File, were closely examined regarding their utility in the analysis of employee wastage. Generally speaking the data available was very extensive and useful, with certain important limitations which need to be borne in mind when developing the 'research strategy' which is the subject of the next chapter.

## CHAPTER 4

### The Research Strategy

#### 4.1 INTRODUCTION

The aim of this chapter is to describe the development of the research strategy required to pursue the project objectives as a whole.

The strategy is developed around the issues, problems and recommendations for further investigation from past research, i.e. the theoretical approach (see Chapter 2), and the practical situation in terms of the availability and coverage of relevant information in the organisation under study (see Chapter 3).

It was proposed that the most 'fruitful' results would be achieved by two separate types of investigation to enable all related disciplines to be incorporated into the analysis. These approaches were:-

- (i) Quantitative - based upon the statistical analysis of those factors associated with employee turnover which are readily quantified.
- (ii) Qualitative - based on the more subjective issues and investigated by a carefully administered interviewing program.

Although this was a 'two-pronged' attack it was anticipated that the outcomes of each could be incorporated into a general method of measurement, modelling, diagnosis and control of employee turnover.

#### 4.2 REVIEW OF PROJECT OBJECTIVES

At this stage it is important to re-iterate the project objectives as initially perceived and then examine them against the major issues and problems highlighted by

past research, together with sources of information available within the company.

The project aims are:-

- (a) 'that employee turnover rates be determined for all employee types by sex and on factory-by-factory basis.'
- (b) 'that reasons for the variations in measures of employee turnover between factories and employee types be ascertained.'
- (c) 'that the possibility of establishing 'norms' or acceptable levels of employee turnover be investigated'.
- (d) 'that the influence on these 'norms' of various factors e.g. changes in earnings, recruitment, etc. be ascertained.'
- (e) 'that the feasibility of using variations from these norms as a means of measuring the effectiveness of managements' personnel policies be established.'

The central theme underlying these objectives is to assess the feasibility of using measures of employee turnover as a managerial control.

#### 4.3 REVIEW OF THE PRINCIPAL ISSUES, PROBLEMS AND RECOMMENDATIONS FOR FUTURE RESEARCH AS HIGHLIGHTED BY PAST RESEARCHERS

This review summarises the findings of Chapter 2 according to definition, measurement, correlates, determinants and models of employee turnover respectively; i.e. what theoretically ought to be done in pursuit of the research objectives.

##### 4.3.1 Definition

- (a) Precise and purposeful definition is essential
- (b) Attention should focus on that part of turnover

over which managers can exercise most influence, i.e. controllable turnover.

#### 4.3.2 Measurement

It is very important all uncontrollable aspects of turnover, e.g. leaving due to pregnancy, death, retirement and redundancy, be deleted from the computation of turnover rates.

#### 4.3.3 The Main correlates of employee turnover

The most significant correlates or predictors of employee turnover propensity as observed by previous empirical research were levels of unemployment (in particular local levels for manual employees) length of service, age, sex (i.e. the difference in turnover rates of male and female employees), employee type (i.e. the difference in the turnover rates of manual and non-manual employees), absenteeism, skill levels of manual employees (i.e. the difference in turnover rates of skilled, semi-skilled and unskilled groups), and location of the undertaking.

The major issue regarding the correlates is the problem of 'spuriousness' or inter-correlation amongst them. It is necessary to attempt to 'separate-out' or provide controls for these associations. Multiple regression and/or partial correlation techniques are therefore essential to any analytical model.

#### 4.3.4 The Principal postulated determinants of employee turnover

The most important determinants or more accurately 'direct intra-organisational stimuli'\* of employee

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\* The term 'stimuli' is perhaps more accurate than determinants, since these factors have been shown to trigger-off feelings of dissatisfaction which may or may not ultimately result in turnover.

turnover, which most susceptible to managerial influence, are listed below.

- (a) Overall job satisfaction - based on individual needs and orientations to work.
- (b) Earnings and relative earnings and their perceived importance to the individual.
- (c) Promotion opportunities
- (d) Determinants of the 'Induction Crisis', i.e. possible underlying causes of high turnover amongst short-service employees.
  - (i) Poor selection and recruitment techniques
  - (ii) Inadequate training, induction and orientation of new recruits
- (e) Styles of supervision and management.
- (f) Interpersonal conflict - either between subordinates or with superordinates.
- (g) Organisational size.

The main issues to note from the above list are firstly, that individual determinants are not independently exclusive, since leaving behaviour may be the resultant of a combination of them, and secondly that many do not lend themselves easily to numerical representation because of their inherent subjective nature.

#### 4.3.5 Models of employee turnover

The numerous factors associated with employee turnover have led many researchers to develop theories and models, in an attempt to gain more analytical insight into the phenomenon. The results of the work by Bowey certainly indicate that the 'modelling' approach, especially in the context of a 'live'

situation, may produce real clues as to the underlying causes of turnover, and possible methods of alleviating them.

However, the 'modelling' approach does have one significant limitation in that only readily quantifiable parameters can be included. Thus it omits the more socio-psychological determinants, e.g. job satisfaction, styles of supervision and management, etc. which are largely within managerial control. It is apparent that their importance is most conveniently assessed by a carefully administered interviewing programme, especially the use of exit-interviews. (see 'Methods of control of employee turnover - Pigors and Myers 2.6.3)

#### 4.4 REVIEW OF THE AVAILABLE DATA WITHIN THE COMPANY

Information relevant to individual employees, employee groups, factories, product divisions, product groups and the company as a whole, is available in the following company reports:

- 4.4.1 Personnel Returns - available quarterly from 1967-1972, and half-yearly thereafter, for all employee types by factory, division, product group and the company as a whole.
- 4.4.2 Census - available annually, for all employee types, by factory, division, product group and the company as a whole.
- 4.4.3 Computerised staff personnel file - available between January 1st 1974 and January 1st 1975, for staff (non-manual) employees only.

#### 4.5 THE DEVELOPMENT OF THE RESEARCH STRATEGY

The research strategy to investigate the project objectives is based on the issues, problems and recommendations for further investigation identified by past research, and the extent to which these can be realistically met. This is largely governed by the availability and coverage of relevant practical information and data within the organisation.

The approach adopted is based on a technique suggested by Draper and Smith<sup>121</sup> which is particularly relevant to the type of problem under investigation. In their chapter on 'Multiple Regression and Mathematical Model Building' they examine the use of three types of mathematical models.

##### (a) The Functional Model

These models are only applicable when a true functional relationship between a response (e.g. turnover) and the independent variables (e.g. unemployment, earnings, etc.) is known. Then it is possible to understand, control and predict the response. However, this situation rarely exists, and even when it does the models are very complicated and may be non-linear.

##### (b) The Control Model

Sometimes it is desired to construct a model for controlling a response variable. However, often the independent variables involved may be out of the researchers control (e.g. levels of unemployment). If it is possible to construct a 'control model' there are often inherent practical difficulties which render the investigation unmanageable. The theoretical and practical difficulties involved with functional and control models have led to use of 'predictive' models.

(c) Predictive Models

The main applications and features of predictive models are as follows:

- (i) Used when the functional model is complex, and when independent estimates of the effects of control variables are not available.
- (ii) The model reproduces the main features of the response under study.
- (iii) The model may provide real insight into the process or problem.
- (iv) Multiple regression techniques are most applicable to the development of predictive models, particularly when much intercorrelation exists between the independent variables.
- (v) Although the model may not be functional or useful, for control purposes, it is a very useful variable screening device and therefore important variables may be readily identified

Draper and Smith emphasise the need for an organised plan for problem-solving exercises using multiple regression techniques because incorrect inferences may be drawn through miscomprehension of the issues involved.

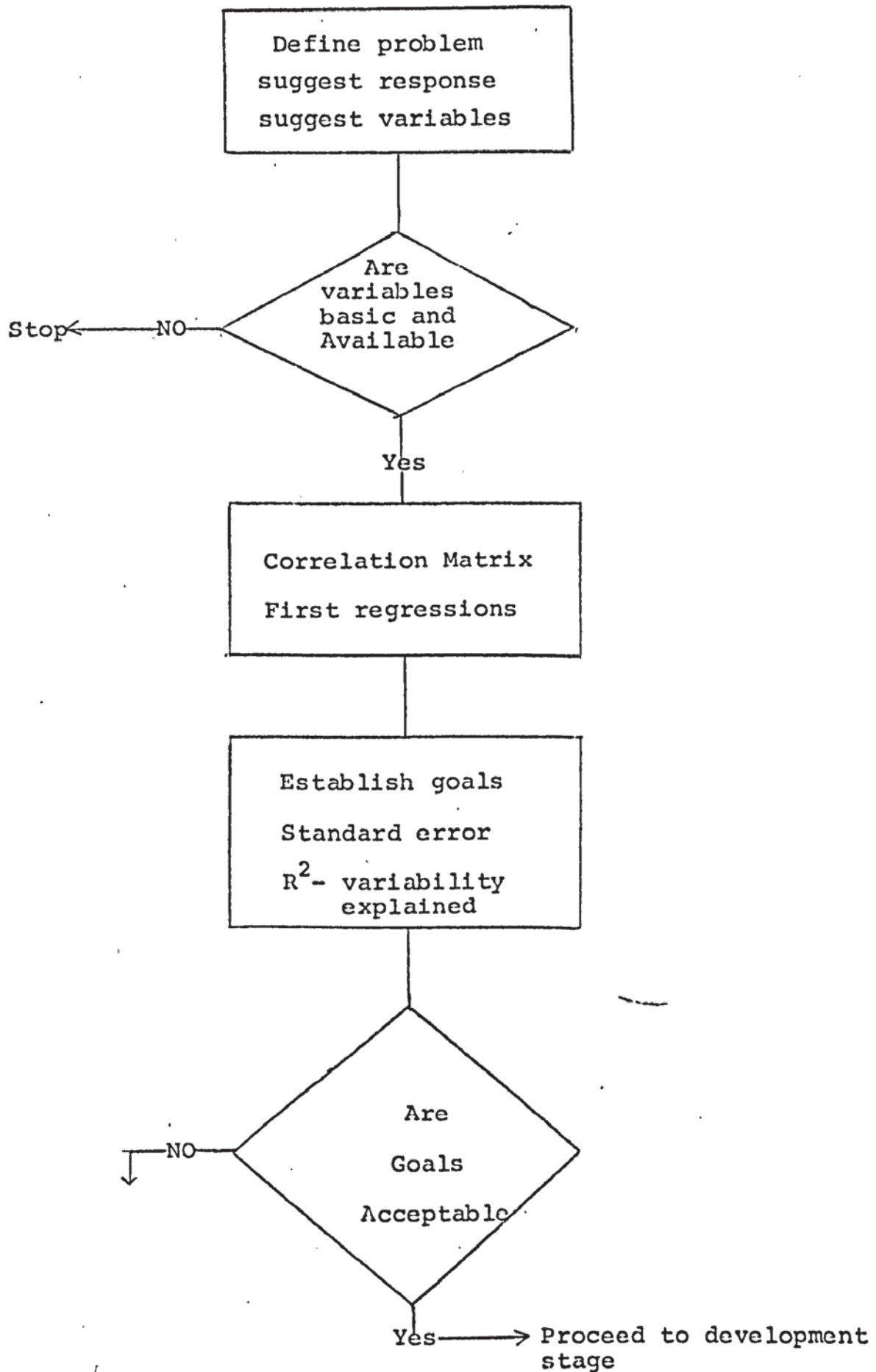
It is the planning section of their 'Model building procedure' on which the research strategy is based; which is illustrated in Figure 23 below.

Considering each section of the Planning stage in turn:

1st Stage

- (a) Define the problem: as review of project objectives:  
See 4.2
- (b) Suggest response (i.e. dependent variables):

FIGURE 23: Draper and Smiths' PLANNING MODEL



Generally speaking the response under consideration is employee turnover, and in particular controllable employee turnover.

- (c) Suggest variables (i.e. independent variables):  
As in section 4.3.3 and 4.3.4.

2nd Stage

- (a) Are the variables basic and available:

Figures 24a, b, summarise whether the proposed independent and dependent variables respectively, are readily quantifiable and their source of availability. These tables indicate that the research strategy should be dichotomic in nature, i.e.

- (i) Quantitative predictive models based on easily measured and readily available variables.
- (ii) Qualitative approach based on a carefully administered interviewing program aimed at identifying the more subjective determinants of employee turnover, which are not so readily measured.

Figure 24(b): Quantification and Availability of Response  
(Dependent) Variables

Dependent (Response) Variables	Is this Variable easily measured?	Source of Availability
Employee turnover	Yes	Personnel Returns Staff Records
Absence	Yes	Personnel Returns
Industrial disputes	Yes	Personnel returns

Figure 24(a): Quantification and Availability of proposed Independent Variables

Independent Variables	Is this Variable easily measured?	Source of Availability
1. Levels of unemployment	Yes	Government statistical reports
2. Length of Service	Yes	Dunlop Census; Staff Records
3. Age	Yes	Dunlop Census Staff Records
4. Employee type: i.e. Turnover of manual and non-manual employees	Yes	Dunlop Personnel Returns, Staff Records
5. Absenteeism	Yes	Dunlop Personnel Returns
6. Job skill levels of manual employees	No	Only by examination of factory records
7. Overall job satisfaction	No	By interview or questionnaire
8. Earnings and relative earnings and perceived importance	Yes (No).	Personnel Returns Government reports By interview or questionnaire
9. Promotion opportunities	No	By interview or questionnaire
10. Determinants of 'induction crisis'	No	By interview or questionnaire
11. Styles of supervision and management	No	By interview or questionnaire
12. Organisational Size	Yes	Personnel Returns
13. Interpersonal conflict	No	By interview or questionnaire

#### 4.6 THE SCOPE AND OBJECTIVES OF EACH STRATEGY

##### 4.6.1 Quantitative Predictive Models

###### (a) Scope

Figure 25 examines the scope and range of availability of data within the company for the computation of dependent and independent variables, with respect to employee types, factories and the company as a whole.

The methods by which the company organises the data permits implicit control for some of the correlates of employee turnover: i.e.

(i) The Company examines employee categories separately, e.g. staff and operatives. Furthermore each category is broken down by sex. Therefore it is possible to develop five separate predictor models which control implicitly for sex and employee type.

Male staff	)	
	)	non-manual
Female staff	)	

Male operatives	)	
	)	manual
Female operatives	)	

All employees

(ii) Furthermore as these dependent variables and related independent variables are computed on a factory-by-factory basis, 'location of the undertaking' is simultaneously controlled for.

###### Types of Investigation

The available data within the company and published Government statistics permit two types of investigation to be pursued (with reference to Figure 25)

Figure 25:

EMPLOYEE TYPE	Availability and Scope of Independent Variables						Availability and scope of dependent variables		
	Unemployment	Service	Age	Earnings	Size(nos)	Absence	Turnover	Absence	Industrial Disputes
ALL EMPLOYEES	A B	A B	A B		A B		A B		A B
MALE STAFF	A B	A B	A B	A* B*	A B		A B		A B
FEMALE STAFF	A B	A B	A B	A* B*	A B		A B		A B
MALE OPERATIVES	A B	A B	A B	A B	A B	A B	A B	A B	A B
FEMALE OPERATIVES	A B	A B	A B	A B	A B	A B	A B	A B	A B

A - available over time and on a factory by factory and company basis  
 B - available during the same period of time on a factory by factory basis  
 \* - certain limitations

(a) Time-series predictor models 1967-1974

These models are developed on the basis of data from twenty-seven Personnel Returns published over an eight year period. The company as a whole and a selection of factories are examined separately for each employee type and the available wastage measures. The actual factories chosen for the investigation are disclosed in the following chapter, together with the reason(s) for their choice.

The following example will hopefully clarify the situation regarding the Time-Series investigation.

Let  $A_1$  to  $A_5$  represent the chosen factories  
"  $Y$  -: represent the wastage measure (response)  
 $X_1$  to  $X_n$  represent the independent variables

Then for each factory  $A_1$  to  $A_5$ ; five predictor models of employee wastage are developed by multiple regression techniques on the 27 sets of time-series data.

e.g. the five 'predictor' equations for factory  $A_1$  for employee turnover during 1967-1974 are

$$Y(MST)^{A_1} = f (X_1 \text{ --- } X_n)_{MS}$$

$$Y(FST)^{A_1} = f (X_1 \text{ --- } X_n)_{FS}$$

$$Y(MOT)^{A_1} = f (X_1 \text{ --- } X_n)_{MO}$$

$$Y(FOT)^{A_1} = f (X_1 \text{ --- } X_n)_{FO}$$

$$Y(ALLT)^{A_1} = f (X_1 \text{ --- } X_n)_{ALL}$$

where MS = Male staff

FS = Female staff

MO = Male operatives

FO = Female operatives

ALL = All employees

T = Turnover

Objectives of this investigation:

- (i) To explain the variability of wastage measures for different employee types over time
- (ii) To determine whether similar combinations of independent variables are differentially predictive both within individual factories for each employee type, and across the five chosen factories for each employee type.
  - i.e. testing the existence of a general predictive model of employee wastage applicable to all employee types
- (iii) To determine whether similar combinations of independent variables differentially predict the variation in the various measures of employee wastage;
  - i.e. turnover, absence and industrial disputes;
  - i.e. testing of the 'withdrawal from work' hypothesis
- (iv) To determine the relative predictive powers of each independent variable for given employee types, thereby identifying the major predictors of each form of employee wastage.
- (v) To examine the possibility of establishing 'norms' of employee wastage based on those independent variables which are outside of managerial control.

- (vii) To gain an insight into the possible causes of employee wastage.

(b) Cross-sectional Predictor Models

These models are developed from data in the Personnel Returns, and the computerised staff personnel file. They differ from the Time-series models in that the wastage characteristics of at least twenty factories are examined during the same period of time, the duration of which is six months. Again five separate predictor equations are developed for each employee category. However, the data source for each employee type is different.

(i) Staff - Predictor Models

These models are developed from data in the computerised staff-personnel file, which contained information regarding leavers in addition to current staff. The 'leaver' data allows a more accurate measure of employee turnover to be computed. Furthermore the availability of salary information across twenty factories for leavers and stayers, should produce more meaningful results than the corresponding Time-series analysis, due to limited historical salary information.

However, it was only possible to develop two cross-sectional models from the available data.

(ii) Operative - Predictor Models

Operative predictor models are developed for three separate time periods. They are similar to the corresponding time-series models with regard to independent and dependent variables, but are based

on the variation in employee wastage over twenty-five factories during the same six-monthly period.

Objectives of this type of investigation

(i) To explain the variability of wastage measures for different employee types between factories during the same period of time.

(ii) To compare the results of the Time-series and Cross-section approach to the problem; and discuss their relative merits. The methodological issues are examined in more detail in Chapter 6 (See page     ).

(iii) The objectives (ii) to (vii) of the Time-series approach.

The precise choice, source, computation and modification, if necessary, of all the independent and dependent variables are discussed in detail in the following chapter (Chapter 5), together with the remaining stages of Draper and Smith's 'Planning Model' (See Figure 23).

4.6.2 Qualitative Approach

Figure 24(a) revealed that some of the possible causes of employee turnover were not readily quantifiable. These variables are more subjective in nature and their identification may only be possible using qualitative methods. It is felt this approach complements the predictive models which find their greatest application in shedding light on the overall climate in which employee turnover operates, rather than provide real clues regarding individual causes. Moreover it is this set of qualitative factors that are largely under managerial control.

For this reason an extensive exit interviewing programme was undertaken in an effort to assess the effects of the more socio-psychological factors, e.g. job satisfaction, styles of supervision and management, job expectations, etc. Only employees who have left for 'apparently' controllable reasons were interviewed. The choice of factories for the investigation is discussed in Chapter 7, together with the details of the development, administration, conduct and analysis of the interviews.

A sample of current employees with similar circumstances was also interviewed to act as a control group. The details of which are also described in Chapter 7.

#### Objectives of the Interviewing exercise

- (i) To determine individual reasons for leaving.
- (ii) To complement and/or elucidate the statistical findings.
- (iii) To provide a broader basis for the investigation of the problems of employee wastage; in this case employee turnover.
- (iv) To find out more about individual needs in the company for different employee types.
- (v) To examine and determine the series of events which precede a resignation.
- (vi) To assess the validity of exit interviews generally.

#### 4.7 SUMMARY

This chapter describes the development of the Research Strategy required to meet the project objectives. The strategy embraces the theoretical approach based on past research, and the 'practical' criteria based on the availability of statistics within the company.

A dichotomic investigation is proposed, based on the nature of the response (i.e. employee wastage) and the possible independent variables.

The two approaches are as follows:-

4.7.1 Multi-variate analysis using multiple regression techniques - based on the quantifiable factors affecting employee wastage, two types of models are developed, i.e.

(i) Time-series predictor models of employer wastage, for each employee type, for five separate factories and the company as a whole, for the period 1967-1974.

(ii) Cross-sectional predictor-models for each employee type derived from the wastage characteristics of at least twenty factories during the same six-monthly period.

- The rationale and approach for this analysis follow in Chapters 5 and 6.

#### 4.7.2 Interviewing Programme

A sample of 'controllable' leavers and a group of current employees, i.e. 'stayers', with similar characteristics were interviewed from a selection of

factories to assess the significance of the more deterministic and less quantifiable issues involved, and the meaning and process of 'quitting'\* to those involved.

Chapters seven and eight document the rationale and approach and the findings of this investigation, before the quantitative and qualitative approaches are married together to produce a general method of measuring, modelling, diagnosing and controlling employee turnover.

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\* Quitting refers to leaving for reasons apparently under managerial control.

PART THREE  
SEARCHING FOR PREDICTORS -  
QUANTITATIVE ASPECTS.

CONTENTS

- CHAPTER 5 - Rationale and Approach  
(CHAPTER 6 - Results of Modelling)

## CHAPTER 5

### Rationale and Approach

#### 5.1 INTRODUCTION

The purpose of this chapter is to describe, in detail, the search for predictors of employee wastage, and in particular employee turnover, from a quantitative standpoint.

The choice, source and methods of computation of independent (i.e. predictor) variables and dependent (i.e. wastage) variables receives close examination with respect to theoretical, analytical and practical considerations.

Two types of investigation aimed at determining the principal predictors of employee wastage are discussed; these being

- a) Time-series predictor models
- b) Cross-sectional predictor models

Methodologically, the form of statistical analysis required to determine the predictors, based on the type of problem under investigation is discussed, together with the practical means of undertaking the exercise.

Finally, the various kinds of analyses carried out with respect to each model are described, together with the objectives underlying each analysis.

#### 5.2 THE CHOICE, SOURCE AND COMPUTATION OF INDEPENDENT VARIABLES

This section examines the reason(s) why certain independent variables have been chosen as possible

predictors of employee wastage, based on the evidence of past research - Chapter 2, and availability in terms of statistics published in company reports and/or Government journals.

Considering each of the selected independent variables in turn:-

#### 5.2.1 Levels of Unemployment

##### (i) Choice

Part 2.3.1 examined the research relevant to the effects of levels of unemployment on the magnitude of employee turnover. It was concluded that this was an important variable on the basis of several strong negative associations reported, particularly with respect to the local level of unemployment for the turnover of manual (i.e. operative) employees.

##### (ii) Source

The Department of Employment publish a monthly gazette, part of which is devoted to tabulations of regional statistics of unemployment; the regions include:-

South East	North West
Greater London	North
East Anglia	Wales
South West	Scotland
West Midlands	Total Great Britain
East Midlands	Northern Ireland
Yorkshire & Humberside	Total U.K.

The percentage rates\* of unemployment for males and females separately, together with the overall unemployment rate are given for each region. Therefore the regional unemployment situation with respect to each

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\*. % unemployment rate =  $\frac{\text{Nos. unemployed}}{\text{Estimated Total of employees (employed \& unemployed)}} \times 100$

Dunlop factory, for males, females, and all employees is readily available both on an historical and current basis.

Also provided in the gazette are unemployment statistics for local areas within each region\*, e.g. the West Midland region includes the following local areas:-

Birmingham  
Coventry  
Dudley  
Hereford  
etc.

However, only the total percentage rate of unemployment is presented. Absolute numbers of males and females unemployed are provided but these are totally inadequate for statistical comparisons between localities. In order to obtain the required information on a local basis, regional offices of the Department of Employment were contacted. Fortunately these establishments do keep records of local unemployment statistics for males and females separately. The information was required for the period 1967-1974 for the local areas relevant to the Dunlop factories under investigation. Obviously this exercise would be extremely time-consuming in 'digging-up' the information on a monthly basis. A compromise was reached, and the unemployment percentage rates for males and females separately were provided on quarterly basis from 1967-1974 and were extremely gratefully received.

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\* a copy of the relevant section in the gazette is presented in Appendix A, p.13.

(iii) Computation of unemployment percentage rates  
National and regional statistics

These statistics were available on a monthly basis, and for males, females and all employees.

The percentage rates were calculated for the particular period of analysis (i.e. quarter, half year) by averaging the monthly rates during each period.

e.g. Male unemployment rate January-March (inc);  
in the West Midlands Region 1973.

Male unemployment West Midlands Jan. 73 = a %

" " " " Feb. 73 = b %

" " " " Mar. 73 = c %

Therefore Male unemployment in West Midlands Jan-Mar 1973\*

$$= \frac{a + b + c}{3} \%$$

Local Statistics

These statistics were provided on a quarterly basis i.e. March, June, September and December as percentage rates. Similarly the rates during a specific period of analysis were calculated by averaging the rates at the beginning and end of the period.

Note: The national, regional and local percentage rates of unemployment over the analysis period, for males, females and all employees for each Dunlop establishment under investigation is documented in Appendix A, pages 14-19..

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\* It is recognised that the Geometric mean may have been more appropriate if the rates were changing rapidly. This however was not the case.

### 5.2.2 Location of the Undertaking

The importance of controlling for this variable was emphasised in 2.3.3 Section 4.6.1(ii) of the research strategy demonstrated its implicit control by using individual factories as the unit of analysis; i.e. all independent and dependent variables are computed on a factory-by-factory basis (cf Personnel Returns)

### 5.2.3 Length of Company Service

#### (i) Choice

The overriding influence of length of service on the magnitude of employee turnover was discussed in some detail in Chapter 2, with reference to the 'Measurement' and 'Determinants of the Induction Crisis' sections. Its inclusion in any model of employee wastage is essential.

#### (ii) Source

Information relating to length of service of each employee type, on a factory, divisional, group and company basis is published annually as part of the Dunlop Census of Age and Service, as described in Chapter 3, section 3.7.2. The annual census refers to age and service as at 31st December.

#### (iii) Computation

Inspection of a typical Dunlop Census (see Appendix A, p.10) shows that the census of company service is characterised by the number of employees in various 'service' groups, each of which is inclusive, i.e.

$0 \leq A < 1$ ;	$10 \leq G < 15$ ;	$24 \leq M < 25$ ;
$1 \leq B < 2$ ;	$15 \leq H < 20$ ;	$25 \leq N < 30$ ;
$2 \leq C < 3$ ;	$20 \leq I < 21$ ;	$30 \leq O < 35$ ;
$3 \leq D < 4$ ;	$21 \leq J < 22$ ;	$35 \leq P < 40$ ;
$4 \leq E < 5$ ;	$22 \leq K < 23$ ;	$40 \leq Q < 45$ ;
$5 \leq F < 10$ ;	$23 \leq L < 24$ ;	$45 \leq R < 50$ ;
		$S \geq 50$ ;

where A = no. of employees with less than 1 yrs service  
and B = " " " " between 1 & 2 yrs "  
etc. etc.

and if T = total no. of employees; then

$$A + B + C + \dots + S = T$$

It is proposed to use three measures of company service in an attempt to control for the effects of the service distribution as a whole.

A) Those employees with less than 1 years service, expressed as a percentage (x)

$$\text{where } x = \frac{A}{T} \times 100$$

- this measure aims at allowing the effects of short-tenure employees to be observed; i.e. to examine the turnover propensity of low length of service groups, (if the Induction Crisis stage in Rice, Hill and Trist's<sup>28</sup> conceptualisation).

B) Those employees with between 1 and 4 years service; expressed as a percentage (y)

$$\text{where } y = \frac{(B + C + D)}{T} \times 100$$

- this measures attempts to observe the behaviour of Differential Transit employees (i.e. semi-committed).

C) Those employees with over 5 years service,  
expressed as a percentage (z)

$$\text{i.e. } z = 100 - x - y$$

- this measure aims to allow for the effects of longer-serving i.e. 'Settled Connected' employees to be considered.

For the time-series models, quarterly or half yearly measures of service are required in order to be statistically compatible with the data derived from the Personnel Returns.

Since the census information is only published annually, an assumption needs to be made about the behaviour of the distribution during the year, since it is not practically feasible to provide a census quarterly or half-yearly.

Therefore for practical reasons only, it is assumed that the service distribution changes linearly between any two annual publications.

The following example illustrates how the interpolation process is undertaken:

Consider the service distribution of Male Operatives at the Manchester factory of the General Rubber Goods Division of the Industrial Group; between December 31st 1970 and December 31st 1971;

let x, y, z, be the % of Male Operative employees

<1, 1-4, >5 years service at 31.12.70

and  $x_2, y_2, z_2$ , be the % of male operative employees  
with <1, 1-4, >5 years service at  
31.12.71

then a quarterly measure of the service distribution  
is estimated as follows:

If

$x_1 \sim x_2 = Dx$  ; and so on for  $y$ , and  $z$ , to get  
corresponding  $Dy$ 's and  $Dz$ 's

then the census of service at 31.3.71

would be

$x_1 \pm \frac{Dx}{4}$  ,  $y_1 \pm \frac{Dy}{4}$  ;  $z_1 \pm \frac{Dz}{4}$  ( $\pm$  depending on  
whether it is  
increasing or  
decreasing)

and at 30.9.71

$x_1 \pm \frac{3Dx}{4}$  ;  $y_1 \pm \frac{3Dy}{4}$  ;  $z_1 \pm \frac{3Dz}{4}$

- this process is repeated for all the years of  
analysis (1967-1974). The service distributions  
for all employee types, at one the factories under  
investigation are presented in the Appendix, A, p.20-24.

#### 5.2.4 Age

##### (i) Choice

The influence of age on the magnitude of  
employee turnover was discussed in section 2.3.10.  
Strong negative associations are reported, but  
it is doubtful whether the effects of service have  
been adequately controlled for. However, there  
is sufficient evidence of its effect to warrant its  
inclusion in the model, and furthermore any interr-

correlation with service may be controlled for by statistical methods.

(ii) Source

as for length of company service

(iii) Computation

As with the census of service, the census of age is characterised by the numbers of employees in various age groups, each of which is inclusive, i.e.

$$\begin{array}{ll} A_1 < 20 ; & 45 \leq G_1 < 50 ; \\ 20 \leq B_1 < 25 ; & 50 \leq H_1 < 55 ; \\ 25 \leq C_1 < 30 ; & 55 \leq I_1 < 60 ; \\ 30 \leq D_1 < 35 ; & 60 \leq J_1 < 65 ; \\ 35 \leq E_1 < 40 ; & K_1 \geq 65 . \\ 40 \leq F_1 < 45 ; & \end{array}$$

where  $A_1$  = no. of employees under 20 years old  
 $B_1$  = " " " between 20-25 years old  
 $C_1$  = " " " " 25-30 years old  
etc. etc.

and if  $T_1$  = total nos. of employees then

$$A_1 + B_1 + C_1 + \dots K_1 = T$$

As with the service distribution, it is proposed to use three measure of age to allow for the effects of the age distribution as a whole to be examined.

a) % of employees under 20 years old ( $\alpha$ )

$$\text{where } \alpha = \frac{A_1}{T_1} \times 100$$

b) % of employees between 20-29 years old ( $\beta$ )

$$\text{where } \beta = \frac{(B_1 + C_1)}{T_1} \times 100$$

c) % of employees over 30 years old ( )

$$\text{where } = 100 - - \beta$$

To estimate the age distribution on a quarterly or half-yearly basis, the same procedure as for estimating the corresponding service distribution is adopted.

#### 5.2.5 Differences in wastage of non-manual and manual employees

This variable is implicitly controlled by virtue of the fact that all measures of wastage are computed for manual (operatives) and non-manual (staff) employees separately.

#### 5.2.6 Differences in wastage of male and female employees

Control for this variable is achieved similarly as in 5.2.5, with the measure of wastage computed for each sex; i.e. male staff, female staff, male operative, female operatives.

#### 5.2.7 Earnings i.e. wages and salaries

(i) Choice

The research into the association between earnings

and employee turnover was reviewed in section 2.4.2. It was concluded that the level of financial compensation does quite strongly influence an employee's decision to leave or stay. However, the problem of spuriousness with other independent variables, e.g. age and service was noted. Furthermore, it was proposed that the employee type and his/her orientation to work should be investigated before any inferences are made.

Moreover many different measures of earnings have been used in models in an attempt to elucidate the situation, e.g. Bowey uses as a measure of the effect of earnings 'the average earnings of employees as a percentage of the average earnings paid for similar work in other firms in the local labour market'; Stoikov and Raimon use gross average annual earnings and magnitude of recent wage changes, and Lawler proposes that intra-factory relative earnings are an important determinant of employee turnover. On this basis it was proposed to examine the effect of earnings using four separate measures, i.e.

- a) Gross average earnings
- b) Relative regional/local earnings
- c) Magnitudes of recent wage changes
- d) Relative earnings of non-manual to manual employees in the same factory

(ii) Source

- a) Gross average earnings

Manual employees (Operatives)

In addition to the earnings of 'engineering

and allied' and 'process and miscellaneous' manual employees published in the Personnel Returns, the Company maintains quarterly records of all (engineering, allied, process and miscellaneous) manual employees average gross weekly earnings\*, for males and females separately and on factory, divisional, group and company basis. This information is available from January 1967.

#### Non-Manual employees (Staff)

Salary information for staff employees is only available since April 1971, for males and females separately and on an individual, factory, divisional, group and company basis. This was achieved by the computerisation of salary administration, however, not all employees are 'on-line' at present.

As with manual employees, gross average salaries for non-manual employees are computed on a quarterly basis for males and females separately, and for all 'computerised' factories, divisions and groups.

#### b) Relative regional/local earnings

The Department of Employment and Productivity have published 'The New Earnings Survey' annually since 1968. Incorporated within this report is a regional and local breakdown of average gross weekly earnings for manual and non-manual employees, and for males and females separately\*\*. Therefore

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\* these earnings are based on a normal week at the end of a quarter, but may be influenced by absence.

\*\* a copy of the relevant section is enclosed in the Appendix A, p.25

relative regional and local earnings may be determined for all employee categories\*over corresponding time periods.

c) Magnitudes of recent wage changes

These may be computed directly from the information on gross average weekly earnings.

d) Relative earnings of non-manual to manual employees

Again these variables may be computed from information on gross average weekly earnings received.

(iii) Computation

a) Gross average weekly earnings - manual and non-manual employees

The gross average weekly earnings for a particular period of analysis (i.e. quarter, half-year) are calculated by adding the gross average weekly earnings at the end of two successive time periods, and dividing by two: e.g. To calculate the average gross weekly earnings of male operatives at the Grimsby factory during October-December 1972 (inc) (X)

Let  $x$  = average gross weekly earnings at 30th Sept. 1972  
and "  $y$  = " " " " " 31st Dec.

Therefore  $X = \frac{x+y}{2}$  ; (£ per week)

If the analysis is over time; i.e. 1967-1974 the actual gross weekly earnings are not comparable in terms of 'real' value for successive quarters

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\* it must be assumed that level of jobs in the company and in the 'survey' are comparable

because of inflation. Therefore it was necessary to 'correct' for the effects of inflation to examine the 'true' effects. As a measure of inflation the Retail Price Index (R.P.I.), as reported by Croner\*, is used. (See Appendix A, p.26) for the tabulation of Retail Price Index 1962-1975).

For the purposes of this analysis the R.P.I. at March 1967 was equal to 1.00, and subsequent changes related to this base:

Consider the following example of correcting earnings for the R.P.I.

Female operatives average gross weekly earnings corrected for the R.P.I., April-June 1970; at the Gateshead factory (Y) (March 1967; R.P.I. = 1.00)

R.P.I.	April 1st 1970	=	0.87
R.P.I.	June 30th 1970	=	0.85
Average R.P.I.	April-June	=	0.86

Let  $x_1$  = female operatives average gross weekly earnings at 31st March 1970

and  $y_1$  = female operatives average gross weekly earnings at 30th June 1970

Therefore  $Y = \frac{0.86 (x_1 + y_2)}{2}$  ; £ per week

2

Note: A tabulation of the correction factors for R.P.I. is presented in the Appendix A, page 27 )

#### b) Relative regional and local earnings

As the information in the New Earnings Survey is published annually, it is necessary to interpolate between successive yearly statistics to obtain quarterly data comparable to that reported by the

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\* from information published in the Department of Employment Gazette

company. It is assumed that changes in the average earnings occur linearly during the year. There is no real proof that this is the case, however, it is the only option available. The computation is the same as that carried out on the service and age distribution data. Therefore relative regional and local measures of earnings may be estimated: e.g. For male staff (non-manual employees) at the Coventry factory (Z); July-September 1972.

Let X = average gross weekly earnings during July-Sept. 1972 of male staff at the Dunlop Factory in Coventry.

Let S = average gross weekly earnings during July-Sept. 1972 of male non-manual employees in Coventry estimated from data in the New Earnings Survey (N.E.S.) (i.e. local earnings)

Let P = average gross weekly earnings during July-Sept. 1972 of male non-manual employees in West Midlands estimated from data in the N.E.S. (i.e. regional earnings)

$$\text{Therefore } Z_L = \frac{X}{S} ;$$

$$\text{and } Z_R = \frac{X}{P} ;$$

where L = Local

and R = Regional

c) Magnitudes of recent changes in earnings

Two measures of changes in earnings are used;

i.e.

(i) Absolute increase/decrease (A)

(ii) Percentage increase/decrease (B)

For example: Changes in earnings of male operatives at the Leicester factory for the period October - December 1969.

Let  $a_1$  = average gross weekly earnings at Sept. 31st 1969  
and  $a_2$  = " " " " " Dec. 31st 1969  
then

$$A = a_1 - a_2$$

and

$$B = \frac{(a_1 - a_2)}{a_1} \times 100$$

(d) Relative earnings of non-manual to manual employees

For example the relative earnings of male staff to male operatives at Coventry during January-March 1972 (R), would be calculated as follows:

$X_{MS}$  = average male staff weekly earnings during the quarter

$X_{MO}$  = average male operative weekly earnings during the quarter

$$\text{Therefore } R = \frac{X_{MS}}{X_{MO}}$$

Note: For the investigation over time all the calculations referred to are repeated for each analysis period.

#### 5.2.8 Organisational size

##### (i) Choice

Despite the conflicting evidence of the effect of size on employee turnover, it was decided to incorporate it as a variable in the model to determine whether any relationship was visible

within the context of the Dunlop company, in which a factory size variation from 300-7000 employees could be investigated.

(ii) Source

Data relating to overall factory size, and numbers of constituent employee types are available in the Personnel Returns.

(iii) Computation

The numbers are obtained directly from the Personnel Returns, and refer to numbers employed at the end of the period.

Figure 26 summarises the specific measures of each independent variable to be used in developing the predictor models of employee wastage. Each measure is computed on a factory-by-factory and company basis for each category of employee i.e. Male staff, female staff, male operatives, female operatives and all employees.

Furthermore it must be emphasised that much attention has been devoted towards choosing those specific measures of the independent variables which are both readily available and easily computed, as the principal practical objective of the study was to develop practical models which may be used in the factory situation as an analytical tool for investigating wastage.

FIGURE 26 - SUMMARY OF SPECIFIC MEASURES OF INDEPENDENT VARIABLES

INDEPENDENT VARIABLES	LEVELS OF UNEMPLOYMENT	LEVELS OF COMPANY SERVICE	AGE	EARNINGS	ORGANISATIONAL SIZE
SPECIFIC  MEASURES	1) % locally unemployed 2) % regionally unemployed 3) % nationally unemployed Males, females and total %'s separately.	1) % with less than 1 year's service 2) % with 1-4 year's service (inc.) 3) % over 5 year's service	1) % under 20 years old 2) % between *20-29 years old (inc.) 3) % over 30 years old	1) Average gross weekly earnings during the period 2) Relative local earnings 3) Relative regional earnings 4) Magnitudes of recent wage changes a) absolute change b) % changes 5) Relative earnings staff to operatives	1) Total nos. employed on a factory-by-factory basis 2) Nos. in each employee category

\* Location of the undertaking, sex, differences in turnover of non-manual and manual employees are implicitly controlled for.

### 5.3 THE CHOICE, SOURCE AND COMPUTATION OF DEPENDENT VARIABLES

This section describes the dependent variables chosen for the analysis, together with analytical, theoretical and practical reasons for the specific choice.

Five dependent variables are examined:

Employee turnover rate

Employee absence rate

Hours lost through Industrial Action  
per employee

Employee redundancy rate

Employee recruitment rate

These variables are also used as independent variables for each analysis; i.e. when employee turnover is the dependent (response) variable in investigation, the remaining four variables may be used as predictor variables etc. etc., e.g. the effects of absenteeism and/or redundancy on turnover or hours lost through industrial action may be investigated.

#### 5.3.1 Employee Turnover

##### (i) Choice

As the act of leaving is the most final and drastic form of employee wastage, a large emphasis is placed on attempts to predict it. The definition and measurement section of past research, 2.2, highlighted two major issues that require consideration in any investigation:-

(a) Only 'controllable' turnover should be examined

(b) The length of service variable must be incorporated into any model

For the time-series investigation of employee turnover

derived from data published in Personnel Returns, an approximation to 'controllable' turnover has to be made. This is because only one 'uncontrollable' aspect of turnover - redundancy - is documented. The task of segregating the leavers from five constituent factories and the company as a whole for an eight-year period, into controllable and uncontrollable groups was considered to be finitely impossible. Furthermore, there were grave doubts as to whether reliable records existed for all the factories over the period of analysis.

However, over the eight-year period the company had made a significant proportion of employees redundant (see Figure 18). Therefore an approximation to controllable turnover is achieved by subtracting from the rates of turnover in the personnel returns, the redundancy rates, this index being termed the 'corrected' turnover rate. Any inferences drawn from these models must be discussed bearing this approximation in mind.

The situation regarding reasons for leaving in the cross-sectional analysis of staff turnover, using data from the computerised staff records is somewhat different. Each leaver is classified by a reason for leaving code as shown in Figure 27. This classification allows a fairly accurate measure of controllable turnover to be estimated. (The codes are derived largely from those proposed by the British Institute of Management<sup>3</sup>.) In addition to the facility of calculating controllable turnover rates, the file allows measures of independent variables relating

to leavers as well as current employees to be derived. The model for staff employees will be considered in more detail later.

(ii) Source

Turnover rates for the time-series analysis of all employee types and those required for the cross-sectional models of operative turnover are obtained from Personnel Returns. The computerised staff personnel file provides the required information for the cross-sectional models of staff turnover.

(iii) Computation

- (a) For those rates derived from the Personnel Returns, the method of calculation is illustrated in the following example

The total and corrected turnover rates of male operatives at the Dudley factory during the period January 1st 1970 - March 31st 1970; is calculated as follows:

$$T_{MO} = \frac{N_Q \times 4 \times 100}{0.5 (S_o + S_c)}$$

where T = Total turnover rate %

MO = Male operatives

$N_Q$  = No. of male operatives who left during the quarter for all reasons

$S_o$  = opening strength of male operatives at 1.1.70

$S_c$  = closing " " " " " 30.3.70

Note: that the numbers are multiplied by 4 to scale-up the rates to an annual basis.

( \* - multiplication sign)

FIGURE 27: COMPANY REASON FOR LEAVING CODES

Code	Reason for Leaving	Controllable Yes/No
<u>Discharge</u>		
1	Unsuitable	Yes
2	Disciplinary reasons	Yes
3	Redundancy reorganisation	No
<u>Resignation</u>		
4	Remuneration	Yes
5	Hours of work	Yes
6	Physical working conditions (e.g. lighting, temperature, dirt, posture)	Yes
7	Dissatisfaction with job, company policy or organisation	Yes
8	Relationship with fellow worker or supervisors	Yes
9	Personal betterment	Yes
10	Transport difficulties	No
11	Housing difficulties	No
12	Domestic responsibilities	No
13	Illness or accident	No
14	Marriage	No
15	Pregnancy	No
16	Move from district	No
17	Retirement	No
18	Death	No
19	Emigration	No
20	Other reasons for discharge or resignation	Yes
21	Cause unknown	Yes

the Redundancy rate (R) is calculated as follows:

$$R_{MO} = \frac{r \times 4 \times 100}{0.5 (S_o + S_c)}$$

where r = nos. made redundant during the quarter

Thus the 'Corrected' Turnover rate (CT) of male operatives is:

$$CT_{MO} = T_{MO} - R_{MO} ;$$

- (b) For those rates derived from the computerised staff Personnel File, the calculation of turnover rates is illustrated in the following example:-

The turnover and controllable turnover rates of male staff at the Walton factory during the period January 1st 1974 to June 30th 1974, is calculated as follows:

$$T_{MS} = \frac{N_H \times 2 \times 100}{0.5 (S_o + S_c)}$$

where MS = male staff

$N_H$  = total no. of male staff leavers during the half year for all reasons

$S_o$  = opening strength of male staff at 1.1.74

$S_c$  = closing strength of male staff at 30.6.74

Note: that the number of leavers is multiplied by 2 to scale-up the rates to an annual basis;

The Controllable turnover rate ( $T^C$ ) of male staff at Walton is

$$T_{MS}^C = \frac{N_H^C \times 2 \times 100}{0.5 (S_o + S_c)}$$

where  $N_H^C$  = no. of male staff who left because of 'controllable' reasons; i.e. those defined in Figure 27; e.g. 1,2,4,5,6,7,8,9,20,21

### 5.3.2 Employee Absence Rates

#### (i) Choice

Many researchers, such as Herzberg<sup>54</sup>, Bryant<sup>56</sup>, believe that absenteeism and turnover are manifestations of similar sources of dissatisfaction; i.e. 'the small decision which is taken when a worker absents himself is a miniature of the important decision he makes when he quits the job.'<sup>54</sup> Empirical investigations have reported both negative and positive associations between absence and turnover, however, this was explained by virtue of different methodological techniques of analysis.

It is considered an important variable in the model because of its extremely disruptive and costly effects on the company. Furthermore, from a theoretical point of view, the question of whether the variations in absence and turnover rates may be explained by similar factors\*, is worthy of investigation.

#### (ii) Source

Unlike employee turnover rates which are available for all employee types within the company on a factory, division, group and company basis, absence rates are only reported for operatives. These are available for male, female and all operatives separately in the Personnel Returns on a quarterly and half year basis from 1967-1974 (inc.) for each constituent factory, division, group and the company as a whole

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\* March-Simon<sup>33</sup> believes that absence and turnover may be triggered off by similar factors, however, whether the employee absents himself or leaves depends on a number of other factors, e.g. availability of alternative job opportunities.

(iii) Computation

The method of calculation of absence rates used in the compilation of the Personnel Returns is:-

$$\text{Absence Rate} = \frac{\text{No. of absences from normal shifts during a period}}{\text{No. of normal shifts available during the period}} \times 100$$

For example the absence rate of female operatives ( $A_{FO}$ ) at the Skelmersdale factory for the period Jan. 1st 1970-Dec. 31st 1970 is calculated as follows:

$$A_{FO} = \frac{100a}{0.5(S_o + S_c) \times 5 \times 46.8} \%$$

where  $a$  = total no. of absences for all reasons (full shifts lost)

$S_o$  = No. of female operatives present on Jan. 1st

$S_c$  = " " " " " " Dec. 30th

5 = No. of shifts per week

46.8 = No. of working weeks in a year (allowing for annual holidays and statutory holidays)

This rate\* includes absences for all reasons..

- a) Absence - accompanied by a doctors note, i.e. illness
- b) Absence with managerial consent
- c) Absence without managerial consent

As with turnover it would be desirable to examine more closely that portion of absence which may be subject to managerial control; i.e. 'controllable absence'. By inspection of the above types of absence only c) may be considered to be 'controllable', since a) and b) are unavoidable and permissible respectively, by definition

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\* absences of longer than 13 weeks duration are excluded from the calculations

To examine the feasibility of obtaining and computing 'controllable' absence rates a pilot study was undertaken at the Dunlop Footwear factory at Walton. This factory was chosen for two reasons:-

- a) Relevant absence records\* were available on an individual employee and departmental basis.
- b) The factory management believed that their absence rates were excessive.

Only the broad details of the study will be presented to illustrate the significance and practical feasibility of such an investigation.

Male and female operative absence records (over 500 separate records\*) were analysed over the period January 1973-October 1974 on a departmental basis. Controllable, permissible and total absence rates were computed annually. The results are summarised in Figure 28.

Only principal production departments were analysed (excluding engineers and canteen = < 5% of all operatives)

The following operative absence rates were observed for all production departments.

a) Male Operatives

<u>1973</u>		<u>1974</u>	
Total absence	= 5.26%;	Total absence	= 6.19%
Permissible absence	= 3.63%;	Permissible absence	= 4.61%
Controllable absence	= 1.63%;	Controllable absence	= 1.58%

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\* a copy of a typical absence record is enclosed in Appendix A (see page 28 )

FIGURE 28: OPERATIVE ABSENCE RATES AT WALTON JANUARY 1973-OCTOBER 1974

DEPARTMENT	ABSENCE RATES %											
	MALE OPERATIVES						FEMALE OPERATIVES					
	1973			1974			1973			1974		
	T	P	C	T	P	C	T	P	C	T	P	C
A	8.14	5.68	2.46	9.11	7.11	2.00	-	-	-	-	-	-
B	6.62	4.76	1.86	6.35	4.68	1.67	6.08	3.54	2.54	5.99	3.48	2.51
C	2.57	1.46	1.11	4.67	3.15	1.52	4.90	2.60	1.30	6.67	4.12	2.55
D	2.33	1.52	0.81	2.98	2.15	0.83	-	-	-	-	-	-
E	2.63	1.94	0.69	4.58	4.25	0.33	3.35	2.49	0.86	2.96	2.08	0.88
F	-	-	-	-	-	-	6.12	4.19	1.93	6.33	4.45	1.88
G	-	-	-	-	-	-	1.95	0.63	1.32	5.75	4.52	1.23
All production Departments	5.26	3.63	1.63	6.19	4.61	1.58	5.54	3.43	2.11	6.48	3.98	2.5

T = Total; P = Permissible; C= Controllable;

i.e. in 1973 for male operatives only 31% of all absence was theoretically controllable

in 1974 for male operatives only 26% of all absence was theoretically controllable

b) Female Operatives\*

<u>1973</u>		<u>1974</u>	
Total absence	= 5.54% ;	Total absence	= 6.48%
Permissible absence	= 3.43% ;	Permissible absence	= 3.98%
Controllable absence	= 2.11% ;	Controllable absence	= 2.50%

i.e. in 1973 for female operatives only 38% of all absence was theoretically controllable

in 1974 for female operatives only 39% of all absence was theoretically controllable

These results indicate that whilst on the surface overall absence rates ranged between 5-7%, only 1.5-2.5% of which was theoretically controllable.

The corresponding overall employee turnover rates and controllable\*\* rates were computed as an additional exercise. The results are summarised in Figure 29.

The main features from figure 29 are:-

a) Male operatives (all production departments)

<u>1973</u>		<u>1974</u>	
Total turnover	= 9.1% ;	Total turnover	= 3.9%
Unavoidable turnover	= 5.8% ;	Unavoidable turnover	= 1.3%
Controllable turnover	= 3.3% ;	Controllable turnover	= 2.6%

i.e. in 1973 and 1974 controllable turnover was less than 3.5%

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\* These rates include part-timers who represented 23% of total numbers.

\*\* i.e. using codes as suggested in Figure 27.

FIGURE 29: OPERATIVE TURNOVER RATES AT WALTON: January 1973-October 1974

DEPARTMENT	EMPLOYEE TURNOVER RATES (%) ANNUAL BASIS												average nos. employed			
	MALE OPERATIVES (MO)						FEMALE OPERATIVES (FO)						MO	FO		
	1973			1974			1973			1974						
	T	U	C	T	U	C	T	U	C	T	U	C				
A	18.8	8.4	10.4	11.3	2.3	9.0	-	-	-	-	-	48	53	-	-	
B	8.3	5.6	2.7	4.1	2.7	1.4	12.4	9.3	3.1	15.6	15.6	0.0	73	88	65	85
C	3.2	3.2	0.0	1.9	0.0	1.9	12.9	12.9	0.0	3.6	3.6	0.0	62	63	70	66
D	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	15	20	-	-
E	0.0	0.0	0.0	0.0	0.0	0.0	10.3	10.3	0.0	0.0	0.0	0.0	12	10	10	9
F	-	-	-	-	-	-	31.7	30.7	1.0	12.9	9.4	3.5	-	-	104	103
G	-	-	-	-	-	-	15.2	15.2	0.0	0.0	0.0	0.0	-	-	7	6
All production Departments	9.1	5.8	3.3	3.9	1.3	2.6	20.3	19.1	1.2	8.9	7.8	1.1	210	234	256	269

T = Total; U = Unavoidable; C = Controllable;

b) Female Operatives (all production departments)

1973

1974

Total turnover = 20.3%; Total turnover = 8.9%  
Unavoidable turnover = 19.1%; Unavoidable turnover = 7.8%  
Controllable turnover = 1.2%; Controllable turnover = 1.1%

i.e. during 1973 and 1974, controllable turnover was less than 1.5%

The main source of uncontrollable turnover for males and females derived from redundancies principally, followed by retirements.

This pilot study aimed at segregating different forms of wastage into uncontrollable and controllable aspects, illustrates the extent to which raw statistics may be misleading; especially in identifying the magnitude of that wastage over which management can exercise some measure of control.

However, there is one major drawback to this type of analysis, that is the time taken to collect, collate and calculate the relevant statistics. This particular study occupied the greater part of a month's work. Therefore if the study was extended to the eight-year analysis period and for five separate factories, and even if the relevant data were available over the entire period, it is extremely doubtful whether there would have been sufficient time left to tackle the research objectives as a whole!\*

Therefore this study serves as an illustration of the most desirable method of calculating some of the controllable aspects of employee wastage, when

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\* However, for the largest production departments at Walton during the 22 month period controllable absence was  $31 \pm 10\%$  of total male absence and  $34 \pm 8\%$  of total female absence. Therefore, as a first approximation the total absence rate may be used to indicate variations of controllable absence in a prediction analysis.

time is available. The approximations referred to previously are considered to provide the optimum pay-off when the pros and cons of the 'theoretical' and 'practical' approaches are weighed against each other.

### 5.3.3 Hours lost industrial action per employee

#### (i) Choice

The 'withdrawal from work' hypothesis is examined further by analysing the relationship between this form of employee wastage and other forms, e.g. turnover and absence. Furthermore the question of whether variations in this type of wastage are explained by similar independent variables used in turnover and absence analysis is investigated.

#### (ii) Source

The number of hours lost through industrial action is reported in the Personnel Returns for all operatives, all staff and all employees for each factory, division, group and the company as a whole. Hours lost as a result of miner's strikes, power cuts, strikes in supplier factories are excluded from the figures.

#### (iii) Computation

The Personnel Returns publish the total number of hours lost for each factory, for staff, operatives and all employees. The index employed in this investigation to allow meaningful comparisons to be made between employee types and factories is the number of hours lost in a period per employee, e.g. the man-hours lost per male operative employee at

the Gateshead factory for the period July-September 1969 is calculated as follows:-

$$M_{MO} = \frac{H_Q}{0.5(S_o + S_c)} \quad ; \text{ hours/employee}$$

where M = hours lost per employee

MO = male operatives

$H_Q$  = no. hours lost in the quarter  
by male operatives

#### 5.3.4 Redundancy\* Rate

##### (i) Choice

The company has made a large number of employees redundant during the analysis period. Therefore, it is important to determine whether its magnitude had an effect on past, present and/or future levels of employee wastage. For this reason redundancy is included in the model.

##### (ii) Source

Redundancy rates are reported in the Personnel Returns for all employee types for each factory, division, group and the company as a whole.

##### (iii) Computation

The method of computation is described previously, see 5.3.1(ii)

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\* it is not possible to distinguish between voluntary and involuntary redundancy from company records

### 5.3.5 Recruitment rates

#### (i) Choice

This variable describes the rate of entry into the organisation of new recruits, i.e. 'negative turnover' and because of the inherent turnover of short-service employees, it warrants inclusion in the model. It is appreciated that the length of service variable incorporating those employees with less than 1 years service will be highly intercorrelated with it.

#### (ii) Source

The numbers recruited in each employee category on a factory, divisional, group and company basis is documented in the annual census of age and service.

#### (iii) Computation

The census reports the number of employees recruited during the year (ER). The annual recruitment rate is calculated as follows: e.g. the male staff recruitment rate at Brynmaur during 1971;

$$ER_{MS} = \frac{100a}{0.5(So+Sc)} \quad \%$$

where a = nos. recruited during the year

There is no record kept of the numbers recruited on a quarterly basis. Therefore it is assumed that equal numbers are recruited during each quarter, and the corresponding quarterly rate is obtained by dividing the annual rate by four. It is appreciated that this assumption may be quite incorrect, thus this variable is used sparingly and any findings are treated with caution.

Figure 30 summarises the specific measures of employee wastage used in the predictor models. As with the choice of independent variables the dependent variables have been selected on the basis of theoretical and practical criteria.

#### 5.4 THE TYPES OF ANALYSIS UNDERTAKEN

The nature and coverage of relevant data for the analysis allows two types of modelling investigation to be undertaken. Considering each investigation and relevant aspects in turn:-

##### 5.4.1 Time-series predictor models

These models are developed from twenty-seven sets of data for the period 1967-1974, and are applicable to the wastage characteristics of various employee types from individual factories. For the most beneficial results, it was very important to choose factories which simultaneously satisfied a number of practical and theoretical criteria.

Considering each in turn:-

##### Practical Criteria

- a) The factory should possess complete or nearly complete data over the entire analysis period for all independent and dependent variables.
- b) Preferably at least one factory from each product group should be analysed to ensure the widest applicability of any significant findings.

FIGURE 30: SPECIFIC MEASURES OF EMPLOYEE WASTAGE

DEPENDENT VARIABLES	Employee Turnover	Employee Absence	Man-hours lost through Industrial Action	Employee Redundancy	Employee Recruitment
SPECIFIC MEASURES	<p>1) Corrected employee turnover rates</p> <p>2) Total employee turnover rates</p> <p>3) Controllable turnover rates 'staff only'</p>	<p>1) Total absence rate</p>	<p>1) Hours lost per employee per quarter due company disputes</p>	<p>1) Employee redundancy rate</p>	<p>1) Employee recruitment rate</p>
COMMENTS	<p>Available for all employee types.</p> <p>Corrected:- i.e. for redundancy</p>	<p>Available for operatives only.</p> <p>Not practically feasible to obtain a controllable index.</p>		<p>Company records do not separate voluntary and involuntary redundancy</p>	<p>Very broad assumptions made to obtain quarterly rates</p>

Theoretical Criteria

- a) Each factory should be located in different areas of the country to allow the effects of various labour market conditions to be incorporated.
- b) Each factory should be of sufficient size to yield stable statistics.
- c) A size variation between factories is desirable to allow its effects to be incorporated.

These strict criteria for the choice of factories has been imposed for the following reasons:-

- (i) If the factories are so chosen to exhibit the widest possible variation from each other in terms of product technology, labour market conditions and size, then any significant and consistent findings between the factories may be applied with a fair degree of confidence to all the other constituent factories within the group.
- (ii) Maximum coverage and availability of data over the analysis period is essential so that the models may be consistent with one another and allow the 'steady' state rather than 'transients' or 'perturbations' to be analysed.

The principal objective of this analysis is to obtain a set of independent variables which consistently predict to a high degree, the variation in employee wastage for the chosen factories. The power of prediction may be well sub-optimal for individual establishments,

but represents an overall optimum for all factories, to ensure the widest applicability of findings.

Each of the chosen factories will be examined in turn with respect to the above criteria.

### Coventry

Coventry is the largest factory in the Engineering group and currently employs over four thousand people. The principal products include aviation equipment, wheels, brakes, seals, specific purpose plant and equipment and suspension units. It is situated in the West Midlands which has been characterised by tight labour markets, high earning levels and a close association with the automotive industry.

As a research 'site' it satisfies all the practical and theoretical criteria as specified previously. Figures 31, 32, 33 and 34 (Appendix B, pages 29-32) illustrate the variation in strengths, employee turnover rates, redundancy rates, absence rates and hours lost by industrial action per employee, respectively over the analysis period 1967-1974.

The following range of statistics for the period 1967-1974 is observed from the graphs (based on annual figures).

- a) Employee strengths (minima and maxima at 31st December) - % contractions are based on the strengths at the beginning and end of the analysis period.

- (i) Male Staff: 1303-1498 (11% contraction during period)
- (ii) Female Staff: 536-824 (33% contraction during period)
- (iii) Male Operatives: 2511-389 (36% contraction during period)
- (iv) Female Operatives: 323-790 (58% contraction during period)
- (v) All Employees: 4677-6938 (33% contraction during period)

b) Employee turnover rates (%) (minima and maxima)

(i) Male Staff:

Overall turnover rate:- 6-19%  
Corrected turnover rate:- 5.5-12%  
Redundancy rate:- 0-7%

(ii) Female Staff:

Overall turnover rate:- 15-30.5%  
Corrected turnover rate:- 14.5-27.0%  
Redundancy rate:- 0-6.0%

(iii) Male Operatives:

Overall turnover rate:- 9-21.0%  
Corrected turnover rate:- 6.5-18.0%  
Redundancy rate:- 0.5-14.5%

(iv) Female Operatives:

Overall turnover rate:- 20-50%  
Corrected turnover rate:- 15-44%  
Redundancy rate:- 0.0-23.5%

(v) All Employees:

Overall turnover rate:- 9-23.5%  
Corrected turnover rate:- 8-20.0%  
Redundancy rate:- 0-12%

- c) Employee absence rates (%)
- (i) Male operatives:- 2.0-7.7%
  - (ii) Female operatives:- 3.0-10.8%
  - (iii) All operatives:- 2.2-8.3%
- d) Hours lost by Industrial action (hours/employee)
- (i) Staff:- 2.0-4.0
  - (ii) Operatives:- 3.3-45.9
  - (iii) All employees:- 2.8-30.8

The principal feature of Coventry's employment history over the analysis period is a steady contraction in numbers employed, mainly operatives, which was mostly concentrated during 1970-1972 when up to 8% of employees were lost as a result of redundancies.

#### Horbury

Horbury is the largest factory in the International Sports Division of the Consumer Group, and currently employs just over one thousand people. Its principal products include tennis, squash and badminton rackets, golf equipment, cricket bats and other sports equipment. It is situated on the outskirts of Wakefield in the West Yorkshire region, and derives its employees mainly from the Wakefield and Dewsbury travel-to-work regions, a small proportion come from Barnsley.

It satisfies the practical and theoretical

criteria required of a research site. Figures 35, 36 and 37 (see Appendix B, pages 33-35) illustrate the variation in strengths, turnover and absence over the analysis period.

The following range of statistics for the period 1967-1974 is observed from the graphs (based on annual figures).

a) Employee strengths (minima and maxima as at 31st December)

(i) Male Staff:-	149-176	(12.5% expansion during the period)					
(ii) Female Staff:-*	73-93	(13.4%	"	"	"	"	)
(iii) Male Operatives:-	328-400	(13.8%	"	"	"	"	)
(iv) Female Operatives:-**	361-416	(3.1%	"	"	"	"	)
(v) All employees:-	919-1065	(10.5%	"	"	"	"	)

b) Employee turnover rates (%) minima and maxima

(i) Male Staff

Overall turnover rate:- 6.0-21.5%

(ii) Female Staff

Overall turnover rate:- 21.0-43.0%

(iii) Male Operatives

Overall turnover rate:- 11.0-27.0%

(iv) Female Operatives

Overall turnover rate:- 28.5-46.0%

(v) All employees

Overall turnover rate:- 24.0-30.5%

---

\* 2% of Female staff are part-time

\*\* 25% of Female operatives are part-time

c) Employee absence rates % (minima and maxima)

- (i) Male operatives:- 4.0-5.9%
- (ii) Female Operatives:- 7.1-9.8%
- (iii) All employees:- 5.9-7.6%

Unlike the majority of Dunlop factories Horbury has enjoyed steady expansion during the analysis period (c. 10%). This has been due to the increase in demand of sports equipment generally. Furthermore there has only been a single redundancy and no hours lost as a result of industrial action 'on-site'. It is situated in a fairly tight labour market and experiences relatively high turnover and absence, particularly with respect to female operatives.

### Leicester

Leicester is the home of the Polymer Engineering Division of the Industrial Group, and currently employs over one thousand nine hundred people. It manufactures and develops automotive hose products, overhead electrical products, metalastic products, mountings, bearings, buffers, couplings and suspensions. It is situated in the East Midlands and derives its employees locally, many of which are of Asian and West Indian descent.

As a factory it satisfies all the criteria necessary for a research site. Figures 38, 39, 40 and 41 (see Appendix B, pages 36-39) illustrate the variation in strengths, turnover

absence and hours lost by industrial action, during the analysis period. The principal features of which are summarised below:

a) Employee strengths (minima and maxima as at 31st December)

- contractions are based on the strengths at the beginning and end of the analysis period

(i) Male Staff:-	646-761	(4.7% contraction during period)			
(ii) Female Staff:- *	196-240	(5.8%	"	"	" )
(iii) Male Operatives:-**	952-1211	(3.5%	"	"	" )
(iv) Female Operatives:-***	115-195	(26.3%	"	"	" )
(v) All Employees:-	1925-2382	(5.9%	"	"	" )

b) Employee turnover and redundancy rates % (minima and maxima)

(i) Male Staff:-

Overall turnover rate:-	10.0-22.5%
Corrected turnover rate:-	10.0-22.5%
Redundancy rate:-	0.0-1.0%

(ii) Female Staff:-

Overall turnover rate:-	24.5-48.0%
Corrected turnover rate:-	24.5-48.0%
Redundancy Rate:-	0.0%

(iii) Male Operatives:-

Overall turnover rate:-	18.0-78.5%
Corrected turnover rate:-	17.0-78.5%
Redundancy rate:-	0.0-1.0%

---

\* - 20% of female staff are part-time

\*\* - 1% of male operatives are part-time

\*\*\* - 27% of female operatives are part-time

(v) All employees:-

Overall turnover rate:- 16.5-57.0%

Corrected turnover rate:- 16.0-57.0%

Redundancy rate:- 0.0-0.5%

c) Employee absence rates (%)

(i) Male operatives:- 5.6-7.8%

(ii) Female operatives 4.5-7.9%

(iii) All operatives:- 5.7-7.8%

d) Hours lost by industrial action  
(hours/employee)

(i) Staff:- 0.0-0.5

(ii) Operatives:- 0.0-20.0

(iii) All employees:- 0.0-11.7

Leicester has undergone a slight contraction in numbers employed over the analysis period (c.5%), despite rapid expansion during 1968-1970 (c.15%). Some of the overall contraction was due to the relocation of the Rubber Plastics Division to Wrexham. It is situated in a tight labour market with competition from hosiery manufacturers. Employee turnover has been particularly high, especially with female operatives, reaching nearly 100% in 1968. There have been few hours lost as a result of industrial action, and redundancy has been used sparingly.

Inchinnan

Inchinnan is the third largest factory in U.K.

Tyre Group and currently employs in excess of one thousand two hundred employees. It manufactures all types of vehicles tyres. It is situated in Renfrewshire in Scotland, on Clydeside about ten miles from Glasgow. The area is characterised by relatively high unemployment and derives its employees from an ex-coalmining community.

As a research site it satisfies the pre-requisite criteria. Figures 42, 43, 44 and 45 (see Appendix B, pages 40-43) summarise the variation in employee strengths, turnover and redundancy rates, absence and hours lost by industrial action during the research period. The principal features are listed below:-

- a) Employee strengths (minima and maxima as at 31st December)  
- % changes are based on strengths at the beginning and end of the analysis period
  - (i) Male Staff 211-342 (38% contraction)
  - (ii) Female Staff\* 76-157 (52% " )
  - (iii) Male operatives 879-1236 (29% " )
  - (iv) Female operatives\*\* 34-50 ( no change )
  - (v) All employees 1216-1785 (32% contraction)
- b) Employee turnover and redundancy rates
  - (i) Male Staff
    - Overall turnover rate:- 5.5-22.5%
    - Corrected turnover rate:-5.5-17.0%
    - Redundancy rate:- 0.0-10%

---

\* 1% female staff are part-time

\*\* 4% female operatives are part-time

(ii) Female Staff

Overall turnover rate:-	7.0-38.0%
Corrected turnover rate:-	3.5-22.0%
Redundancy rate:-	0.0-28.0%

(iii) Male Operatives

Overall turnover rate:-	4.0-18.5%
Corrected turnover rate:-	4.0-18.5%
Redundancy turnover rate:-	0.0-10.0%

(iv) Female Operatives

Overall turnover rate:-	4.5-24.0%
Corrected turnover rate:-	4.5-24.0%
Redundancy rate:-	0-2.5%

(v) All employees

Overall turnover rate:-	6.0-18.5%
Corrected turnover rate:-	5.5-18.0%
Redundancy rate:-	0-11.5%

c) Absence rates %

(i) Male operatives:-	5.3-8.7%
(ii) Female operatives:-	2.7-7.9%
(iii) All operatives:-	5.3-8.7%

d) Hours lost by industrial action  
per employee

(i) Staff:-	0.0-6.0
(ii) Operatives:-	8.0-192.0
(iii) All employees:-	6.0-148.0

These statistics indicate that Inchinnan has undergone severe contraction during the analysis period (over 30%), as a result of turnover and redundancy. Comparatively speaking, as a factory, employee turnover is low, absence high and a large number of hours are lost as a result of industrial action. This wastage occurring in an environment of relatively high unemployment.

### Walton

The final research site chosen for the analysis is Walton. It is the home of the Dunlop Footwear Division of the Consumer Group, and currently employs slightly over one thousand people. It manufactures and develops all types of footwear, e.g. agricultural and industrial, weatherboots, sport and casual and fashion footwear. The factory is situated in Liverpool and characterised by an area of consistently high unemployment. Employees are derived locally.

The factory satisfies all the theoretical and practical criteria required as a research site. Figures 46,47,48 and 49 summarise the variation in employee strengths, turnover and redundancy rates, absence rates and man-hours lost by industrial action. The principal features are listed below.

- a) Employee strengths (minima and maxima as at 31st December)
  - % changes are based on opening and closing strengths of the analysis period.

(i) Male Staff:-	166-210	(13.5% contraction)	
(ii) Female Staff:-	115-156	(1%	" )
(iii) Male operatives:-	337-583	(34.5%	" )
(iv) Female operatives:-	296-679	(50%	" )
(v) All employees:-	942-1573	( 36.0%	" )

b) Employee turnover and redundancy rates %

(i) Male Staff:

Overall turnover rate:-	5.5-17.5%
Corrected turnover rate:-	0.5-14.0%
Redundancy rate:-	1.5-5.5%

(ii) Female Staff:

Overall turnover rate:-	17.0-32.0%
Corrected turnover rate:-	13.0-24.0%
Redundancy rate:-	0.0-17.5%

(iii) Male Operatives:

Overall turnover rate:-	7.0-25.0%
Corrected turnover rate:-	3.5-14.0%
Redundancy rate:-	1.0-17.0%

(iv) Female Operatives:

Overall turnover rate:-	14.5-40%
Corrected turnover rate:-	7.0-38%
Redundancy rate:-	1.5-25.5%

(v) All employees:

Overall turnover rate:-	12.5-27.0%
Corrected turnover rate:-	6.0-23.0%
Redundancy rate:-	1.5-17.0%

c) Absence rates (%)

- (i) Male operatives:- 5.2-7.6%
- (ii) Female operatives:- 9.0-11.2%
- (iii) All operatives:- 7.1-9.5%

d) Hours lost by industrial action  
per employee

- (i) Staff:- Nil
- (ii) Operatives:- 0-96.0
- (iii) All employees:- 0-65.4

[The magnitudes of all measures of independent and dependent variables are listed in Appendix B (see pages 48-52)\*]. Corresponding tabulations for other factories are available but are not included in the Appendix owing to space limitations.

Of all the research sites, Walton has experienced the greatest reduction in strength (36.0%). As with Coventry, Leicester and Inchinnan, operatives have been hardest hit. Redundancy has been widespread during the period, up to 17.0%, and only male staff have escaped lightly. Absence rates are relatively high, especially for female operatives (max. 11.2%). During 1973 the hours lost per employee through industrial action rose very sharply, i.e. over 60 hours/employee. Generally speaking from a company point of view industrial relations have been more difficult and demanding in this area of the country.

The Company as a whole

The Company as a whole is also analysed over the period 1967-1974. Variations in strength, turnover, absence and hours lost through Industrial action have been previously presented (see Figures 18, 19, 20 and 21).

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\* For the Coventry factory as an example.

The main characteristics of the 5 research sites are summarised in Figure 51 below:

#### 5.4.2 Cross-Sectional predictor models

##### A) Operatives (manual employees)

These models are based on statistics from the Personnel Returns. The predictors are developed from the employee wastage and associated characteristics of twenty-five Dunlop factories over the same period of time. Three models are developed separately over the following time periods.

- (i) January-June 1973
- (ii) July-December 1973
- (iii) January-June 1974

In order to incorporate maximum potential applicability of any significant findings, the factories are located in all parts of the U.K., manufacture various products, and are situated in the complete spectrum of labour market conditions. Three models are developed to examine whether the predictors are consistent over the separate analysis periods. The results of this investigation are closely compared with those of the time-series study to assess the relative merits of each approach.

Separate models are developed for male and female operatives based on those independent and dependent variables described in sections 5.2 and 5.3.

FIGURE 51: CONSTITUENT FACTORIES FOR TIME-SERIES ANALYSIS

FACTORY	DIVISION & PRODUCT GROUP	CHARACTERISTICS:-MEAN VALUES-ALL EMPLOYEES 1967-1974				
		SIZE (nos.)	TURNOVER %	ABSENCE OPERATIVES %	UNEMPLOYMENT (%)	
					LOCAL	REGIONAL
COVENTRY	ENGINEERING	5899	17.5	5.6	3.6	2.8
HORBURY (Wakefield)	INTERNATIONAL SPORTS CONSUMER	962	26.5	6.6	2.1	4.5
LEICESTER	POLYMER ENG. INDUSTRIAL	2197	39.5	6.9	1.7	2.4
INCHINNAN (Renfew)	U.K. TYRE	1521	13.1	6.7	3.8	4.7
WALTON (Liverpool)	FOOTWEAR CONSUMER	1258	22.9	8.1	5.6	3.3

Figure 52, below summarises some of the principal characteristics of those factories included in the cross-sectional study period January-June 1973. Corresponding tabulations for the remaining analysis periods are presented in Appendix B (see pages 53, 54).

The following minima and maxima of variables are observed from the tabulation.

- 1) Total numbers employed\* :- 109-6831.
- 2) Unemployment rates:-
  - a) Local:  
Males:- 1.7-10.2%  
Females:- 0.5-3.9%
  - b) Regional:  
Males 2.2-6.8%  
Females:- 0.5-3.0%
- 3) Corrected turnover rates  
(% - annual basis)
  - a) Male operatives 6.4-91.0
  - b) Female operatives:- 0.0-67.0
- 4) Redundancy rates  
(% - annual basis)
  - a) Male operatives 0.0-3.6
  - b) Female operatives 0.0-20.2
- 5) Absence rates (%)
  - a) Male operatives 4.1-11.5
  - b) Female operatives 4.2-11.5

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\* This cross-sectional analysis of operatives represents 78% of all operatives in Dunlop.

FIGURE 52: CHARACTERISTICS OF FACTORIES ANALYSED IN THE CROSS-SECTIONAL MODEL FOR OPERATIVE EMPLOYEES  
JANUARY-JUNE 1973

FACTORY	PRODUCT GROUP	PRODUCT DIVISION	TOTAL NOS. OF EMPLOYEES	MALE OPERATIVES			FEMALE OPERATIVES			UNEMPLOYMENT (%)			
				CORRECTED TURNOVER %	REDUNDANCY RATE %	ABSENCE RATE %	CORRECTED TURNOVER %	REDUNDANCY RATE %	ABSENCE RATE %	LOCAL	REGIONAL	MALES	FEMALES
BIRMINGHAM	U.K. Tyre	Tyres	6861	11.9	0.1	5.1	12.0	0.0	3.8	4.3	1.1	3.4	1.1
INCHINNAM	"	"	1318	8.0	0.0	5.9	24.0	0.0	6.6	5.4	3.0	6.8	3.0
LIVERPOOL	"	"	2356	10.8	0.2	5.8	60.0	0.0	7.8	10.0	2.9	5.7	1.5
WASHINGTON	"	"	288	11.0	0.0	M	03.0	0.0	M	9.4	2.9	6.8	2.5
COVENTRY	Engineering	All	5124	14.9	0.1	5.0	23.0	0.0	7.0	3.3	1.1	3.4	1.1
DUDLEY	"	Wheel	425	51.0	0.0	6.6	49.0	0.0	9.6	2.4	0.6	3.4	1.1
MANCHESTER	Industrial	G.R.G.	1473	50.0	0.0	9.4	56.3	3.7	8.5	5.2	0.8	5.7	1.5
SKELMERDALE	"	"	986	20.0	0.0	6.9	18.0	0.0	8.7	6.8	3.5	5.7	1.5
GATESHEAD	"	Hose	1238	9.0	0.0	6.6	39.0	0.0	8.3	7.8	2.7	6.8	2.5
GRINSBY	"	Oil & Marine	468	14.0	0.0	4.9	38.0	0.0	4.8	5.8	1.3	4.3	1.4
CRANLINGTON	"	Hose	301	9.0	0.0	M	0.0	0.0	M	5.3	1.2	6.8	2.5
WALKER	"	Hose	526	25.0	0.0	M	0.0	0.0	M	7.8	2.7	6.8	2.5
LEICESTER	"	Polymer Eng.	1963	38.0	0.0	7.4	40.0	0.0	4.2	2.7	0.7	3.3	1.0
WREXHAM	"	Rubber Plastics	437	91.0	0.0	M	8.0	0.0	M	5.5	3.4	5.2	2.2
LONGHOBROUGH	"	Precision Rubbers	465	81.0	0.0	5.6	56.0	0.0	10.5	1.8	0.7	3.3	1.0
SAPCOTE (LEICS)	"	R.E. Components	109	29.0	0.0	M	31.0	0.0	M	1.7	0.6	3.3	1.0
HIRMAUN	Consumer	Dunlopillo	629	14.0	0.0	6.3	40.0	0.0	11.5	4.6	3.0	5.2	2.2
HARROGATE	"	"	603	27.0	0.0	5.6	67.0	0.0	4.6	3.3	0.8	4.3	1.4
WALTON	"	Footwear	919	6.4	3.6	6.0	5.8	20.2	10.7	10.2	2.9	5.7	1.5
BRYNMAUR	"	Semtex	1306	7.0	0.0	6.7	11.0	0.0	9.9	4.4	3.9	5.2	2.2
BACUSLEY	"	I.S.C.	608	65.0	0.0	11.5	43.0	0.0	9.0	5.6	1.7	4.3	1.4
HORBURY	"	I.S.C.	1028	24.0	0.0	5.7	53.0	0.0	7.9	2.7	0.5	4.3	1.4
LIVERPOOL	"	I.S.C.	544	16.0	0.0	7.7	13.0	0.0	9.3	10.0	2.9	5.7	1.5
WALTHAM ABSEY	"	I.S.C.	568	56.0	0.0	6.0	36.0	0.0	6.8	1.9	0.4	2.2	0.5
ROCHDALE	"	Textiles	439	45.0	1.0	4.1	44.8	12.2	8.9	4.4	1.1	5.7	1.5
Descriptive Statistics			1239	29.4	0.2	6.5	30.7	1.4	7.9	5.3	1.6	4.9	1.6
(ii) Range			6752	84.6	3.6	7.4	67.0	20.2	7.7	8.3	3.1	4.6	2.5
(iii) S.Deviation			1549	24.1	0.7	1.7	20.7	4.6	2.2	2.8	1.1	1.4	0.5

Key M. = unavailable

#### B). STAFF (Non-Manual employees)

In spite of the facility provided by the computerised staff records file for obtaining more accurate measures of 'controllable' turnover, reliable data was only available for the period January 1st, 1974, to December 31st, 1974 (inc.). However data for the computation of independent and dependent variables relating to current staff was also available for leavers.

Thus, corresponding measures for leavers with respect to length of service and salary were computed. These statistics were calculated for all leavers and 'controllable' leavers separately. The file also provided data on the 'length of service in the current position'. This variable represents the length of time any employee had remained in his current job, i.e. the time since his last promotion or transfer. Therefore the hypothesis that employees transferred within an organisation experience greater turnover than those not transferred may be examined. (See Coch and French<sup>98</sup>, 2.4.4(b) )

Figure 53, overleaf, summarises some of the principal factory characteristics of staff employees, used in the cross-sectional analysis January-June 1974. The corresponding table for the period July-December 1974 is in Appendix B, (see page 55). With the exception of the National Tyre Service and Engineering Group, for which relevant statistics are not available, the cross-sectional analysis covers 62% of all staff employees in Dunlop.

Although only two models are developed for staff employees, it is firmly believed that the importance of incorporating accurate measures of controllable turnover and variables relating to leavers will be demonstrated.

#### 5.4.3 Resume of the various types of predictor model

##### (1) Time-series models

A separate model is developed for each employee type, i.e.

FIGURE 53: CHARACTERISTICS OF FACTORIES ANALYSED IN CROSS-SECTIONAL MODEL FOR STAFF EMPLOYEES: JANUARY-JUNE 1974

LOCATION	GROUP	AVERAGE TOTAL NO. EMPLOYEES	MALE STAFF			FEMALE STAFF			UNEMPLOYMENT RATES (%)			
			AVERAGE STRENGTH	TOTAL TURNOVER RATE %	CONTROLLABLE TURNOVER RATE %	AVERAGE STRENGTH	TOTAL TURNOVER RATE %	CONTROLLABLE TURNOVER RATE %	LOCAL		REGIONAL	
									MALES	FEMALES	MALES	FEMALES
LONDON	Admin.	358	227	34.7	18.6	131	42.6	29.8	2.1	0.5	2.1	0.5
BIRMINGHAM	Admin.	253	163	42.9	8.4	90	43.8	20.8	3.2	0.9	2.8	1.0
BIRMINGHAM	Research Centre	307	248	4.8	3.2	61	9.5	3.1	3.2	0.9	2.8	1.0
BIRMINGHAM	U.K. Tyre	6742	1517	7.2	4.7	528	21.0	12.7	3.2	0.9	2.8	1.0
LIVERPOOL	"	2330	308	9.5	4.4	83	4.8	0.0	7.8	2.0	4.7	1.3
INCHINNAM	"	1266	226	9.6	7.8	77	17.3	12.3	3.8	1.6	5.5	2.1
MANCHESTER	Industrial	1409	276	18.3	11.9	98	24.2	16.2	3.5	0.6	4.7	1.3
SKELWERSDALE	"	981	184	11.2	10.1	52	25.9	18.5	5.3	1.8	4.7	1.3
NEWCASTLE	"	872	231	4.4	3.5	107	18.5	7.4	6.4	1.4	6.0	2.0
GATESHEAD	"	1207	216	7.5	5.6	68	42.9	25.7	6.2	1.9	6.0	2.0
LEICESTER	"	1893	618	13.2	10.4	177	32.8	20.1	2.3	0.4	3.0	0.8
NREXHAM	"	364	77	22.2	19.8	22	60.9	52.2	7.0	1.6	4.8	1.9
LOUGHBOROUGH	"	447	121	9.8	6.5	61	19.4	9.7	1.4	0.5	3.0	0.8
LIVERPOOL	"	331	97	12.1	8.1	31	28.6	21.4	7.8	2.0	4.7	1.3
HIFNALM	Consumer	616	131	6.0	6.0	52	11.5	3.8	4.7	1.0	4.8	1.9
HARROGATE	"	652	211	8.6	5.7	99	27.5	11.8	2.5	0.6	3.7	1.1
HORURBY	"	1035	161	15.6	9.6	74	38.0	32.9	2.5	0.5	3.7	1.1
LIVERPOOL	"	521	44	4.4	0.0	20	19.1	19.1	7.8	2.0	4.7	1.3
WALTON	"	943	178	19.6	9.8	114	12.3	5.3	7.8	2.0	4.7	1.3
BRYPAUR	"	1296	211	30.0	12.3	143	40.5	22.2	3.8	2.9	4.8	1.9
<u>Descriptive Statistics</u>												
(i) Mean		1191	272	14.6	8.3	104	27.1	17.3	4.6	1.3	4.2	1.3
(ii) Range		6489	1473	38.5	19.8	508	56.1	52.2	6.4	2.5	3.9	1.6
(iii) Standard deviation		1420	316	10.6	4.9	107	14.2	12.2	2.2	0.7	1.1	0.5

Male Staff

Female Staff

Male Operatives

Female Operatives

All Employees

These models are repeated for each of the five chosen factories and the company as a whole, and are derived from 27 sets of data for the period April 1967-December 1974. Therefore six models for each employee type are analysed.

(2) Cross-sectional models

a) Operatives

Again a separate model is developed for each sex, i.e.

Male Operatives

Female Operatives

The models are derived from the characteristics of 25 factories during the same six-monthly period. Three separate periods are analysed.

January-June 1973

July-December 1973

January-June 1974

b) Staff

A separate model is developed for each sex, i.e.

Male Staff

Female Staff

They are based on the data from 20 factories, from the computerised staff records file, for the period January-June 1974.

## 5.5 Statistical methods of determining predictors of employee wastage

The methodology outlined in this section is applicable to both the Time-series and Cross-sectional analyses. Any deviations are examined where appropriate.

### 5.5.1 Multi-variate analysis

The type of problem under investigation consists of a response, measured in three ways, i.e. turnover, absence and hours lost by industrial action, and several independent variables, i.e. unemployment, service, wages, etc., which have been found, by previous empirical work, to strongly influence it. Furthermore some of the independent variables may be inter-correlated.

This is not a unique problem in behavioural research, and techniques have been developed to gain a deeper understanding of the major issues involved. The general term used to describe this type of study is Multi-variate analysis. It is defined by Kerlinger<sup>122</sup> as 'a group of mathematical and statistical methods whose purpose is to analyse multiple measures of N individuals' ..... 'The phenomena we wish to explain and predict are complex' ..... 'many variables influence such phenomena, and multi-variate methods are ways of studying multiple influences of several independent variables on one or more dependent variables.'

Two of the most powerful and useful methods of multi-variate analysis are said to be:-

(i) Multiple regression analysis

Multiple regression is defined by Kerlinger as 'a method for studying the effects and magnitudes of the effects of more than one independent variable on one dependent variable using the principles of correlation and regression'. The simplest form of which is multiple linear regression. This method is used to predict the value of the dependent variable(s) from knowledge of the values of independent variables, by producing a linear combination of independent variables which will correlate as highly as possible with the dependent variable.

(ii) Factor analysis

Kerlinger defines Factor analysis as 'a method for determining the number and nature of the underlying variables among larger numbers, i.e. a method for determining  $k$  underlying variables (factors) from  $n$  sets of measures, where  $k < n$ . More generally then, this technique enables a given set of variables to be reduced to a smaller set of factors that distinguish underlying patterns of relationships. These factors are variable conglomerates. Nie, Bent and Hull<sup>123</sup> note the following most common applications of this technique.

- a) exploratory uses
- b) confirmatory uses
- c) as a measuring device

It was decided that the multi-variate technique most suitable for satisfying the project objectives was multiple linear regression. The reasons for its

choice were as follows:

- a) As stressed previously much attention has been devoted to the selection of those measures of independent and dependent variables, which are both readily available and easily computed. They are essential criteria for the development and implementation of practical and workable models. It is believed that if factor analytic techniques were employed, the formation of conglomerate measures would contradict these criteria, by providing factors that were difficult to interpret in real and practical terms.
- b) Multiple linear regression permits each measure of each independent variable to be incorporated into the model, and allow its contribution to be assessed. Furthermore the model can be simple, i.e. one independent variable; or complex, i.e. linear combinations of N independent variables
- c) Multiple regression techniques are very useful in developing predictors of any phenomena under study.
- d) The effects of changes of any individual independent variable, on the dependent variable is mostly easily permitted using multiple regression (i.e. management may wish to predict the effect of a 'ban on recruitment' for six months on employee turnover). Factor analytic techniques may well submerge individual measures into a single factor.

e) Although interpretation of multiple regression and factor analyses can both present difficulties, it is commonly believed that multiple regression is the easier of the two.

#### 5.5.2 Multiple linear regression

The technique of multiple linear regression is considered in slightly more detail when applied to the research problem.

Let  $Y_1, Y_2, Y_3 = Y_i$  ( $i = 1, 2, 3$ ) be the dependent variables

i.e. turnover, absence, and hours lost through industrial action respectively

and let  $X_1, X_2, X_3 \dots X_N = X_j$  ( $j = 1, 2, 3 \dots N$ ) be the independent variables e.g. unemployment rates, length of service, earnings, etc.

Now the basic concept of multiple regression is to produce a linear combination of independent variables that correlate as highly as possible with the dependent variable. The dependent variable may then be predicted from the linear combination.

For example: Let  $Y_1^{MO}$  represent the 'corrected' male operative turnover at Coventry

and  $X_1$  = male local unemployment rate in Coventry

$X_2$  = male regional unemployment rate in West Midlands

$X_3$  = male operative relative local earnings

$X_4$  = per cent of male operatives with less than 1 years service

If  $Y_1^{MO}(p)$  = predicted corrected male operative turnover rate at Coventry

Then by multiple linear regression the following equation may be developed; which represents the optimum prediction of the dependent variable under study.

$$Y_1^{MO} (p) = B_1 X_1 + B_2 X_2 + B_3 X_3 + B_4 X_4 + C + \text{error term}$$

where  $B_1 \dots B_4$  are regression coefficients

$C$  = constant

and  $Y_1^{MO} - Y_1^{MO} (p) = r$  ;

where  $r$  = residual; i.e. difference between the predicted and observed value of  $Y_1$

#### 5.5.3 Development of predictor models of employee wastage using multiple linear regression

Computationally the method of multiple regression is extremely tedious and only practically feasible using a computer, especially for multi-factor models. For this reason a statistical package developed by Nie, Bent and Hull<sup>123</sup>, has been used exclusively in the quantitative analysis covered in this research. The package facilitates the computation of descriptive statistics, frequency distributions, cross-tabulations, bivariate correlations and partial correlations in addition to multiple regressions, for very large samples.

This package operates very simply by creating a data file of all independent and dependent variables to be used in the investigation according to specific coding and format specifications. The desired statistical investigations are achieved by 'keyword' instructions defined in the operating manual. The particular investigations undertaken together with

the programmes used are discussed later in this chapter.

Referring back to Figure 23, which illustrates Draper and Smith's<sup>121</sup> 'Planning Model', a position is now reached whereby it is desirable to compute a 'correlation matrix' of all dependent and independent variables to be used in the analysis. The strength, significance and sign of correlations between independent and dependent variables, and between individual independent variables, sheds light on those variables that should be incorporated into subsequent regression models.

The first models to be examined are simple one-factor models, e.g. the prediction of absence rates ( $Y_2$ ) using local unemployment rates ( $X_1$ ) to produce an equation of the form.

$$\text{i.e. } Y_2(p) = a_1 X_1 + C ; a_1 = \text{regression coefficient} \\ C = \text{constant}$$

This model is most conveniently represented in the form of a 'Scattergram' which is available in the statistical package.

The next stage is to incorporate more independent variables into the model and monitor their effects on the prediction of dependent variable(s). A procedure termed 'stepwise regression', incorporated in the programme, is used to obtain the best possible prediction with the minimum number of independent variables. Briefly, the method selects a single independent variable which provides the best prediction. Then a second variable is chosen which

together with the first variable provides the best prediction. This process is repeated until all the independent variables have been exhausted or the addition of further independent variables makes no significant contribution to the prediction equation. Therefore independent variables are only entered into the equation if they make a significant contribution to the overall prediction, i.e. allow a greater proportion of the variance in the dependent variable to be explained.

The output from the programme contains a set of parameters which permit the researcher to assess the model in terms of predictability, typical errors in the prediction and the effects on the prediction as each additional independent variable is added to the equation. The principal parameters are as follows:

a) Multiple r

- this index is called the 'multiple correlation co-efficient', and represents the highest possible correlation between a least-squares composite of the independent variables and the observed dependent variable.\* Unlike the simple correlation co-efficient it varies only from 0.0 - 1.0, and does not have negative values. (It is the square root of r-square)

b) r - square

- this index represents the proportion of the variance in the dependent variable accounted for by the independent variable(s) present in the equation.

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\* See Kerlinger<sup>122</sup> p.617

c) standard error

- this statistic is interpreted as the typical magnitude or error in the prediction of the dependent variable.(i.e. standard deviation of the residual

d) B - values

- for each independent variable in the equation  $X_i$ , a regression co-efficient  $B_i$  is calculated. This co-efficient is primarily used for prediction purposes.

e)  $\beta$  (beta) - values

- for each independent variable  $X_i$ , a standard partial regression co-efficient  $\beta_i$  is computed. This co-efficient would be used to translate the equation if all the variables were in standard-score form, and its magnitude provides some indication of the 'weighting' of the particular variable it refers to when the effects of all other independent variables are held constant.

The following 'hypothetical' example is used to present a clearer understanding of the above parameters.

Consider the following three-factor predictor model of male operative turnover at the Leicester factory.

Let  $Y_1$  = corrected male operative turnover rate (%)

and  $X_1$  = per cent male local unemployment rate (%)

$X_2$  = " " male operatives with under 1 years service

$X_3$  = relative local earnings of male operatives

From the computer the following predictor equation is output based on the twenty-seven sets of time-series data.

$$Y_1(p) = -0.6 X_1 + 0.7 X_2 - 10.9 X_3 + 100.6$$

$$\text{i.e. } B_1 = 0.6 ; B_2 = - 0.7 ; B_3 = 10.9$$

$$\text{and } C = 100.6$$

$$\text{Multiple } r = 0.8000$$

$$r \text{ square} = 0.6400$$

$$\text{Standard error} = 2.0000$$

The 'r-square' of 0.64, means that the independent variables  $X_1$ ,  $X_2$  and  $X_3$  explain 64.0% of the variation in corrected male operative turnover rates at Leicester during 1967-1974.

Furthermore supposing that the corrected turnover rate of male operatives ranged between 20%-40%, then the standard error shows that the typical prediction error is between 5-10% of those rates.

Based on standard partial regression co-efficients  $\beta_1$ , the equation may have read:-

$$Y_1(p) = 0.5 X_1 + 0.2 X_2 - 0.15 X_3$$

$$\text{where } \beta_1 = - 0.5; \beta_2 = 0.2; \beta_3 = -0.15$$

These co-efficients may be useful in attempting to determine the relative contribution of each independent variable in the equation. However accurate interpretations are only possible when no inter-correlation exists between the independent variables. This condition rarely applies, and added to the fact that the co-efficients change from

sample to sample, it is up to the researcher to use his judgement, consistently and carefully, before making any inferences regarding the relative predictive powers of individual independent variables.

5.5.4 Utility of the predictive models with respect to the project objectives

One of the project objectives was to explain the variations in measures of employee wastage both between employee types and establishments. The method of multiple linear regression is most suited to this type of investigation, in that for each predictor model developed a measure of accountability of chosen independent variables is available, i.e. in the r-square value.

A second objective was to investigate the possibility of establishing 'norms' of employee wastage. A 'norm' was previously defined as an acceptable level of wastage based on those variables over which management can exercise little influence. One of these variables may well be levels of unemployment both locally\* or regionally. It must be borne in mind that if any 'norms' are developed they will only be applicable to Dunlop factories. Furthermore, as levels of unemployment only represent the relative ease of securing alternative

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\* it is possible for management to influence local levels of unemployment to some extent, by making large numbers of employees redundant if the factory employs a large proportion of the local working population. e.g. Chrysler situation in Coventry and Linwood. However, this is the exception rather than the rule.

employment and are not principally the underlying cause of people leaving; these 'norms' will only be realistic insofar that internal factors remain constant both from an employee's and employer's point of view. Since leaving behaviour is the resultant of the interaction between the characteristics of the employee and employing organisation.

A further objective was to investigate the effects on these 'norms' of changes in specific variables. For example, a model may have detected that employee turnover rates had been strongly influenced by the magnitude of relative earnings in the locality. Then using the statistical package the effect of increasing factory earnings from, say 0.80 to 0.90 of the average earnings in the locality, may be predicted, by simple programme modifications. This particular objective is primarily concerned with predicting the effects on wastage of manipulation various factors directly under management control\*, these might include:

- a) Recruitment - thereby influence age and service distribution to some extent
- b) Redundancy - although there is some debate about its real cause, management controls its magnitude
- c) Earnings - absolute and relative

Finally, any conclusions regarding the feasibility of using variations from these norms as a means of measuring the effectiveness of managements personnel policies are considered in the following chapter in which the results of the modelling exercise are presented.

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\* only quantifiable factors are considered here

5.5.5 The specific statistical investigations undertaken in the development of predictor models of employee wastage

Time-series data (1967-1974)

1. Descriptive statistics e.g. mean, range, standard deviation and variance were computed for each measure of each independent and dependent variable used in the analysis. The statistics are obtained for each employee type and each factory chosen for the study, and those relevant to employees at the Walton factory are presented in Appendix B (see pages 48-52).
2. Correlation matrices of all independent and dependent variables were computed for 'potential' predictor models. A typical matrix is summarised in the following chapter.
3. Predictor models of the various types of employee wastage are developed using the multiple linear regression technique. The 'withdrawal from work' hypothesis that different forms of wastage represent alternative forms of expressing dissatisfaction is examined by investigating whether they may be predicted by similar variables.
4. The possibility of an existence of 'lagged' relationships between dependent and independent variables is examined, i.e. the following hypothesis may be examined:
  - a) Does an increase in absence precede or succeed an increase in turnover? If so, how long is the interval?
  - b) Does turnover react immediately to changes in unemployment?

- c) From our knowledge of present magnitudes of independent variables, is it possible to predict subsequent levels of wastage?  
(For manpower planning purposes)

#### Cross-sectional data

As 1 and 2 of the Time-series data

3. The withdrawal from work hypothesis is only examined for operatives. Staff absence records do not exist.
4. Lagged relationships are not conveniently undertaken using cross-sectional data.

### 5.6 SUMMARY

The purpose of this chapter is to describe and discuss the rationale and approach for the search of predictors of employee wastage, and in particular employee turnover, based on the quantifiable aspects.

Each variable used in the analysis is examined with respect to the analytical and practical reasons behind its choice, the source of relevant information pertaining to its magnitude, and its method of calculation and/or estimation.

The nature of the available statistical information permitted two types of analysis to be used; i.e. Time-series and Cross-sectional.

Finally, the method of statistical analysis most suitable for developing predictors of employee turnover is discussed together with the specific types of investigation carried out with respect to each analysis.

The following chapter presents the findings of each analysis, and the interpretations therefrom.

CHAPTER 6

RESULTS OF MODELLING

6.1 INTRODUCTION

This chapter presents the statistical findings of the quantitative approach for the search for predictors of employee wastage.

Initially Pearson correlation coefficients between specific dependent and independent variables for each employee type, and each analytical method, i.e. Time-series and Cross-sectional, are tabulated and discussed.

Predictor models of employee wastage are developed on the basis of the significance and consistency of the simple correlation coefficients. The selection of predictors being derived from the theoretical hypotheses revealed in Chapter 2. Multiple linear regression is employed to determine the amount of variance in the dependent variables that can be accounted for using similar combinations of independent variables, to enable the feasibility of a general predictor model of employee wastage to be investigated.

Having shown reasonable evidence of the existence of a general predictor model of employee wastage, its anticipated practical uses in the 'in-plant' situation are discussed.

6.2 PEARSON CORRELATION CO-EFFICIENTS

The results for the two types of analysis are presented separately. Considering each in turn:-

6.2.1 Time-series analysis of employee wastage

Tables R1 to R5 (see Appendix D, p. 56-64) summarise the Pearson correlation-coefficients between specific measures of employee wastage and specific measures of

unemployment, company service, age, earnings and size, respectively, for each employee type in each factory participating in the analysis of time-series, 1967-1974. Each set of correlations is presented and discussed individually.

A) CORRELATIONS BETWEEN EMPLOYEE TURNOVER AND THE INDEPENDENT VARIABLES

a) Corrected employee turnover and unemployment rates

Tables R1a and R1b reveal the correlation coefficients obtained between 'corrected' employee turnover rates and levels of local and regional unemployment respectively.

A strong and very significant negative correlation is generally found for all employee types at each factory. Furthermore the correlations are stronger for operatives than staff, particularly with respect to the local levels of unemployment. This provides additional confirmation of the empirical findings of Crowther<sup>37</sup> and Rice, Hill and Trist<sup>38</sup>. There is only slight evidence that the turnover of staff employees is affected more by regional as opposed to local levels of unemployment. This is probably because the number of mobile staff is outweighed by the more parochial staff types.

The only exceptions to the above findings are the correlations for employees from the Horbury factory, and female operatives at the Inchinnan factory.

The reason for the Horbury 'exception' is probably because its labour market is not satisfactorily reflected in a single available unemployment statistic. It is situated on the outskirts of Wakefield and derives its workforce principally from Horbury, Ossett and Barnsley.

However, the Department of Employment publishes three separate unemployment levels for each of the above areas. Furthermore, the Ossett and Horbury unemployment statistics are incorporated in the 'travel-to-work' groups of Dewsbury and Wakefield respectively.

Inchinnan, derives its workforce from a 'travel-to-work' group for Paisley, Renfrew and Johnstone. The positive correlation between corrected female operative turnover and local and regional levels of unemployment may be due to the small numbers of female operatives during the analysis period, an average of 40, producing unstable turnover statistics. e.g. Four uncontrollable leavers in quarter, e.g. due to pregnancies and/or retirements could add 40% to the turnover rate. (Only redundancies are excluded from the computation of 'corrected' turnover rates)

b) Employee turnover and company service

Tables R2a to R2c, present the correlation co-efficients between corrected employee turnover rates and the proportion of employees with less than one year's service, between one and four years service and over five years service respectively.

A very strong and significant positive correlation is observed for all employee types at most factories, between corrected turnover and the proportion of employees with under one year's service Table R2a. The association is stronger for operatives than for staff, implying that operatives are more likely to leave in the first year of service. Female operative turnover exhibits the highest level of correlation followed by male operatives, male staff and female staff respectively. The low correlation for male operatives at Inchinnan is probably due to recruitment being less than

5% annually during the analysis period.

The correlations between corrected turnover and the proportion of employees with between one and four years service, table R2a, are not of any consistent size or direction. At the Leicester factory the strong negative correlation viewed in conjunction with its strong positive correlation with the proportion of employees with under one year's service, indicates that once the employees have survived the first year's service, stability improves, this is particularly so with operatives. However, at Coventry all employees with the exception of male operatives maintain a fairly strong positive association. These observations may shed some light on the determinants of the induction crisis, i.e. qualities of recruitment, orientation, training, etc., which may vary from factory to factory.

Examination of Table R2c, shows a strong and significant negative association between corrected employee turnover and the proportion of employees with over five years service.\* The only exceptions are two mildly strong positive correlations for male staff at Walton and male operatives at Inchinnan. This may be due to the large proportion of employees with over five years service in each factory, an average of 73% at Inchinnan and 84% at Walton. Consequently there may have been a significant proportion of retirements in each factory which have not been excluded from the computation of turnover rates. Also the relative size of this service group may have created promotion blockages, thereby forcing some employees to seek advancement elsewhere.

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\* Correlations for female operatives at Leicester, male staff at Horbury and female staff at Inchinnan are not significant.

Generally speaking the three tables of correlation co-efficients provide strong empirical confirmation of the hypothesis which proposes that as company service increases employee turnover decreases. (Section 2.3)

c) Employee turnover and age

Correlation coefficients between corrected employee turnover rates and the proportion of employees under twenty years old, between twenty and twenty-nine years old, and over thirty years old are summarised in Tables R3a, R3b and R3c respectively.

A fairly strong positive correlation between corrected employee turnover and the proportion of employees under twenty years old is observed from Table R3a for most employee types at Coventry, Leicester and Walton, with the exception of operatives at Coventry and all staff at Walton where the proportions of these employees under twenty years old are relatively small. The correlations are largely insignificant for those employees at Horbury and Inchinnan, except male operatives and female staff at Horbury. The negative correlation for male operatives at Horbury may result from a well-administered apprenticeship training at the factory.

Only two factories exhibit strong correlations between the corrected employee turnover rate and the proportion of employees between twenty and twenty-nine years old. All employees at Coventry show mild negative associations, except for female operatives whose turnover correlates very strongly and positively, whilst at Leicester all employee types have reasonably strong positive correlations.

Strong negative correlations between corrected employee turnover and the proportion of employees over thirty years old are observed for the following employee types.

Female operatives and staff at Coventry  
All employees at Leicester  
Female staff and male operatives at Horbury  
Male and female operatives at Walton  
Male operatives at Inchinnan

The remaining employee types show insignificant associations.

The above correlations provide further empirical evidence of the proposed negative association between employee turnover and age. Generally speaking the correlations are not as strong or as extensive as those between turnover and company service.\*

d) Corrected employee turnover and earnings/relative earnings

Pearson correlation coefficients between 'corrected' employee turnover rates and average earnings corrected by the retail price index, relative local earnings, relative regional earnings, relative earnings of staff to operatives, per cent change in average earnings between quarters; and absolute change in average earnings, respectively are presented in Tables R4a to R4f, below.

(i) Corrected employee turnover and average earnings

In spite of unavailable salary information for staff at Leicester and Horbury, strong negative and significant correlations were found for the following employee types.

Female operatives and male staff at Coventry  
Female operatives at Leicester  
Male and female operatives, male staff at Walton

However, male operatives at Leicester exhibited a very significant positive correlation ( $p < 0.001$ ) with average weekly earnings.

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\* If age and service information had been available for leavers an alternative method of analysis would have been to carry out an 'Analysis of variance' between the main age and service groups for wastage.

(ii) Corrected employee turnover and relative local earnings

Male and female operatives at Leicester and male staff at Walton were the only employees to exhibit significant negative correlations with relative local earnings. The contradictory positive correlation between male operative turnover at Leicester and average weekly earnings may have been caused by their pay being increased by an insufficient amount to offset the attraction of higher local earnings.

Male operatives at Coventry provide the only contradictory evidence.

(iii) Corrected employee turnover and relative regional earnings

The correlations are largely insignificant except for female operatives at Leicester and in the Company as a whole and male staff at Walton, and the Company as a whole, who exhibit significant negative associations.

(iv) Corrected employee turnover rates and relative staff to operative earnings

At some factories the differential between average staff and operative earnings has been eroded during the analysis period. Correlations were computed in order to detect whether leaving behaviour had been affected by this change. The results were slightly contradictory in that both male staff and operatives showed significant negative correlations. One would speculate that the lower the differential the higher the turnover of staff, perhaps caused by

dissatisfaction with the erosion of their relative financial status. Further evidence of this is provided by female staff at the Walton factory, and male staff as a whole in the company.

Further contradictory evidence is supplied by male operatives in the company, who show a very strong and significant negative relationship.

The conflicting evidence may be due to the small amount of available data to test this hypothesis (only 11 out of 27 cases have the required data).

(v) Corrected employee turnover and changes in average weekly earnings

The results in Tables R4e and R4f reveal no significant correlations, and therefore no evidence of the magnitude of recent wage changes on employee turnover was detected.

e) Corrected employee turnover and factory size:-Table R5

Significant positive correlations between factory size and corrected employee turnover were found generally for all employee types throughout the company, with the exception of male staff, for whom the correlations were largely insignificant. However, size also exhibits a strong positive correlation with the proportion of employees with under one year's service ( $r = 0.81$ , for the company as a whole), and therefore the findings may be spurious.

SUMMARY

Tables Sla and Slb (Appendix D, p. 65,66) summarise the proportion of factories in which significant Pearson correlations were found between the corrected employee

turnover rate and each of the chosen independent variables. Table Sla summarises those correlations significant at the 5% level, and Table Slb at the 0.1% level.

The results provide very strong confirmatory evidence of the associations between corrected employee turnover and unemployment rates, company service and age. The correlations are stronger and more widespread for operatives than staff, and in particular for male operatives against male staff. The evidence of an association between turnover and earnings and/or relative earnings is less convincing. However, the turnover of female operatives and male staff at many of the factories is significantly and negatively associated with earnings and relative local and regional earnings. Also worthy of note are the slightly larger associations of regional factors, e.g. regional unemployment and relative regional earnings, with staff employee turnover. Thereby providing evidence of a wider 'sphere of influence' of staff when compared to operatives, for whom local factors are more significant.

Correlations for employees in the company as a whole largely confirm the above findings, especially with respect to the influence of unemployment and company service on the turnover of operatives.

f) Tables R6, R7 and R8 (See Appendix D, p.67-69) present the correlation coefficients between the corrected employee turnover rate and the absence rate, hours lost as a result of industrial action and the redundancy rate.

(i) Corrected employee turnover rate and absence rate

Pearson correlation coefficients were computed to

examine the relationship between absence and turnover in order to shed some light on whether they were complementary, supplementary or simultaneous forms of withdrawal from work. The results\* are presented in Table R6. A very strong, significant and positive association is almost unanimous, the exceptions being male operatives at Horbury, and female operatives at Leicester and Inchinnan.

(ii) Corrected employee turnover rate and hours lost by industrial action

Male operatives at Inchinnan provide the only significant positive correlation. As a factory it has by far the worst 'strike record' of those studied. The average number of hours lost per employee per quarter, compared with the other factories is presented below:-

<u>Factories</u>	<u>Average hours lost per employee per quarter</u>	
	<u>Staff &amp; Operatives</u>	<u>Operatives</u>
Inchinnan	12.1	(16.3)
Coventry	4.5	(6.6)
All Dunlop Factories	3.5	(5.8)
Walton	3.1	(4.8)
Leicester	0.6	(1.1)
Horbury	0.0	(0.0)

The correlation at Inchinnan which shows a positive association between corrected employee turnover and hours lost by industrial action, indicates that these forms of withdrawal from work may be simultaneous manifestations of discontent.

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\* only operative correlations are given, since records of staff absence are not kept.

(ii) Corrected turnover rates and redundancy rates

For those factories which have experienced relatively high and consistent redundancies a significant negative correlation exists, e.g. male operatives at Coventry, male and female operatives at Walton, and male and female operatives in the company as a whole.

B) CORRELATIONS BETWEEN ABSENCE RATES AND THE INDEPENDENT VARIABLES

Tables R9 to R13 (see Appendix D, p. 70-75) present the correlation coefficients between the absence rate and specific measures of unemployment, company service, age earnings and relative earnings, and size respectively. They cover operative employees only since records of staff absence are not maintained.

The percentage of factories which provided significant correlations at the 5% and 0.1% levels, is documented in Tables S2a and S2b, respectively (see Appendix D, p. 76).

As with 'corrected' turnover rates the most significant correlations were obtained with measures of unemployment, service and age; in particular local levels of unemployment, the proportion of employees with under one year's service, and the proportion of employees with over five years service. Furthermore the absence rate of female operatives was very slightly correlated with size and very significantly negatively correlated with the proportion of them who were over thirty years old. Also of interest was the contradictory correlations of male and female operative absence with the proportion of them with between one and four year's service. Perhaps the penalties for male operative absence, in terms of job loss and/or reductions in earnings, manifest themselves after a much shorter period of service, than for female operatives.

C) CORRELATIONS BETWEEN HOURS LOST BY INDUSTRIAL ACTION PER EMPLOYEE AND THE INDEPENDENT VARIABLES ARE SUMMARISED IN TABLES R15 to R21, AND S3a, S3b (SEE APPENDIX D, P. 77-83)

Correlation coefficients were only computed for operative employees as hours lost by staff employees were negligible in comparison. Generally no significant correlations were observed. This was probably due to the lack of available data (only 60% coverage of the analysis period) and because only one factory had lost a substantial amount of time through disputes, i.e. Inchinnan. However, there were 'hints' of associations with unemployment rates both local and regional (negative correlations), the proportion of employees with over five years service (positive correlations), and the proportion of employees with between one and five years service (negative correlations). These correlations were significant between the 5% and 10% levels. Withdrawal from work in the form of turnover, absence and hours lost by industrial action at Inchinnan, is investigated in more detail later (see page 252).

General Summary of time-series correlation coefficients

Figures 54 and 55 below, summarise those specific independent variables which have been found to be significantly and consistently associated with corrected employee turnover rates and absence rates respectively. They are compiled on the basis of those correlation coefficients documented in Tables R1 to R20 and summarised in Tables S1 to S3.

The following observations are made:-

a) Operative turnover and absence

The corrected turnover rate and absence rate of both

male and female operatives are correlated with the same set of independent variables, with the exception of the proportion of female operatives over thirty years old which is substituted for the proportion with over five year's service.\* This is not surprising since corrected turnover rates and absence rates are significantly and positively correlated. However, the principal inferences drawn from these observations are:

- (i) It may be possible to account for the variations in both operative turnover and absence over time for individual factories, using the same set of independent variables.
- (ii) Both forms of wastage or 'withdrawal from work' may be explained by similar factors.
- (iii) Although similar factors are associated with male and female operative wastage, the theoretical weighting on each factor is likely to be different. This is apparent from the relative magnitudes of the correlation coefficients.

b) Staff Turnover

The corrected turnover rates of male and female staff correlated with similar variables, with the exception of measures of earnings and relative earnings which are non-existent for female staff. This may be due to the general unavailability of staff salary data. Furthermore a similar

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\* These measures are strongly intercorrelated, and are significantly and negatively associated with female operative/staff wastage, however, the proportion over 30 years old is generally more significant.

This observation provides empirical support for the often quoted view that females returning to work once their children have grown up, i.e. probably when they are over 30 years old, is a better predictor of future stability than company service alone.

FIGURE 54

A listing of those independent variables which were found to be most consistently and significantly associated with the 'corrected turnover rate' for each employee type at the 5 constituent factories

	EMPLOYEE TYPES				
	MALE OPERATIVES	FEMALE OPERATIVES	MALE STAFF	FEMALE STAFF	ALL EMPLOYEES
SPECIFIC INDEPENDENT VARIABLES	1) % male local unemployment 2) % over 5 years service 3) % absence rate 4) % under 1 year's service 5) Average earnings 6) Relative local earnings	1) % under 1 year's service 2) % absence rate 3) % over 30 year's service 4) % female local unemployment 5) Average earnings 6) Relative local earnings	1) % male regional unemployment 2) Average earnings 3) % over 5 year's service 4) % under 1 year's service 5) Relative regional earnings	1) % female regional unemployment 2) % under 1 year's service 3) % over 30 years old	1) % local unemployment 2) % under 1 year's service 3) % over 5 year's service 4) Average earnings 5) Relative local earnings

FIGURE 55

A listing of those independent variables which were found to be most consistently and significantly associated with the 'absence rate' for operatives at the 5 constituent factories.

	O P E R A T I V E S	
	MALES	FEMALES
SPECIFIC INDEPENDENT VARIABLES	1) Corrected turnover rate 2) % male local unemployment 3) % under 1 year's service 4) % over 5 year's service 5) Relative local earnings 6) Average earnings	1) % female local unemployment 2) Corrected turnover rate 3) % under 1 year's service 4) % over 30 years old 5) Average earnings 6) Relative local earnings

substitution for the proportion of female staff with over five year's service with the proportion over thirty years old\* is made.

Generally the following inferences may be drawn:-

(i) Variations in staff turnover over time for individual factories may possibly be accounted for by similar sets of independent variables.

(ii) Those independent variables which strongly correlate with staff turnover are slightly regionally biased, whereas local factors are more strongly associated with operative turnover. This may account for some of the variation between staff and operative turnover.

(iii) The correlation co-efficients for staff turnover, particularly male staff, are generally less significant and extensive\*\* than those for operative turnover. This may lead one to suspect that the more subjective and less quantitative independent variables are more closely associated with staff turnover.

#### 6.2.2 Cross-Sectional analysis of employee wastage

##### A) OPERATIVE EMPLOYEE WASTAGE

This cross-sectional analysis was based on the variation in specific measures of operative wastage and associated

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\* as previous page (224)

\*\* extensive, i.e. in terms of being observed at all factories in the investigation

independent variables, across twenty-five factories in the U.K., during three separate six-monthly periods, i.e. January-June 1973; July-December 1973 and January-June 1974. Thus three separate 'snap-shots' have been observed to determine those variables which are most strongly associated with wastage, and their compatibility between 'snap-shots'.

(i) Correlations between operative turnover, absence and hours lost by industrial disputes, and specific measures of independent variables

Tables C1 to C21 (see Appendix D, p. 84-98) present the Pearson correlation coefficients and levels of statistical significance (one tailed test) between measures of operative wastage and specific measures of unemployment, company service, age, earnings and relative earnings, redundancy and size respectively.

The proportion of analyses which exhibit significant and compatible correlations at the 0.1% and 5% levels, for corrected turnover rates, absence rates and hours lost by industrial action are summarised in Tables S4, S5 and S6, respectively (see Appendix D, p. 99-101).

The above tables are used to compile Figure 56 below which presents those specific independent variables which have been found to be significantly and consistently associated with the various measures of operative wastage. Considering the principal features of this table in turn.

(a) Corrected turnover rate

The most significant associations with the corrected male operative turnover rate are largely the same as those located via the time-series data. The only additions are for specific

FIGURE 56  
Cross-sectional analysis: A listing of those independent variables which have been found to be significantly and consistently correlated with employee wastage

	MEASURES OF OPERATIVE EMPLOYEE WASTAGE					
	CORRECTED TURNOVER RATE (%)		ABSENCE RATE (%)		HOURS LOST BY INDUSTRIAL ACTION (HRS./EMPLOYEE)	
	MALE OPERATIVES	FEMALE OPERATIVES	MALE OPERATIVES	FEMALE OPERATIVES	MALE OPERATIVES	FEMALE OPERATIVES
SIGNIFICANT SPECIFIC INDEPENDENT VARIABLES	1) % under 1 year's service 2) % over 5 year's service 3) % over 30 years old 4) % between 20-30 years old 5) Average earnings 6) Relative earnings - local and regional 7) % male local unemployment 8) Absence rate	1) % female local unemployment 2) % under 20 years old 3) % between 20-30 years old 4) % over 30 years old	1) % under 1 year's service 2) Corrected turnover rate	1) % female local and regional unemployment 2) % over 5 year's service 3) % under 20 years old 4) % 20-30 years old 5) % over 30 years old 6) Size *	1) % between 1-4 year's service 2) % over 5 years service 3) % under 20 years old 4) % over 30 years old 5) Average earnings 6) Relative earnings-local and regional	1) Regional unemployment

\* These variables were significant for only one 'snap-shot' analysis:- July-December 1973

measures of the age distribution.

Female operative corrected turnover was more strongly influenced by local unemployment and measures of the age distribution than in the time-series analysis, at the expense of average and relative earnings, absence, and the proportion of them with under 1 year's service.

(b) Absence rates

Absence rates were significantly correlated with similar variables as those identified in the time-series investigation. However, associations with earnings and relative earnings were not observed.

(c) Hours lost by industrial disputes

Significant correlations were largely confined to male operatives. The variables concerned were derived principally from those found to be associated with the other forms of employee wastage, e.g. % over five years service, % over 30 years old, % under 20 years old, earnings and relative earnings. The proportion of employees with between one and four years service and hours lost by industrial action were found to be significantly correlated in two out of the three analyses. However, these correlations were almost all in the opposite direction to those obtained with turnover rates as the dependent variable. Furthermore, during the July-December 1973 period which possessed the greatest number of hours lost by industrial disputes, a significant positive correlation between hours lost and both local and regional unemployment rates was observed. This indicated that those factories located in areas of highest unemployment also had

the highest number of hours lost per employee by industrial action. Corrected turnover rates and absence rates were negatively and uncorrelated respectively with unemployment rates during the same period. These empirical observations, provide some evidence of withdrawal from work in the form of industrial action when levels of unemployment are so as to severely limit the number of available alternative jobs. Industrial action being one of a small number of alternatives in which to vent dissatisfaction.

#### B) Staff employee wastage

This cross-sectional analysis was based on the variations of 'controllable' staff turnover and associated independent variables, across twenty factories in the U.K. Two separate six-monthly periods were analysed; January-June 1974 and July-December 1974. The data was derived largely from the 'computerised staff records file' which has now been disbanded.

Tables C22 to C25 (see Appendix D, p. 102-105) present the Pearson correlation coefficients and corresponding levels of statistical significance (one-tailed test) between the controllable turnover rate and specific measures of unemployment, size, service, earnings and relative earnings.

The proportion of analyses which yield significant and compatible correlations at the 0.1% and 5% levels are presented in Tables S7a and S7b. (See Appendix D, p.106)

Figure 57 below, is compiled from the above summaries and reveals those specific independent variables which are most strongly associated with controllable staff turnover rates. The following observations are made:

FIGURE 57

A listing of those independent variables which are most strongly associated with 'controllable' staff turnover rates

	S T A F F	
	MALES	FEMALES
SPECIFIC INDEPENDENT VARIABLES	1) % with over 5 year's service 2) % with 1-4 year's service 3) % with less than 1 year's service 4) Relative local and regional earnings	1) % with over 5 year's service 2) % with under 1 year's service 3) Relative regional earnings

(i) No significant correlations were obtained with local or regional unemployment rates. This observation contradicts the time-series analyses which revealed significant association particularly with regional levels of unemployment.

(ii) All measures of company service are significantly correlated with both male and female controllable turnover rates. Furthermore both analyses show positive and significant correlations between male staff controllable turnover and the proportion of employees with between 1-4 years service. This particular correlation is not apparent for the other employee types, which exhibit the strongest associations with proportion of employees with less than one year's service. This provides some evidence that male staff have longer 'induction crisis' periods, i.e. they have a tendency towards a greater 'settling-in' period and allow more time in the new job before deciding to leave, and therefore show greatest initial commitment. It could be speculated that recruitment and selection procedures are more thorough and vigilant for male staff employees and therefore initial expectations regarding the job may be met initially. However, after a year or so other factors may manifest themselves as causes for leaving, e.g. supervisory styles, career development and promotion prospects.\*

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\* Further evidence of a positive and significant correlation between male staff turnover and the proportion of employees with between 1-4 years service was found for all male staff employees in the Time-series analysis of all Dunlop U.K. factories, See Table R2b.

(iii) Average earnings were not found to be significantly correlated with either male or female staff controllable turnover rates.

(iv) Relative local and regional earnings were found to be significantly and negatively associated with male staff controllable turnover (statistics were only available for the January-June 1974, analysis).

### Summary

In general there was a fair amount of agreement between the time-series and cross-sectional methods of locating the main correlates of staff turnover. The principal exception was a measure of unemployment in the cross-sectional analysis. One could argue that this may have been due to four factories being located in the West Midlands area, and four in the North-West area, thus providing insufficient variance of unemployment rates. Measures of the age distribution were not included in the analysis owing to insufficient data.

### 6.3 The principal correlates\* of employee wastage for employees in Dunlop factories in the U.K.

The main correlates of employee wastage, based on the correlation coefficients derived from the time-series and cross-section investigations may be listed as shown below for each employee type.

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\* The principal correlates are those which have occurred most frequently and significantly, and are compatible both over time and across time for individual factories.

a) Male operative corrected turnover and absence rates

- (i) % male local unemployment rate
- (ii) % male operatives with under 1 year's service
- (iii) % male operatives with over 5 year's service
- (iv) Average weekly earnings
- (v) Relative local earnings

b) Female operative corrected turnover and absence rates

- (i) % female local unemployment rate
- (ii) % female operatives with under 1 years service
- (iii) % female operatives over 30 years old\*\*\*
- (iv) Average weekly earnings
- (v) Relative local earnings

c) Male staff 'corrected' and 'controllable' turnover rates

- (i) % male regional unemployment rate\*\*
- (ii) % male staff with under 1 year's service
- (iii) % male staff with over 5 year's service
- (iv) Average weekly earnings
- (v) Relative regional earnings\*\*

d) Female staff 'corrected' and 'controllable' turnover rates

- (i) % female regional unemployment\*\*
- (ii) % female staff with under 1 year's service
- (iii) % female staff over 30 years old\*\*\*
- (iv) Average weekly earnings
- (v) Relative regional earnings

e) All employee corrected turnover rates

- (i) % total local unemployment (i.e. males & females)
- (ii) % employees with under 1 year's service
- (iii) % employees with over 5 year's service
- (iv) Average weekly earnings
- (v) Relative local earnings

This listing indicates that as a generalisation the same five factors are associated with the wastage of all employee types.\* However, regional factors are more significant with staff turnover, and age is a more significant correlate in

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\* Redundancy as a predictor of employee wastage was omitted for the following reasons:

- (i) Many factories have never experienced redundancy.
- (ii) The redundancy rate was positively correlated with the unemployment rate. Therefore its effect was implicitly included for those factories concerned.

\*\* These correlates are only marginally more significant than their local counterparts.

\*\*\* These correlates are marginally better than the % with over five year's service.

female employee wastage.

Multiple regression techniques\* were then employed to determine the proportion of the variance in the dependent variables for each employee type that these variables, i.e. a) to e) in Section 6.3., could account for.

#### 6.4 RESULTS OF MULTIPLE LINEAR\*\* REGRESSION

##### 6.4.1 Time-series analysis

##### a) Prediction of corrected employee turnover rates

Tables M1a to M1e (see Appendix D, p. 117-121) summarise the parameters of the predictor models for corrected employee turnover rates, for each employee type at each factory and the company as a whole. These tables are derived from the computer output summary tables. A typical example is documented in Appendix D, see Table T1, page 122.

##### b) Prediction of operative employee absence rates

Tables M2a and M2b (Appendix D, p. 123,124) summarise the parameters of the predictor models of operative employee absence. They are derived from the computer outputs summary tables. An example of which is enclosed in Appendix D, see Table T2, p.125.

Figure 58, below illustrates the average and range of 'R-squared' obtained using the same independent variables for the prediction of wastage for each employee type, for the five constituent factories and the company as a whole.

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\* The SPSS computer package provided the regression programme used in the analysis.

\*\* Scattergrams were used to test the existence of any threshold effects of non-linearity between dependent and independent variables. Figures G1 to G10 in Appendix D, p.107-116 reveal no bad observations. Hence the reliance on linear regression techniques.

FIGURE 58

Results of multiple regression - Time-series analysis. Summary of of the proportion of the variance in turnover and absence ( $R^2$ ) accounted for by the chosen independent variables; see section 6.3 a) to e)

EMPLOYEE TYPE	CORRECTED EMPLOYEE TURNOVER			EMPLOYEE ABSENCE		
	FIVE FACTORIES		ALL DUNLOP U.K. FACTORIES	FIVE FACTORIES		ALL DUNLOP FACTORIES
	$R^2$ (AV.)	$R^2$ RANGE	$R^2$	$R^2$ (AV.)	$R^2$ RANGE	$R^2$
MALE OPERATIVES	71%	44-97%	90%	56%	24-79%	64%
FEMALE OPERATIVES	78%	55-97%	91%	72%	49-88%	83%
MALE STAFF	51(70)%	6-93% (37-93)	50%	N.A	N.A	N.A
FEMALE STAFF	41(46)%	31-67% (31-67)	80%	N.A	N.A	N.A
ALL EMPLOYEES	53(60)%	3-83% (44-71)	85%	N.A	N.A	N.A

N.A = Not available

Figures in parenthesis are based on those factories for which staff salary information was available.

The following observations are apparent from Figure 58.

(i) For male and female operatives the model accounts for on average, over seventy percent of the variance in absence and corrected turnover rates, except for male operative absence which averages 56% and 64%, for the five constituent factories and all Dunlop U.K. factories respectively.

(ii) For male staff the model accounts for, on average, at least 50% of the variance in corrected turnover rates. However, this proportion increases to 70%, when statistics based on those factories for which salary information was unavailable, are deleted from the computation of averages.

(iii) For female staff the model accounts for, on average, just over 40% of the variance in corrected turnover rates. However, the ' $R^2$ ' for female staff in the company as a whole is nearly doubled, i.e. 80%. One possible explanation of this may be due to the scope for uncontrollable turnover with females generally, i.e. due to pregnancy and domestic reasons, being far greater than for males. The variance of this uncontrollable aspect may be very large for individual factories, but reduced markedly when all factories are considered together. Therefore its adverse affect on prediction of wastage manifests itself to a greater extent for individual factories.\*

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\* This averaging effect may also be responsible for the general reduction in  $R^2$  when wastage is considered on an individual factory rather than on a collective basis.

(iv) Generally speaking the proposed model has quite reasonably fitted the variation in the wastage of each employee type. It is a better fit for operative wastage than staff wastage.

(v) For operatives the variation in both forms of wastage, i.e. turnover and absence, is accounted for by the same set of independent variables. This provides some empirical evidence that they may be complementary forms of wastage.

A specific predictor model is now described and discussed to elucidate some of the observations and findings from the multi-variate analyses.

Considering the predictor equation obtained for the corrected turnover rate of male operatives at the Leicester factory; Table M1a. (See Appendix D, p.117)

Let: the corrected turnover rate of male operatives	= $Y_1$
the predicted corrected turnover rate	= $Y_1 (p)$
and % male local unemployment rate	= $X_1$
% male operatives with under 1 year's service	= $X_3$
% male operatives with over 5 year's service	= $X_5$
Average earnings	= $X_9$
Relative local earnings	= $X_{10}$
Absence rate	= $X_{20}$

then:- from Table M1a

$$Y_1(p) = 9.9X_1 + 0.4 X_3 + 0.5 X_5 + 4 X_9 - 2.5 X_{10} + 6.0 X_2 + 21.5$$

where 21.5 = constant (C)

and  $Y_1(p) \sim Y_1 = 11.7$  = Standard error (S.E.)

$R = 0.92$  = coefficient of multiple regression

$R^2 = 84\%$  = proportion of variance in the dependent variable accounted for

$R^2$  is interpreted as the proportion of the variance in the dependent variable accounted for by the regression equation. In this case the chosen independent variables have accounted for 84% of the variation in the corrected turnover rate of male operatives at Leicester.

The standard error was found to be

$$S.E. = 11.7$$

- this statistic represents the typical error in the prediction of the dependent variable using the predictor equation since the average corrected male operative turnover rate during the analysis period was 50.5%, then the prediction would be on average 77.0% accurate i.e.  $\left[ 100 - \left( \frac{11.7}{50.5} \times 100 \right) \right]$

The summary table T1a output by the computer presents the multiple  $R$ ,  $R^2$ , the change in  $R^2$ , and the simple correlation coefficient as each independent variable is entered into the equation. For male operatives at Leicester it is observed that the single best predictor of the corrected turnover rate is the proportion of male operatives with under 1 year's service. The corresponding predictor equation was found to be:-

$$Y_1(p) = 2.4 X_3 - 5.6,$$

and the regression statistics were:

$$R = 0.88$$

$$R^2 = 77\%$$

$$S.E = 12.6$$

This simple one factor model of turnover is shown diagrammatically by the Scattergram, Figure G11, See Appendix D, p. 126).

Figure 59 below, presents the matrix of simple correlation coefficients from which the predictor model of male operative turnover at Leicester was evolved. It is observed that the proportion of employees with under 1 year's service ( $X_3$ ) is highly correlated with all other independent variables, except the absence rate. This explains why the addition of the remaining five independent variables to the model increases the proportion of variance accounted for by only seven per cent. Therefore for practical purposes a simple one-factor predictor equation may suffice, since the addition of further variables does not influence the prediction substantially enough to warrant their inclusion. However, in the corresponding predictor equation for male operatives at Coventry, see Table M1a, the proportion of male operatives with under 1 year's service accounted for only 60% of the variance in corrected turnover rates, and the addition of the remaining independent variables increased this value by a further 24%. Alternatively, the local unemployment rate at Walton was found to be the best single predictor of the corrected turnover rate for male operatives, and accounted for 57% of the variance. The remaining independent variables added a further 40% (see Table M1a).

These findings provide strong evidence that the corrected turnover and absence rates of all employee types, particularly operatives, may be predicted by the same set of independent variables, i.e. a general model may exist, but the relative predictive powers of each independent variable varies from factory to factory. It is not possible to assess the loadings

FIGURE 59

Correlation matrix: Male operative corrected turnover rate at Leicester

	$Y_1$	$X_1$	$X_3$	$X_5$	$X_9$	$X_{10}$	$Y_{20}$
$Y_1$	1.0000	-0.7925	0.8784	-0.5968	0.8343	-0.7037	0.3702
$X_1$		1.0000	-0.8389	0.5471	-0.7133	0.6624	-0.1085
$X_3$			1.0000	-0.6665	0.8869	-0.7682	0.2791
$X_5$				1.0000	-0.6983	0.9503	0.0966
$X_9$					1.0000	-0.7923	0.1681
$X_{10}$						1.0000	0.0563
$Y_{20}$							1.0000

$Y_1$ =corrected turnover rate

$Y_{20}$ = absence rate

$X_1$  =% male local unemployment

$X_3$ =% with under 1 year's service

$X_5$ =% with over 5 years service

$X_9$ =average weekly earnings

$X_{10}$ =relative local earnings

or weights\* on each variable since much intercorrelation exists.\*\*

#### 6.4.2 Cross-sectional analysis

##### (a) Prediction of operative employee wastage

Tables M3a to M3d (Appendix D, p. 127-130) summarise the parameters of the predictor equations for male and female operative corrected turnover and absence rates. Three 'snap-shots' were examined and the same independent variables used in the Time-series analysis were employed:

##### (b) Prediction of staff controllable turnover rates

Tables M4a and M4b (Appendix D, p.131-132) present the parameters of the predictor equations for male and female staff controllable turnover rates, respectively.

Figure 60 below illustrates the average and range of 'R-squared' obtained across the 'snap-shots' using the same combination of independent variables.

The following observations are made with reference to Figure 60.

- (i) The best prediction, in terms of variance accounted for, occurs with male operative corrected turnover rates,

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\* weights can only be assigned to each independent variable with any degree of confidence, when no intercorrelation exists. However, this rarely occurs in practice (Kerlinger p.621-624)

\*\* For the Time-series models generally the following proposition - 'Are the models stable over time?' - was tested by splitting the data into two equal time periods and computing regressions therefrom. Similar combinations of independent variables were obtained as with the complete data.

FIGURE 60

Results of Multiple Regression:- Cross-sectional analysis:-  
Summary of the proportion of variance in employee wastage accounted for by the  
chosen independent variables, see section 6.3, a) to e)

EMPLOYEE TYPE	CORRECTED & CONTROLLABLE TURNOVER RATES		EMPLOYEE ABSENCE RATES	
	R <sup>2</sup> - (AV.)	R <sup>2</sup> - RANGE	R <sup>2</sup> - (AV.)	R <sup>2</sup> - RANGE
MALE OPERATIVES	82%	80-83%	41%	30-65%
FEMALE OPERATIVES	58%	37-73%	49%	35-60%
MALE STAFF *	58%	54-62%	N.A	N.A
FEMALE STAFF *	38%	8-68%	N.A	N.A

a - only applicable to staff employees

\* - relative local earnings information was unavailable in one of the  
analyses and may have been responsible for lower R-squares.

( $R^2$  - average of 82%)

(ii) The model accounts for, on average, between 49 and 58% of the variance in female operative corrected turnover rates and absence rates.

(iii) The variance in the controllable turnover of male and female staff was found to be accounted for up to 62 and 68% respectively.

## 6.5 COMPARISON OF TIME-SERIES AND CROSS-SECTIONAL PREDICTOR MODELS OF EMPLOYEE WASTAGE

### 6.5.1 Corrected employee turnover rates

#### (a) Male Operatives

On the basis of variance accounted for in corrected turnover rates, both types of analysis yield very high 'R-squares'. The fit to the general model is marginally better in the cross-sectional analysis.

#### (b) Female Operatives

The time-series analysis provides a much better fit to the general model. On average it accounts for an extra 20% of the variance in corrected turnover rates.

#### (c) Male Staff

Despite the cross-sectional models being based on 'controllable' turnover rates as opposed to corrected turnover rates, the amount of variance accounted for, i.e. 58% on average, is less than that yielded by the time-series models, i.e. 60%.\*

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\* Based on those factories for which salary information was available.

(d) Female Staff

Compared with the other employee types, the predictor model for female staff corrected turnover rates yields the weakest fit. The variance accounted for in the time-series model, i.e. 46% on average, was 8% in excess of the corresponding cross-sectional analysis. However, the time-series analysis of female staff in the company as a whole yielded an 'R-square' of 80%.

Generally speaking the Time-series analysis provides the highest accountability of variance in the corrected turnover rates of each employee type.

6.5.2 Absence Rates

(a) Male operatives

The time-series model surrenders on average an accountability of variance of 56%, which is 15% in excess of average level achieved in the cross-sectional analyses. Furthermore the time-series analysis of male operative absence in the company as a whole provides a 64% accountability of variance.

(b) Female Operatives

The time-series model provides a much stronger fit to the data, and yields an average 'R-square' of 72% which is 23% in excess of the cross-sectional model.

These results provide further evidence that the time-series approach provides the best fit to the general model of employee wastage. It seems sensible at this stage to examine the relative merits of each approach and why they yield different results.

In a recent publication, Freeman and Hannan<sup>134</sup> list three possible reasons why the two approaches should provide different results.\*

(i) Different findings may result from the specification error in the models estimated, i.e. the variables omitted in each analysis may differ.

(ii) Hendershot and James<sup>127</sup> propose that differences in the lag structure for certain variables in the model may be responsible for divergent findings. For example the dependent variable may take varying amounts of time to adjust to changes in other variables. Since the cross-sectional analysis is based on a snap-shot of observations, each observation may be adjusting at different rates. However, a lagged-structure may be more conveniently incorporated into a Time-series analysis.

(iii) The equilibrium assumption of cross-sectional analysis may therefore (from ii) be untenable. Freeman and Hannan in examining the effects of change in organisational growth on administrative intensity\*\* propose that 'if the processes of study are not symmetric in growth and decline, cross-sectional analysis mixing growers and decliners will obscure the processes of interest.'

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\* Some of these reasons are derived from research by Tsouderos,<sup>135</sup> Haire,<sup>124</sup> Starbuck,<sup>125</sup> and Meyer<sup>126</sup>.

\*\* Administrative intensity is broadly defined as the ratio of administrative (white collar employees) to production (blue collar employees)

To examine the possibility of improving the predictor models of employee wastage a 'lagged' analysis was performed using the data from one of the time-series analysis factories. The Coventry factory was selected for this purpose. Three separate time-lags of 3, 6 and 9 months were analysed for the wastage of each employee type.

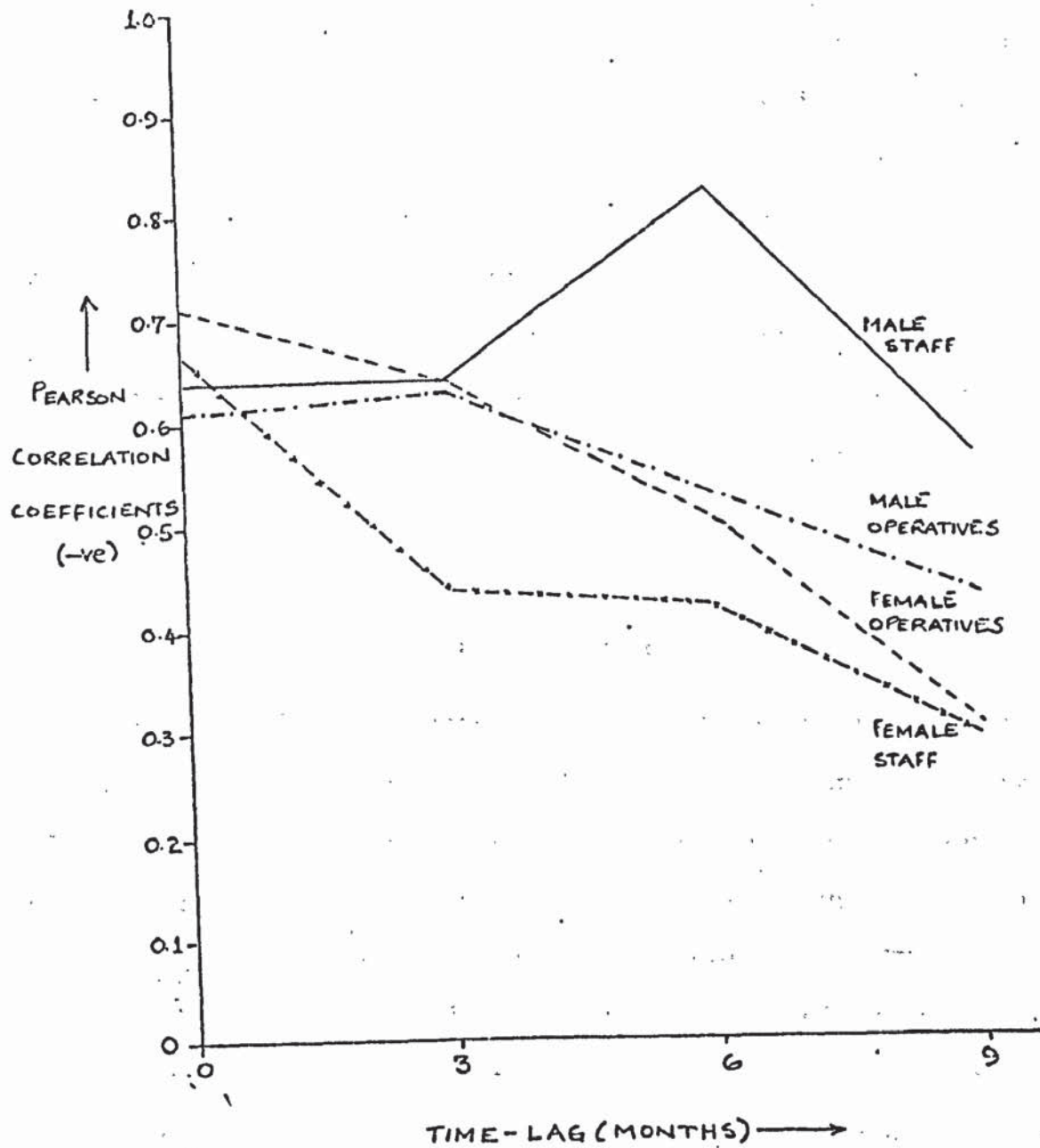
The resulting regression equations and associated characteristics for each analysis are presented in Tables M5a to M9 (Appendix D, p.133-139).

The results revealed that the accountability of variance in the majority of analyses decreased with increasing lags in time. The only exceptions were as follows:

- (a) The predictor model of female operative absence rates showed an increase of 13%. (from 75-88%) in the proportion of accountability using 3 monthly lagged data.
- (b) The prediction of the male staff corrected turnover rate reached a peak using 6 monthly lagged data. The 'R-square' was 84%. Examination of the individual correlation coefficients between the corrected turnover rate and regional levels of unemployment revealed that a maximum value of '-0.82' was reached after a six-month lag. Figure 61, below illustrates the variation in correlation co-efficients between unemployment rates and corrected turnover rates. (All employee types are included for comparison purposes) This time-lag for male staff may be due in part to their longer notice-periods which may be up to six-months for long service employees.

This observation may account for the absence of any significant correlations between male staff controllable turnover rates and levels of regional unemployment in the cross-sectional analysis. (Table C22, Appendix D, p.102).

FIGURE 61  
VARIATION IN PEARSON CORRELATION COEFFICIENTS BETWEEN  
CORRECTED TURNOVER RATES AND LEVELS OF UNEMPLOYMENT  
COVENTRY EMPLOYEES



## 6.6 GENERAL SUMMARY OF FINDINGS FROM THE MULTI-VARIATE ANALYSIS

Taken together, the time-series predictor models yield the highest levels of accountability of variance in wastage for all employee types. Furthermore they possess distinct advantages over cross-sectional analyses in that both lagged structures, and the vectors of change in any independent variable may be readily incorporated into the model if desired.

The following list shows the overall ranking of 'goodness of fit' for each employee type.

<u>Corrected employee turnover rate</u>		<u>Absence Rate</u>
Male Operatives	↑	Female Operatives
Female Operatives		Male Operatives
Male Staff		
Female Staff		
$R^2$ - increasing		

These results indicate that the turnover and absence rates of operatives may be accounted for principally in terms of local levels of unemployment, the proportion of them with under 1 year's service, and average and relative local earnings. Since much intercorrelation exists between the independent variables any inferences directed towards possible causes are largely speculative. The variable most often selected by multiple regression as the best predictor of wastage is either the local level of unemployment or the per cent of employees with less than 1 year's service. These variables respectively reflect the relative ease of securing an alternative job and the position in the service continuum where wastage is most likely to occur. Furthermore they are also correlated with

each other, since the levels of unemployment are synonymous with levels of business activity. As business activity increases so recruitment increases, which implicitly increases the number of employees with less than one year's service.

The corresponding models for staff employees generally account for less variance in corrected turnover rates; i.e. an average of 70% and 46% for male and female staff respectively. However, these figures do lend some weight towards a general predictor model of staff turnover. The predictive power of the model is substantially increased when the independent variables are lagged by 6 months, e.g. an 84% accountability in male staff corrected turnover rates at Coventry was achieved. Again inferences drawn from these models regarding directions of causation are largely speculative.

## 6.7 Review of the evidence supporting the 'withdrawal from work hypothesis'\*

### 6.7.1 Corrected Turnover and absence rates

The basic proposal of the 'Withdrawal from work hypothesis' is that employee turnover, absence and hours lost as a result of industrial action, may be considered as alternative forms of expressing dissatisfaction with some aspects of work.

Both the time-series and cross-sectional analyses of operative wastage found that the same set of independent variables could account for a large amount of the variance in absence and corrected turnover rates. The time-series analysis, in

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\* This section is relevant only to operative employee wastage, since staff wastage was only analysed in the form of corrected and controllable turnover rates.

particular yielded 'R-squares', on average in excess of 70% for all models, except for the male operative absence rate, which averaged 56%. Although the precise underlying causes of dissatisfaction are not readily apparent from these models, as they are based principally on correlational factors, the evidence is such that the magnitudes of absence and corrected turnover may be predicted reasonably accurately on the basis of a set of easily computed and readily available statistics in the factory situation.

#### 6.7.2 Corrected turnover, absence and hours lost as a result of industrial action

Only one factory analysed in the Time-series investigation possessed adequate data, in terms of magnitude and coverage, to enable all three forms of wastage or 'withdrawal' to be analysed statistically. This factory was Inchinnan, part of the Tyre Group, and located on Clydeside in Renfrewshire, Scotland. Section 6.3.1 (c) revealed that Pearson correlations between hours lost per employee by industrial action and the independent variables were fairly weak and significant between the 5% and 10% levels. However, data for industrial disputes was unavailable in most factories between 1967-1968. Therefore predictor models of male operative employee wastage at Inchinnan were recomputed using data from 1969-1974. The results showed that between 47% and 73% of the variance in all forms of wastage were accounted for by the same set of independent variables. The regression equations and associated parameters are presented in Table M10 (Appendix D, p.140), and the matrix of correlation coefficients is presented in Table M10a. (Appendix D, p.141) Significant Pearson correlations

between the dependent variables were limited to a positive correlation ( $p < 0.001$ ) between the corrected turnover rate and hours lost per employee by industrial action. Unemployment in this locality is traditionally high and both corrected turnover rates and hours lost per employee by industrial action correlate very significantly (negatively) with it. On the basis of these correlations, one might suspect that; assuming the level of unemployment provides the relative ease of venting dissatisfaction, then it rarely reaches a low enough level, whereby all dissatisfaction may be expressed by turnover. Hours lost by industrial disputes may act as a supplementary 'venting' mechanism.

This suspicion was investigated further by ranking the factories examined in the time series analysis, according to the mean values of the following variables during the analysis period 1967-1974, local and regional unemployment, corrected turnover rates, absence rates and hours lost per employee by industrial action. Figure 62, below presents the details.

The following observations are apparent from Figure 62:

(i) Factories situated in areas of consistently high unemployment generally experience the lowest levels of corrected turnover, and the highest levels of absence and hours lost by industrial action, e.g. Inchinnan and Walton.

(ii) Factories situated in areas of consistently low unemployment generally experience the highest levels of corrected turnover and lowest levels of hours lost by industrial disputes, i.e. Leicester and Horbury.

The case for absence is conflicting and may be due to

FIGURE 62

Ranking of factories in terms of the average magnitudes of local unemployment, corrected turnover rates, absence rates and hours lost per employee by industrial action - Male operatives only. (Average values are in parenthesis)

<u>Ranking</u>	<u>Local and Regional Unemployment(%)</u>	<u>Corrected turnover rates (%)</u>	<u>Absence Rate (%)</u>	<u>Hours Lost/ Employee</u>
1.	Walton (6.0)	Leicester (50.5)	Leicester (6.9)	Inchinnan (16.3)
2.	Inchinnan (5.4)	Horbury (16.0)	Inchinnan (6.8)	Coventry (6.6)
3.	Coventry (4.1)	Coventry (10.9)	Walton (6.2)	Walton (4.4)
4.	Horbury (3.6)	Inchinnan (8.8)	Coventry (5.3)	Leicester (1.1)
5.	Leicester (2.8)	Walton (7.9)	Horbury (4.9)	Horbury (0.0)

varying proportions of controllable absence.

(iii) Coventry which experiences neither consistently high nor consistently low levels of unemployment, possesses wastage characteristics somewhere between those described in (i) and (ii).

The cross-sectional analysis of male operative wastage during July-December 1973, produced similar findings to those above. The proportion of variance in corrected turnover rates, absence rates and hours lost by industrial action, accounted for by the same set of independent variables was found to be 82, 65 and 67% respectively. Moreover, a very strong positive correlation between hours lost by industrial action and local levels of unemployment ( $r=0.6051$ ,  $p=0.001$ ) provided further evidence that those factories located in areas of highest unemployment experience the greatest number of hours lost by industrial action.

Since variations in these forms of wastage of 'withdrawal' may be accounted for by similar combinations of independent variables both in the cross-sectional and time-series analyses, there is a reasonable case for proposing that types of wastage, may be alternative or supplementary expressions of dissatisfaction.

#### 6.8 GENERAL USES OF THE PREDICTOR MODELS OF EMPLOYEE WASTAGE

This section examines the practical uses of the predictor models. The theoretical implications and finer

practical details are discussed in conjunction with the findings from the qualitative analysis in Chapter 9.

The practical uses may be divided into two parts which are considered separately.

#### 6.8.1 Diagnostic uses

Although the majority of independent variables employed in the modelling are more correlational than deterministic in nature, individual factories can locate, fairly readily, the factors which have principally influenced their wastage characteristics over the past few years. It is then possible to examine which of them may be manipulated or controlled by company policy.

Considering the following hypothetical example:

From multiple regression the following variables explained a very high proportion of the variance in male operative corrected turnover rate.

- |   |                    |
|---|--------------------|
| a) Local level of unemployment                      | (X <sub>1</sub> )  |
| b) % of male operatives with under 1 year's service | (X <sub>3</sub> )  |
| c) Relative local earnings                          | (X <sub>10</sub> ) |

To examine the controllability and diagnostic value of each factor in turn.

##### (i) Local levels of unemployment

This variable is largely out of managerial control. However, its magnitude can be used to the personnel manager's advantage where appropriate, e.g. recruitment techniques in times of high unemployment can be more thorough.

(ii) % of employees with under 1 year's service

This variable suggests that some source of dissatisfaction is manifesting itself in the early months of service. Therefore the possible determinants of the 'induction crisis' e.g. quality of recruitment, selection, training and orientation should be examined. Furthermore exit interviews may be structured so as to locate the particular area of dissatisfaction. Company policy may have to change with respect to any one or all of the 'induction crisis' determinants, as a result of the findings.

(iii) Relative local earnings

This variable is under managerial control in times of normal wage bargaining. However, scope for change is severely limited when an incomes policy is imposed as is the case at present. If in normal circumstances this variable has been found to influence the turnover of male operatives during the analysis period and it is apparent that the factory earnings are below the local average, the predictor model may be used to estimate the effect on turnover of increasing factory earnings. For example, the model could be used to predict the reduction in turnover that may occur if earnings were increased from say 0.90 to 0.95 of the average in the locality. Moreover, the possible savings in terms of reductions in turnover could be compared to the cost of possible wage increase, e.g. 1%, 2%, 3%, etc., to enable the factory manager to make the most 'profitable' decision.

Generally speaking this type of diagnostic analysis

may be applied to the findings from all forms of employee wastage for different employee types. The data required for such analyses is readily available and easily computed. Furthermore many of the Dunlop factories have their own computer facilities to enable these simple regressions to be performed.

#### 6.8.2 Manpower planning uses

Since these models are predictive in nature, the factory manager is also equipped to use the results for manpower planning purposes.

For example, the multiple regression programme produces a predictor equation for the hypothetical case presented in 6.8.1, of the form:-

$$Y_1(p) = B_1 X_1 + B_3 X_3 + B_{10} X_{10} + C;$$

where  $Y_1(p)$  = predicted male operative turnover rate

$B_1, B_3, B_{10}$  = regression coefficients

and  $C$  = constant

If the regression coefficients were found to be as follows:

$$B_1 = 0.4$$

$$B_2 = +0.5$$

$$B_3 = -3.0$$

and  $C = 6.5$

If it was desired to estimate the corrected turnover of male operatives in the next period, then the results of the regression are used as follows:-

Assume that the local level of unemployment will remain at, say, 9.0% during the next period, i.e.

$$X_1 = 9.0$$

From the company census there are 25% of male operatives with under 1 year's service, i.e.

$$X_3 = 0.25$$

and at present the factory average earnings are 0.95 of the local average.

Therefore, the predicted corrected turnover rate of male operatives,

$$\begin{aligned} Y_1(p) &= (-0.4 \times 9.0) + (0.5 \times 25) + (-3 \times 0.95) + 6.5 \\ &\quad B_1 \quad X_1 \quad B_3 \quad X_3 \quad B_{10} \quad X_{10} \quad C \\ &= -3.6 + 12.5 - 2.85 + 6.5 \\ &= 12.55\% \end{aligned}$$

$$\text{Therefore } Y_1(p) = 12.6\%$$

This method may be applied to the prediction of any form of employee wastage and for most employee types. Furthermore, predictor models based on 'lagged' structures where applicable may be more useful in manpower planning since assumptions\* made about values of independent variables will not be necessary

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\* In the above example one had to assume that unemployment remained at 9.0%. However, if changes in this variable took say 6 months to manifest themselves, then future predictions, e.g. in the next 6 months, would be based on real, i.e. past data.

## 6.9 SUMMARY

This chapter presents the statistical findings from the quantitative search for predictors of employee wastage.

Initially Pearson correlation coefficients obtained between the specific dependent and independent variables, for each employee type are examined. Significant and consistent correlations were found between the majority of dependent variables and specific measures of unemployment, service, earnings and relative earnings. The evidence thus far pointed to the possibility of establishing a general model of employee wastage for each employee type.

Multiple linear regression techniques were used to determine the proportion of variance in the dependent variables that could be accounted for using similar combinations of independent variables. The findings provided clear empirical evidence of a general predictor model of employee wastage for each employee type. The strongest 'fits' to the model were obtained with male and female operative wastage. The variance in male and female staff wastage, i.e. only corrected turnover rates were analysed, were on average 70%, and 46% accounted for, respectively. These figures being between 10-15% lower than their operative counterparts. The main differences between the predictors of staff and operative wastage, were firstly that the predictors were slightly more regionally biased for staff, and secondly, there was strong evidence at Coventry, for male staff, of a 'lagged relationship', particularly between unemployment and corrected turnover rates.

The evidence concerning the 'Withdrawal from work' hypothesis was reviewed, and the statistical findings generally lent strong support to its existence in some

Dunlop factories.

Finally, the anticipated practical uses of the predictor models were briefly discussed in conjunction with the needs and resources of factory management.

The following section is concerned with the examination of the less quantifiable aspects of employee turnover, i.e. the Qualitative approach.

## PART FOUR

### SEARCHING FOR A MEANING OF JOB QUITTING

#### CONTENTS

CHAPTER 7 : Rationale and Approach

CHAPTER 8 : Findings and Inferences  
from Interviews

## CHAPTER 7

### Rationale and Approach

#### 7.1 Introduction

Since some of the proposed correlates and determinants of employee turnover are not readily quantifiable, e.g. styles of supervision and management, job expectations and overall job satisfaction, a different approach is necessary to investigate them.

This chapter examines the pros and cons of alternative approaches applicable to the investigation of the more subjective issues involved. The method considered most appropriate, is the 'Exit Interview'.

The content and design of the 'exit interview' are described and discussed with respect to some underlying theoretical considerations. The choice of factories as interview 'sites', the required sample size, and the general administration and setting of the interview are also described.

Finally, as a result of the identification of a consistently voiced 'reason-for-leaving' among a certain category of employees, a control group of current employees, of similar characteristics, was interviewed to examine the authenticity and extent of this apparent area of dissatisfaction.

## 7.2 Techniques for the systematic investigation of the meaning of 'job quitting'\*

The voluntary act of resignation from the company for apparently 'controllable' reasons, 'quitting' is the most drastic and final form of withdrawal from the work situation. For this reason the aim of this chapter is to discuss and develop the most suitable means of determining the underlying causes and meaning of 'job quitting', with particular attention to the more qualitative and subjective issues.

Broadly speaking there are three methods of eliciting the required information.

a) Follow-up surveys in the form of mailed questionnaires to employees who have already left.

b) Attitude or job satisfaction surveys administered to current employees.

c) Exit interviews.

Despite many inherent problems involved in exit interviewing, which will be considered later together with the means of alleviating them, it is considered the method most likely to provide the desired information. It is believed that the alternative methods have more severe drawbacks. Considering each method in turn:-

### 7.2.1 Follow-up surveys

Webber<sup>8</sup> advocates the use of a 'termination questionnaire' mailed to employees 30-60 days after their separation. The questionnaire examines

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\*'job quitting' is used to describe an employee's voluntary decision to leave for reasons, theoretically under managerial control.

individual leaver's opinions with regard to salaries, benefits, relationships with supervisors and whether the company satisfied individual needs for recognition, status and self realisation. The findings are then related to company policies and managerial styles allowing any serious shortcomings to be observed. The content of the survey is not questioned only the reliability and administration of it.

The following drawbacks are listed as reasons why a follow-up is not employed in this research.

- a) There may be practical difficulties in locating leavers after a departure period of two months.
- b) There may be a considerable lag in time before any feedback is available, and thus the situation may have changed.
- c) The 'former' leavers may feel that it is 'a bit late in the day' to ask 'what went wrong', and may therefore be unmotivated to complete the questionnaire.
- d) The responses to the questionnaire may be biased by experiences in the 'new job'.
- e) More generally it is believed that the personal approach yields more meaningful results in this type of exercise, provided that the interview is carefully prepared and administered according to some fundamental criteria.

### 7.2.2 Attitude and/or Job Satisfaction surveys

These surveys do not focus primarily on the meaning of job quitting, since previous researchers have proposed that leaving behaviour is only one of a number of possible manifestations of job dissatisfaction. Moreover the results of a survey of this kind among current employees may well be representative of transients rather than the steady-state situation.

However, a survey of this type may be useful in providing some confirmatory evidence of a consistent source of dissatisfaction voiced by 'job quitters'.

### 7.2.3 Exit Interviews

An exit interview has been described by Lefkowitz and Katz<sup>128</sup> as 'a formal or informal, structured or relatively unstructured information gathering session with departing employees'. The interview is conducted prior to an employee leaving in an attempt to determine his/her reason(s) for leaving. There have been criticisms regarding the validity of exit interviews based on a number of issues which are discussed later. However, it is considered that an interview with a prospective leaver whose reasons for quitting are still fresh yields the most accurate reasons for leaving, given that all the inherent problems alluded to by previous researchers are catered for in the overall administration and conduct of the interview. These problems are discussed below.

a) The study by Lefkowitz and Katz,<sup>128</sup> comparing the reasons for leaving recorded in a company's personnel records obtained during an unstructured exit interview, with those reasons subsequently obtained from a follow-up questionnaire, found some discrepancies in the reasons given. Most serious discrepancies occurred with those leaving for apparently 'controllable' reasons. The explanation offered for this disagreement was that terminees tend to be reticent in the interview situation, because they do not want to jeopardise their chances of returning to the company at a later date, i.e. 'fear of burning their bridges behind them.'

Henrichs<sup>129</sup> quotes another similar study in which an independent consultant conducted exit interviews of a number of 'quitters' previously interviewed by a manager. By providing assurances of confidentiality of information and an objective viewpoint, the consultant was able to uncover additional and more subjective reasons for leaving. These included conflict with management and dissatisfaction with advancement and job content.

The importance of 'assured confidentiality of information' to prevent terminees clamming-up in the exit interview is further endorsed by Smith and Kerr.<sup>130</sup> They state ... 'many employees in the process of quitting their jobs are in a mood to express feeling and speak frankly. If the enterprise maintains a formal exit interview in which the employee is assured that nothing he says will be

used 'against him' in any way, the tendency towards frankness and even catharsis is strengthened! The exit interviewer thus is in a uniquely advantageous position to observe the dynamics of the turnover process'.

b) Probably the single most significant factor influencing the reliability, accuracy and quantity of information gained at the exit interview is the competence and skill of the interviewer himself. The imposed bias and threat of a manager conducting the interview has been emphasised as a principal cause of unreliability by Lefkowitz and Katz. They conclude in their study of the 'validity of exit interviews' that extensive training in interviewing techniques is essential for those whose responsibility it is to conduct the exit interview. Furthermore Henrichs<sup>129</sup> believes that 'interviewing should be centralised and carried out by personnel department staff members.' The need for an independent and objective interviewer rather than the terminatee's 'boss' is even more apparent, since in some cases, the 'boss' may have contributed to the terminatee's decision to leave.

Henrichs also believes that the exit interview should be conducted separately to the 'checking-out' process, as the information gathering exercise may become 'clogged-up' with personnel matters.

Perhaps one of the most interesting and instructive publications regarding exit interviews is presented by Black.<sup>131</sup> His main objective is to improve interviewer competence 'in a difficult field of communications' by setting out simple recommendations regarding the preparation, administration and conduct of the interview.

Unlike Hinrichs, Black recommends that the administrative and fact-finding process for a departing employee should be undertaken simultaneously. He believes that the routine aspects of the interview will help to relax the interviewee and facilitate the asking of the more difficult question relating to his/her decision to leave. Furthermore the mood of the terminatee may be assessed and the interviewer can decide on the most fruitful approach to the latter part of the interview.

However, he does mention that a member of the personnel department is often trained to become an expert in exit interviewing incorporating an impersonal and objective approach. The problem of eliciting the real truth regarding an individual's decision to leave, is highlighted by Black who suggests that 'if you are perceptive, you can detect signs that may provide information which taken with data furnished by other exit interviews forms a story-telling pattern.'

The principal guide-lines offered by Black may be summarised as follows:

(1) Careful preparation

It is desirable to be aware of the terminee's personal characteristics and job function. These may provide some insight into possible reasons for leaving.

(2) Timing of the interview

It is recommended that the interview should take place at least a day before the termination date, and that the interview itself should not be hurried. However the interview should cease when all the information is supplied.

(3) Assure privacy

Ensure that the interview is held in private and is conducted in relaxed and uninterrupted conditions to produce the best results. Also to win the confidence of the terminee 'make him feel what he says is a private matter'.

(4) Keep the interview flowing

The main objective is to keep the terminee talking while the interviewer listens. Lightly probing questions are used to this end. Furthermore tact and diplomacy are essential, especially when investigating 'touchy' subjects. It must be borne in mind throughout the interview that it is purely voluntary and there is no obligation for the terminee to participate. Under these conditions of complete freedom the best results are most likely to be achieved.

(5) Fact-finding

To determine the reasons why an employee is

leaving it is necessary to provide a check list of the possible causes of dissatisfaction. These questions may relate to compensation, communications in the company, promotional prospects, appraisal systems, training etc. By providing the opportunity for terminees to 'chat' at length on the above issues the interviewer is in a position 'to gain a fairly clear insight into his real views on the company and his actual reasons for leaving it' and 'while no exit interview may be too revealing in itself, combined with many others an experienced manager who knows how to record, analyse and interpret them will gain useful knowledge about his operation, problems that exist in his unit, and a better insight into his personal methods of management and leadership. By knowing these things, he can accomplish improvements not only in methods and working conditions but in his own direction of people.'

(6) Flexibility of the interview

Since the interview is to some extent exploratory, it is essential to conduct it flexibly. Since 'some chance remark by the interviewee, some unguarded comment on a trivial aspect of his past job may be worth exploring at some length'.

(7) At the end of the interview

Black recommends that when the interview is finished, immediately write down all the reasons the terminee gave for leaving. Also any further 'impressions' the interviewer may have gained from the interview should be recorded.

### Summary

The foregoing discussion examined some of the problems involved with exit interviewing together with proposed guide-lines for overcoming them. This advice and the theoretical considerations are borne in mind in the overall design of the exit interview used in this research, which is the subject of the following section.

## 7.3 Exit Interview Design

The process of exit interviewing is divided into three sections which are discussed separately.

- a) The sample
- b) The setting and administration of the interview
- c) Typical questions asked in the interview

### 7.3.1 The Sample

In order to determine the 'meaning of quitting' to the employees concerned, only those who were leaving of their own accord for apparently controllable reasons were interviewed. However for reasons such as 'leaving the district' or 'emigration' it was decided to interview a sample, if and when appropriate, since it may be difficult on the surface to say with any confidence whether these are controllable reasons. For example, a male employee may be 'leaving the district' to go to another job, whereas a female employee may be 'leaving the district' because her husband is moving his job, and therefore in this instance her

leaving is not due to any dissatisfaction with her present job. With emigration the reason for leaving may be more influenced by national factors than company factors.

All employee types are interviewed, i.e. staff and operatives so that the leaving behaviour of skilled, semi-skilled, unskilled, clerks, specialists, supervisors and managers may be compared and contrasted.

A sample of over fifty controllable leavers were interviewed to allow any trends to be established. They were derived principally\* from those factories chosen for the time-series statistical analysis, i.e. Coventry, Horbury, Inchinnan, Walton and Leicester. However, insufficient numbers of controllable leavers from Walton and Inchinnan resulted in their omission from the analysis. These factories were chosen so that any observations from the interviewing exercise may be used to complement and/or supplement the statistical findings.

The interviewing investigation was undertaken between March and October 1975. During this period unemployment rates both nationally, regionally and locally rose to levels in excess to those reached in the economic depression of the 1930's. This had practical consequences in that the number of employees leaving the company for controllable reasons markedly decreased, and was the principal reason why it took nearly eight months to achieve the requisite sample size. However, from a theoretical

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\* Four interviews were conducted at the Barnsley, Dudley and Brynmaur factories to make up a sufficient sample.

point of view, it could be said that under these conditions of high unemployment, leaving behaviour would be probably for sound motivated reasons rather than occurring furtively and spontaneously. This in fact was borne out by the findings from the exit interviews.

### 7.3.2 The administration and setting of the interview

#### a) Administration

Some prior liason was undertaken with each proposed interviewing 'site', by approaching the factory personnel manager in order to seek permission to carry out the interviews. Generally speaking there was no objection, but rather encouragement and enthusiasm for such an investigation from factory managers. It is uncertain whether this reaction to the study was due to the researcher's 'ties' with the Central Personnal Division or his own charisma and personality! Since all factory leavers had to pass through the employment office, the interviews were conducted there.

Administratively, the process of locating possible interviewees was different for staff and operatives. Considering each in turn:-

#### Staff - Non-manual employees

The majority of staff are contracted to give at least a month's notice. Generally speaking an employee seeking to leave renders his/her notice in writing to the departmental manager. A

termination of employment form is duly completed and dispatched to the employment office. This form contains the following information: name, age, date of engagement, job title, department, notice period, date of leaving, and reason for leaving. In most cases the reason for leaving is described in a few words, e.g. own accord, personal betterment, retirement and resigned, etc. Although the 'real' reasons may not be obvious it was possible to segregate leavers into uncontrollable and controllable groups.

Since all leavers usually gave a month's notice an interviewing schedule of 'controllable leavers' could be organised relatively easily. In most cases leavers were interviewed between one to four days before their proposed departure.

#### Operatives - Manual Employees

The situation regarding operative leavers was different in that they are contracted to give only a week's notice. In practice a prospective leaver renders his/her notice at the beginning of the week, i.e. Monday, in order to leave on the following Friday. Correspondingly many operative exit interviews were administered at short-notice as there was little time to organise a schedule. Furthermore many operatives were engaged on shift-work, and on two occasions it was necessary to interview during the night-shift.

Although personnel in the employment office may have been aware of some 'inside' information regarding possible reasons for leaving among

'quitters', all interviews were conducted without bias, i.e. with an open-mind. Any 'comparing of notes' would be undertaken after the interview.

b) Setting

All interviews were held in private, relaxed and uninterrupted conditions. Furthermore participation was completely voluntary, confidentiality of information was given, repeated assurance, and the researcher posed entirely as research student without any company ties. This overall environment was created to minimise any feelings of stress on the part of prospective interviewee and provide an atmosphere for a frank and honest discussion. It must be emphasised that the interviewee is probably under a considerable amount of strain and requires delicate and diplomatic handling.

Typically an exit interview would open with the following introduction - 'Good afternoon Mr X, my name is David Huber. I'm at present doing some research at Aston University concerning the reasons why people leave their jobs. I've asked the personnel department here if I can have a chat with some of the employees who are about to leave this company. They have given me permission to go ahead. I would like to talk to you about your reasons for leaving the company, providing that you have no objections (Fortunately no-one walked out at this point!). Anything you say to me will

be held in confidence, please rest assured on that, and will only be used for my research. However, if I find something seriously wrong with the company, I will feed back the information in the form of trends, no reference to individual comments will be made. Do you mind if I take a few notes during the discussion?\*

Having made it perfectly clear that the interview was both voluntary and confidential, the information gathering section of the interview was in a position to commence.

### 7.3.3 Typical questions asked in the interview

The following questions were not administered as part of a well-structured written questionnaire. It is considered that leaving behaviour was the resultant of many complex and sometimes apparently illogical factors. Therefore a semi-structured and flexible approach was considered to be most appropriate whereby the discussion would centre around some well rehearsed questions relating to possible areas of dissatisfaction. The depth of discussion on any particular topic would depend on the interviewee's responses.

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\* There were no objections to my taking notes during any interview. In fact many terminees were pleased that some record of what they were saying was being made, e.g. whilst hurriedly noting an interesting cause of dissatisfaction from one terminee, he stopped in mid-flight and said "Am I going too fast for you?"

The typical 'rehearsed' questions asked at the interview together with the underlying theoretical considerations for so doing, are now described and discussed.

The first three questions were as follows:-

- (i) Could you tell me briefly why you are leaving Dunlop?
- (ii) How long ago did you become dissatisfied with your job?
- (iii) What were the main causes of this dissatisfaction?

These questions are intended as 'openers' to the discussion. The main objective to identify the series of events that took place before the final decision to leave was made. Too often only 'the last straw that breaks the camel's back' is rendered as the reason for leaving. It is the author's opinion that decisions to leave are not usually spontaneous, but result from the gradual build-up over a period of time of one or more areas of dissatisfaction.\* This opinion is substantiated by Henrichs,<sup>129</sup> who makes the following statement based on a particular exit interviewing investigation ... 'Managers conducting exit interviews stated that, on the average, the employees dissatisfaction became apparent only two or three weeks prior to his resignation. In the interview with the consultant, however, the average employee

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\* This opinion is based on the author's own experience of leaving a company, i.e. a self-exit interview

stated that he had approached his manager several months prior to taking the extreme step of resignation.'

The following set of questions were referred to at some point in the interview even if the interviewee had not intimated that they were a specific cause of dissatisfaction.

(iv) Did the level of pay you were receiving influence your decision to leave?

If the answer was yes, the following aspects of pay were explored.

- a) Type of payment system
- b) Absolute amount of pay received
- c) Too much overtime
- d) Fluctuations in pay
- e) Pay compared with:-

Other employees in the company  
Other employees in similar positions  
in other firms  
Operatives/staff

- f) Inadequate trade union representation
- g) Size and frequency of increases

These dimensions of the proposed 'pay' determinant of employee turnover are derived from the findings of previous research outlined in section 2.4.2. The underlying objective of this question is to examine an individual's perception of what aspect of pay dissatisfies him most. It is proposed that more often than not it is the feeling of being underpaid in comparison with others that causes most resentment and dissatisfaction, rather than the absolute amount received.

- (v) Did the job turn out as you expected it to from what you were told at your selection interview?

If job experiences had not matched job expectations, the following areas were examined:-

- a) Promotion prospects - both short and long term
- b) Working hours - i.e. too long, shifts
- c) Level of pay achieved
- d) Interest in work
- e) Degree of responsibility
- f) Challenge in the job

Two further questions were also asked

- (va) What did you hope to get out of the job?
- (vb) Was the failure to meet these expectations anything to do with your decision to leave or not?

The purpose of this particular area of inquiry into an employee's decision to leave is to examine the hypothesis of 'unmet expectations' as an important determinant of employee turnover. Any mismatch between job expectations and job experience theoretically stems from what was said/inferred from the selection interview. Typically it is the overall accuracy with which the job and its content were described and portrayed by the company to any prospective employee, which is under close scrutiny. Since any unfulfillment of expectations should be eliminated by providing an honest and accurate portrayal of the job. Furthermore it is essential to determine 'what a prospective employee wants out of a job?' to balance the equation, i.e. a theoretical\* matching of employer and employee needs.

In order to explore an employee's motivation and orientation to work\*\* a very simple questionnaire was developed, entitled 'What do you really want out of a job?'.

The following aspects of a job were incorporated into the questionnaire.

Above average pay

Security

Good relationships with fellow employees

Responsibility

Interest in work

Career development and promotion prospects\*\*\*

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\* It is appreciated that this situation is 'ideal', and that in practice it is difficult to achieve. However, the narrower the gap the smaller the number of potential sources of dissatisfaction. Moreover, expectations are not static and do and may have to change in the light of reality, e.g. the organisation may be contracting and promotion prospects may be drying up; or an individual may suddenly find his/her niche in the organisation. This dynamic situation necessitates the need for continuous monitoring and feedback of any changes, so that the company and employees are kept accurately informed of the 'state of play' and are in a better position to know what to expect from each other. Regular appraisal meetings provide the opportunity for such an exchange.

\*\* The concept of 'orientation to work' was introduced by Goldthorpe et al (86) (See section 2.4.2 - wages determinant of employee turnover). Since an employee's behaviour towards his job has been shown to be influenced largely by his 'orientation to work', this concept is adapted in this study to shed any light on its possible association with leaving behaviour.

\*\*\* This aspect of a job was incorporated in the staff exit interview after about six interviews had been conducted since the lack of it was consistently 'cited' as a principal reason for leaving. There had been no evidence of similar findings in operative interviews.

Each interviewee was asked whether he considered the above aspects of a job to be the most important.\* Then, rather than asking the interviewee to rank them in descending order of importance, he was asked to complete a 'forced-choice'\*\* pairing of all the aspects against each other, i.e. fifteen sets of paired work aspects. A typical questionnaire is presented in Figure 54 below. For each pair of work aspects the interviewee was asked to choose the aspect most important to him/her. If the aspects were valued equally, then the interview could record 'Both the same' in the 'Your choice column'. The scoring was as follows:

Aspect chosen	-	1 point
Aspect not chosen	-	0
Both the same	-	$\frac{1}{2}$ for each aspect

Therefore there was a maximum score of 5 for any aspect.

The virtues of this type of questionnaire are:-

- a) It is simple, practical and not time-consuming to administer
- b) In addition to determining the order of importance of the work aspects for any interviewee, the scoring system allowed the relative strengths of each aspect to be assessed (i.e. a score of 5 would be interpreted as very important, and a score of 0 would be interpreted as not important, etc. etc.)

This questionnaire is not intended to be a

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\* all interviewees agreed that these aspects were the most important.

\*\* the 'forced-choice' pairing has the virtue of making participants think more carefully by posing alternatives. Furthermore in addition to obtaining a ranking of aspects, their relative importance is also shown.

Figure 54

# "WHAT DO YOU REALLY WANT OUT OF A JOB"

"What is your motivation/orientation to work in terms of the following aspects of work?"

"Do you agree that the 6 most important aspects of any job are?" -

- \* above average pay
- \* Security
- \* Good relationships with fellow employees
- \* Responsibility
- \* Interest in work
- \* Career development and promotion prospects

Choose the aspect you consider to be most important to YOU from EACH of the following 15 pairs:-

WORK ASPECT		WORK ASPECT	YOUR CHOICE
Responsibility	Versus	Interest in work	
Above average pay	"	Security	
Good relationships with fellow employees	"	Responsibility	
Interest in work	"	Career developments & promotion prospects	
Above average pay	"	Responsibility	
Security	"	Interest in work	
Career development and promotion prospects	"	Good relationships with fellow employees	
Above average pay	"	Interest in work	
Security	"	Career developments & promotion prospects	
Good relationships with fellow employees	"	Above average pay	
Responsibility	"	Security	
Interest in work	"	Good relationships with fellow employees	
Responsibility	"	Career development & promotion prospects	
Security	"	Good relationships with fellow employees	
Career development and promotion prospects	"	Above average pay	

comprehensive survey in any way. Its purpose is seen as providing a 'link' between the reasons a terminee gave for leaving and what was desired from a job. The chosen aspects of work are broad areas and each could possibly be subdivided further. However, the objective of this part of the interview is to gain a fairly rapid impression of what terminees wanted from a job, to allow comparisons to be made therefrom.

(vi) The next set of questions relates to possible sources of conflict. Repeated assurances of confidentiality were required in order to explore this possible area of dissatisfaction.

- a) What was your relationship like with your immediate supervisor and departmental manager?
- b) Was he too rigid or casual in his methods?
- c) Did any of his methods 'get under your skin'?
- d) Did he express any gratitude for work carried out?
- e) Did he administer regular appraisal sessions?
- f) Were you able to communicate with him?

These questions a) to f) were aimed at exploring the influence of supervisory styles on an employee's decision to leave. In particular the source of motivation was investigated; i.e. from the manager using a constructive and helpful methods of administration or totally from within oneself, as a result of destructive and irritating managerial styles.

The following questions g) to i) are aimed at investigating the influence of interpersonal

relationships on employee turnover:

- g) How did you get on with your fellow workers?
- h) Was there any resistance to newcomers in the work teams?
- i) Did the job itself allow you to meet and talk to other people?

(vii) The next set of questions are of a general nature.

- a) Have you secured another job to go to?

If the answer to this question was negative, then the following question would be posed:

- b) You must be desperate to leave?
- c) Do you regret the decision, if so, why?
- d) Has your manager attempted to dissuade you from leaving, or expressed any ill-feeling?
- e) When looking for another job did you confine your search locally, regionally or nationally?

This question was posed to examine the degree of mobility among different employee types; i.e. Do operatives restrict their search locally? Do staff employees look further afield? etc. etc.

- f) Did the company's redundancy record influence your decision to leave?

The effect of large redundancies over a period on employee attitudes to the company is being investigated in the above question, i.e. "Is there still loyalty towards a company in the present era of redundancy?"

- g) Would you be prepared to tell me your salary in your present job?
- h) Will you be earning more in your next job?

Despite the inherently confidential nature of these questions, the majority of interviewees supplied the required information. This information was used as a check as the responses given on the overall aspect of pay. Furthermore the hypothesis that most people will only leave one job to take up another if there is an implicit increase in pay, was investigated.

Having asked the questions (i) to (vii) and all the attached riders, not necessarily in the order presented, the interview was wound up by summarising the principal sources of dissatisfaction which led to the interviewee's decision to leave. Finally, having confirmed the reasons for leaving, the terminee was thanked for participating in the interview, and a final assurance of confidentiality was given.

#### 7.4 Documentation of information from the exit interview

Immediately after the interview, the notes made during it were unscrambled and organised under specific headings as shown in Figure 55, which is a typical exit interview report. In addition to the results of the interview the following information, derived from the departing employee's employment record card, was also documented.

- Leavers name
- Time and date interviewed
- Division and location
- Job title
- Length of service
- Age
- Number of previous jobs over the last ten years
- Reason for leaving according to 'Termination of Employment form'
- Qualifications held
- Employee type

Figure 55

EXIT INTERVIEW

Employee type .....  
Leaver's name .....  
Time & Date Interviewed .....  
Division & Location .....  
Job Title .....  
Length of Service .....  
Number of jobs in last 10 years .....  
Age .....  
Marital status .....  
Reason for leaving according to  
'Termination of Employment' form .....  
Qualifications held .....  
=====

Results of Exit Interview

1. Main reasons for leaving.
  
  
  
  
  
  
  
  
  
  
2. Point in time when dissatisfaction set in.
  
  
  
  
  
  
  
  
  
  
3. Main causes of this dissatisfaction.

4. Was pay a contributory factor?

5. Expectations at selection interview not met?

6. Motivation/orientation to the job

7. Conflict?

a) With Supervision

b) With fellow employees

8. Job search.

a) Have you secured another job to go to?

b) In this area?

9. Present salary/wage.

10. Other notes and impressions.

Furthermore after the departure of each terminee, his/her departmental manager reported on the following aspects of his/her employment.

- a) Conduct
- b) Ability
- c) Time-keeping and absence
- d) Whether or not the terminee would be re-engaged

These comments, although brief and sometimes vague, e.g. like good, fair, satisfactory, etc., provided useful insight regarding the value of the employee to the organisation. Hence it was possible to determine which of the leavers were 'key' employees (see Gellerman, section 2.6.3). Furthermore the authenticity of the interview could be better assessed in the light of this 'two-sided' information.

#### 7.5 The need for a 'control' group

A large proportion of the exit interviews were conducted at the Engineering Group factory in Coventry. In particular, those interviews conducted among male staff 'quitters' yielded a consistent principal cause of dissatisfaction. This was the lack of career development, promotion prospects and company interest in them. Leavers for this reason, included those who had served apprenticeships with the company, professionally and academically qualified, and those who, on average were under thirty and had at least eight year's service. Furthermore, departmental manager's comments indicated that these leavers had been 'valued' employees. Although the turnover of male staff was not in excess of fifteen percent, the implications of this apparent leaving syndrome were

serious. Pigors and Myers<sup>116</sup> comments on the unstabilising effects of too little turnover, section 2.6.1 are worthy of repetition ... 'longer-serving employees may simply be marking time, doing enough to get by while waiting for their retirement benefits. If so, they block promotional opportunities for younger more able people who may leave the organisation for better prospects elsewhere. The work group may lose its more vital members while retaining its less vital'.

Therefore a sample of current male staff with similar characteristics, i.e. age, service, salary, job title, department and qualifications, to the leavers, were interviewed to act as a 'control group'. The information yielded is used to measure the authenticity and extent of this apparent cause of dissatisfaction.

#### 7.5.1 'Control-group' interviewing

The interview is discussed according to the following aspects, the sample, setting and administration, and content.

##### a) The Sample

A sample of eighteen current male staff employees were selected to match the number of corresponding male staff 'quitters'. Every effort was made to ensure that the two samples were comparable in terms of age, length of service, department, salary and qualifications.

b) The administration and setting of the interview

Administration

The factory personnel manager was informed of the apparent cause of dissatisfaction voiced by male staff quitters and agreed the proposed interviewing of current male staff. However, the factory is extensively unionised for both operatives and staff and therefore union representatives were consulted of the proposed exercise. It was emphasised that the survey was being undertaken by a 'student' for research purposes, not by a company representative and no objections were made.

The interviewees were invited individually to the employment office, having received prior permission from their respective departmental managers. They were informed that they had been selected at random to participate in a survey of job satisfaction to be administered by a research student from Aston University.

Setting

These interviews were held in private, relaxed and uninterrupted conditions. Furthermore their participation was voluntary (no-one refused) and assurances of confidentiality of information were given. The interview commenced with the following introduction - "Good afternoon Mr Y, my name is David Huber. I'm at present engaged in some research at Aston University aimed at investigating what an individual wants from a job, and to what extent these needs are satisfied in his present job". Since

the interviewees were 'current' employees the need for repeated assurances of confidentiality of information were seen to be of utmost importance in providing the most conducive environment for frank and honest responses to be imparted. Having gained the confidence of the interviewee, the information gathering section was now in a position to begin.

c) Content of the interview

The objective of this survey was to investigate further this apparent lack of career development and promotion prospects cited by the majority of male staff 'quitters' as a principal reason for leaving. Therefore it was deemed appropriate to administer the same questionnaire entitled "What do you really want from a job" to the current staff interviewees; the results of this exercise could then be compared and contrasted with corresponding responses obtained from 'quitters'.

However, this information alone would provide insufficient insight regarding the degree of compliance to individual 'wants' by the company. To overcome this problem and provide numerical evidence of possible areas of dissatisfaction a strategy introduced by Porter<sup>132</sup> and recently modified by Raby<sup>133</sup> is employed.

During the 1960's Porter undertook several empirical studies investigating Maslows model of a 'Hierarchy of human needs', for various strata of management. Each respondent in his survey was

asked three questions about each particular 'need' in the 'hierarchy'. They were:-

- a) How much of this 'need' is present in your current job?
- b) How much of this 'need' do you think ought to be in your current job?
- c) How important is this 'need' to you?

A scaled response from '1' to '7' (1 = minimum, 7 = maximum) accompanied each of the above questions.

For example, if the 'need for security' was under investigation, a typical set of questions would read:-

- a) How much security is present in your current job?

(minimum) 1 2 3 4 5 6 7 (maximum)

- b) How much security do you think ought to be in your current job?

(minimum 1 2 3 4 5 6 7 (maximum)

- c) How important is security to you?

(minimum 1 2 3 4 5 6 7 (maximum)

From these scores Porter introduced the concept of 'need fulfillment deficiency', which he defines as the difference between how much there out to be and how much is present now, i.e.

$$\text{Need fulfillment deficiency} = b - a$$

Despite the arbitrary scaling of these scores inferences may be made regarding possible areas of dissatisfaction amongst employees, since 'deficiency' scores may be obtained for a variety of work aspects and conclusions drawn from their relative magnitudes. Furthermore the 'need-importance' scores as obtained from c) above, used in conjunction

with the deficiency scores may provide additional evidence of any potential reason for leaving syndrome.

Raby,<sup>133</sup> in a recent investigation of 'commitment of engineering staff of their employing organisation', advocates the use of a single statistic based on the 'deficiency' and 'importance' scores, since .... 'The measure is of relevance to organisational development in those areas of particular interest for possible remedial action would be items which combine a high deficiency score with a high importance. Identification of these would indicate where efforts might be best deployed to reduce overall dissatisfaction.'

He introduces a measure of 'overall concern' which is defined as:-

$$\text{Overall concern} = \frac{\text{Deficiency score} \times \text{Importance score}}{\text{Importance score}}$$

By using the product of the two scores a broader spread of 'concern' scores are obtained and therefore those areas of greatest 'concern' are more readily identified.

This Porter-Raby approach to the identification of possible areas of dissatisfaction is applied to all the work aspects incorporated in the "What do you really want out of a job" questionnaire. The details are summarised in Figure 56 overleaf.

Each interviewee was asked to complete the "What do you want out of a job" questionnaire, see Figure 54, followed by the Porter-type questions on each aspect of work as described in Figure 56. Rather than administering these questionnaires using written instructions, a personal and verbal approach was used so that any possible ambiguities could be elucidated. Finally, a few general questions were asked; e.g. if it was obvious that a particular interviewee was very dissatisfied at present, then he may be asked "why do you stay?" Alternatively he may be asked ... "Are there any other aspects of your job or the company which dissatisfy you?" Having gathered the required information, the interview was wound up by thanking the interviewee, for his time and frankness, and providing a final re-assurance of confidentiality.

#### 7.6 Results and Inferences drawn from interviews of 'quitters' and stayers

The following chapter is devoted to the presentation of results from the interviewing surveys. The inferences and validity of such interviews are discussed at some length.

#### 7.7 Summary

This chapter describes an approach aimed at investigating the less quantifiable proposed correlates and determinants of 'controllable' employee turnover. A semi-structured and flexible interviewing survey of 'quitters' and 'stayers' is deemed as the method most likely to elicit information on the more subjective issues

Figure 56

Questionnaire administered to Male Staff

1. Above average pay

SCORES

- a) How much is there now? (min) 1 2 3 4 5 6 7 (max)  
b) How much should there be? 1 2 3 4 5 6 7  
c) How important is this to me? 1 2 3 4 5 6 7

2. Security

- a) How much is there now? (min) 1 2 3 4 5 6 7 (max)  
b) How much should there be? 1 2 3 4 5 6 7  
c) How important is this to me? 1 2 3 4 5 6 7

3. Career development and promotion prospects

- a) How much is there now? (min) 1 2 3 4 5 6 7 (max)  
b) How much should there be? 1 2 3 4 5 6 7  
c) How important is this to me? 1 2 3 4 5 6 7

4. Responsibility

- a) How much is there now? (min) 1 2 3 4 5 6 7 (max)  
b) How much should there be? 1 2 3 4 5 6 7  
c) How important is this to me? 1 2 3 4 5 6 7

5. Good relationships with fellow employees

- a) How much is there now? (min) 1 2 3 4 5 6 7 (max)  
b) How much should there be? 1 2 3 4 5 6 7  
c) How important is this to me? 1 2 3 4 5 6 7

6. Interest in work

- a) How much is there now? (min) 1 2 3 4 5 6 7  
b) How much should there be? 1 2 3 4 5 6 7  
c) How important is this to me? 1 2 3 4 5 6 7

involved. The sample, setting, administration and content of each type of interview is described and discussed with respect to the objectives of such a survey, together with the underlying theoretical considerations.

The results, inferences and validity of this qualitative approach are presented in the following chapter.

## CHAPTER 8

### FINDINGS AND INFERENCES FROM INTERVIEWS

#### 8.1 INTRODUCTION

The findings from the exit interviews conducted amongst each employee type, i.e. male staff, female staff, male operatives and female operatives, are initially presented and discussed separately. The reasons for leaving are then compared between employee types and against their particular orientations to work.

A potentially serious source of discontent located in the exit interviewing of male staff is investigated further by interviewing a similar sample, in terms of department, job, age, service and qualifications, of male staff 'stayers'. The findings from this study are described and discussed before the general usefulness of 'exit interviews' is reviewed.

#### 8.2 FINDINGS FROM EXIT INTERVIEWS

Fifty five exit interviews were conducted amongst employees leaving for apparently controllable reasons. Five of these were deleted from further analysis since they were leaving for uncontrollable reasons, e.g. three female employees were leaving due to their husbands moving their jobs to another area, and two male employees were emigrating for national problems rather than company problems. Nearly eighty per cent of the remaining interviews were derived from employees at the Coventry factory of the Engineering Group. This was so principally because of its size and the author had temporary accommodation there which facilitated the task of locating leavers. Forty-eight per cent of the interviews were undertaken

amongst male staff, thirty-two percent were for male operatives, fourteen per cent for female staff, and only six percent for female operatives. The bias of interviews amongst male employees was not intentional. Low numbers of female controllable leavers resulted from a significant number of them leaving for uncontrollable reasons, e.g. pregnancy, redundancy, domestic problems.

The findings and inferences drawn from the 'exit interview' for each employee type, are now examined in turn.

#### 8.2.1 Male Operative Leavers

##### a) Personal and job characteristics

Table X1a\* summarises, for each male operative interviewed, the following personal and job characteristics; Code name, location, skill-level, marital status, age, length of service, average weekly earnings, and the number of companies he has been employed by in the past ten years. The majority of leavers were semi-skilled (75%), and married (88%). Their average age, service and weekly earnings were 35 years, 4 years, and £46 respectively. On average each had had three different employers over the past ten years.

##### b) Findings from the interviews

Table X2a (see p.146, Appendix E) summarises the following information gleaned from the exit interview and managerial appraisal for each departing employee.

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\* Tables X1a to X3d are presented in Appendix E, see pages 142-160.

- (1) Code name of departing employee
- (2) Reasons for leaving
  - (i) from the interview
  - (ii) from the 'Termination of employment form'
- (3) Details of next job
  - (i) Whether the employee had secured another job.
  - (ii) Is the job local?
  - (iii) Does the new job offer more pay?
- (4) Managerial appraisal
  - (i) Ability
  - (ii) Conduct
  - (iii) Attendance and time-keeping
  - (iv) Would the manager re-engage this person?

The skilled employees (A1 - A3) were leaving primarily due to dissatisfaction with the wage structure. Generally they felt they could not affect their earnings by their own efforts. Furthermore there was some evidence that semi-skilled men were earning more,\* which promoted some bitterness and resentment. They stated a preference for 'a rate for the job' as there were fluctuations in their weekly earnings. In one case there was a quite strong reliance on overtime working.

The principal reasons for leaving voiced by the semi-skilled and unskilled 'terminees' (A4 - A16), were:-

- (i) Feelings of insecurity
- (ii) Boredom, monotony and noise with the job.  
(Also shift-working)
- (iii) Reduced earnings due to short-time working.

The feelings of insecurity were not bred without foundation. The Coventry factory, in particular, has experienced large redundancies over the last five years. Furthermore the men

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\* A survey by Gooding reported in the Financial Times (25.2.76) quotes similar findings 'The decline in differentials has been experienced in all sections of engineering, and in all regions. For example in June 1975 in the South-East, on an hourly basis, the semi-skilled time workers earned marginally more than the skilled worker.'

could see a continuing gradual reduction in the volume of work. This factory produces equipment for the vehicle and aviation industries which are both experiencing recessions.

Some comments made by departing employees about the boredom, monotony and general working conditions of their jobs are presented below.

"I don't want to spend the remainder of my life behind a machine"

"I feel just like a piece of the machinery"

"When we finish at four o'clock, most of us run to our cars, we can't get away from it soon enough"

"The job gave me a nice break from the pressures of thinking and responsibility"

In general the terminees made the decision to leave between three to six months before their actual departure. As unemployment was steadily rising throughout 1975, the number of suitable alternative jobs were decreasing month by month. This was the main reason for the time-lag between decision and action. Nearly 90% of the terminees had secured alternative employment prior to leaving, the majority joining companies in the locality. This finding provides more evidence of the influence of local levels of unemployment on employee turnover rates. Many of the leavers were returning to former trades, e.g. carpentry and butchery, or joining local authorities with the belief of extra job security.

The departmental manager's appraisal of the terminees was generally very favourable and only two of them would not be considered for re-engagement.

There was little evidence of conflict, either between employees or with supervision. However, in some cases interpersonal relationships on the job were impossible to foster because of the noisy working environment. Contact between the

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managers and subordinates was generally minimal, and some terminees felt that managers were on the whole very aloof.

The results of the 'Motivation/Orientation to work' questionnaire are summarised in Table X3a.\* The highest median scores were found for 'Security' and 'Interest in work'. Dissatisfactions with these aspects of work were generally cited as reasons for leaving, thus the results of the questionnaire have provided additional support and qualification for these apparent causes of turnover. Since in theory, dissatisfaction with the most important aspects of a job, may stimulate individuals to search for other jobs where these needs are more likely to be met.

An exit interview is now described in detail to illustrate typical reasons for leaving and their congruence with primary orientations to work.

#### CASE 1

This leaver's code name is A7 (See Appendix E, p.142, 147, 157). His job title was 'semi-skilled general operator' in the Wheel Division at the Engineering factory at Coventry. On leaving he was twenty-four years old, married, served ten months and had three different employers since leaving school.

#### Main Reasons for leaving

His stated reasons for leaving were a dislike of shift-work, boredom and monotony of the job and a feeling of insecurity\*\*. These factors contributed equally to his decision to leave and manifested themselves after only a month's employment. However, he decided to remain a further six months before actively job searching.

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\* See Appendix E, p.157

\*\* Numbers in the Wheel Division had been quite severely reduced by redundancies during the past eighteen months due to a fall-off in orders caused largely by a recession in the vehicle industry.

Generally he felt like another piece of the machinery. Noise levels were sufficiently high as to inhibit any conversation with fellow employees. When he decided to leave he said that he would have accepted any other job which was more interesting even if it meant taking a cut in pay.

He was satisfied with the pay he received and relationships with supervision and fellow employees, when noise levels permitted.

The job was accurately portrayed to him at the selection interview and he believed that he could overcome the transition to factory life after his previous employer had closed down, however, he was unable to do so.\*

At the time of the exit interview he had secured another job locally as an insurance agent. He said that his earnings may be initially slightly below his present level, however, he thought he would soon be better off. Moreover he was looking forward to going to work in clean clothes and talking to people again.

His highest scores with the 'Orientation to work' questionnaire were 'security' and 'interest in work' aspects. Deficiencies in these were quoted as principal reasons for leaving. He considered that his future job promised more interest and security.

Comments made by his departmental manager showed him to be a good employee who would be re-engaged.

#### 8.2.2 Female Operative leavers

The inferences drawn from these interviews may not be

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\* I suspect that this employee accepted this job as a 'stand-in' until he found something better. From his conversation he appeared quite intellectual and perhaps unsuited to this type of work.

applied generally as only three interviews were conducted.

a) Personal and job characteristics

Table Xlb, (see Appendix E, p.143) summarises for each terminnee the relevant personal and job characteristics. All leavers were semi-skilled.

b) Findings from the interviews

The main reasons for leaving quoted in the interviews were - (these are derived from the summary Table X2b, p.149, Appendix E)

- (i) Boredom with the job
- (ii) Conflict with supervision

Two out of three leavers left without securing another job. Both these terminnees were 'secondary breadwinners' in that they were both married and their husbands' provided the main source of income. Furthermore the decision to leave was made at fairly short notice, i.e. less than 2 months, in all cases.

Regarding their responses to the 'Motivation/Orientation to work' questionnaire, highest median scores were obtained with 'Good relationships', 'Interest in work' and 'Above average pay'. These results provide some confirmation of the possible reasons for leaving elicited at the exit interviews. (See Table X3b, p.158, Appendix E). A case study is not presented because of the low numbers interviewed.

### 8.2.3 Male Staff

a) Personal and job characteristics

Table Xlc presents for each male staff terminnee interviewed, the following personal and job characteristics; code name, location, qualifications, marital status, age, length of service, average weekly earnings, and the number

of companies he has been employed by in the past ten years.

Over 80% of the terminees were derived from the Coventry factory, and 75% of those interviewed possessed either an academic or professional qualification. Some of the qualifications were achieved through company sponsorship. Fifty-four percent were married and the average age, service and weekly earnings of those interviewed were 27 years, 5.5 years, and £56 respectively. On average each terminee had between one and two different employers over the past decade.

Compared with the male operative terminees, the male staff terminees were generally younger, had longer service, greater salary, and had been nearly twice as stable over the past ten years.

b) Findings and Inferences from the 'exit interviews'

Table X2c (p. 150-154, Appendix E) summarises, for each terminee interviewed, his code name, reason(s) for leaving, his next job and his departmental manager's appraisal of him.

The single and most often quoted reason for leaving was 'No foreseeable promotion prospects due to a lack of career development'. Over 80% of all leavers rendered this the most important reason behind their decision to leave. At Coventry the proportion was 95%.

Generally speaking there was an underlying feeling that the company employed people for a job, and nothing more. Appraisal sessions were practically unheard of. The development of individual careers and general company interest was believed to be non-existent.

Typical comments made by interviewees are quoted below:-

"No prospects for graduate engineers, only by luck can get you promoted. Most of us are fed up with empty promises of career development."

"After training, nobody gets an appraisal. Therefore you never know whether you are doing the right or wrong thing."

"Ambition is viewed as a bad thing."

"Career development plans proposed at my selection interview were a complete fabrication of the truth."

"Dunlop offer a good training but no career development."

"Inter-departmental transfer is not encouraged. You get the feeling of a 'death wish' on the part of the company to get rid of people by natural wastage."

"No interest is paid by the company to individuals. That's why most of us up to lower management levels are in a union, but that's self-defeating because there is no scope for individual bargaining."

"Career development for a select few, some progress, many don't."

"I can't see any chance of promotion in the foreseeable future."

"There's no incentive for promotion because of inadequate pay differentials between managerial levels."

"Dunlop don't offer promotion prospects, to get on you've got to change jobs. You get the feeling 'once a programmer, always a programmer.'"

"No thanks are ever given for work done, mistakes are resurrected against you when you want something."

"I've never had an appraisal/career development session in the nine years I've been here. I'm waiting in 'dead mans shoes' for promotion."

A further source of dissatisfaction cited by some terminees was a belief they were underpaid in comparison with similar companies in the region. Furthermore communication with departmental managers was quoted as being

difficult. Comments were also rendered regarding their general aloofness and disinterest in them. Each interviewee was asked whether he would appreciate regular appraisal sessions by his departmental manager to enable constructive comments about an individual's good and bad points, and possible career plans, to be exchanged. All the interviewees thought that such a session would be most desirable.

These comments regarding appraisal, career plans and prospects do not seem unreasonable, since the average length of service of the terminees was about five years. One would expect some form of communication regarding future prospects to be made in that time.

To investigate whether these terminees were 'valued' employees, comments made by their respective departmental managers regarding ability, conduct, time-keeping, attendance and re-engageability were examined.\*

In every case the appraisals were very complementary and each terminee would be re-engaged. Additional comments regarding particular individuals are listed below. (The terminees code name appears in parenthesis).

"A very capable design engineer, extremely conscientious and hard-working. I am sorry to loose him" (B5)

"A capable young man with fair potential" (B6)

"A very able and responsible member of staff who will be a loss to the company" (B12)

"He had become a very satisfactory member of staff" (B13)

"A first class ideas man" (B14)

"Technically competent" (B15)

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\* These appraisals were available only for Coventry employees, and were documented on the terminee's employment record card after departure.

"A person of proven ability and great promise. The division can ill afford to lose such people." (B17)

"He was being trained for project engineer" (B18)

"Conscientious, reliable and hard working" (B19)

It is obvious that the company thought very highly of the majority of terminees interviewed. However, it appears likely that this 'praise' was rarely communicated between manager and subordinate. Furthermore many of those interviewed had served an apprenticeship or had received sponsorship through the company to gain either academic or professional qualifications. Thus the company were aware of both the ability and investment they had in each of the terminees. Their departure must represent an unacceptable loss to the company.

Other findings from the interviews:

a) Generally speaking most terminees became dissatisfied between one and two years before their actual departure. Active job searching usually took place about six months prior to leaving. All leavers at Coventry had secured another position at the time of the exit interview. Over fifty per cent of them were moving away from the locality to their new appointments. Many stated that their job search was countrywide. This information provides more empirical evidence of the greater influence of regional factors as opposed to local factors on staff turnover rates, e.g. regional unemployment and relative regional earnings. Those who remained locally were generally older.

b) All leavers stated that their new jobs offered better prospects and improved salary.\* Salary improvements of up to twenty-five per cent were reported.

c) Although the majority of terminees had inferred a high general interest in their work during their employment, the volume and variety of new projects had declined recently. This coupled with the feeling of 'disincentive' regarding career development and future prospects, had severely reduced their current interest levels.

d) There was no evidence of conflict amongst subordinates, however, styles of supervision in the computer department and laboratory in two of the factories were cited as supplementary reasons for leaving. Strict adherence to time-keeping, and in some cases 'clocking-in' were resented.

e) A large number of terminees were joining either smaller companies, or starting up small businesses. There appeared to be a reaction against the impersonal nature of a large company and the feeling of being just a 'number' amongst many and the disincentive this breeds, i.e. the stifling and suppression of individual needs and aspirations.

The results of the 'Motivation/Orientation to work' questionnaire, which identifies what an individual really desires from a job, are presented in Table X3c. (See Appendix E, p.159) The highest median score was observed for 'Career development and promotion prospects', this was closely followed by 'interest in work'.

These findings provide further confirmatory evidence of the reason(s) for leaving expressed at the exit interview.

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\* There is no way of testing the authenticity of these statements

A typical exit interview is now discussed in detail.

## CASE 2

This leaver's code name is B12, (See Appendix E, p.144, 152, 159). His Job title was 'Senior Software Programmer' at the Engineering factory at Coventry. On leaving he was twenty-five years old, served nearly seven years, married and Dunlop was his only employer since leaving school. During his service the company had sponsored him on a 'thick-sandwich'\* course at Warwick University where he gained a B.Sc. in Engineering.

### Main reasons for leaving

He thought that there was little chance of entering into a managerial position in his department as both his peers showed little sign of movement in the future. Equally contributing to his decision to leave was a gradual fall-off in the work load in the department during the last eighteen months. Much of the work had become routine with little scope for new projects to be developed. Therefore his interest in the job had begun to slide.

The overall atmosphere in the department was generally unhappy, communications were poor, and many contracted\*\* programmers were employed. He had not been appraised since he joined and was not aware of any career development in his department.

He believed he was satisfactorily paid and had good relationships with both supervision and fellow employees. The job was accurately portrayed at the selection interview with the exception of career development expectations.

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\* Thick sandwich: This course consists of one year with company, then three years at University, followed by a further year with the company.

\*\* Turnover in the department was high and contracted employees were used to maintain adequate manning levels.

At the time of the exit interview he had secured a job with a Health Authority in Hampshire as a Project Leader. He believed that this position offered more challenging work, more responsibility, the opportunity to manage, and the scope of his work would be increased. Furthermore his salary was being increased by nearly fifty per cent\*. As a general remark he thought that Dunlop offered a good training but little scope for career development. Judging from comments made by his manager on his departure who wrote ... 'A very able and responsible member of staff who will be a loss to the company' (See also Appendix E, p.152) he was a highly-valued employee who would be re-engaged at any time.

Regarding his 'Orientation to work', highest scores were obtained with 'Interest in work' and 'Career development and promotion prospects'. Deficiencies in these aspects were cited as major reasons for leaving during that exit interview.

#### 8.2.4 Female Staff

##### a) Personal and job characteristics

Table Xld, (see Appendix E, p.145) presents for each female staff terminee interviewed, personal and job characteristics. Seventy percent of the sample were single, and they were generally young (average age 20 years) and relatively short service (average service slightly under 2 years). Occupationally the majority (75%) were clerks or secretaries.

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\* However, he was not aware of the size of this increase until after accepting the job, when increases of 30% were announced by the Health Authority.

b) Findings and inferences from the exit interview Table X2d (p.155,156, Appendix E) summarises, for each interviewee, her code name, reason(s) for leaving, her next job and her departmental manager's appraisal.

Amongst the clerks and secretaries the most often stated reason for leaving was 'boredom, monotony and periods of inactivity in the job'. In addition to this reason conflict both between subordinates and supervisions was often quoted as a minor but contributory influence on their decision to leave.

The three 'career girls' left principally because they felt that there was little chance of a career in Dunlop for them. However, at the time of the interview each had secured alternative jobs with better prospects and salary. Managerial appraisals showed them all to be highly valued employees. Typical comments are:-

"A very willing girl" (D1)

"A very diligent worker who applies common sense and gives full co-operation at all times" (D3)

"A capable graduate accountant who would have been an asset to the company when a suitable appointment was available" (D5)

Furthermore, since each had reported that they had never been appraised, it appears as with the case of male staff terminees, that this 'praise' was never communicated.

Only one of the terminees would not be re-engaged. The remainder had either generally secured jobs locally, or were joining re-training courses for secretaries. Generally speaking their next job offered no increase in salary.

Regarding their motivation and orientation to work, highest median scores were obtained with 'Good relationships'

and 'Interest in work', i.e. those aspects that were apparently lacking in their current jobs. (See Table Xld, p.145, Appendix E for details)

A typical exit interview is now discussed in more detail.

CASE 3

This leaver's code name is D2 (see Appendix E, p.145, 155, 160). Her job title was 'Telephonist and Telex Operator' at the Engineering factory at Coventry. She was twenty years old, married, had just over two years service and had five different employers since leaving school.

Main reasons for leaving

There was much ill-feeling in the exchange possibly caused by an all-female environment (seven telephonists and one supervisor). She thought that the supervisor was very petty and inconsistent in the use of her discretion. Private lives were being discussed regularly and everyone was becoming too personally involved. There was much 'bitchyness' certain girls would not sit together or have the same tea-breaks, and barriers were erected between various 'cliques'. She had no complaints about her salary and the job content had been accurately described at the selection interview.

As a result of this atmosphere she began to lose all interest in the job and had been actively job searching during the past year. At the time of exit interview she had been unable to secure another position, but was taking a secretarial course at a local college of further education sponsored by the Department of Environment. Her earnings will be reduced by about three pounds a week. The department manager's comments showed her to be a very satisfactory employee who would be re-engaged.

Highest scores on 'Orientation to work' were obtained with 'Interest in work' and 'Good relationships with fellow employees'. Large deficiencies in these aspects were clearly apparent from her stated reasons for leaving

### 8.3 GENERAL SUMMARY AND COMPARISON OF FINDINGS FROM THE EXIT INTERVIEWS

Figure 66, below, summarises the following findings from the exit interviews, employee type, sample size, average age, average service, average weekly earnings, main reason(s) for leaving, and highest median scores on the Motivation/Orientation to work questionnaire (in parenthesis).

The findings of the motivation/orientation to work questionnaire, in general, endorse the main reasons for leaving voiced in the exit interviews, for all employee types.

The leaving syndrome of male staff terminees at Coventry appears to have the most severe consequences. They not only represented the largest proportion of leavers (48%), but managerial appraisals indicated that they were also high-valued employees which the company could not afford to loose. Their departure must surely adversely affect the quality of future middle management.

Therefore it was necessary to interview a similar sample of current male staff employees, to determine the extent and authenticity of this apparent cause of dissatisfaction.

### 8.4 INTERVIEWING OF CURRENT MALE STAFF EMPLOYEES

For every terminee, a current employee with similar characteristics in terms of department, age, service, and qualifications was interviewed. It was not possible to

FIGURE 66: RESULTS OF EXIT INTERVIEWS

Employee Type	Sample Size (Nos)	Average Age (Yrs)	Average Service (Yrs)	Average Earnings (£ p.w.)	Main Reason(s) for Leaving	Highest Median Scores on Motivation/Orientation to work	Average No. of previous jobs in last 10 years
Male Operatives	16	34.9	3.9	46.3	Insecurity, Boredom and monotony Short-time working	Security (3.0) Interest in work (2.0)	3.2
Female Operatives	3	29.4	2.7	29.6	Conflict Boredom	Good relationships (3.0) Interest in work (2.0)	2.3
Male Staff	24	27.1	5.4	56.3	No future prospects of career development. Low relative pay. Disenchantment and disinterest	Career development** and promotion prospects (3.5) Interest (3.0)	1.7
Female Staff	7	20.4	1.8	32.8	Conflict Boredom No career development*	Good relationships (3.0) Interest in work (3.0)	2.3

\* for the 'career girls'

\*\* The work aspect of career development etc. was tested for male staff leavers only.

interview corresponding current employees in the computer department as union negotiations were in progress. This limited the sample size to eighteen.

The interview centred on the 'Motivation to work' questionnaire, to compare the orientations to work of 'stayers' and 'leavers'. Porter-type\* questions on each aspect of work were administered in order to locate the principal areas of 'deficiency'\* and 'concern'.

#### 8.4.1 Results of interviewing of current staff

Figure 67, below, compares the samples of stayers and leavers with respect to mean values of age, service, and scores obtained using the Motivation/Orientation to work questionnaire.

In terms of age and service the two samples were very compatible. The only significant difference in the samples regarding orientation and motivation to work occurred with career development. However, the two strongest motivators for each sample were 'Interest in work' and 'Career development'. 'Career development' being stronger than 'Interest in work' for leavers and vice versa for stayers.

Figures 68a and 68b, present the 'Deficiency' and 'Concern' scores respectively, for each aspect of work, obtained from interviews with stayers, i.e. current male staff.

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\* as described in previous chapter

FIGURE 67: COMPARISON OF LEAVERS AND STAYERS

SAMPLE	AVERAGE AGE (YRS)	AVERAGE SERVICE (YRS)	MEAN SCORES ON MOTIVATION/ORIENTATION TO WORK					
			Above average pay	Security	Responsib- ility	Good Rel- ationships	Interest in work	Career Development
STAYERS	29.2	8.1	2.2 (2.0)*	2.1 (2.8)	1.9 (2.0)	2.5 (2.8)	3.6 (4.0)	2.7 (3.0)
LEAVERS	30.4	6.1	1.9 (2.0)	1.9 (1.8)	2.4 (3.0)	1.8 (1.8)	3.3 (3.0)	3.6 (4.0)

NOTE: 't' tests carried out between all pairs of sample means and the only significance difference was found for the 'Career development' scores at the 5% level (one tailed test)

\* Median scores are given in parenthesis

FIGURE 68a: MEDIAN 'DEFICIENCY' SCORES

	<u>Scores</u>
Career development and promotion prospects	3.0
Above average pay	2.5
Security	1.0 )
Interest in work	1.0 )
Responsibility	1.0 )
Good Relationships	0.0

FIGURE 68b: MEDIAN 'CONCERN' SCORES

	<u>Scores</u>
Career development and promotion prospects	14.5
Above average pay	9.5
Interest in work	7.0
Security	6.0
Responsibility	4.0
Good Relationships	0.0

These results show beyond reasonable doubt that, at Coventry, there is extreme dissatisfaction regarding the administration of career development and the provision of promotion opportunities. The statistics being derived from a sample of currently employed male staff. Furthermore only three out of the eighteen interviewed were happy with the way the company was handling their careers.

Many of the interviewees viewed career development as a means of securing an improved future standard of living, in addition to the satisfaction of power, status and self-realisation needs.

Managers generally were not highly regarded, principally because of their aloofness, inability to use their subordinates!

experience and aptitudes in the best way, and their general disinterest in career development. Appraisal was rarely practised, some individuals had not been formally appraised, i.e. face to face appraisal, in their entire service with the company. Therefore most employees had never received feedback on their performance at work, inspite of their desire to be appraised.

Moreover, there was a very strong undertone of departmentalisation within the factory. Inter-departmental or intra-functional transfer was felt to be discouraged. It was the opinion of many interviewees that if any vacancies for transfer did arise, they would be vetted by the departmental manager and proceed no further. As one terminee quoted 'If you get too useful to the department you've had it'. i.e. any other opportunities for you may be vetoed without your knowledge.

These findings are quite tragic for a large company since one of its theoretical advantages is the provision of many diverse opportunities for those employed, i.e. 'interdepartmental transfer in a large organisation is equivalent to leaving in a small organisation'. March-Simon<sup>33</sup>, section 2.4.8.

#### 8.5 OVERALL REVIEW OF THE USEFULNESS OF 'EXIT INTERVIEWS'

The findings and inferences drawn from the 'exit interviews' have highlighted the probable causes of people 'quitting' their jobs. Much suspicion usually exists regarding the authenticity of any information gleaned by such methods, mainly because such interviews are conducted on a subjective rather than objective basis. It is appreciated that the author was in a uniquely advantageous position of being able to relinquish any company 'ties' during the interview. However, a member of the personnel department, suitably trained in the

art of 'exit-interviewing', would also be able to determine causes of certain 'traits' of leaving behaviour, by adapting a more objective standpoint. Of course the prospective terminee would need to be reassured of the confidentiality of the interview.

Furthermore to establish a pattern or 'syndrome' of leaving it is necessary to draw upon the information of many interviews, since possible 'red-herrings' are more easily located.

The exit interviewing investigation whilst determining some of the reasons why people are leaving the organisation may also provide insight into the levels of dissatisfaction/satisfaction amongst current employees. The interviewing of current employees showed that for every person who leaves the organisation, there is at least one other employee equally as dissatisfied with similar circumstances. Therefore whilst it is not usually possible to dissuade terminees from leaving, remedial action may be proposed and implemented so as to reduce grounds for dissatisfaction for those employees currently 'thinking' or 'searching' for alternative employment. Decisions to leave, especially amongst male staff, have been found not to be spontaneous, but usually resulting from the gradual build up of dissatisfaction over a period of months or even years. Given this 'breathing space' there is no excuse for managers not to take some action on the basis of possible areas of 'concern' furnished from the data of a number of exit interviews.

Another major issue arising out of the interviewing was the apparent lack of performance appraisal. Although appraisal was undertaken for senior management there was no evidence of it prior to an employee's first managerial appointment. Opportunities for promotion were perceived more in

the light of 'luck' than 'judgement', i.e. 'being in the right place at the right time'. In an attempt to improve communications in this area an appraisal system is proposed and is described and discussed in more detail in the conclusions and recommendations. (See Chapter 9, p 356 )

#### SUMMARY

This chapter presents the findings and inferences from the exit interviewing investigation. All employee groups, e.g. male staff, male operatives, etc. are examined separately with respect to their personal and job characteristics; the findings from the exit interviews, and their motivation and orientation to work. These findings and inferences are then compared and contrasted between the employee types.

Having found a particularly serious source of dissatisfaction amongst male staff terminees, a similar sample of current male staff, i.e. stayers, were interviewed to investigate the authenticity and extent of this source of discontent. The results of this survey confirmed that there was a general lack of company interest in terms of career development, promotion prospects, and appraisal at the Coventry factory.

The findings reported in this chapter concerning the influence of more qualitative and deterministic aspects are combined with the results of the quantitative investigation in producing a general method of measurement, analysis, diagnosis and control of employee turnover in the following concluding chapter.

**PART FIVE**

**CONTENTS**

**CHAPTER 9 : Conclusions and Recommendations**

CHAPTER 9

CONCLUSIONS AND RECOMMENDATIONS

9.1 INTRODUCTION

This concluding chapter summarises the findings of both the quantitative and qualitative searches for predictors of employee turnover. These findings are discussed in the light of the initial project objectives and issues and problems highlighted by previous research.

The theoretical and applied implications of the results of each approach for each employee type are discussed in detail.

The conclusions drawn from the research as a whole are presented before final recommendations for the company and topics for further investigation are proposed.

9.2 GENERAL RESEARCH OBJECTIVE

The underlying objective of this research was to develop models of employee wastage which simultaneously incorporated both theoretical and applied considerations. Too often over sophisticated and unrealistic mathematical representations have satisfied the theoretical issues whilst leaving the practitioner floundering in clouds of 'x<sup>2</sup>'s' and 'y<sup>3</sup>'s'. Conversely, some practical remedies are so ambiguous and misleading and have carried many problems from the 'frying pan into the fire'. Therefore every attempt has been made to develop models incorporating factors which had proven empirical associations with the phenomenon but which were readily quantifiable, easily understood and available in the factory situation.

Those factors which satisfied the above criteria were principally correlational in nature, i.e. they were factors of association rather than causation, e.g. levels of unemployment, company service, age and factory size (i.e. numbers employed). It was therefore necessary to conduct a separate investigation to examine the more deterministic but less quantifiable aspects of employee wastage, e.g. overall job satisfaction, promotion opportunities, job expectations, styles of supervision and management, etc. This qualitative search for predictors of employee wastage took the form of an exit interviewing survey of a sample of terminees and a subsequent investigation of the main orientations to work, and any apparent deficiencies therefrom, of a sample of 'stayers'.

The findings and inferences of both approaches may then be allowed to crystallise to form a more complete representation of the phenomena, thereby elucidating both the theoretical and applied implications.

Each approach is now discussed and described in more detail with respect to specific objectives, findings and inferences.

### 9.3 QUANTITATIVE SEARCH FOR PREDICTORS OF EMPLOYEE WASTAGE

Predictor models of employee wastage have been developed using multiple linear regression techniques for the following employee types, male operatives, female operatives, male staff and female staff. For operatives, wastage in the form of corrected turnover rates, absence rates and hours lost per employee by industrial action were analysed. Staff wastage models were limited to the analysis of corrected and controllable turnover rates only, since absence records are not maintained, and hours lost by industrial disputes were negligible.

Cross-sectional and longitudinal techniques were employed to develop the models. Principally the search for predictors focused on longitudinal investigations where models were derived from the quarterly variation in specific measures of wastage and associated quantifiable factors. Five separate factories and the company as a whole in the U.K. were analysed. The factories were located in different labour markets, e.g. Coventry, Leicester, Liverpool, Wakefield and Clydeside; manufactured different products; e.g. wheels and aviation equipment, rubber products, footwear, sports equipment and tyres respectively; and were of varying size in terms of numbers employed. The analysis period was April 1967 to December 1974 inclusive.

The findings and theoretical and applied implications for each employee type are summarised and discussed in turn:-

9.3.1 Operatives (manual or blue collar employees)

(a) For male operatives the following combination of five independent variables were found to account for, on average, 71% and 56% of the variance in corrected turnover and total absence rates respectively for the constituent factories. The corresponding figures for the company as a whole were 90% and 64% respectively.

% male local unemployment

% male operatives with under 1 year's service

% male operatives with over 5 year's service

Average weekly earnings

Relative local earnings

(b) For female operatives the same set of independent variables, with the exception of the '% with over 5 year's service' which was replaced by '% over 30 years old', were found to account for, on average, 78% and 72% of the variance in corrected turnover and absence rates, respectively. The corresponding figures for the company as a whole were 91% and 83% respectively.

The poorest fits to the general model occurred with the factories located in Horbury (Wakefield) and Inchinnan (Clydeside). The reduction in predictive power of the chosen factors was probably due, in part, to the following reasons:

(i) These factories are not located in local urban environments. They derive their workforce from 'travel-to-work groups'.\* For example, Inchinnan derives its local workforce from the

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\* For those areas which are not principally urban, the Department of Employment collates unemployment statistics for each locality in a specific area to form a 'travel-to-work' group.

'travel-to-work' group for Renfrew and Paisley. The situation for Horbury is slightly more complicated, because it derives its employee from a travel-to-work groups for Dewsbury and Ossett, and additionally from Wakefield and Barnsley. Since the Department of Employment publishes three separate levels of unemployment for each of the above localities, its local labour market is not satisfactorily reflected in a single statistic.

(ii) There have been no redundancies at Horbury during the analysis period, and therefore no approximation to the 'controllable' turnover rate is possible. Corresponding correlation co-efficients for other factories between 'uncorrected' turnover rates and the independent variables were either markedly reduced or not significant in comparison with their 'corrected' turnover rate counterparts. This finding emphasises the importance of deleting uncontrollable leavers from the computation of turnover rates.

#### 9.3.2 Staff (non-manual or white-collar employees)

(a) For male staff the following set of five independent variables accounted for, on average, 70%\* of the variation in corrected turnover rates. The corresponding figure for the company as a whole was 50%.

% male regional unemployment

% male staff with under 1 year's service

% male staff with over 5 year's service

Average weekly earnings

Relative regional earnings

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\* based on those factories for which salary information was available (Coventry, Walton and Inchinnan)

(b) For female staff the same set of independent variables, with the exception of the substitution of '% over 30 years old' for '% with over 5 year's service', accounted for, on average, 46%\* of the variation in corrected turnover rates. For all Dunlop factories this figure was 80%.

### 9.3.3 Comparisons of Findings (Corrected turnover rates)

#### Operatives and Staff - Males and Females

The following observations are made:

- (a) Local factors are better predictors than regional factors of corrected turnover rates for operative employees.
- (b) Regional factors are better predictors than local factors of staff corrected turnover rates.
- (c) Both male and female operative corrected turnover rates provide better fits to their respective general models, than their staff counterparts.
- (d) For female employees generally, the '% over 30 years old' was found to be a better predictor of corrected turnover rates than the '% with over 5 year's service'. The converse is true for male employees.

The immediate implications of these observations are firstly that staff employees generally respond to a wider 'sphere of influence' with regard to their leaving behaviour. Secondly operative employee turnover is more strongly

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\* for those factories for which salary information was available.

associated with 'correlational' factors than staff turnover. Thirdly, that for female employees generally the '% over 30 years old' is a better predictor of future stability than the '% with over 5 years service'. One might suspect that the former variable included a greater proportion of females returning to work once their children have grown up, and are thus less likely to leave for marriage or pregnancy reasons.

#### 9.3.4 General implications of the results

##### Theoretical

Given that there are certain practical limitations, which have been previously referred to, the findings point very strongly to the existence of a general predictor model of operative wastage, in the form of corrected turnover and absence, and of staff wastage in the form of corrected turnover rates only. It must be emphasised that the model focuses more on the 'correlational' aspects of wastage, and therefore is more amenable to prediction as opposed to explanation.

However, the model does lend itself to diagnostic purposes, since the chosen independent variables allow the situation to be re-defined by locating for which employee types, where in the workforce in terms of service, and age, and when in terms of the relative ease of securing alternative employment, i.e. levels of unemployment; wastage is most prevalent. Furthermore the influence of earnings and relative earnings may be assessed and predictions made regarding the effects on the various forms of wastage, of changes in their magnitudes.

The findings for operatives indicate that turnover and absence are simultaneous forms of 'withdrawal from work', since a strong and significant positive correlation exists

between them, and their variabilities are accounted for by the same set of independent variables.

Only Inchinnan possessed adequate data, in terms of magnitude and coverage, to enable all three forms of wastage to be analysed statistically. It was found that at least 46% of the variability in all forms of wastage or 'withdrawal' were accounted for by the same set of independent variables. Furthermore corrected turnover rates and hours lost per employee by industrial action were positively and significantly correlated. These findings provide additional empirical evidence that, on an individual factory basis, different forms of employee wastage may be used simultaneously, rather than alternatively, as 'venting mechanisms' of job dissatisfaction.

The 'withdrawal from work' hypothesis was examined further by ranking the mean values of the following variables, appropriate to male operatives, during the analysis period 1967-1974, for each of the constituent factories; local and regional unemployment, corrected turnover rates, absence rates and hours lost per employee by industrial action. It was assumed that levels of unemployment represent the relative ease of venting dissatisfaction and the degree to which one can 'withdraw from work'. The following observations were made:-

- (a) Factories situated in areas of consistently high unemployment generally experience the lowest levels of corrected turnover, and the highest levels of absence and hours lost by industrial action, e.g. Inchinnan (Clydeside) and Walton (Liverpool).
- (b) Factories situated in areas of consistently low unemployment generally experience the highest levels

of corrected turnover and the lowest levels of hours lost by industrial disputes, e.g. Leicester and Horbury (Wakefield).

- (c) Coventry which experiences neither consistently high nor consistently low levels of unemployment possess wastage characteristics somewhere between those described in (a) and (b).

The cross-sectional analysis of male operative wastage over twenty-five Dunlop U.K. factories during July-December 1973 confirmed the above observations. A very strong positive correlation between local levels of male unemployment and hours lost by industrial disputes ( $r=0.6051$ ,  $p=0.001$ ) offers further evidence that those factories located in areas of highest unemployment experience the greatest numbers of hours lost by industrial action. The converse was true for corrected turnover rates and local levels of unemployment ( $r=-0.5151$ ,  $p=0.005$ ).

These findings imply that, since various forms of employee wastage may be predicted by similar combinations of independent variables, both in the cross-sectional and time-series analyses, there is a reasonable case for proposing that these types of 'withdrawal' may act as simultaneous expressions of discontent on an individual factory basis, and alternative and/or complementary manifestations of dissatisfaction on an inter-factory basis.

Finally, on a methodological note, although both cross-sectional and time-series (longitudinal) designs were used in the search for quantifiable predictors of employee wastage, the latter approach generally yielded the highest levels of accountability of variance in wastage for all employee types.

Furthermore the longitudinal design possesses the distinct advantage of incorporating variables whose real influence may not be immediate.

However, if adequate time-series data is unavailable, then the results from a cross-sectional study may be used as a first approximation, providing that its inherent limitations are appreciated. This proposal is most applicable to operative wastage.

Applied implications of the findings from the quantitative search for predictors of employee wastage

As the models were based on variables which are easily calculated, readily available and possess some identifiable and practical meaning, the practitioner is now better equipped to diagnose and improve his/her standards of manpower administration. In order to gain acceptance of any findings from the research, divisional and factory personnel managers were consulted throughout the study regarding the anticipated benefits and development of the investigation and any comments or advice they could offer to improve it. This regular consultation culminated in a recent presentation of research findings and proposed applications at the 'Personnel Managers' Conference'. Their reaction was very encouraging and there is every indication that the methods will be implemented in the factory situation.

The particular applied uses of the models were discussed in Section 6.8 are now reviewed. Considering each application in turn:

(a) Diagnosis of wastage

Having processed the required data to compile the models, the factors which have been principally associated with the

wastage characteristics of the factory may be located by multiple regression. Each of these factors may then be assessed in terms of its controllability from a managerial standpoint.

One of the initial objectives was to investigate the possibility of establishing 'norms' or standard levels of wastage for each employee type. It was proposed that certain acceptable levels of wastage, applicable to Dunlop factories only, may be derived on the basis of those factors which are out of managerial control, e.g. levels of unemployment. However, it is considered that such 'norms' are untenable for the following reason.

1) A simple one-factor predictor model based say, on the local level of unemployment could yield a fairly accurate estimate of the corrected turnover rate of male operatives. This variable alone represents the relative ease of securing alternative employment and provides no information regarding the value or type of employee who is leaving or any insight into the possible reasons for doing so. For example, the model may estimate that a corrected turnover rate of 40% annually is likely to occur with local levels of unemployment at 2%. This is the predicted 'norm' but it is hardly acceptable!

Ideally, an acceptable standard or 'norm' of employee turnover would need to be based on the number of employees retiring at the normal age of sixty-five, and upon those employees whose departure would not represent an irredeemable loss to the company,

Therefore diagnostically, the models facilitate the process of locating where in the workforce in terms of service, age and earnings levels, and under what external conditions,

in terms of local and regional levels of unemployment, various forms of wastage are most prevalent. Thus the reliance on 'hunch' and 'blanket' remedial actions is reduced. Moreover managers can estimate the effects on levels of wastage of changes in certain variables under their control, e.g. large expansions resulting in an increase in the proportion of short-service employees, a policy of recruitment within certain age bands, increasing earning levels etc.

(b) Manpower planning

In Chapter 6, section 6.8.2, a detailed example of the manpower planning application of the predictor models was presented. In essence, the regression co-efficients or weightings for each variable in the predictor equation, calculated by the computer, may be used with present values of the relevant independent variables, i.e. unemployment levels and measures of the age and service distribution, etc. to predict the levels of employee wastage, say, in the next six months. Therefore the practitioner armed with the appropriate statistics, is in a unique position to predict the magnitudes of operative and staff corrected turnover rates, operative absence and hours lost by industrial action, whereas previously he/she relied solely on linear extrapolations of past and present trends.

The manpower planning application is more appropriate to operatives, since their wastage characteristics provided the best fit to the general model. Consequently errors in the prediction are minimised.

#### 9.4 QUALITATIVE SEARCH FOR PREDICTORS OF EMPLOYEE TURNOVER

Since the modelling investigation relied almost completely on the correlational aspects of employee turnover, it was essential to investigate the more deterministic factors to gain more insight into possible underlying causes of the phenomenon. An interviewing survey of terminees was deemed the most appropriate means to that end.

A sample of fifty 'quitters'\* derived principally from those factories selected for the longitudinal modelling exercise, were interviewed. The objectives of the interview were as follows:

To determine:

- (i) a terminees reasons for leaving
- (ii) the sequence of events that preceded his/her resignation
- (iii) the influence of the more qualitative and deterministic aspects of wastage, e.g.
  - a) promotion prospects
  - b) interpersonal relationships
  - c) styles of supervision and management
  - d) fulfilment of expectations
  - e) perceived importance of earnings
- (iv) details of the next job
- (v) managerial appraisal
- (vi) the individual's motivation/orientation to work, compared with his/her reasons for leaving elicited at the interview

Eighty per cent of the exit interviews were conducted amongst male terminees (48% male staff, 32% male operatives). The remaining twenty per cent of female terminees comprised of 14% female staff and 6% female operatives. This imbalance of interviews was not intentional and resulted from the

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\* quitters are terminees leaving for apparently controllable reasons

majority of female employees leaving for uncontrollable reasons, e.g. pregnancy, redundancy and domestic problems. Furthermore any findings and inferences are largely applicable to the Coventry factory as forty out of the fifty interviews were undertaken there.

The findings with respect to each employee type are described and discussed in turn:-

#### 9.4.1 Male Operatives

##### (a) Skilled Employees

The main cause of leaving was dissatisfaction with the wage structure. They believed that many semi-skilled employees were earning more. In the case of 'skilled inspectors' they could not affect their earnings by their own efforts, since they were reliant on the output of others.\*

##### (b) Semi-skilled and unskilled employees

The most often stated reasons for leaving were:

- (i) Feelings of insecurity
- (ii) Boredom and monotony of the job
- (iii) Reduced earnings due to short-time working

Almost 90% of all male operative terminees had secured another local job prior to leaving, and had search periods of up to six months. There was little evidence of conflict either between employees or with supervision. Contact with supervision was minimal which did manifest itself in comments regarding the general aloofness of management.

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\* there are anomalies in the wage structure, standards for some jobs may be 'loose' or 'tight'. Skilled inspectors are classed as 'Indirects' i.e. not producers, and are reliant on the output of others 'Directs'.

The highest median scores regarding 'orientation to work' were obtained with 'Security' and 'Interest', thus providing some confirmation of reasons for leaving expressed during the interviews.

Managerial appraisals were on the whole very favourable, and only two would not be considered for re-engagement.

#### 9.4.2 Female Operatives

Only three terminees were interviewed and were all semi-skilled. The main reasons for leaving were:

- (i) Bored with the job
- (ii) Conflict with supervision

Decisions to leave were made at short-notice and two were leaving without securing alternative employment. Their motivation to work centred principally on "Good relationships" and 'Interest', which were quite apparent to be severely lacking in their present jobs.

#### 9.4.3 Male Staff

The single and most often quoted principal reason for leaving was:-

'No foreseeable prospects due to a lack of career development'.

It was generally felt that the company employed people for a job and nothing more. Appraisal was almost unheard of, and the development of individual careers was believed to occur more by chance than as a result of company planning and interest.

A further source of dissatisfaction cited by some terminees was a feeling that they were underpaid\* in

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\* particularly relevant to the 'professional' staff, e.g. engineers, accountants, computer programmers.

comparison with similar positions in other companies, both locally, regionally and nationally.

A significant proportion were either joining smaller companies\* or becoming self-employed. There appeared to be a reaction against the impersonal nature of a large\* company, i.e. the feeling of being a 'number' amongst many and the corresponding disincentive this breeds.

Although most of the terminees had inferred high interest levels during their employment, the volume and variety of new projects had declined recently. This situation coupled with 'disincentive' regarding promotion prospects and general company disinterest, had severely reduced their current levels of interest.

Most terminees became discontented up to two years before their actual departure, and active job searching was undertaken about six months prior to leaving. All Coventry male staff had secured alternative employment when interviewed. Many stated that their job search was country-wide, and over fifty per cent were moving out of the locality.

The vast majority of those interviewed at the Coventry factory were very highly regarded by their respective departmental managers. Furthermore the company had a very large investment in them through apprenticeships, sponsorship for academic degrees, and training for membership of professional institutes. Thus the consequences for future effectiveness were very serious indeed.

Therefore to examine the authenticity and extent of this apparent cause of dissatisfaction a sample of current male

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\* in terms of numbers employed

staff 'stayers' with similar characteristics, i.e. age, service, department and qualifications, were interviewed. Each interviewee's motivation to work was assessed using the 'Motivation/Orientation to work' questionnaire, followed by a series of questions aimed at determining the levels of 'deficiency' and 'concern'\* with each aspect of work, i.e. security, good relationships, career development, etc. etc.

For both samples of 'leavers' and 'stayers' highest median scores regarding motivation to work were obtained with 'career development and promotion prospects' and 'interest in work'. The 'stayers' ranked 'interest in work' above 'career development etc.', and the 'leavers' vice versa. The main area of 'deficiency' and 'concern' amongst the 'stayers' was quite definitely 'career development and promotion prospects', whose median scores were far in excess of any other aspect of work.\*\*

These findings in addition to other general comments made by the interviewees regarding sources of discontent, largely confirmed the observations from the exit interviewing investigation.

#### 9.4.4 Female Staff

Amongst clerical and secretarial terminees the principal reason for leaving was 'boredom, monotony and periods of inactivity in the job'. A further supplementary but minor influence on their decision to leave was due to conflict between subordinates and with supervision.

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\* these precise details and definition of these terms is presented in Chapter 7, section 7.5.1

\*\* See Chapter 8, Figures 68a, 68b.

The terminees who were expecting a career in Dunlop left because they could not visualise the fulfilment of this ambition. However, at the time of the interview each had secured alternative employment with better prospects and improved salary. Managerial comments, as with their male staff counterparts, indicated that they were highly valued employees.

Collectively, the female staff terminees valued 'good relationships' and 'interest in work' as the most important aspects of work.\* However, it was apparent these aspects were deficient in their present jobs.

#### 9.4.5 Implications and Inferences from the exit interviews Theoretical

The theoretical implications and inferences from the exit interviews are listed below:

##### General

- (a) Exit interviews do provide a real insight into the reasons why people leave their jobs, if they are undertaken according to certain fundamental criteria, e.g. administered in a private, relaxed and confidential climate by a suitably trained and objective 'interviewer'.\*\*
- (b) The more psychological and subjective issues, which do not lend themselves to statistical and numerical representation, are conveniently investigated by exit interviews.

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\* 'Career development and promotion prospects' on the Motivation/Orientation to work questionnaire for female staff terminees was deleted because those desiring it were in the minority.

\*\* The overall setting, administration and content of the interviewed were described and discussed in Chapter 7, sections 7.3.2 and 7.3.3.

Specific

- (a) Manual and non-manual terminees have different orientations to work which are reflected by their reasons for leaving. Therefore it seems sensible to determine what a prospective employee wants from a job and then compare this to what the job offers, before any firm offer of employment is made.
- (b) Manual terminees are strongly dependent on the local labour market for alternative jobs.
- (c) Non-manual terminees, in particular males, are more mobile than manual terminees, in that their job search and next job are not dependent solely on local labour markets.
- (d) Female terminees generally placed a higher value on good interpersonal relationships than male terminees
- (e) The vast majority of all terminees had secured alternative employment. The only exceptions were two female operatives, who were not primary 'breadwinners' and two young male employees who were still living in the 'parental' home. This observation implies that leaving behaviour is a carefully conceived process, and does not usually occur furtively or spontaneously.
- (f) The interviewing of 'stayers' generally, indicated that deficiency with a highly valued aspect of one's job is not a sufficient cause for leaving.
- (g) For every leaver, there is at least one other employee in the organisation who is equally dissatisfied for similar reasons who either cannot find suitable alternative employment or lacks the drive to do something about it. These employees may be totally unmotivated and not giving their 'best'. This represents a tremend-

ous loss to the organisation in the form of under-utilisation of human resources.

- (h) Where earnings were mentioned as a contributory cause of leaving, it was not the absolute amount that created unrest, but rather comparisons made either with employees in the same company or employees in similar jobs in other companies, thus confirming the findings of Minor.<sup>92</sup>
- (i) Although 'above average pay' was in general lowly ranked in order of importance as an 'orientation' to work, some male staff terminees and stayers viewed 'career development and promotion prospects' as the only means of improving their financial status in the near future, particularly in time of continuing Government imposed incomes policies. This implies that organisations should ensure that reasonable promotion opportunities exist for valued employees, particularly in periods of wage restraint, in order to retain them.
- (j) For male manual terminees there was a tendency for some to return to former occupations, e.g. carpentry and butchery, or to join the public service in search for security. This indicates that there may be a reaction setting-in against the monotony and increasingly insecure nature of the typical semi-skilled job in a large factory in our manufacturing industries.
- (k) For male staff terminees there was a move away from the large organisation to smaller units or even becoming self-employed. This provides further evidence of a reaction against increasing anonymity in a large organisation.

Applied

The applied implications and inferences from the interviewing investigation are listed below:

- (a) Exit interviews taken collectively can reveal underlying causes and sources of dissatisfaction within the company. Many managers insist that such revelations will not be possible if the interviews are undertaken by company personnel. However, I strongly believe that careful training of prospective exit interviewers from the personnel department regarding the content, administration and setting of the interview, (or the use of outside consultants) will produce similar results in terms of authenticity and reliability.
- (b) Having identified sources of discontent, which may be quite different for various employee types, managers are in a better position to propose and implement remedial action. The exact content and cost of such actions being assessed against the severity and extent of the leaving syndrome. (Costs of employee wastage have been calculated to vary from about £300 for clerical staff to over £1000 for managers\*).
- (c) It has been demonstrated that, in some circumstances, there is at least one current staff employee for every terminnee, equally as dissatisfied for similar reasons. Therefore remedial action based on the results of exit interviewing may control and perhaps reduce the number of 'turned-off' employees contemplating leaving the company. Furthermore if the source of dissatisfaction is a prime motivator, e.g. need for advancement, recognition,

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\* based on NEDO publications; costs have been updated to allow for inflation

achievement, and the remedial action successful, not only will costs of employee turnover be substantially reduced, but there should also be increases in performance. These cost savings and increases in the general utilisation of human resources could be considerable, for a comparatively small input in terms of increasing the knowledge and ability of those whose role is to optimise the performance of others.

- (d) Exit interviews alone are not sufficient to assess the prevailing organisational climate and provide clues for corrective action. A joint system of appraisal and exit interviews is proposed to increase managerial competence in this inherently difficult area of communications, and is described and discussed in detail in the general recommendations for the company. (See page 356)

#### 9.5 GENERAL CONCLUSION

The field of employee turnover has been a prominent subject for research for well over sixty years. Economists, sociologists, psychologists, statisticians and personnel practitioners have all tackled the issues within the confines of their particular disciplines. Since the subject is still being investigated it is apparent that despite this volume of research, conflicting methods regarding its measurement, analysis, diagnosis, and control still arise. In one of the most recent and comprehensive literature surveys by Pettman,<sup>112</sup> his main criticism is that 'specialists allow their specialisms to rule their approach to the exclusion of other disciplines' and concludes 'what is really needed is an interdisciplinary study, before all factors affecting labour

turnover can be suitably described and remedies sought'. This research, undertaken within the Dunlop organisation in the U.K., has attempted to draw together the major findings of all relevant disciplines and to overcome and control for previous short-comings in methodology and analysis of the phenomenon. The underlying objective being to develop models of employee wastage, i.e. in the form of turnover principally, and absence and hours lost by industrial action where appropriate, based on a sound multi-disciplinary theoretical foundation, which are applicable and easily implemented into the factory situation. A further applied objective was to identify those aspects of employee wastage which are under managerial control. For an organisation of Dunlop's size\* incompetant manpower management, resulting in excessive levels of wastage, is extremely costly, and may represent several millions of pounds of foregone profit. Therefore identification of those parameters over which managers have most influence is essential.

In essence, the proposed\*\* factors affecting employee wastage necessitated two separate analytical approaches, the outcomes of which were anticipated to be complementary and supplementary.

Those factors which could be easily measured and were readily available in the in-plant situation formed the basis of quantitative predictor models of wastage. Different employee types e.g. male staff, male operatives, female staff and female operatives were analysed separately because of their proposed varying orientations to work. Individual factories were considered to be the most appropriate unit of analysis, since many of the influencing aspects of wastage

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\* numbers employed

\*\* identified by previous research

were strongly locally biased. To provide the sternest test for the model five factories located in the complete spectrum of labour market conditions, with different histories, and manufacturing entirely different products, i.e. requiring different technologies, were selected as research 'sites'.

The following five variables gave the highest accountability of wastage of all employee types.

% local or regionally unemployed

% with under 1 year's service

% with over 5 year's service or % over 30 years old

Average weekly earnings

Relative local or regional earnings

For operatives local factors gave the highest accountability of all forms of wastage. For staff turnover regional factors were more influential, and females generally received a greater accountability of wastage using age in place of service.

It must be emphasized that these variables are principally correlational in nature, and therefore the models are more applicable to prediction than explanation.

Multiple linear regression was used to obtain the predictor models, and so the problem of spuriousness of correlates was partially overcome. Since there is much inter-correlation between the variables, it is not possible to place a specific 'loading' or 'weight' on each variable. However, the variables taken collectively have had their inter-correlations implicitly controlled for by the multiple regression technique. Furthermore the predictive power of the models for employee turnover were markedly reduced when

redundancies were not deleted from the computation of turnover rates. This further demonstrates the importance of examining only the controllable\* aspects of turnover.

For operatives this quantitative analysis provided reasonable evidence that turnover, absence and industrial action may represent varying degrees of 'withdrawal from work' in that the variation in their respective magnitudes could be accounted for by similar combinations of independent variables.

From a practical standpoint, the models also facilitate the diagnosis of wastage in the factory situation by allowing managers to assess the controllability of each of the constituent variables. Moreover since the models are predictive they may be used in short-term manpower planning. Factors which are not readily quantifiable, e.g. job satisfaction, styles of supervision and management, job expectations and individual motivation and orientation to work were analysed by an interviewing survey of terminees and 'stayers'. These aspects are more deterministic and relate to stimuli of wastage.

The results of this investigation showed quite conclusively that authentic reasons for leaving may be obtained provided that the exit interview is conducted according to some fundamental criteria. An employee's reasons for leaving were shown to be dependent upon his/her motivation and orientation to work and upon the particular characteristics \*\* of the factory and department in which he/she worked. This was reflected in the comparisons of findings for each employee type.

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\* It could be argued that redundancy is under managerial control since it may result from poor manpower planning. However, by definition, see 2.2.1, and Figure 1, it is considered uncontrollable as it is involuntary and does not directly result from the interaction between the employee and the employing organisation.

\*\* from indirect evidence reported in the exit interviews.

Therefore the two approaches taken together provide a method of measurement, analysis, diagnosis and control of employee turnover, by allowing the majority of influencing factors and their interactive effects to be assessed and incorporated into general scheme for investigation, which is portrayed in Figure 69, below.

The first stage of such a scheme is to determine at regular intervals the magnitudes of current levels of turnover\*, what proportion is preventable or controllable, and who (in terms of employee type, personal characteristics and value to the company) is leaving. This information may then be used to estimate the cost\*\* of turnover. On this basis a decision must be made as to whether the turnover 'problem' is of sufficient magnitude to justify expenses involved in its diagnosis and control. If the situation does warrant further investigation it is useful to examine and evaluate the main factors which have been found to influence turnover, to facilitate the search for possible remedies. An extensive body of publications exists for this purpose.

These factors generally fall into two categories, which are described as follows:-

(a) Correlates - these factors are correlational and non-causal in nature. They relate principally to turnover propensity, i.e. turnover trends, and are non-analytic, e.g. unemployment rates are regarded as one of the most significant correlates of turnover in that many researchers have found that turnover declines as unemployment increases and vice versa. However, there is no evidence to support a causal relationship in any particular direction.

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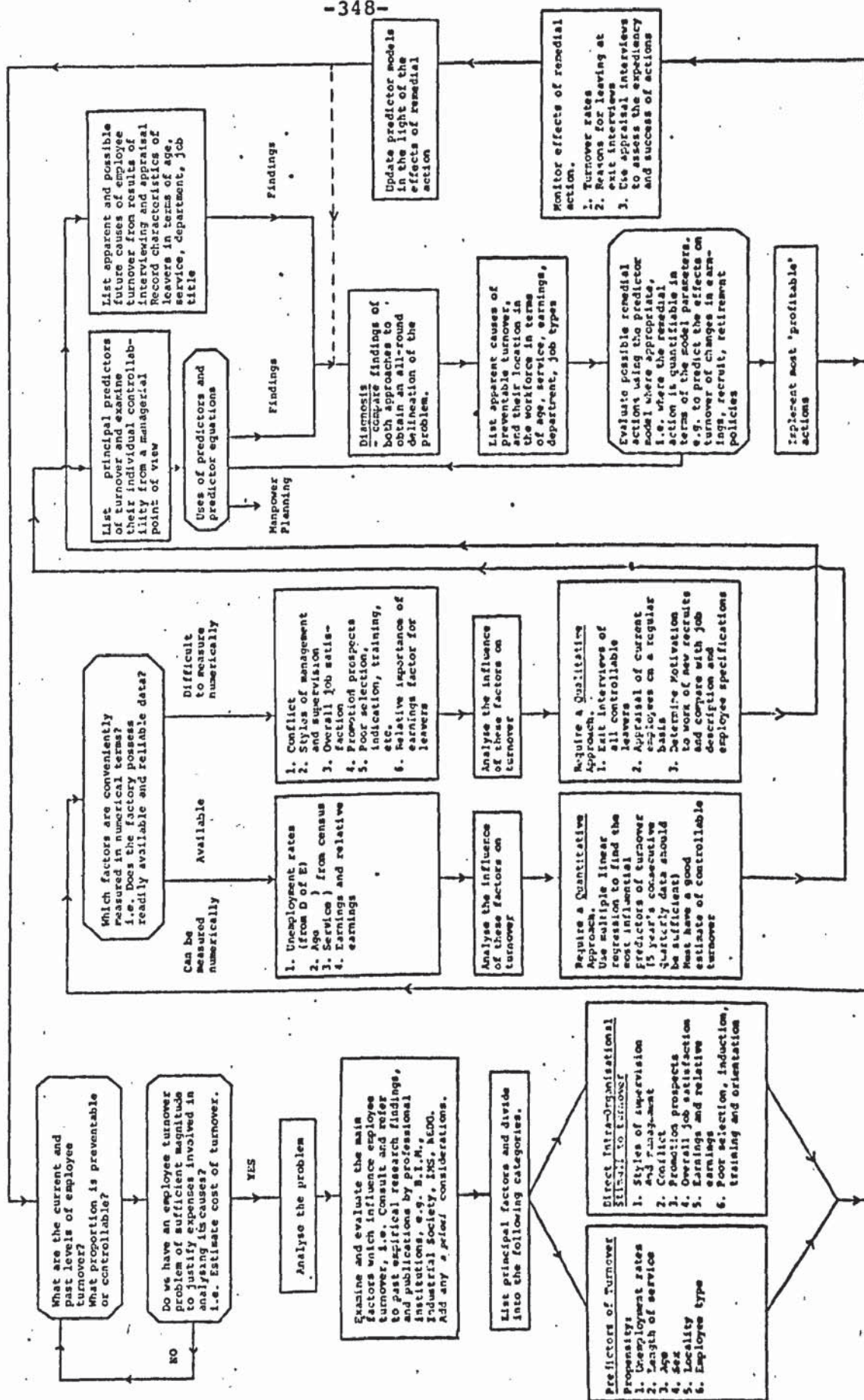
\* By conventional techniques

\*\* Actual and potential

FIGURE 69

MEASUREMENT, ANALYSIS, DIAGNOSIS AND CONTROL OF EMPLOYEE TURNOVER

a) For manual employees:- On a factory-by-factory basis sub-divided by sex and skill levels b) For non-manual employees:- subdivided by occupational group and sex



(b) Determinants - these factors are concerned with possible causes of turnover. Perhaps they would be more accurately described as direct intra-organisational 'stimuli' \* or 'activators' of turnover, e.g. lack of promotion prospects may be cited by many terminees as a major reason for leaving. However, many 'stayers' may be similarly dissatisfied but are unable to leave due to restraining external circumstances, e.g. unavailability of suitable alternative employment, disruption of social and familial lives.

The next stage is to attempt to assess whether these sets of factors have any influence on the turnover problem. This task is most conveniently undertaken by examining each factor in turn concerning its relative ease of numerical measurement and availability in the factory situation. On this basis two parallel research investigations aimed at examining the problem from all angles, are derived

(a) The quantitative approach - based on those factors which are easily measured and available within the factory. e.g. age, service, unemployment, earnings and relative earnings. These factors are principally correlational, with the exception of the pay factor. Multiple linear regression techniques are employed to locate the most influential factors. Implicit control for correlates of locality, sex and employee type is achieved by a factory-by-factory analysis of each sex of each employee type.

(b) The qualitative approach is based on those factors which do not easily lend themselves to numerical

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\* These are the factors primarily under managerial control.

representation. e.g. styles of supervision and management, overall job satisfaction, induction crisis determinants, promotion prospects and conflict. Although the earnings factor is easily measured this investigation is also concerned with assessing its relative importance for leavers and stayers. Exit interviews, regular appraisal of current employees and the determination of the motivation to work of potential recruits, current employees and leavers are used to assess the relative influence of these more deterministic factors. It is these factors that are largely under managerial control.

Having completed these investigations the findings from each may be pooled in order to gain an all round delineation of the problem. These findings include the most influential predictors of turnover during the past few years obtained from multiple regression and a listing of current and possible future stimuli for leaving derived from the results of exit and appraisal interviews.

Equipped with this information the practitioner is now in a position to diagnose the problem and identify the apparent causes of preventable turnover and their location in the workforce in terms of age, service, earnings, department and employee type. After assessing the scope for managerial action the predictor models may be used to evaluate possible remedial actions which are directly quantifiable, e.g. to predict the effect on turnover of changes in earnings, recruitment and retirement policies. For those 'leaving stimuli' which are non-quantifiable,

e.g. styles of supervision and management and recruitment methods, remedial action in terms of professional training to increase competence and effectiveness in these areas should be evaluated by comparing the training costs to possible savings in turnover costs.\*

The next stage is to implement the potentially most profitable remedial action(s). It is appreciated that in many cases trade union involvement in the administration of such actions will be necessary; e.g. it may be necessary to devise an early-retirement programme if the service structure in a particular factory or department has become top-heavy and inhibits promotion and career development of 'key' employees.

The expediency and success of such remedial action may be monitored by calculation of turnover rates and examination of the findings of future exit and appraisal interviews. Predictor models are then updated in the light of the effects of these actions.

This type of scheme for the diagnosis and control of employee turnover is not intended to be used for one-off investigations. It should be administered regularly as an on-going process, since turnover and the factors affecting it are variable over time. However, having established the scheme subsequent analyses may proceed from the diagnosis stage (as shown by the broken line in Figure 69).

The research findings in Dunlop factories indicate that the scheme would be most profitably applied according to the following criteria:-

- (a) For manual employees:- on a factory-by-factory basis subdivided by sex and skill levels
- (b) For non-manual employees:- subdivided by functional group and sex.

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\* The difficulties of quantification in this area are recognised

Furthermore the quantitative strategy demonstrated that all forms of wastage analysed may represent varying degrees of 'withdrawal from work' and may therefore arise from similar sources of dissatisfaction. It is proposed remedial action based on the results of exit interviewing and regular appraisal of current employees will not only control and reduce turnover but may also lead to reductions in absence and industrial disputes. Moreover, if the remedial action is based on motivational aspects of work, e.g. achievement, recognition, advancement, participation and individual growth, then improvements in human performance should also be gained.

Finally, recommendations for Dunlop and for future research are listed together. It is my strong conviction that meaningful and useful conclusions will only be achieved if both theoretical and applied objectives and issues are investigated in harmony and not at the expense of one or the other. Much thought and attention has been devoted in this research to satisfy this joint objective and will hopefully pave the way for closer liaison between industry and universities by demonstrating the additional benefits of so doing.

#### 9.6 RECOMMENDATIONS FOR DUNLOP AND FUTURE RESEARCH

The joint recommendations are listed below:

(a) The controllable aspects of each form of employee wastage should be incorporated into specific measures, e.g.

(i) Employee turnover:

Each factory should segregate leavers into controllable and uncontrollable groups as defined in Figure 1, section 2.2.1.

Controllable leavers should be further classified

according to their age, service, salary and 'investment' the company has in them. Thus the real cost of their departure may be assessed, i.e. some turnover may be desirable, and some very costly in terms of present and future viability. It is just as important to determine 'who', 'where', 'when' and 'why' in terms of leavers as 'how many'.

(ii) Employee absence

Absence rates should be maintained for staff in addition to operative employees. Furthermore the controllable aspects of absence should be calculated separately, e.g. absence accompanied by a doctor's note or with prior managerial consent would be excluded in the computation of controllable absence rates. Moreover, individual employee absence should be monitored since it is the author's experience that as a 'rule of thumb' 25% of employees account for 75% of the total absence.

(iii) Hours lost by industrial action

Only those disputes in the factory itself should be examined, hours lost resulting from strikes in 'supplier' companies should be excluded. For meaningful inter-factory comparisons, hours lost per employee, should replace total hours lost.

(b) For manual employees it is most appropriate to analyse wastage characteristics on a factory-by-factory basis, as some of the most influential predictors are locally biased, e.g. local levels of unemployment and relative local earnings. Although it was not practically feasible in this research investigation, various skill levels, i.e. skilled, semi-skilled,

and unskilled, should be analysed separately on an individual factory basis. There was some evidence that motivation to work and corresponding reasons for leaving are different for each skill level. Corresponding remedial action if necessary, could be more appropriate and effective.

(c) For non-manual employees, especially those who are professionally and/or academically qualified, local factors are not quite so significant. Therefore future research by occupational group, e.g. personnel, marketing, accountancy, sales, research and development; across the company as a whole may result in the determination of stronger predictors of the turnover characteristics of each group. The position with clerical employees is slightly unclear as insufficient numbers were analysed during the research. However the evidence points to the greater significance of parochial factors, hence a factory-by-factory analysis may be more appropriate.

(d) The situation at the Coventry factory regarding the heavy loss of highly valued personnel due apparently to inadequate career planning and company disinterest in the growth of individuals in their jobs, can perhaps serve as a lesson to all factories in the group. It is quite clear that communications between manager and subordinates are totally unsatisfactory. Although appraisal was undertaken for senior management there was little evidence of it prior to an employee's first managerial appointment. Consequently promotion opportunities were perceived more in the light of 'luck' than 'judgement', i.e. 'being in the right place at the right time'. It would appear that some system of appraisal would be most beneficial,

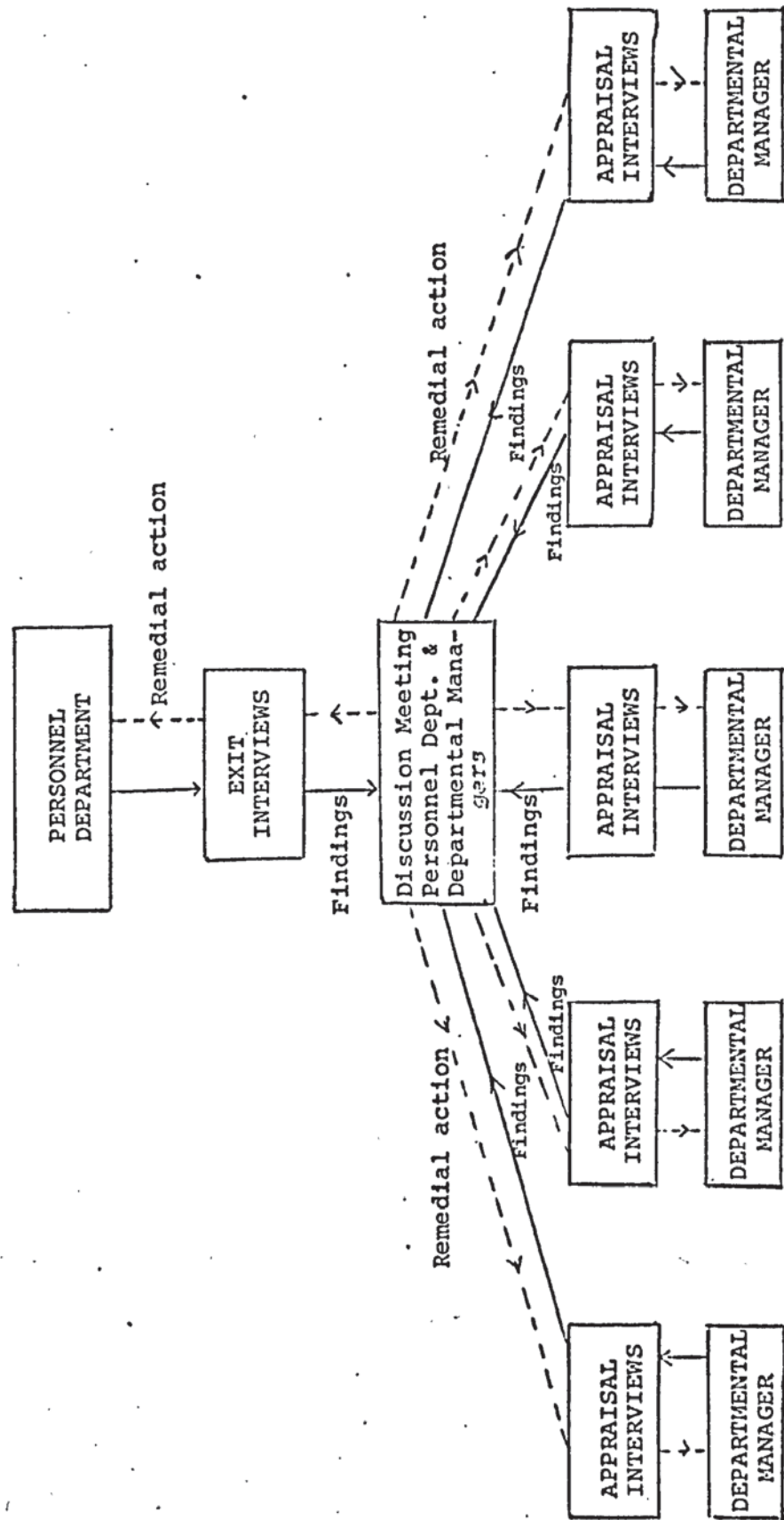
particularly at the Coventry factory, for the following reasons:-

- a) The employees desire it
- b) Managers may be able to obtain 'early warning' signals of possible areas of dissatisfaction which may lead to turnover, from a number of appraisals. The content of which may be compared and contrasted to yield patterns of possible areas of discontent.
- c) The employee will be better placed to decide whether he/she has a place in the organisation, and what the future holds for him/her, providing the appraisal is conducted constructively rather than destructively.
- d) Managers will be better placed to gain a greater insight into the 'dynamic' needs and aspirations of his/her subordinates, and then relate those to what the company can offer in the foreseeable future, i.e. both organisations and individuals within them change with time. Regular appraisal is a useful means of assessing current levels of aspirations, opportunities and dissatisfactions.
- e) Improvements in communications between managers and subordinates should increase an individual's motivation and effectiveness, by allowing each employee to know more fully her/his role, performance and potential in the organisation.

Ideally all sources of dissatisfaction should be voiced and exchanged by regular appraisal interviews, and remedial action implemented therefrom. However, in practice this rarely occurs, and employees will continue to change their jobs for a variety of reasons, so there will be always a need for the 'exit interview'.

The following system of appraisals and exit interviewing is proposed to facilitate the communication of current sources of dissatisfaction and appropriate remedial action, see Figure 70. Initially the Personnel Department should liaise with all departmental managers to reveal the usefulness and

FIGURE 70: PROPOSED SYSTEM OF APPRAISAL AND EXIT INTERVIEWS IN THE FACTORY SITUATION



future benefits of such a system. Each departmental manager should conduct appraisal interviews at regular intervals with each subordinate, e.g. half-yearly or annually. This appraisal should not only examine past performance, but also focus on current needs and aspirations and any sources of discontent. Any criticism must be administered constructively from both the manager and subordinate. As and when appropriate, a member of the personnel department, suitably trained in exit interviewing techniques, will interview terminees. The findings and inferences of the appraisal and exit interviews are then compared and discussed at regular liaison meetings between the personnel department and departmental managers. Each source of discontent may be then examined regarding its severity and source. Some problems may be departmental and others factory-wide in nature. Departmental managers themselves should be prepared to take constructive criticism of their own individual styles of supervision if appropriate. On the basis of this 'all-in' discussion of findings from appraisal and exit interviews remedial action may be proposed and implemented where necessary. Future liaison meetings will be able to judge the success of these actions. Moreover the findings from the exit interview may be used to construct possible inquiries for appraisal interviews to assess the extent of certain areas of discontent.

This type of regular and objective communication is considered a vital part of both individual and organisational development. The detrimental effects of oblivion in this area may be disastrous

(e) At present it is felt that the main factors affecting

employee turnover are fairly well established. Hopefully this research will facilitate the process of delineating the issues involved and increase competence in the accuracy of diagnosis. However, having identified the apparent activators of turnover it is necessary to propose and implement remedial action. Such actions can only be justified if their costs are less than the anticipated savings made in reducing the preventable portion of turnover. Therefore it is recommended that the most useful and beneficial future trend of employee turnover research should be directed towards the economic and experimental evaluation of remedial action, focused on particular groups of employees within individual factories.

The predictor models developed in this research may be used to some extent to evaluate those actions which are readily quantifiable, e.g. increasing earnings. However, they require replication in other organisations in different industries and in the public sector before the general applicability of findings can be assessed. Therefore, in my opinion, there is a very real need for more in-plant experimental research aimed at evaluating and monitoring the effects of preventative actions, particularly those which are derived from the qualitative and more deterministic aspects of turnover.

Ideally this experimental research should focus on a particular group of employees in which the stimuli for turnover have been identified from the findings of similar diagnostic methods as were used in this research, e.g. predictor models, exit interviews and surveys of orientation to work.\* The research findings for male staff

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\* The exit interviewing investigations highlighted the congruence between reasons for leaving and the non-fulfilment of the main orientations to work.

at one of the 'study' factories identified a group of employees for an experimental evaluation of possible remedial action(s).

The main reasons for leaving elicited at exit interviews was 'no career development and promotion prospects and general company disinterest in their growth as individuals'. This was also confirmed as a major area of deficiency and concern amongst a similar sample of current male staff from corresponding departments and with comparable personal characteristics. Furthermore, many of the leavers were high-valued employees in whom the company had a considerable investment. It seems sensible in this case to focus remedial action primarily on 'key' employees. Gellerman defines them as 'those employees whose departure would leave the organisation irredeemably weaker.' The stifling of promotion opportunities in this factory appeared to arise from a declining employment situation over the last decade. This situation is fairly typical of the company as a whole. Only a small proportion of factories have improved employment over this period, e.g. Horbury, Barnsley, Waltham Abbey (See Chapter 3, Figure 18bpage 111). Moreover, I believe that this state of affairs is probably typical of many organisations in the United Kingdom which are experiencing a gradual dwindling of product markets. If this is so, I suspect that companies see the drying-up of promotion opportunities as inevitable. This feeling may filter through to subordinates in the form of an expression of general disregard for their career development and growth as individuals.

It is therefore recommended that the following types of

investigation be undertaken on a factory-by-factory basis, to reduce the grounds for dissatisfaction among key employees in whom the organisation's future effectiveness lies.

- (a) To examine closely the service structure within various hierarchial levels on a departmental basis, to assess the scope and cost of possible early retirement of senior managers. If undertaken promotion opportunities should become more fluid even when a small number of employees are 'eligible' for early retirement, e.g. if 'n' employees retire early, and each is at the 'm<sup>th</sup>' level in the hierarchy, then 'nm' promotions should be created.
- (b) To examine the possibility of employing a full-time specialist in the field of career guidance and planning especially in large factories in which feelings of anonymity are greatest.

The effects and success of such actions may be monitored by measurement of controllable turnover rates and attitude assessment by regular counselling interviews undertaken by a career guidance and planning officer.

Other areas in which experimental and further research could be undertaken may include -

- (i) The scope and implementation of job re-design or enlargement particularly for those jobs undertaken by semi-skilled manual employees and clerical employees. 'Boredom and monotony' was quoted as a major contributory reason for leaving amongst those employee types in Dunlop.
- (ii) The compilation and use of training programmes aimed at improving styles of supervision and management.

(iii) The weakest fits to the general predictor model occurred with factories which are not located directly in urban areas, e.g. Horbury and Inchinnan. Having worked at Horbury during recent months some extremely dissatisfied employees are reluctant to leave their jobs to go to better paying jobs in nearby cities. They appear to place a greater value on the proximity of the home to the working place. This may explain the reduced influence of local factors, e.g. unemployment and relative earnings in more rural areas where there are fewer alternative employers.

On this basis there is an important need to investigate more thoroughly the influence of local and regional unemployment. Furthermore unemployment statistics require greater refinement with respect to the diversity of jobs in any locality and their relative abundance and availability.

#### 9.7 OVERALL RECOMMENDATION AND CONCLUSION

It is my belief that employee turnover is most effectively analysed from a multi-disciplinary standpoint, whereby all the major issues may be viewed from all angles. The benefits of a joint theoretical/applied strategy are manifold.

From a company point of view the findings and their implications indicate that increased competence in the general area of manpower management is essential if the company is going to optimise the effectiveness of its most important resource, i.e. the employees in it.

I hope that this research will be used to equip and train managers in the required skills and knowledge, so necessary for the acquisition of increased competence in manpower management and administration.

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