STAFF TURNOVER AND WASTAGE IN THE PERSONAL SOCIAL SERVICES : A STATISTICAL APPROACH

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ABSTRACT

Turnover and wastage rates among social work staff are high and subject to variation between local authorities. Such high rates have a number of deleterious effects on the quality of social work, and consequently on clients, on the costs of delivering personal social services and on the general administration. This study investigates staff turnover (leaving a job) and wastage (movement of leavers out of social work) in the personal social services. Hypotheses about the association between staffing problems (turnover, wastage, and vacancies) and causes or correlates are tested by employing suitable statistical techniques, and using appropriate weights for standardisation of crude turnover and wastage rates. The correlates (personal characteristics and location of work) are found to produce important variations in the probability of individual turnover and wastage. Causes such as staffing ratios, attractiveness of a local authority, expenditure on social work, and indicators of the volume of social work have significant "push" or "pull" effects on the leaving of social work staff.

It should be noted that parts of this study have been published as follows:

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CHAPTER ONE

INTRODUCTION

1.1 The study of staff turnover and wastage

Staff turnover and wastage have long been major problems for most employers and for at least four decades have been the subject for research. Psychologists, sociologists, economists and statisticians have attempted to identify the influences of factors such as personal characteristics (e.g. sex, age, length of service, education), job characteristics (e.g. pay, working conditions, advancement opportunities) and external characteristics (e.g. unemployment rates, vacancy rates) on staff turnover and wastage. Pettman (1973), and Steers and Mowday (1980) identified more than 1000 studies of staff turnover. The immense literature about staff turnover and wastage indicates their importance, which arises for two reasons: first, the relationship between staff turnover or wastage and a large number of variables (correlates or causes) that attract the interest of scientists (Price, 1977) and second, the consequences of staff turnover and wastage. These consequences include reduction of the output, difficulties in manpower planning, raised costs and so on (see chapter 4).

My decision to add to this immense literature was not taken lightly. Certainly, staff turnover and wastage in the personal social services are worthy of careful examination, for a number of reasons, and these reasons help to explain the objectives of the present study. First, the factors which influence staff turnover and wastage in the personal social services differ in some way from those identified for other forms of employment, because of their peculiarity that comes from the variety of the activities of social work staff and the complexity of social work practice. This is common to many "service industries". However, the consequences of staff turnover and wastage are potentially more important in the personal social services, and this is the second reason for study. Outputs here reflect aspects of welfare such as morale, life satisfaction and psychological well-being of individuals in need (see Davies and Knapp, 1981). Therefore, any reduction of output in the personal social services is synonymous with, but not identical to, the well-being of needy individuals. For example, in a residential home for elderly people, physically or mentally handicapped adults, or children, it is unrealistic to expect clients to form close and permanent ties with staff who change job so often. Poor staff-client relationships will have a number of deleterious effects on the quality of residential and non-residential social work, and consequently on the quality of clients' lives (see chapter 4).

Third, there are complex inter-relationships between the staffing problems faced by the personal social services - high staff turnover or wastage rates, high vacancy rates, difficulties in recruitment, and shortage of high calibre candidates - which can mean deterioration of the quality of staff and staff-client relations in a spiral manner. Fourth, little attention has been paid to staff turnover and wastage in the personal social services, despite its clear fundamental importance for the caring process.

It is common to find studies which collect detailed information on the characteristics, aspirations and situations of those staff who leave during a certain period of time and those who stay. The staff turnover problem is then investigated, either by cross-tabulating the decision to leave or stay against each of a number of likely causes in turn (e.g. Williams et al., 1980) or by estimating a multiple regression equation with a dichotomous dependent variable taking one value for leavers and another for stayers (e.g. Mobley et al., 1978, Mercer, 1979). Neither method is satisfactory: the former assumes that the various causes work quite independently of each other in determining the decision to leave, and is open to the serious problems of misplaced and exaggerated significance, whilst the latter overcomes these problems only to produce results which are neither statistically efficient nor unambiguously determined. A final reason for undertaking this investigation, therefore, is to apply a more appropriate technique, logit analysis, which overcomes these problems and provides a powerful tool for the examination of discrete decisions in this and other areas (see chapter 5 for details).

The main objectives of this thesis are the following:

a) To provide a comprehensive picture of the concepts and measurements of staff turnover, and identification of their deficiencies. Alternative measurements of staff turnover and wastage have been described, which minimize these problems (section 2.1 and 2.2).

b) To distinguish the factors influencing staff turnover and wastage which produce differences in the probability of individuals' leaving (eg. personal characteristics), and to those which push or pull employees to leave their job (eg. job characteristics). Also to develop a grouping of the factors that will help the purposes of exposition and the purposes of policy formulation (section 2.3).

c) To provide a comprehensive picture of the models (conceptual or empirical) which have been used by previous studies of staff turnover and wastage. This throws light on the association between turnover and factors influencing it, and stresses the need to distinguish between correlates and causes. It will be argued that correlates have to be taken into account when empirical models at aggregate levels are employed (chapter 3).

d) To describe and apply a relatively "unused" and very powerful statistical technique (logit analysis), which is particularly well suited to the study of staff turnover and wastage and will help researchers to avoid incorrect inferences from the results (chapter 5).

e) To examine differences in the probability of individual leaving, which are produced by correlates (e.g. personal characteristics and location of work) (chapter 5).

f) To modify and apply methods for standardising staff turnover and wastage rates, which reduce the heterogeneity of error variances that result from the area differences of the population (section 6.2).

g) To examine the causal relationship between staff turnover or wastage and job characteristics and external characteristics (section 6.3 and 6.4).

h) To stress the inter-relationship between staffing problems (e.g. turnover or wastage, vacancies, and recruitment) and their implications for the personal social services (chapter 4).

i) To recommend staffing policies which may help to reduce staff turnover and wastage in the personal social services (section 7.1).

j) To make recommendations for further research on staffing problems in the personal social services (section 7.2).

1.2 Structure and functions of the personal social services

The personal social services address the needs of individuals and groups of individuals, such as the elderly, mentally and physically

handicapped, and children and young persons. Sainsbury (1977) writes that "the personal social services are concerned with the individualisation of services, and with adjusting the use of certain resources by individuals, families or groups, according to an assessment of their differential needs". Parker (1967) stated that "personal social services are those outside health and education which are adjusted to the particular needs of individuals, families or groups and which require personal contact between provider and recipient". This definition emphasizes two salient characteristics for the present study, viz., the adjustment of services to differences between people's needs, and second the giving of service which is associated with personal contact. This means that the "front-line" worker in the personal social services is more than merely the implementer of policy and legislation: he or she assumes personal responsibility for the delivered services, he or she exercises discretion in choosing between different qualities of service, and in deciding how best to use his or her time in order to make the provision of services relevant to the needs of the client (see Sainsbury, 1977, p.23).

Personal social services are provided by statutory, voluntary and private bodies and by informal carers.

(i) Statutory sector

The statutory sector is split into two parts: Social Services Departments of Local Authorities and Probation Services. The central responsibility for the Probation Services rests with the Home Office.

Social Services Departments which are empowered to provide specific services to those in need, provide care in the following settings:

1. Field work, i.e. basic social work with individuals living at home, in foster homes, hospitals and so on.
2. Residential care, i.e. basic social work and provision of other services to those who are in residential care (e.g. residential care for children, residential care for the elderly etc.)
3. Day care and domiciliary services, i.e. basic social work and provision of other services to those living at home, and to those in need of extra support who come in day centres.

The clients of social services departments are:

(i) the physically handicapped

(ii) the mentally ill and handicapped

(iii) children and families

(iv) the elderly

(v) the homeless

(vi) some clients of other agencies

The general function of Social Services Departments has been defined by the Social Services Organisation Research Unit (1974) as "the prevention of relief of social distress in individuals, families, and communities, in liaison with other statutory and voluntary agencies". The Social Services Organisation Research Unit split this general function into a number of more specific functions, viz:

1. Research and evaluation (verification of the extent and nature of social distress and evaluation of the adequacy of existing operational activities to meet this distress).

2. Strategic planning (planning new or improved operational activities to meet needs).
3. Operational work at the community level.
4. Operational work with individuals and families.
5. Public relations (maintenance of a good general social environment through press contact, lectures etc.).
6. Staffing and training (recruitment, general training and welfare of staff).
7. Other functions such as managerial and co-ordinative work, logistics, finance and secretarial.

(ii) Voluntary and private sectors

The voluntary and private sectors constitute an important part in the provision of personal social services in Britain. Private organisations generally provide social services paid for by the clients, whereas voluntary organisations generally provide social services free. In addition, some private and voluntary agencies supply services under contract to the public sector.

Voluntary organisations provide social services such as care for deprived children, disabled people, elderly people, and so on. There are thousands of voluntary organisations ranging from large national societies to small local groups which offer social services locally, regionally or nationally. Voluntary and private organisations often complement the services provided by statutory organisations in situations where there exist gaps.

1.3 Social work and social workers

Following Sainsbury (1977) and for the purpose of the present thesis, the term "social work" will be used to refer to a particular range of skills, techniques and values, used by certain employees in the personal social services. Therefore, individuals who are trained in social work constitute the set of "social workers", although of course social workers constitute only part of the total employment of the personal social services. As Sainsbury (1977) argues, "social work is not the rationale for the existence of the personal social services; personal social services could exist without social workers. But what has emerged in recent years is a growing compatibility between the objectives of the services and the values and techniques of social work. It has been in the interests of the services to employ increasing numbers of social workers and in the interests of social workers to pursue that form of employment. The result is that it is now all too easy to assume that services and social work are identical".

The importance of social work professionals in the personal social services can be seen from the variety of their activities and the complexity of social work practice. The Department of Health and Social Security (1981) in their report Social Work attempted to classify the activities of social workers under three main approaches:

by task, by function and by role. The "task" analysis is concerned mainly with the activity in which employees are involved, rather than examining the purpose or function of that activity in relation to the overall objectives of social work (e.g. desk jobs, conferences, meetings, interviews, discussion of cases, dictating reports, delivery of goods etc). The "functional analysis" is concerned with the individual functions which are related to the overall functions of the social services departments. For example, "social work", concerned with developing and maintaining the social functional capabilities of individuals, families and communities, "social services" concerned with securing the basic necessities of life, food, accommodation etc. The "role" analysis of social work activities usually relates the activities more directly to the objectives of social work (e.g. helping procedures such as sustainment, discussion of the current situation etc).

The professional body of social work (British Association of Social Workers, BASW, 1977), in their report The Social Work Task presented a wider range of roles than those specifically related to worker-client contacts and distinguished between roles appropriate to qualified and unqualified social workers. For example, roles such as Diagnostician (a role which involves conceptualising and classifying the problems, needs and behaviour of a client in ways that ultimately

make for effective assessment and intervention), Planner (a role which involves setting objectives and devising a programme with a client in order to resolve a problem or to enhance his social functioning), Consultant (a role which involves acting as an advisor to other social workers), Counsellor (a role which involves the application of personal skills by the worker to assist a client in resolving problems of an emotional nature, often in connection with his personal relationships), and so on, are usually performed by an appropriately qualified social worker. Roles such as Clarifier (a role which involves provision to the client of the necessary clarifications in order that he himself can decide and initiate courses of action), Care Giver (care and concern for the client underpin all social work roles), Protector (a role which involves the social worker in providing protection either for his client or from his client), and so on, could be performed by social workers who are not "qualified".

Sainsbury (1977) described the activities of social workers under four headings: "first, to assess needs by discussion with the client, and to support and assist the client to remove obstacles (whether in feelings or attitudes) which impede his use of services and the achievement of his potential for a satisfying life; secondly, to mobilise resources within the individual, the family and the community in order to maximise the client's participation in community life; thirdly, to influence the ways in which services are co-ordinated, so that they give freedom to the natural processes of self-help and self-realisation; and fourthly to offer technical and professional advice". These four activities of social workers present a picture of the complexity of involvement in the lives of others.

1.4 Supply and demand for manpower in the personal social services

Social work manpower needs within the whole field of the social services have been the subject of increasing concern and discussion. Younghusband (1978) considering the supply and demand in social work during the period 1950-75, presented a comprehensive review for manpower needs. For example, she noted that, "the CCETSW working party discussion document on training for residential work (1973) concluded that there were about 395,000 people in residential centres of all kinds, cared for by about 65,000 staff, of whom under 4 per cent were qualified in residential work. It calculated a need for at least 11,000 more qualified residential social workers to provide one CQSW holder in every residential centre, though it was desirable that about one-third of total staff - 21,600 people - should hold the CQSW". Also she noted that, in 1968 the available social work manpower represented about 15 social workers per 100,000 of the population. By 1971 this has risen to an average of 25 social workers, trainees and assistants per 100,000 population, and the ten year plan ratio (later abandoned) was 50 to 60 per 100,000 population by 1983.

Many authors pointed out the growing need for care and the consequent growing demands on staff, especially in care of the elderly. The most important factors which determine the growing need

for care of the elderly, are: first, the increasing number of elderly, and particularly the number of the very elderly, since more people are living longer because of improved health services, better housing, and improved social conditions generally. Second, the proportion of the elderly population with the ability to care for themselves is decreasing (Plank, 1978; Davies and Challis, 1980; Knapp, 1981). This could be held to indicate an increasing need for staff.

At times there has been evidence of high vacancy rates and shortage of qualified staff in the personal social services. For example, the Williams Committee Report (1967) observed that 4% of staff posts in residential homes for the elderly were vacant. The Department of Health and Social Security (1975) in a census of residential accommodation in 1970 for the elderly observed a higher rate of vacancies than the Williams study. The DHSS has found that 5% of local authority staff positions and 7% of voluntary positions were vacant. Social Policy Research Ltd (1975), in a pilot study on staffing in residential establishments, found that staff vacancies were acute in some establishments and that a few units had closed or came near to breakdown. The Butterworth Inquiry (1972) observed that probation and hospital services suffered from high vacancy rates and from recruitment difficulties (see Younghusband, 1978, p.295). Support for the shortage of qualified staff is found in a report by

the Department of Health and Social Security (1981). The DHSS pointed out that only 44% of the basic grade social worker staff in 1975 were professionally qualified, and only 36% of the work force below the grade of senior social worker (i.e. the work force which undertakes the bulk of casework) were qualified. Younghusband reports that in 1972 a study was carried out in four area offices of Southampton Social Services Departments by Neill et al. (1973) and repeated in 1975. The proportion of unqualified fieldworkers had doubled from one-fifth in 1972 to two-fifths by 1975 (see Younghusband, 1978, p.242).

The foregoing discussion indicates that there is a gap between supply of and demand for manpower in the personal social services. This disparity between supply and demand creates a number of problems.

The behaviour of demand and supply in the personal social services labour market is determined by various factors. For example, the demand for labour is determined by factors such as increasing public need and the creation of services that require new professional capacities. The lack of a clear manpower strategy in social work finds expression in three ways: (a) graduate professional workers are unevenly distributed among fields of practice; (b) all kinds of social work manpower, professional and nonprofessional, graduate and undergraduate, are not used differently, in accordance with particular

knowledge and skills; (c) inefficient practices also waste valuable qualified manpower, for example in cases where social workers do tasks that are best performed by clients themselves (Meyer, 1976). The supply of labour is determined by factors such as shortage of qualified staff, and the changes in the economic climate, for example, higher percentage of unemployment means positive excess supply, whilst low percentage of unemployment means negative excess supply. Of course, in the personal social services the supply is related to the specific requirements of staff (qualified, unqualified, specialists, etc.) according to the specific job. This might mean that only the supply of unqualified staff could be affected by the level of unemployment rates, under the assumption that employers recruit the required staff of the right calibre, because unqualified staff may substitute qualified staff up to some degree only, otherwise the effectiveness of the organisation will be reduced.

Evidence on the variation of the distribution of work between different categories of staff, and the variation of the distribution of qualified and unqualified staff among local authorities, can be found in a report on social work by the Department of Health and Social Security (1981). The DHSS argues that the distribution of work between different categories of staff varies considerably from one local authority to another. For example, there are marked differences

between local authorities in senior and managerial staff which constitute the top of the area office social work hierarchy and have a key role in determining the organisation and functions of an area office. In some authorities there are no area officers, but team leaders carry many area officer functions. In other authorities there are no staff labelled team leaders, and teams are headed by senior social workers who also carry a small caseload. The role of the social work assistant varies considerably among local authorities, and is dependent upon the policy held within a particular agency and the characteristics and qualities of the staff employed as assistants. There are social work assistants with considerable experience who may be seen as specialists in their own field. The mix of qualified to unqualified staff varied considerably among local authorities.

The most important of the problems created by the disparity between supply and demand for manpower in the personal social services are, first, it leads to keen competition between the employing bodies. Second, it influences staff turnover because there are alternative job opportunities for social work staff. Third, it creates difficulties in recruitment to some services or organisations which are not "attractive" to staff, for example residential homes for the elderly which are often held to have limited appeal to qualified social workers. The inability to attract high calibre staff may lead to unsuccessful recruitment, which in turn can raise the turnover rate because low calibre staff, and particularly those without professional qualifications, have a high propensity of leaving (Townesend, 1962; Williams Committee Report, 1967; Kermish and Kushin, 1969 and see chapter 5 below).

It should be noted that today's higher unemployment rates mean that vacant posts can be filled more easily, but generally only at the "cost" of appointing unqualified staff. The shortage of qualified staff will remain, until there are marked changes in the funding of social work education, in turn requiring some action by employing bodies. Thus turnover of qualified staff may continue, despite the high level of unemployment, since there are always alternative job opportunities for them.

1.5 Conclusion

The description of the structure and functions of the personal social services indicates their peculiarity and emphasizes the complexity of involvement in the lives of others. Therefore, it is necessary for a comprehensive turnover or wastage study to examine the association between turnover and specific factors which are related with this type of employment.

The description of social work and of what social workers do emphasises the importance of this type of employment, since the personality and skills of these employees crucially determine the well-being and happiness of needy individuals. Therefore, the effective operation of the personal social services is dependent upon the availability of the right calibre staff.

The disparity between the supply of and demand for manpower in the personal social services generates keen competition between employing bodies (in their attempts to attract the right calibre staff), influences staff turnover, and creates difficulties in recruitment to some organisations. There is clear evidence of a rapidly increasing public need for social care interventions in the future, particularly due to ageing population. Thus the shortage of social work staff and particularly of qualified social workers will remain an issue for some time.

CHAPTER TWO

THE STUDY OF STAFF TURNOVER AND WASTAGE

The purpose of this chapter, like the previous chapter, is to provide a comprehensive background for the study of staff turnover and wastage in the personal social services. This second chapter looks at previous empirical and theoretical studies of staff turnover and wastage.

2.1 Concepts and definitions

The success and survival of an organisation depends upon its employment force. In other words, an organisation can attain its goals, if and only if it operates with the required number and quality of staff.

The employment force of an organisation changes over a period of time due to staff movement into and out of the organisation. The movement of employees out of the organisation (leaving) generates vacant posts (vacancies). Consequently, the organisation has to fill these vacant posts (i.e. to replace the staff who left) by recruiting new employees in order to survive and attain its goals. These three events constitute the most important staffing problems faced by employing organisations, and they are causally and contemporaneously inter-related. They are also associated with fairly similar sets of causes because of their inter-relationships. The inter-relations and consequences of these staffing problems will be discussed later (chapter 4).

Before dealing with the definitions of these staffing problems it will be helpful to construct a representative graph for a better understanding of these concepts. The graph presented in Figure 2.1 represents the movement of employees out of an organisation (leaving), the vacant posts which are generated due to leaving of employees and the movement of employees into organisation (recruitment) under the assumption that recruitment is attempted when posts are vacant.

Staff turnover is usually defined as the movement of employees into and out of an organisation over a specific period of time. Movement into the organisation is called "recruitment" or "accession" and movement out of the organisation is called "leaving" or "wastage" or "separation". In other words the term "turnover" refers to the combined process of recruitment and leaving of employees over a period of time. For example, Cornog (1957) defines staff turnover as "the influx and exit of individuals into and out of the working force of an organisation over a specific period of time". Price (1977) defines staff turnover as "the degree of individual movement across the membership boundary of a social system". In practice these definitions are rarely used, investigators usually treat the terms "turnover" and "wastage" as synonyms (see Bartholomew and Forbes, 1979, p.12).

In the present thesis I shall use the term "turnover" to refer to the movement of employees out of an organisation (i.e. the movement of social work staff out of social services departments of the local

authorities) over a specific period of time. The term "wastage" will be used to refer to the movement of employees out of social work altogether (i.e. leavers moving to a non-social work position) over a period of time. (It should be noted, that movement of social work staff, from one job to another in the same social services departments, is not regarded as turnover, but as intra organisational movement.)

There are two types of turnover which are commonly distinguished, viz: voluntary and involuntary turnover. Voluntary turnover is initiated by the individual (i.e. arises whenever an individual leaves of his own choice). Involuntary turnover is not initiated by the individual, for example, dismissals, lay-offs, retirement, illness and deaths. Of course, voluntary early retirement has to be characterised as voluntary turnover, because it arises whenever an individual retires earlier of his own choice, under the assumption that it is permitted by staffing regulations. Some authors use the term "controllable turnover" as a synonym for voluntary turnover. For example, Van Der Merwe and Miller (1971) defined the controllable turnover as "the avoidable loss of personnel - avoidable because management action could have been taken to reduce, minimise or prevent such loss - the loss being the result of an interaction between the characteristics of the employee and the employing organisation". Most of the research dealing with staff turnover concentrates on voluntary turnover. A plausible explanation for this could be that voluntary turnover is hypothesised to be related to many variables subject to control by management. Therefore, management wants to know what factors cause turnover, in order to take action for reducing it.

With reference to the movement of employees into the organisation, I shall use the term "recruitment". The international Labour Review (1960) used the term "accessions" to refer to the engagement of new employees or the re-engagement of former employees who had left.

The literature on turnover is extensive but little attention has been paid to recruitment of employees. Nevertheless, it should be noted that "recruitment" is not a single action of entrance of new employees into organisations but a multiple concept which creates problems and hence requires efficient policy by the employers. Plumbley (1974), in his book which concerns recruitment and selection, discussed the nature of recruitment by saying that human beings are the life-blood of any organisation and the profitability and even the survival of an organisation usually depends upon the calibre of its work-force. Recruitment can be considered as the most important single aspect of the personnel function. Recruitment is not only concerned with engaging the required number of employees, it is also concerned with measuring the quality of employees who are going to be engaged. Inefficient recruitment results in turnover. Plumbley noted that the shorthand description of recruitment as "the finding, assessing and engaging of new employees" is incomplete and potentially misleading. Recruitment is better conceived as being made up of four complementary stages, each one of which is important in its own right. These stages occur in the following sequence:

1. Assessing the job
2. Attracting a field of candidates
3. Assessing the candidates
4. Placement and subsequent follow-up.

These four activities provide a comprehensive background to the study of recruitment. It is well known that the nature and extent of a recruiting program depends on a large number of factors, including the skill levels required, the state of the labour market and general economic conditions, and other similar factors to those associated with turnover which are later discussed.

Staff vacancies are usually defined as the current unfilled job openings in an organisation which are immediately available for occupancy by workers from outside the organisation (National Bureau of Economic Research, 1966; Armknecht, 1974). An important dimension of staff vacancies is duration - a two month vacancy is not the same as one that has duration two years. The duration of vacancies depends on a large number of factors similar to those associated with turnover, and reflects the difficulties of recruitment.

Staff vacancies are inversely related with unemployment rates. That is to say, an increase in unemployment will result in a decline of staff vacancies and vice versa (Gujarati, 1972; Armknecht, 1974; Bewley, 1979). A high rate of unemployment means that there are people available in the labour market to fill vacant posts if these existed. Despite frictional unemployment, high unemployment is therefore generally associated with low vacancy rates. Of course, in the personal social services, the negative relationship between staff vacancies and unemployment rates, holds up to a point, because of the specific job requirements. For instance, there could exist high unemployment rates, and vacancies could continue to be high in the personal social services because there are not enough qualified social workers in the labour market, but only unqualified staff.

2.2 Measurements

I shall present here a number of measurements which have been identified in the literature.

(i) Crude staff turnover rates

The "crude staff turnover rate" is the conventional approach to measuring turnover. It expresses the number of employees who left as a percentage of the average number of persons employed in a specific period of time. The formula used for calculating turnover depends on the source of the data and on the investigator's definition (i.e. what constitutes staff turnover). For example, investigators who define staff turnover as "the movement of employees into and out of an organisation over a specific period of time" use the following formulae

$$(Z_1) \quad \text{Recruitment rate} = \frac{\text{No. of recruited employees during the period}}{\text{Average number in employment during the period}}$$

$$(Z_2) \quad \text{Leavers rate} = \frac{\text{No. of leavers during the period}}{\text{Average number in employment during the period}}$$

The average number in employment is usually approximated by the total number of employees at the beginning and end of the period divided by two although daily headcounts could be used. Investigators who define staff turnover as "the movement of employees out of an organisation", i.e. equate turnover with leaving of employees, use the formulas

$$(W_1) \quad \text{Turnover rate (average)} = \frac{\text{No. of leavers during the period}}{\text{Average no. in employment during the period}}$$

$$(W_2) \quad \text{Turnover rate (beginning)} = \frac{\text{No. of leavers during the period}}{\text{No. of employees at the beginning of the period}}$$

Variations of the above formulae are possible if one wants to calculate turnover based on voluntary or involuntary leaving. For example, if one wants to calculate voluntary turnover, one has to use as numerator only the number of employees who left of their own choice.

The crude turnover rates have the merits of being simple to calculate and requiring only elementary data. These rates provide a guide to whether leavers may be causing disturbance in the organisation and hence indicate the need for replacement. On the other hand these rates have a number of considerable disadvantages. First, crude turnover rates have no precise meaning, for example, a crude rate of 100 per cent could indicate only that an entire labour force had turned over during a period, or alternatively that half the labour had turned over twice, and so on. Second, crude turnover rates do not control for variables related to turnover, for example, length of service, age, sex, education etc., which differentiate the probability of individuals leaving (see chapter 5). Authors such as Lane and Andrew (1955), Barhtolomew (1973) and Price (1975) point out that a measure which depends so strongly on the length of service structure cannot adequately reflect other attributes. Third, crude turnover rates are sensitive to the length of the period of data collection, for example, a small organisation could not have much

turnover during a month. The most frequently used length of period is one year because it smooths out any monthly fluctuations (see Price 1977, p.15). Fourth, crude turnover rates are affected by the number of recruited employees who left during the period, for example, in the expressions Z_1, Z_2 and W_1 the number of recruited employees who left is included in the numerator but not included in the denominator, therefore, these expressions do not indicate the real extent of turnover. In the expression W_2 the number of recruited employees who left is included in the numerator, on the other hand the number of recruited employees during the period is excluded from the denominator. This expression is quite deceptive, because as the number of recruited employees who leave increases, the crude turnover rate increases rapidly. I shall illustrate below these effects by giving a representative example.

Let E_1 = No. of employees in post at the beginning of the period

R = No. of recruited employees during the period

L_1 = No. of recruited employees who left during the period

L_2 = No. of leavers who were in post at the beginning of the period

Then $L_1 + L_2 = L$

where L is the total number of leavers during the period

and $E_1 + R - L = E_2$

where E_2 is the number of employees in post at the end of the period.

Suppose that there are 100 employees in post at the beginning of a specific period. The total number of leavers during the period of study is 50 (see table 2.1, case A). From these data it is possible to calculate the crude turnover rates using the expressions W_1 and W_2. Thus

$$W_1 = \frac{L}{(E_1+E_2)/2} = \frac{50}{(100+50)/2} = 0.667 \text{ or } 66.7\%$$

$$W_2 = \frac{L}{E_1} = \frac{50}{100} = 0.50 \text{ or } 50\%$$

In this case the expression W_1 is clearly a misleading one, because it overestimates the turnover rate (which is 50%, since half of the employees left). In the same way I can calculate crude turnover rates from data presented in table 2.1 (cases B,C,D) and see how these rates are affected by the number of recruited employees who left. For example, it can be seen from cases B and D, where the total of recruited employees left, that the expression W_1 and W_2 overestimate the turnover rates. This is because the number of recruited employees who left is not included in the total employment force.

In general one can say, regarding the expressions W_1 and W_2, that as the number of recruited employees who leave increases the estimated turnover rates increase, and vice versa. Presenting it algebraically:

$$W_1 = \frac{L}{(E_1+E_2)/2} = \frac{L}{[E_1+ (E_1+R-L_1-L_2)]/2} < \frac{L}{[E_1+ (E_1+R-2L_1-L_2]/2}$$

since $L_1 < 2L_1$

and $W_2 = \frac{E_1}{} = \frac{L_1+L_2}{E_1} < \frac{2L_1+L_2}{E_1}$, since $L_1 < 2L_1$

These influences of recruitment on the expressions W_1 and W_2 are avoided by the following expression (W_3), which indicates the total number of employees who are exposed to turnover during the period of study.

$$(W_3) \quad \text{Turnover rate (total)} = \frac{\text{No. of leavers during the period}}{\text{Total number of leavers and stayers during the period}}$$

The above crude turnover rate is similar to the commonly used death rate, which expresses the number of persons dying as a percentage of the total population exposed to risk of occurrence of the event, during a period of time. Levine and Wright (1957) used the term "relative frequency of turnover" to refer to the number of employees who left during the period divided by the number of employees who did not leave during the period and the number who did (i.e. by the total number employed during the period). They pointed out that when turnover rates are compared and the statistical significance of difference in rates is to be evaluated, the relative frequency of turnover is the most appropriate measure to use. Mercer (1979) used the term "force of separation" to refer to the number of leavers with a particular length of service in their current post divided by all employees with that time in employment.

It can be seen in table 2.1 that the calculated crude turnover rates using expression W_3 seem more reasonable. For example, in cases A and C where half of the employees left, the turnover rates are 50%. It should be noted that the rate estimated by the expression W_3 never exceeds 100 per cent, since the numerator is a portion of the denominator. On the other hand the rates estimated by the expressions W_1 and W_2 do not have a limit, but could in principal reach infinity.

The crude turnover rates can be refined by various methods. One way is to compute specific turnover rates for the various categories of positions like team leaders, social workers, social work assistants and so on. Also specific turnover rates can be computed for certain age groups or other personal characteristics like length of service, education etc. But in practice single summary measures are desired in comparing turnover. Of course, a single measurement can be adjusted to account for the different personal characteristics in the organisation being compared. In chapter 6 I use adjusted turnover rates of this kind.

(ii) Average length of service

The length of service distribution shows the relative success with which the organisation has built up a stable group of long term employees. A measure based on the length of service distribution can be calculated as a mean or a median. The mean is calculated in the following way:

$$\text{Average length of service (stayers)} = \frac{\text{Sum of individual lengths of service}}{\text{Number of employees}}$$

The number of employees is calculated for a specific date and not as the average for a period of time. This measurement is relatively easily computed and can be used as an "index of stability". For example, a high average of length of service, say twenty years, could indicate the stability of employment in an organisation. Also a high average of length of service could indicate low turnover. But there is a very serious disadvantage with this measurement. While a high average indicates a low level of turnover when looking at the group as a whole, this may mask a considerable spread over both new recruits and very long-stay employees. In other words it cannot indicate the high turnover of low-seniority employees. The median length of service, which divides the employment under study into equal parts, is more illuminating when used in conjunction with measures of central dispersion such as standard deviation or skewness (Price, 1975; Mercer, 1979).

(iii) Stability and instability rates

The stability rate is based on the employees who remain with an organisation for a specific period of time, and the instability rate is based on the employees who leave during the period. The stability and instability rates are calculated in the following way:

$$\text{Stability rate} = \frac{\text{No. of beginning employees who remain during the period}}{\text{No. of employees at the beginning of the period}}$$

$$\text{Instability rate} = \frac{\text{No. of beginning employees who leave during the period}}{\text{No. of employees at the beginning of the period}}$$

These rates are complements. For example, if the stability rate is 0.80 the instability rate can be obtained by subtracting this rate from unity. The stability and instability rates are easily computed and readily understandable: a high stability rate indicates low turnover. The two rates have a precise meaning. A stability rate of 50% means that half of the employees at the beginning of the period remain by the end of the period. On the other hand the stability and instability rates have two disadvantages. First, they do not indicate whether the recruited employees stay for the whole period or leave. For example, the stability rate omits the number of recruited employees who remain during the period, and the instability rate omits the number of recruited employees who left during the period. In other words they do not indicate the total number of employees who are exposed to turnover during the period of study. Second, they again do not control for variables related with turnover such as age, sex, education, length of service and so on.

(iv) Cohort turnover rates

Cohort turnover rates concentrate upon a group of new entrants to an organisation. A group of new entrants may be followed through for the duration of their survival in the organisation. Silcock (1955) advocated the use of survival and turnover rates based on such groups of new entrants. These rates are calculated in the following way:

$$\text{Survival rate} = \frac{\text{No. of new entrants who remain during a period}}{\text{No. of new entrants}}$$

$$\text{Turnover rate (cohort)} = \frac{\text{No. of new entrants who leave during the period}}{\text{No. of new entrants}}$$

The length of time required to define the cohort of new entrants depends on the number of recruits into the organisation. For example, if the number of recruits is low, a long period is needed to obtain sufficient statistics. Usually a three month or four month interval has been used (Byrt, 1957; Price, 1975; Mercer, 1979).

The above rates appear to be similar to those used by Rice et al. (1950). But there is a difference between turnover rates. For example, Silcock expresses the turnover rate as a percentage of employees at the beginning of each period, whereas Rice et al, expresses it as a percentage of the original recruitment. An illustration of the calculation of these rates will be presented in table 2.2, where the figures are hypothetical and the length of time for the definition of the cohort is three months.

Survival and turnover rates can also be calculated for successive cohorts. For example, the first cohort might be the recruits during January, February and March and the second cohort might be the recruits during April, May and June and so on. Survival and turnover (cohort) rates are clearly difficult to compute, but they do control for length of service and have a precise meaning. These measurements may be used to assess the results of recruitment methods, and can also be used in conjunction with other rates in forecasting future labour requirements and turnover (Byrt, 1957).

(v) The survival-of-leavers curve

Van der Merwe and Miller (1971) proposed the "survival-of-leavers curve". They converted a distribution of leavers, by length of service, to a general survival curve form. The curves, therefore, show the period survived in service before leaving took place. For example, during a period of T months, a total number of leavers L have left, among which are a number L_1, who have had period d_1, or less of service, and numbers L_2, L_3, ... Ln who have served periods d_2, d_3, ... dn such that $L_1 + L_2 + L_3 + \ldots$ Ln=L. For each successive period d_1, d_2, d_3, ... dn, where $d_2=2d$, and $d_3=3d$, and so on (d, for instance, could be a period of time such as one month) a percentage is calculated to provide a point on a curve which will show the distribution of leavers, expressed as survivors from a total group L, after periods d_1, d_2, etc; such that at the end of period d_1:

$$\text{Survivors} = \frac{L-L_1}{L} \quad \text{per cent}$$

and at the final period dn

$$\text{Survivors} = \frac{L-(L_1+L_2+ \ldots L_n)}{L} = 0$$

An example of such a curve is presented in figure 2.2.

This curve illustrates the deceleration in turnover rates, as a result of a higher percentage of losses in the shorter length of service groups, giving rise to a more rapid drop in survivors at first. It can be seen that 80% of the leavers had served for less than 24 months. The median length of service is shown to be 7.3 months.

A survival curve cannot, in itself, present a complete picture of labour turnover in an organisation. The survival of leavers curve provides only a distribution of leavers, by length of service. This in conjunction with a crude turnover rate will be a useful measurement, because the two measures give a better picture of labour turnover. Since the survival of leavers curve indicates from what sections of the labour force, in terms of length of service, those leaving are being drawn, and the crude turnover rate indicates the extent to which persons are leaving from the labour force. It should be noted that, "the groups of leavers could not be too small, or drawn from too short a period, or short-term distortions may affect the curves. Six months would seem a reasonable minimum period" (Van der Merwe and Miller, 1971, p.249).

(vi) Other measurements

Lane and Andrew (1955) proposed the mean length of service or the "expectation of service" as a measure of labour stability. The mean length of service is based on the probability of an employee's leaving as a function of his length of service. They used two methods of estimating this function. The one is known as the "survival curve" method and the other as the "stability curve". Both curves have been found to be approximately lognormal, and this assumption has simplified the calculation of the mean length of service (see Lane and Andrew, p.307). A practical problem of estimating the mean length of

service is that its value depends strongly on the upper tail of the distribution. An assumption must be made about the behaviour of the curve for large values of the length of service because it cannot be extrapolated to infinity. To cope with this difficulty Lane and Andrew supposed that there was a fixed maximum length of service (p) at which employees must retire. They assumed that everyone who, according to the distribution, should have had a longer length of service, had exactly p years of completed service. Thus they used a distribution made up of a lognormal distribution censored at p and a mass of probability equal to the tail area beyond p located at p. This would be a reasonable procedure if everyone joined at the same age and hence had the same maximum length of service, but this is rare in practice and therefore makes the procedure arbitrary (see Bartholomew, 1971; Bartholomew and Forbes, 1979, p.70).

Boewy (1971) proposed a measure of labour stability calculated only for those with length of service, under two years. This index is very easily computed and may be a useful indicator of the stability of low-seniority employees. As Bartholomew and Forbes (1979) argued, this index is a very special case of a standardised rate and may be a useful index, since it brings out facets of leaving behaviour which the crude rate masks.

2.3 Correlates and causes of staff turnover and wastage

Before proceeding to discuss the correlates and causes of staff turnover and wastage, it is essential to clarify their meaning and to group them under heads which will be useful for the study of staff turnover and wastage in the personal social services.

Correlates are the variables to which staff turnover and wastage are related (e.g. sex, age, length of service, education etc). The correlates produce differences in the probability of individuals leaving (see chapter 5). This is because the push or pull effects of causes which lead the employee to the decision of staying or leaving differ among employees. For example, younger employees are more likely to be "pushed away" from the organisation than older employees, due to causes such as lack of opportunity for advancement, unsatisfactory salary, poor knowledge of job requirements and so on. Better educated employees are more likely to be "pulled" or attracted away from the organisation than uneducated employees, due to causes such as higher earnings elsewhere, better career structures and so on.

The causes of staff turnover and wastage are then those factors which "push" or "pull" the employees to leave their post: low wages, poor supervision, unsatisfactory working conditions and so on in the present post ("push" factors) and better opportunities, higher wages, satisfactory supervision, satisfactory working conditions in alternative posts ("pull" factors). Price (1977) used the term "determinants" to refer to causes of staff turnover and wastage. He pointed out that correlates and causes are different and should be treated separately. One should not confuse description and explanation. The empirical generalisations which embody the correlates describe, whereas the propositions which embody the causes explain.

There are intermediate variables which intervene between causes and turnover, usually termed "intervening variables" (Price, 1977). In general a number of specific job characteristics produce an overall job satisfaction which leads the employee to the decision of staying or leaving under certain economic conditions (see Figure 2.3). For example, if an employee is dissatisfied with his job for one or more reasons (e.g. low pay or poor supervision) and decides to change jobs but there are no alternative jobs available, then he has to stay in the present job or become unemployed. Therefore, there are two intervening variables, a psychological one which is the result of causes called "overall job satisfaction" and which leads the employee to the decision of leaving or staying, and the other one which is a necessary prerequisite for the individual's decision of leaving or staying called "opportunity" (i.e. availability of alternative jobs).

The preceding discussion indicates that there are three conceptual categories of variables associated with turnover: correlates, causes, and intervening variables. For the purposes of exposition and for the purposes of policy formulation, I will group these variables under the following heads (cf. Knowles, 1964: Porter and Steers, 1973; Mobley et al., 1979):

(i) Characteristics of the employee (e.g. sex, age, length of service, education etc). The characteristics of the employee are correlates of staff turnover and wastage, although as indicators they may sometimes reflect or act as proxies for causes (see below).

(ii) Characteristics of the job (e.g. pay, promotion, working conditions, supervision etc). The characteristics of the job are causes of turnover and wastage, over which the employer can exercise some control.

(iii) External characteristics (e.g. unemployment rates, vacancy rates, opportunity, sector of activity etc). The external characteristics are correlates or intervening variables, and generally will be beyond the immediate control of employer and eomplyee.

(iv) Employee job attitudes (e.g. job satisfaction or job dissatisfaction). This variable is an intervening one.

Characteristics of the employee

The characteristics of the employee are usually termed "personal characteristics" or "demographic variables". Turnover has often been studied in relation to the personal characteristics of leavers. These characteristics are more important for studies conducted at the level of the individual staff member than at the aggregate level.

Age

Turnover and wastage rates tend to be higher among younger staff in nearly all areas of employment. A plausible explanation could be that young employees usually have lower salaries, are unskilled and may have the feeling that mobility is good per se. These factors create

dissatisfaction with the job, which leads the employee to the decision of leaving the job, hoping for a better career. The negative relationship between age and turnover or wastage has been supported by empirical studies from all professions and occupations. For example, Kermish and Kushin (1969) observed that of those social workers who left during the study period, 53.3% were under 25 years of age, and 24.7% were between the ages of 26 and 30. Bucklow (1955), Hellriegel and White (1973), Federico et al. (1976) have found that most serious turnover occurs among young employees.

Length of service

The propensity to leave has often been found to be inversely related to the length of service in the present employment (Silcock, 1954; Bucklow, 1955; Saleh et al. 1965; National Economic Development Office, 1969; Kermish and Kushin, 1969; Stoikov, 1971; Berry, 1975; Williams et al, 1979). The length of service variable is related to the age and skill level of the employee. For example, employees with short length of service usually are young and unskilled. This inter-relation creates difficulties in separating the respective effects of length of service, age and skill level on staff turnover and wastage. Investigators have to take account of this inter-relation, and to use proper statistical techniques that could separate out their effects on turnover.

Sex

Turnover and wastage rates tend to vary between male and female employees, but not consistently across all forms of employment. Some studies have found turnover to be higher among females than males. For example, Kermish and Kushin (1969) reported that turnover rates are slightly higher among female social workers than among males. Also Silcock (1954), Bucklow (1955), Marsh and Mannari (1977) reported higher turnover rates among females. On the other hand, other studies have reported higher turnover rates among males than females (Kilbridge, 1961; National Economic Development Office, 1969). A number of plausible explanations for the inconsistent findings have been cited. Kadushin (1976) argues that males are favoured in terms of salaries, promotion chances and prestigious appointments in female-dominated professions. Knowles (1964) pointed out that there are some basic factors that would tend to make turnover higher for women than for men. For instance, women are often placed in jobs which require a low level of skill, and lower skilled jobs tend to have high turnover rates independently of sex. In addition, career opportunities are often limited for women. Furthermore a woman is more likely than a man to follow her spouse to another area in order for him to take up a new, and generally better-paid job (and the difficulties she will inevitably encounter in finding a new job herself may signal the end of her social work career, perhaps by forcing her to reappraise social work as a personally rewarding job).

Kilbridge (1961) noted that men may have a higher turnover rate than women because they often have greater financial responsibilities than women, are more career-oriented and seek to improve their earning ability elsewhere. These explanations for the inconsistent findings indicate that there are some difficulties in comparing turnover rates for men and women, which have to be taken into account.

Marital status and family responsibilities

Turnover rates tend to be higher among married women than among single women. One explanation for this may be the fact that married women have a number of different reasons to leave. For instance, care for children, pregnancy, accompanying the husband to another city when he changes job, and other family responsibilities. It is accepted that turnover is positively related with family responsibilities. For example, Saleh et al. (1965), in a study of nurses' leaving, observed that the most important factor which influences turnover of nurses was "family responsibilities". Porter and Steers (1973) have found evidence in three studies that older women, whose children are either grown or require less attention, conistently demonstrated lower turnover rates than their younger counterparts (Minor, 1958; Fleishman and Berniger, 1960; Robinson, 1972). Loewenberg (1979) stated that "married women have a higher turnover rate than single women. On the contrary, single men have a higher turnover rate than married men". In support of this generalisation, Loewenberg cited a number of social worker studies (Tissue, 1970; Rodgers, 1964; Herberg, 1970; Padberg, 1974). Therefore, it is important to make the distinction between married and unmarried women, because married women are much more likely to leave employment for family reasons, in particular when day nurseries for children are scarce.

Education

Within a particular employment, it has generally been found that better educated employees are more likely to leave than less educated employees (March and Simon, 1958; Farris, 1971; Federico et al. 1976; Loewenberg, 1979). One explanation for the positive relationship between turnover and the level of education may lie in the fact that opportunity seems to be high among the employees with the highest education because demand is usually relatively high for employees with the highest education, whereas supply is not great (Price, 1977).

Another explanation for the positive relationship between turnover and the level of education could be that better educated employees who enter the market expect higher earnings than those who are less educated. This comes from the fact that people must undergo training in order to improve skills and knowledge, which imply some cost and the use of leisure time. In other words education may be viewed as a form of human capital investment which yields both pecuniary and non-pecuniary return to its owner. Hence, earnings are expected to be higher in occupations requiring higher levels of education (Finegan, 1962; Schultz, 1971). "The correct measure of the return on human capital investment is the wealth effect of the wage increase which the investment makes possible" (Lindsay, 1971). The attempt of better educated employees to improve their earnings, makes them more sensitive to the decision of leaving, because they seek to find elsewhere better job opportunities.

Skill level

Turnover rates tend to be higher among unskilled employees than among skilled employees. A number of empirical and theoretical studies have supported this generalisation (Behrend, 1953; March and Simon, 1958; Knowles, 1964; Young, 1965; Hyman, 1970; Pettman, 1973 and 1975; Price, 1977). One explanation for the negative relationship between level of skill and turnover arises from the fact that skill level is associated with length of service: employees with shorter lengths of service are, ceteris paribus, probably less skilled than employees with longer periods of service. Furthermore, skill level is associated with the degree of specialisation, which is negatively related with turnover. In addition to level of skill another facet linked with turnover has been the type of training involved leading to that skill. It is accepted that staff turnover of specifically trained employees is lower than that of general trained employees (see Pettman, 1973, p.53).

Other characteristics of the employee

The "level of responsibility" is hypothesised to be negatively associated with turnover. Loewenberg (1979) stated that "line workers usually have higher turnover rates than supervisors and administrators". In support of this generalisation, Loewenberg cited a number of social worker studies (Tollen, 1960; Weinberger, 1966; Kermish and Kushin, 1969).

The following characteristics of the employee are hypothesised or have been found to be associated with turnover: social status, specialisation, intelligence, feelings of failure. The relationship between these employee characteristics and turnover has been supported weakly. Nevertheless, the following generalisations or arguments may be stated.

Social status. "Members of low status groups will perceive movement to be more difficult than will members of high status groups" (Pettman, 1973). This may explain, for example, why turnover has sometimes been found to be lower among certain ethnic minorities.

Specialisation. The higher the degree of specialisation the lower the turnover rate. One explanation for this could be the fact that "the greater the specialisation the fewer the extraorganisational alternatives perceived, and consequently the lower the turnover rate" (March and Simon, 1958).

Intelligence. Employees with higher intelligence tend to be promoted sooner. If this does not happen and all employees are treated alike, then the more intelligent are more prone to leving than the less intelligent (Knowles, 1964).

Feelings of failure. "As employees approached the standard rate of efficiency there was an increasing tendency for them to leave, but once this rate was exceeded they were more likely to remain" (Morrow, 1949), see Knowles (1964, p.32).

Characteristics of the job

Pay

Low pay will usually be associated, ceteris paribus, with high turnover and wastage rates. A plausible explanation for this could be that low pay produces job dissatisfaction which leads the employee to the decision to leave. It should be noted that pay is not equivalent to satisfaction with pay. "Pay is an objective variable; satisfaction with pay is a subjective variable. A high amount of pay in most instances probably produced a high amount of satisfaction with pay. Whether pay produced satisfaction or not, the two terms should be distinguished" (Price, 1977). The negative causal relationship between pay and staff turnover has been supported by a significant number of empirical and theoretical studies (Hill, 1962; Ronan, 1967; Stoikov and Raimon, 1968; Burton and Parker, 1969; Armknecht and Early, 1972; Pencavel, 1972; Hellriegel and White, 1973; Bowey, 1974; Federico et al., 1976; Williams et al., 1979).

It is argued that pay may be less important in social work than in most other forms of employment. For example, Loewenberg (1979) notes that "pay may be less important a reason for turnover among professionals, generally, and among social workers, in particular, especially since their vocational choice is often made for reasons other than pay. Nevertheless it appears reasonable that pay still possesses a considerable degree of attractiveness to them". Whilst non-pecuniary characteristics of the job are probably more important

in social work than in many other jobs, there is evidence to suggest that local authorities and voluntary organisations have raised or attempted to raise salary levels to attract and retain social work staff (e.g. Sumner and Smith, 1969; Younghusband, 1978) and that many voluntary bodies currently find it difficult to match local authority salary scales and thus lose staff as a result (National Corporation for the Care of Old People and Age Concern, 1977). This comes about for at least two main reasons. First, because of the disaprity between supply and demand (excees demand and inadequate supply) of manpower in the personal social services there is keen competition between the employing bodies. Second, because social workers undergo training, which has to be viewed as a form of human capital investment that require pecuniary return to its owner, voluntary bodies cannot attract and retain staff without paying competitive salaries. It is clearly taking the reliance on the vocational or altruistic motive too far when low salaries mean staff shortages and perhaps poor quality care. Support for the importance of the pay effects on turnover and wastage of social workers is found in Loewenberg (1979). He sited a number of social worker studies which confirm the negative association between pay and staff turnover. For example, Tissue (1970) suggested that pay is important among employees aged 30 years or older; 34% of those employees thought about leaving because of inadequate pay and benefits. Other researchers (Tollen, 1960; Sali, 1978) have indicated that "pay is a major consideration for men but not necessarily for women. According to Sali, one out of every five Israeli social workers who left his job did so because of a better job outside of social work" (Loewenberg, p.629).

The above discussion suggests that the axiom "money talks" has some validity in the consideration of social worker turnover.

Career structure

Lack of career structure will probably result in high turnover and wastage rates. One explanation for this relationship lies in the fact that promotion is important for some employees and they move to other jobs in order to secure it. In particular, promotion is very important to those who are better educated, because education is viewed as a form of human capital investment which requires pecuniary and no-pecuniary returns to its owner, as I argued elsewhere. In other words, promotional opportunity is expected to produce job satisfaction which reduces turnover (Knowles, 1964; Porter and Steers, 1973; Price, 1977; Loewenberg, 1979). Therefore, differences in promotion prospects and career policies between social work employers, and particularly between local authorities, are expected to produce differences in turnover and wastage rates.

The negative relationship between career structure and turnover has been supported by many investigators. For example, Saleh et al. (1965) in a study of nurses' turnover, have found that the lack of promotion was a reason for leaving the hospital. Ronan (1967) noted that some employees mentioned promotion as a reason for leaving. Marsh and Mannari (1977) in an attempt to predict turnover on the basis of causes and correlates, observed that promotion is negatively related with turnover, but not significantly. Price and Mueller (1981) studying the effects of causes and correlates on turnover of nurses, did not find a significant reltionship between turnover and promotional opportunity, but they did find a very significant positive relationship between job satisfaction and promotional opportunity.

It should be noted that promotion is associated with pay, since promotion usually implies increase in pay. Therefore it may be difficult - without a proper explanatory model and statistical technique - to separate out their effects. Three reviews considered promotion together with pay and supported the negative relationship between them and turnover (Porter and Steers, 1973; Loewenberg, 1979; Mobley et al., 1979).

Supervision

Supervisory practice is based on the characteristics and attitudes of supervisory staff and on some aspects of organisational structure (centralisation, communication, etc.) which are adopted by employers in order to retain control over staff. It is assumed that every employee requires some level of independence and control over his work situation (Pettman, 1973). "The greater the consistency of supervisory practices with employee independence, the less the conflict between job characteristics and individual self-image" (March and Simon, 1958), and consequently the lower the turnover and wastage rate. "The lower the level of autonomy and the less control workers have over their work, the greater the probability for a high turnover rate" (Loewenberg, 1979). In other words poor supervision will probably result in high turnover rates. Many investigators of the leaving process have found that the manner in which supervisors execute their duties can affect the level of turnover. For example,

Guest (1955) examined the relationship between supervisors and 18 production workers who had left their jobs. The comments made by the leavers during exit interviews showed that supervision was a source of job dissatisfaction. Saleh et al. (1965) observed that poor supervision has important effects on nurses' turnover. They noted the following statements of leavers, in the exit questionnaire returns, which show the nature of this factor:

Lack of adequately informed supervision

No backing from supervisor

Lack of understanding and co-operation

No respect - unfair treatment - favouritism

Kermish and Kushin (1969) have noted that poor supervision was the fourth most cited complaint mentioned during the interviews of social workers who left their jobs. Loewenberg (1979) reported a number of empirical studies on social work turnover, which have found non-significant relationships between poor supervision and turnover. Nevertheless he supports the generalisation that "the more unsatisfactory the supervision which social workers receive, the greater the probability for higher rates of turnover", and explains the non-significance of this relationship by saying that social workers learn how to cope with poor supervisors during their professional studies.

Support for the influences of poor supervision on turnover is found in previous reviews of the literature (Knowles, 1964; Pettman, 1973; Porter and Steers, 1973; Mobley et al, 1979), where a number of empirical studies are cited, which reported a significant relationship between poor supervision and turnover.

Working conditions

The term "working conditions" refers to the facilities available for doing the work, and regulations of the organisation that help employees to carry out their task.

The studies which examined the relationship between working conditions and turnover, supported the view that unsatisfactory working conditions are likely to produce high turnover rates. Kermish and Kushin (1969) tabulated the cited complaints mentioned during the interviews of social workers who had left, and noted that first came "overwhelming job demands" (in order of frequency) and third "inability to be of real help to client".

Support for the relationship between working conditions and turnover is found in three reviews. For example, Knowles (1964) and Pettman (1973) cited a number of studies (Baldamus, 1951; Long, 1951; Disney, 1954) which argued that good working conditions are conducive to low turnover levels especially for new employees. Loewenberg (1979) stated that "turnover rates will usually be high when working conditions make for impossible job demands or make it impossible for social workers to be of real help to their clients". In support of this generalisation, Loewenberg cited a number of social worker studies (Kermish and Kushin, 1969; Tissue, 1970; Berlin et al. 1973; Fisch, 1976).

Aspects of organisational structure

As I argued earlier, aspects of organisational structure such as centralisation, communication, formalisation and diversity, are adopted by employers in order to retain control over its staff. Researchers have indicated that these aspects are important causes of staff turnover and wastage.

Centralisation (the degree to which power is distributed amongst positions). "In an organisation the maximum degree of centralisation would exist if all power were exercised by a single individual; conversely, the minimum degree of centralisation would exist if all the power were exercised equally by all members of the organisation" (Price, 1977, p.76). Clearly a high degree of centralisation reduces the freedom of employees to implement their assigned tasks. It is argued that workers tend to feel alienated in organisations with a high degree of centralisation (Davies and Knapp, 1981, p.80). This produces job dissatisfaction, which results in staff turnover and wstage. Therefore, "successively higher amounts of centralisation will probably produce successively higher amount of turnover" (Price, 1977, p.76). In support of this generalisation, Price cited a number of studies (Farris, 1971; Argyris, 1973; Goodman et al.. 1973; Lawler, 1973).

Communication (the degree to which information is transmitted among employees in an organisation). "The transmission of information assumes many forms in organisations: formal conferences between superordinates and subordinates, informal discussions among peers, publication of various types of newsletters, etc" (Price, 1977, p.73). The way in which communication between personnel takes place, is expected to produce differences in job satisfaction, and consequently on staff turnover and wastage. For example, the receipt of information, in particular job-related information, could be expected to have positive effects on the employee's attitudes. Price (1977) stated that "successively higher amounts of communication will probably produce successively lower amounts of turnover".

Formalisation (the degree to which rules and regulations constrain the manner in which tasks are carried out by employees). There is some evidence that the presence of rules and regulations is associated with a dissatisfaction with work tasks and with co-workers (see Davies and Knapp, 1981, p.81). Kakabadse and Worrall (1978) have found that formalisation produces job dissatisfaction to social work staff. Therefore, the higher the degree of formalisation the greater the probability of a higher turnover rate.

Diversity (the degree to which tasks are shared between staff in relation to the expertise gained by training). It is common knowledge that when employees perform tasks which are not related to the expertise gained by training, they will be dissatisfied with job, and consequently could leave their post. There are no studies which have tested this hypothesis. Nevertheless, it can be argued that the higher the degree of diversity the greater the probability for a higher turnover rate.

Other characteristics of the job

There are a number of job characteristics which may be more important in the social work profession than in most other forms of employment. For example, the attractiveness of different local authorities and areas may be a very important determinant of an authority's ability to attract and retain high calibre social work staff. Of course,

"attractiveness" is a psychological determinant of the combination of the individual's existing links with areas, and the attributes of the authority itself (Bebbington and Coles, 1978). Also factors such as "location of work", "staffing ratios", and "routinisation" are believed to produce differences in turnover and wastage rates among social work employees. A recent study of staff vacancies and turnover in British old people's homes by Knapp and Harissis (1981) indicates that staff vacancy and turnover rates are significantly affected by factors such as "staff accommodation", "dependency characteristics of residents","home design and size", and "home siting" (in relation to amenities for residents or staff). Finally, the factor "staff stress" is believed to have important influences on turnover and wastage of social work staff. Some evidence for the effects of staff stress on social work turnover is found in Berridge (1981). He noted that "staff stress" in residential homes for children arises from three main sources: "the unmet needs and problems presented by deprived and difficult children, the continuous nature of residential care, and the inner needs of staff".

External characteristics

External characteristics are factors over which neither the employer nor the employee can exercise control (at least in the short to medium term), and foremost among them are aspects of the relevant labour markets and features of the area in which the employing agency is located.

Level of unemployment

Turnover and wastage rates tend to be higher in periods with low levels of unemployment and lower in periods with high levels of unemployment. A plausible explanation for this lies in the fact that employees who are dissatisfied with their job and intend to change it, can find a new one more easily when jobs are plentiful than when they are scarce. The unemployment rates are indicators of the opportunities for alternative employment and will be regarded as correlated with turnover. It is expected that both local and national unemployment rates will have important effects on social work turnover and wastage. For example, the markets for manual, domestic and catering staff of residential homes are essentially local, whereas the markets for care and supervisory staff may be regional or national. The greater the degree of specialisation the broader the area over which "a market" will be defined." The negative relationship between level of unemployment and turnover has been supported by March and Simon, 1958, Behrend, 1953; Pettman, 1975; Woodward, 1976. Also support is found in four literature reviews (Knowles, 1964; Pettman, 1973; Price, 1977; Mobley et al., 1979).

Vacancy rates

High vacancy rates will probably produce high turnover and wastage rates. In order to explain this relationship, we have to distinguish to extra-organisational and intra-organisational vacancy rates,

because they affect turnover in different ways. For example, extra-organisational vacancy rates have "pull" effects on turnover and wastage, since they are indicators of the alternative jobs available. It is accepted that as the extra-organisational vacancy rates increase it is likely to increase the turnover and wastage rates. This relationship has been supported by Armknecht (1974) and Woodward (1976). The extra-organisational vacancy rates are indicators of opportunity. On the other hand intra-organisational vacancy rates have "push" effects on turnover and wastage, since a high vacancy rate implies greater pressure of work to employees remaining with the organisation, and this produces dissatisfaction with the job which is likely to lead them to the decision to leave. In other words as intra-organisational vacancy rates increase so turnover and wastage rates will increase.

Sector of activity

It is recognised that the sector of activity is associated with turnover and wastage. For example, the National Economic Development Office (1969) reported that turnover rates were higher in the hotel and catering establishments than in manufacturing industries. Levine (1957) examined turnover among nursing personnel in general hospitals by ownership (i.e. Government, Church, other) and has found that church-owned hospitals had the highest turnover of all other groups. Price (1977) in his review supports that non-government organisations

usually have higher turnover rates than government organisations. Also supportive evidence for the association between sector of activity and turnover or wastage is found in a review by Pettman (1975). The sector does, of course, have no reliance in the empirical work reported below, since all analyses are conducted within a single sector.

The geographical location

The geographical location of the organisation is likely to produce variations in turnover and wastage rates. One explanation for this could be that employees tend to be attracted to jobs in larger cities, and this implies higher turnover and wastage rates in rural areas. Some evidence to support the association between the geographical location of the organisation and turnover or wastage is found in the reviews by Pettman (1975) and Loewenberg (1979). It should be noted that geographical location is highly correlated with other external characteristics, such as unemployment and vacancy rates, community indicators (e.g. economically active population, migration etc.) and population density.

Opportunity and other external factors

The term "opportunity" refers to the availability of alternative jobs. Turnover and wastage rates tend to be higher when opportunity is high. The range of opportunity is related to vacancy and unemployment rates,

to the composition of the population, and other community indicators (immigration, economically active population etc). That is, it constitutes the difference between supply and demand. Price (1977) pointed out that both supply and demand must be taken into consideration in measuring opportunity. For instance, when 500 applicants are seeking 500 vacant jobs, the opportunity is greater than when 2000 applicants are pursuing the same 500 jobs. The positive relationship between opportunity and turnover has been supported by empirical and theoretical studies (March and Simon, 1958; Burton and Parker, 1969; Bowey, 1972; Price and Mueller, 1981). Also supportive evidence for this relationship is found in Loewenberg (1979). He noted that "dissatisfaction will lead to turnover only when opportunity is high. When no suitable alternate roles are available, workers will generally stay on in their job, even if they are dissatisfied".

As argued above the opportunity variable is an intermediate one which intervenes between intention of leaving and turnover. It can be seen in Figure 2.3 that the opportunity variable is important only when employees are not satisfied with their job.

Employee job attitudes

Employee job attitudes reflect the individual's orientation towards all aspects of the job. Employees with a positive orientation (i.e. those who like more aspects than they dislike) are satisfied and employees with a negative orientation (i.e. those who dislike more aspects than they like) are dissatisfied. In other words the employee's feeling toward the job (i.e. the overall job satisfaction) is the product of a number of specific job characteristics.

Job satisfaction is defined as the positive orientation of an individual towards the work role which he presently occupies (Vroon, 1964). Smith, Kendall and Hulin (1969) defined job satisfaction as a function of the difference between what is expected as a fair return and what is experienced. Price (1977) defines job satisfaction as "the degree to which the members of a social system have a positive affective orientation toward membership in the system".

The degree of job satisfaction can be measured by multiple index scales. For example, Kunin (1955) developed the General Motors Facets scale which assesses feelings toward the job in general. Smith et al. (1969) developed a five scale index, called the "Job Descriptive Index", which measures satisfaction over five aspects: the work itself, the supervision, the pay, the co-workers, and the opportunities for promotion. Price (1977) views satisfaction as a product of pay, integration, instrumental communication, formal communication, and centralisation. Kakabadse and Worrall (1978), investigting the relationship between aspects of organisational structure and job satisfaction as experienced by personnel employed in nine social service departments, have indicated that measures of centralisation and formalisation, were significant predictors of job satisfaction. Personal characteristics are likely to be associated with variations in employees' attitudes toward the job. As Dunnette et al. (1967) argue "people differ in what they view as satisfying and dissatisfying; what is one man's meat may be another man's poison". Seybolt (1976) in a study of work satisfaction, observed that the relationship between characteristics of the work environment (pay, job variety, task complexity) and the level of employee satisfaction are moderated by employee education level.

In recent years a considerable amount of research has been undertaken to investigate the relationship between job satisfaction and turnover or wastage. There is evidence of a negative reltionship between job satisfaction and turnover, no matter how job satisfaction has been measured. For example, Hulin (1968) examining the effect of job satisfaction (with pay work, promotion, supervision, co-workers) on turnover, found that changes in job satisfaction levels due to improvement in pay and promotion policies resulted in a reduction of turnover rates. A Department of Health and social Security (1978) study of residential staff observed that reasons for staff leaving were associated with job dissatisfaction, for instance dissatisfaction for the house staff was largely associated with lack of autonomy. Williams et al. (1979), in a study of turnover among ancilliary staff in two London hospitals, found that overall job satisfaction (a measure derived from responses to questions concerning the work environment and organisational factors in general, i.e. physical working conditions, hours, pay, pressure of work, interpersonal relations, supervision, communications and the job itself) did predict subsequent individual leaving behaviour. Loewenberg (1979) in a review concerning social work turnover, cited a number of studies which support the negative relationship between job satisfaction and social work turnover (Meyer, 1971; Ryan, 1972; Smith, 1972; Hanna, 1975; Rosato, 1975; Levin, 1976). Also the negative relationship between job satisfaction and turnover has been supported by Ross and Zander (1957), Knowles (1964), Porter and Steers (1973), Boulian (1974), Kraut (1975), Wynn (1975), Mobley (1977), Price (1977), Freeman (1978), Mobley et al. (1979), Mowday (1981), Price and Mueller (1981). Thus job characteristics and turnover are again systematically related, through job satisfaction.

2.4 Conclusion

In recent years staff turnover has been the subject of research, by economists, psychologists, statisticians and others. Whereas a great many important variables associated with staff turnover have been identified (e.g. correlates, causes, and intervening variables) a number of research problems still arise in the study of staff turnover. For example, the measurements which have been used to assess the amount of turnover are in general biased because they are based on available data only. The majority of studies do not take into account the differences in the probability of leaving produced by personal characteristics. Furthermore, it will be seen in chapter 3 that most of the models which have been used are not sufficiently well developed. Pettman (1973), in a review of staff turnover studies, identified three main criticisms, namely the calculation of labour turnover, the paucity of integration of disciplines and the paucity of a rigor in the empirical approach. With reference to the first and second criticisms, he pointed out that "many of the studies fail to state exactly how turnover was measured thus obviating meaningful comparisons with other studies dealing with the same factors", and that "many specialists have let their specialism rule their approach, to the exclusion of the factors pursued by other specialists". With reference to the third criticism, he noted that "the majority of studies cover only a few of the factors associated with turnover. Obviously, not all factors can be controlled in a single study, but those factors not controlled should at least be explicitly stated by the authors". Also he noted that many of the studies do not give the sampling frame, possible biases, and the statistical significance of their results.

The extant literature indicates that turnover behaviour varies in degree from one form of employment to another and between different groups of employees. There are factors which might be very significant predictors of staff turnover in one form of employment, but not related at all with another form of employment. Therefore, beside the basic factors which have been identified by the literature (e.g. pay, promotion, working conditions) it is necessary to examine specific factors which are related with the organisational type under investigation. For example, in a study of turnover for nurses, routinisation and nature of work might be more important factors than pay or promotion. In a study of social work turnover, factors such as staff accommodation, staffing ratios, autonomy, client dependency or other client "problems and characteristics" might be more important than pay or promotion.

In this thesis, I attempt to avoid or minimise the research problems discussed above, with a further purpose to highlight useful methods for the study of turnover. For example, in the case of turnover measurements, I use the "turnover rate of the total employment" which indicates the total number of employees who are exposed to turnover during the period of study, and is calculated by the following formula

$$\text{Turnover rate (total)} = \frac{\text{No. of leavers during the period}}{\text{Total number of leavers and stayers during the period}}$$

This measurement seems more reasonable than other measurements because it minimises influences due to recruitment during the period of study (see section 2.2). Further this measurement can be adjusted to account for the differences in personal characteristics (see chapter 6). In the case of statistical methods, which constitute the backbone of an analysis, I use a relatively under-used and powerful technique, the method of logit analysis. This is vastly superior in every respect bar computational feasibility to multiple regression analysis which yields unreliable results when the dependent variable is a dichotomous one (see chapter 5).

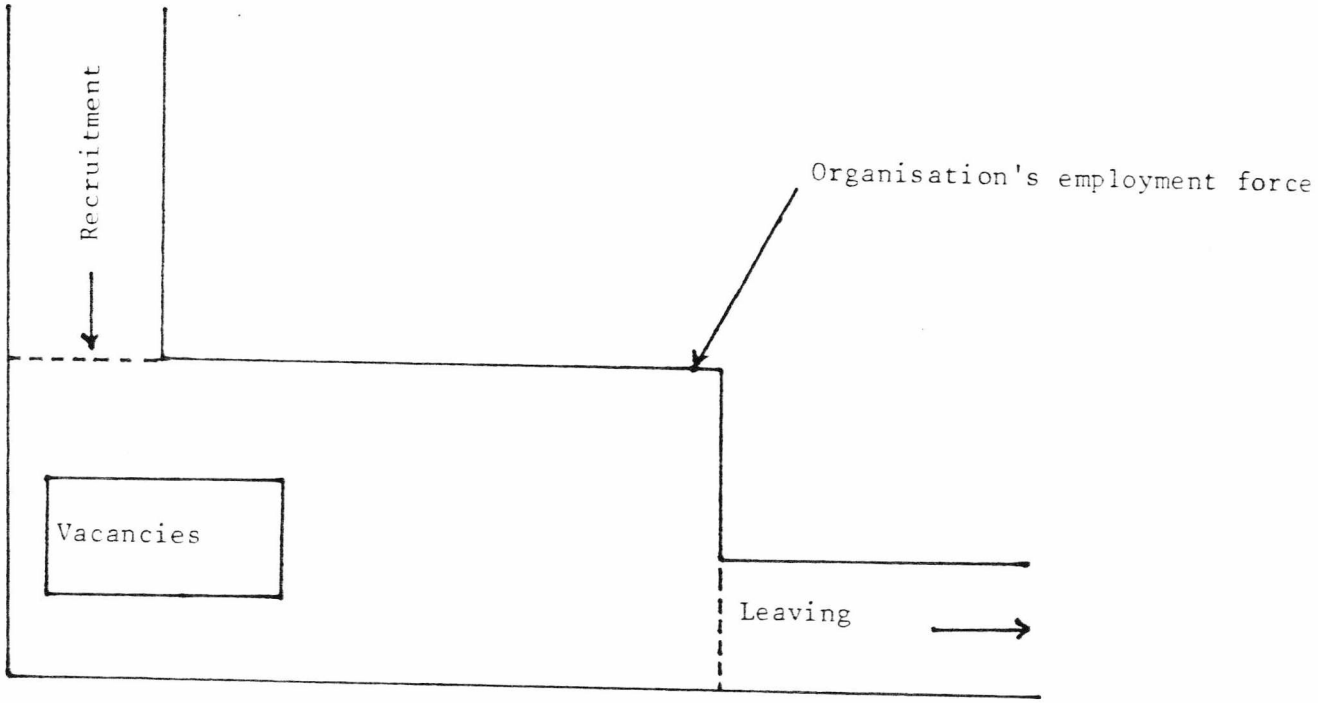

Figure 2.1 : Movement of employees into and out of the organisation and vacant posts.

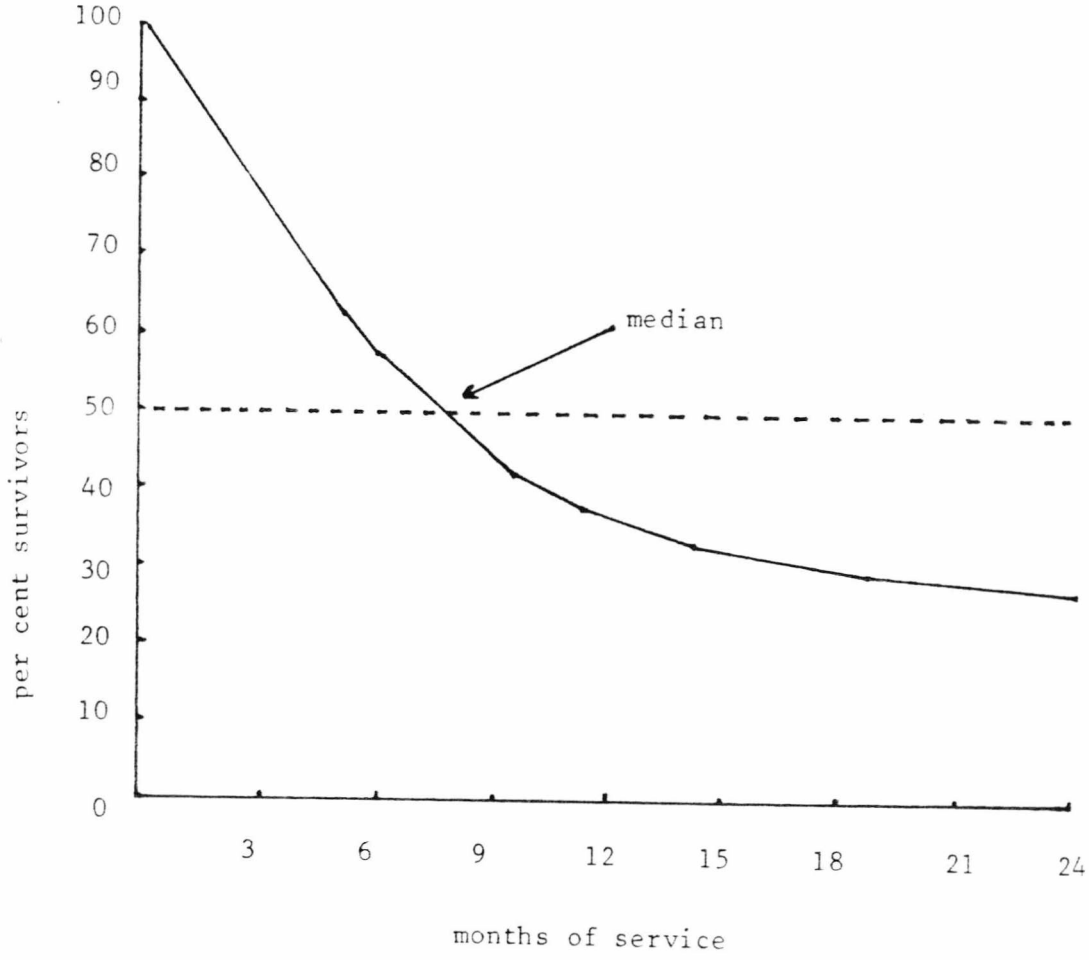

Figure 2.2: Survival of leavers curve

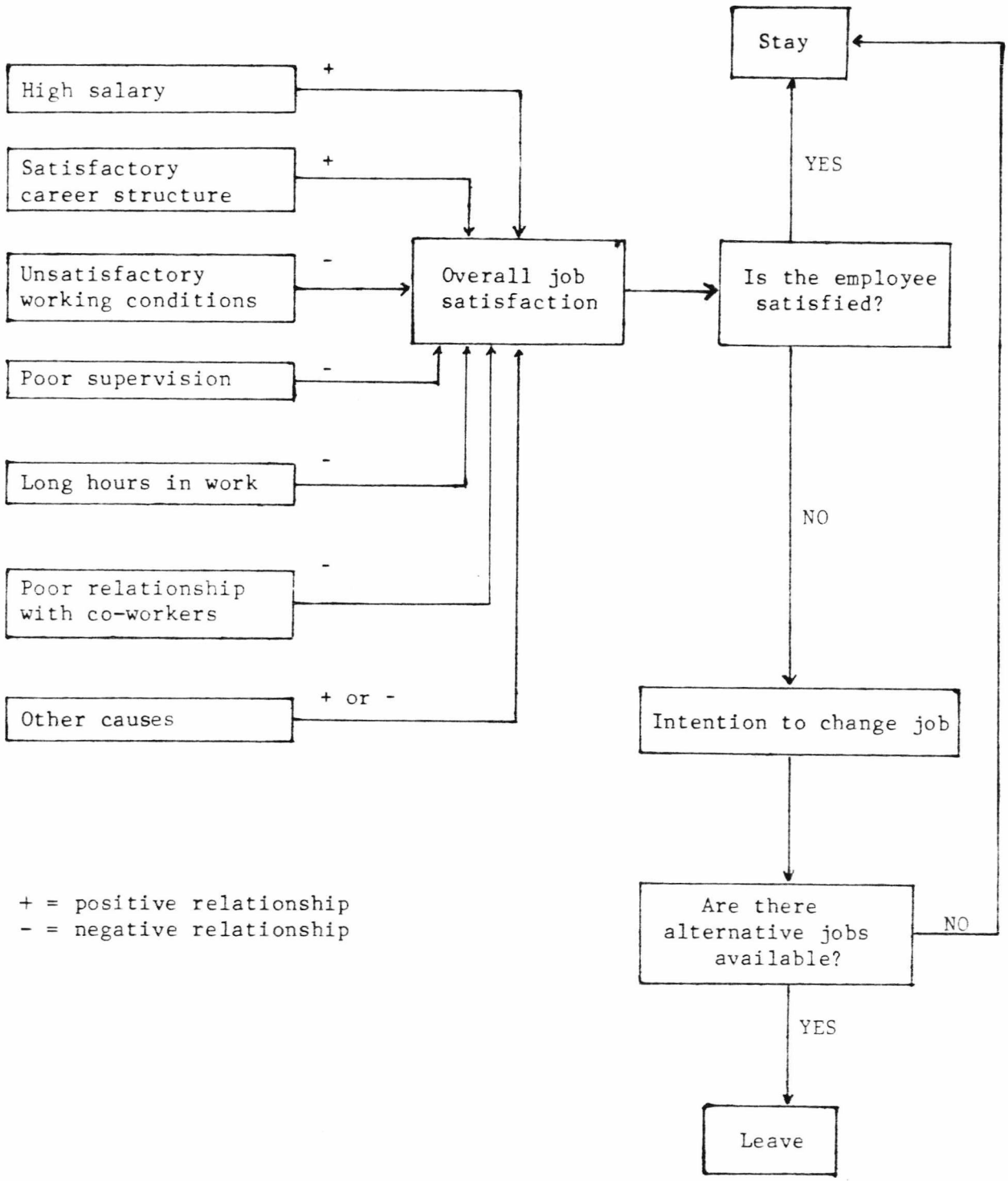

Figure 2.3: Relationship between causes, job satisfaction, opportunity and turnover.

Table 2.1 : Comparison Between Turnover Rates

	No. of employees at the beginning of the period	No. of recruited employees during the period	No. of leavers during the period L		No. of employees at the end of period	Turnover Rates
			No. of leavers of recruited employees	No. of leavers of the employment in the post at beginning		
	E_1	R	L_1	L_2	E_2	%
A	100			50	50	W_1=66.7 W_2=50.0 W_3=50.0
B	100	50	50	50	50	W_1=133.3 W_2=100.0 W_3=66.7
C	100	100	50	50	100	W_1=100.0 W_2=100.0 W_3=50.0
D	100	100	100	50	50	W_1=200.0 W_2=150.0 W_3= 75.0

Table 2.2 : Survival Table for a Cohort of New Entrants During a Period of Twelve Months

Length of service (months)	Number of leavers	Survivors	Turnover rate% (Silcock)	Turnover rate % (Rice et al)	Survival rate %
Entrants = 200					100.0
Under 3	50	150	25.0	25.0	75.0
3 and under 6	25	125	16.7	12.5	62.5
6 and under 9	20	105	16.0	10.0	52.5
9 and under 12	15	90	14.3	7.5	45.0

CHAPTER THREE

THEORIES AND MODELS OF THE TURNOVER PROCESS

In the previous chapter, I described staff turnover measurements and distinguished three conceptual categories of variables associated with turnover - correlates, causes and intervening variables - which have been grouped under four heads - characteristics of the employee, characteristics of the job, external characteristics, and employee job attitudes.

In order to make clear the inter-relationships among these variables and their influences on staff turnover and wastage, and increase the level of understanding of the turnover process, it is essential to present briefly theories and models which have previously been suggested and then examine shortcomings of the existing models or make suggestions that will be useful for the turnover study.

3.1 Theories of the turnover process

(i) The representation of turnover as a social process

A few years ago, Rice et al. (1950) suggested an approach to the problem of staff turnover, by representing the way in which employees pass through an organisation as a distinctive social process with a pattern of its own. Their attention was directed to the relationship between entrants and leavers rather than to that between leavers and numbers employed, and the method of study was to follow up entrants rather than to investigate leavers.

According to Rice et al. the turnover process has an initial phase during which it gets under way, a middle phase of operation, and an end phase when relative stability has been reached. These three phases may be considered as a series of connected regions in each of which the process has different characteristics which are determined by the forces in each region. The three phases represent three periods through which any group of entrants must pass:

(a) the period of induction crisis, during which a certain number of casualties result from the first mutual interaction between the organisation and the entrant group,

(b) the period of differential transit, during which those who have survived learn the ways of life of the organisation and discover how far they have any place in it,

(c) the period of settled connection, when those who have survived the first two periods take on the character of quasi-permanent employees (tending to stay on until retirement).

The representation of turnover as a social process can be criticised in some way. According to Rice et al. any group of entrants must pass through the three periods. This is not always true, there is the possibility that some of the entrants may bypass the induction crisis (arrow a, Figure 3.1) or the possibility that some of them may move directly into the period of settled connection (arrow b). Also there is the possibility that entrants who establish a settled connection may move to the induction crisis (arrow c) and leave the organisation (Price, 1977). Nevertheless, this theory of turnover as a social process could be an important element for the study of turnover.

(ii) The construction of a general theory of turnover by analogy with life tables

Silcock (1954) suggested the construction of a general theory of staff turnover by analogy with life tables, in which leaving of employment is regarded as equivalent to "death" and length of service as equivalent to "age". For example, the number of survivors to age X corresponds to the number remaining in employment at length of service X, the number of deaths between ages X and X+1 corresponds to the number of leavers between length of service X and X+1, and so on. Corresponding to the "force of mortality" is the "force of separation" measured by a rate of staff turnover equivalent to the life table death-rate. Silcock pointed out that the rate of turnover will differ from one group of employees to another because job satisfaction differs from one group to another, it seems unrealistic to suppose that the net effect of all factors pertaining to job characteristics can be the same for all employees. He stressed that more attention should be given to employee characteristics.

(iii) Turnover as a renewal process

Bartholomew (1959) considered labour turnover as a renewal process. He introduced the idea of a self-renewing aggregate to which the methods of renewal theory are applicable, by considering a group of entrants starting its service at time T=0, and supposing that the size of the group is kept constant by replacing each leaver. To see the

relevance of renewal theory to the turnover of employees in an organisation, consider a one-man firm (the generalisation to an n-man firm is easy), and suppose that the first employee stays in his job for length of time X1; he is replaced by a successor who stays for length of time X2. Continuing in this way there will be a succession of completed lengths of service X1, X2, X3, ..., and replacements will have to be made at time X1, X1+X2, X1+X2+X3+..., and so on.

There are two aspects of the renewal process which have particular relevance in manpower applications. Firstly, it can be used to predict recruitment needs (i.e. replacements which are required in a specific period of time). Secondly, it can be used to assess the value of the crude turnover rate as a measure of stability (i.e. to find when crude turnover rates can be used with safety and when their use may lead to serious error). Bartholomew pointed out that the crude turnover rate is influenced very much by the length of service structure of a group of employees. Therefore, it cannot be used as a valid method of comparing the stability of groups of employees unless they are homogeneous with respect to length of service.

3.2 Models for the turnover process

(i) Conceptual models

Recently, several investigators have attempted to throw light on intermediate linkages in the satisfaction-turnover relationship by constructing conceptual models. For example, Mobley (1977) attempted

to present a comprehensive understanding of the psychology of the withdrawal decision process. He suggested several of the possible intermediate steps which take place between the experience of job dissatisfaction and a decision to leave. One of the primary consequences of job dissatisfaction is to stimulate thoughts of leaving. These thoughts lead to an evaluation of the utility of searching for alternative work, then to the intention to search for alternatives. The intention to search is followed by an actual search and the evaluation of work alternatives. If no alternatives are found, the individual may continue to search, re-evaluate the existing job, simply accept the current state of affairs, decrease thoughts of leaving or engage in other forms of withdrawal behaviour (e.g. absenteeism, passive job behaviour). The evaluation of alternatives is followed by a comparison of the present job to alternatives. If the comparison favours the alternative, it will stimulate a behavioural intention to leave, followed by actual leaving (see Figure 3.2). Mobley acknowledged feedback loops and that there may be individual differences in the number and sequence of steps in the withdrawal decision process.

In a later study Mobley et al. (1978) developed a reduced form of the above model in which job satisfaction was hypothesised to directly affect thinking of leaving, intention to search, and intention to leave. Thinking of leaving should affect directly intention to search, and intention to search should affect intention to leave.

Only intention to leave was proposed to affect turnover directly. In addition the probability of finding an acceptable alternative job should affect intentions to search and leave, and a standardised composite of age and tenure should affect directly the probability of finding an acceptable alternative and job satisfaction (see Figure 3.3). Mobley et al. tested this model by employing the technique of multiple regression analysis, while the dependent variable was dichotomous. Also Miller et al. (1979) supported the validity of this model by employing the multiple regression technique. Unfortunately, regression techniques are wholly inapplicable in the case of dichotomous dependent variables and can lead the researcher to draw incorrect inferences from the results (see chapter 5). Missiakoulis et al. (1980) in a re-estimation of Mobley's model, employed alternative techniques (logit, probit) and found that the alternative techniques modify the conclusions of these authors slightly. Furthermore, the exclusion of other personal characteristics such as sex, education, etc., which are believed to affect the probability of finding an acceptable alternative and job satisfaction, constitute a deficiency of the model. Mobley's turnover model will be very useful for the study of turnover behaviour once it is coupled with suitable estimation techniques.

A descriptive model of the turnover process has been proposed by Steers and Mowday (1981). They described in three sequential parts the linkages between job expectations, job attitude, intent to leave,

available alternatives, and actual turnover. The first part of the model describes the linkage between job expectations and job attitudes. The model begins with the individual and his or her expectations and values, since all individuals have expectations upon entering a new organisation. According to Steers and Mowday, these expectations are believed to be influenced by three categories of factors: (a) individual characteristics, (b) available information about job and organisation, and (c) alternative job opportunities. The next link in their model relates job expectations to subsequent job attitudes (including job satisfaction, organisational commitment, and job involvement) which result from the interactions of three factors: (a) job expectations, (b) organisational characteristics and experiences, and (c) job performance level. The second part of the model describes the linkage between job attitudes and intent to stay or leave. It is suggested that intent to leave or stay is affected by job attitudes and nonwork influences on staying or leaving (e.g. a spouse is limited geographically to a certain region and alternative employment is scarce). Finally, the third part of the model describes the linkage between intent to stay or leave, available alternatives, and actual turnover. Intent to leave influences actual turnover in two ways. First, it may lead an employee directly to the decision of leaving, even when alternative jobs are not available. This direct relationship could be explained due to the fact that unemployed people receive the unemployment allowance. Second, intent to leave may

influence actual turnover in an indirect way by causing the individual to stimulate search for more preferable alternative jobs. In addition alternative job opportunities are also influenced by individual characteristics and economic conditions. If an individual has no alternative job opportunities he would be less likely to leave the organisation (see Figure 3.4).

The Steers and Mowday model will be useful as a conceptual model, for a comprehensive understanding of the turnover process, but its complexity means that it cannot be readily used by managers for the implementation of manpower policies.

(ii) Empirical models

Whereas the identification of important factors which cause turnover has been proceeding quickly, the construction of comprehensive empirical models of the turnover process has lagged behind. During the past 15 years attempts have been made by some investigators to construct models which present a plausible synthesis of what is known about factors that produce variations in turnover (Farris, 1971; Price, 1977; Price and Mueller, 1981). For example, Price and Mueller (1981) proposed an empirical model which presents the relationship between turnover and a number of factors affecting it. According to Price and Mueller seven determinants (causes) have an indirect effect on turnover through job satisfaction: routinisation, integration (the degree to which an individual has close friends among organisational

members), instrumental communication (the degree to which information about the job is transmitted by an organisation to its members), promotional opportunity, pay, participation (the degree of power that an individual exercises concerning the job), and distributive justice (the degree to which rewards and punishments are related to the amount of input into the organisation). Three factors have an indirect effect on turnover through intent to stay: professionalism (the degree of dedication to occupational standards of performance), generalised training (the degree to which the occupational socialisation of an individual results in the ability to increase the productivity of different organisations), and kinship responsibility (the degree of an individual's obligations to relatives in the community in which an employer is located). Finally, the model indicates that opportunity has a direct effect on turnover (see Figure 3.5). This model will be very useful for the study of the turnover process, and will be the basis for construction of more comprehensive empirical models. However, it would appear to have three shortcomings. First, by definition job satisfaction reflects the individual's orientation toward all aspects of the job and not only toward the seven factors (e.g. routinisation, participation, instrumental communication, integration, pay, distributive justice, and promotional opportunity) presented here by Price and Mueller. Therefore, the inclusion of factors such as working conditions, supervision and other job characteristics which are thought or have been found to influence job

satisfaction, is necessary. Second, use of the multiple regression technique, when the dependent variable is dichotomous is likely to lead to incorrect inferences. Therefore, any estimation of the parameters of this model will be robust only when appropriate statistical techniques are used. Third, the inclusion of personal characteristics in an empirical model used to explain individual leaving, that is, to indicate why an individual leaves and not who leaves has no meaning. As Price and Mueller argue, personal characteristics such as age, length of service, etc. are not included in their model "because they do not indicate the means whereby they produce variations in turnover". The authors recommend the inclusion of personal characteristics, "if the researcher's goal is to arrive at a set of variable that maximally predict who will and who will not leave the organisation". However, "if the goal is to explain turnover, that is, to indicate why those who are younger and those with short service records leave more often, one must look toward theoretically relevant constructs", such as opportunity, routinisation, participation, integration, pay etc. Nevertheless, it is necessary to adjust the empirical model for differences produced by personal characteristics, because the effect of factors such as job characteristics and external characteristics on individuals differ (see chapter 2).

In order to emphasise the necessity of adjustment of an empirical model, when the groups of employees involved in turnover measurements which constitute the dependent variable of the model are heterogeneous with respect to personal characteristics, I will present here the following example.

Suppose that X employees all with the same personal characteristics left an organisation. It is apparent that the effects of job characteristics and external characteristics are the same on this group of employees. If we are interested to find out the association between turnover of this homogeneous group of employees and factors such as job characteristics and external characteristics, we have to construct the model presented in Figure 3.6. This model indicates a direct relationship between turnover and factors affecting it, under the assumption that an employee who is satisfied stays and an emplopyee who is dissatisfied leaves. Furthermore, factors which are positively related with job satisfaction have negative effect on turnover (satisfied employees), and factors which are negatively related with job satisfaction have positive effects on turnover (dissatisfied employees). For instance, as pay increases job satisfaction increases and consequently turnover decreases. As routinisation increases job satisfaction decreases and consequently turnover increases. The direct relationship between turnover and factors affecting it has been examined by many investigators in the past (Hill, 1962; Burton and Parker, 1969; Waters et al., 1976: Marsh and Mannari, 1977).

Now suppose that <u>two</u> groups of employees (X1, X2) each one with the same personal characteristics left an organisation. In order to examine the association between turnover of these two heterogeneous groups and factors affecting it, we have to construct two models that

is, one with dependent variable the turnover rate of X1 employees, and the other with dependent variable the turnover rate of X2 employees (see Figure 3.7). For three, four and so on, groups of employees we have to split staff turnover by groups of employees with the same personal characteristics. In practice this is very difficult or impossible. An adjustment to turnover of employees with different personal characteristics, based on the probability of individuals leaving, will help to overcome this problem, so that a simple model could be constructed for the study of staff turnover (see Figure 3.8).

(iii) Network models

Following Bartholomew and Forbes (1979), I use the term "network models" to describe a class of models which postulate that an individual's stay in an organisation can be described in terms of passage through a network of psychological states. Such a model has been proposed by Herbst (1963). He represented turnover by means of a decision process involving the transitions shown in Figure 3.9. The five rectangles represent the states that an individual may occupy and the arrows indicate the changes of state which can occur. During the initial period, some or all entrants will be in a pre-dicision stage, they either become temporarily committed or they decide to leave. Of course, those who became temporarily committed either become permanently committed or they decide to leave.

The model shown in Figure 3.9, can be translated into a quantitative form (see Herbst, 1963, p.40). Clowes (1972) proposed a similar model which can be regarded as a special case of the Herbst model. The overall process is interpreted in terms of three states (see Figure 3.10).

In the network models an individual's propensity to leave depends on the state he is in. In other words employees in different states will have different attitudes towards the organisation and the external environment and consequently there are differences in the propensity of leaving (see Bartholomew and Forbes, 1979).

(iv) Other models

In addition to the models already described, there have been proposed several other theoretical models for the turnover process, although I do not describe them in detail here. For example, Blumen, Kogan and McCarthy introduced the mover-stayer model (see Goodman, 1961). This model is a generalisation of the Markov chain model, and assumes that there are two types of individuals in the population under consideration: (a) the "stayer" who with probability one remains in the same category during the period of study; (b) the "mover" whose changes in category over time can be described by a Markov chain with constant transition probability matrix. Bartholomew (1959) proposed the mixed exponential model, which is a version of the exponential distribution. The idea stems from observing the way in which empirical completed length of service distributions depart from the simple exponential form. Vassiliou (1976) used a Markov chain model for the description, prediction and control of turnover in a manpower system.

3.3 Conclusion

The aims of this chapter were to present the most important theories and models suggested by the past literature, each of them throwing light on the association between turnover and factors affecting it; to identify the shortcomings of these models; and to suggest approaches to the construction of empirical models of staff turnover.

The theories discussed here present the turnover process in different ways. Each one has its importance and could be the basis for model-building in the leaving process. The conceptual models presented in this chapter describe the intermediate linkages in the satisfaction-turnover relationship. These models help to understand the turnover process, but do not indicate what kind of factors produce job dissatisfaction, so as to take action for staffing policies which could reduce turnover. On the other hand empirical models could suggest several actions which have to be taken by employers in order to reduce staff turnover, because empirical models indicate what kind of factors produce job dissatisfaction or job satisfaction.

The principal shortomings of the existing models that need to be taken into account in assessing the conclusions of previous research and in constructing a model of the turnover process are:

1. Most of the existing models do not take into account the differences on the probability of leaving produced by personal characteristics.
2. Many of the turnover models have been examined empirically by inappropriate statistical methods.
3. Most of the conceptual models require special collection of data are complex and cannot be used for the implementation of manpower policies.

4. Most of the models which have been used to examine the direct relationship between job satisfaction and factors affecting it, are based only on a limited number of factors and do not take into account the differences on overall job satisfaction produced by personal characteristics.
5. Many of the turnover models focus exclusively on a limited number of causes (e.g. pay and promotional opportunity, which are usually controlled by union contracts) and ignore other causes or correlates such as unemployment rates and so on, which may lead the employee to the decision of leaving or staying.
6. Many of the conceptual models assume a one-way flow process and ignore feedback loops which serve to indicate that a dissatisfied employee cannot leave, if there are not alternative jobs available (under the assumption that the employee does not want to be unemployed).

In essence, therefore the construction of a model depends on the purpose of the study. If we are interested in finding out who is leaving then the model need only be based on the relationship between turnover and personal characteristics (see chapter 5). If we are interested in finding out why employees leave then an empirical model has to be constructed, which will be based on causes and correlates like that discussed in chapter 2. Of course, adjustment with respect to personal characteristics is necessary. If we are interested in increasing the level of understanding of the turnover process then we have to construct a comprehensive conceptual model (i.e. like these presented here, by taking into account the shortcomings stated above).

The measurements of staff turnover which constitute the dependent variable of a model should minimise the influences due to recruitment and personal characteristics, otherwise the results could lead the researcher to draw incorrect inferences. When the dependent variable of the model is dichotomous or polychotomous (but still categorical), logit or probit analysis is a much more reliable method than multiple regression techniques.

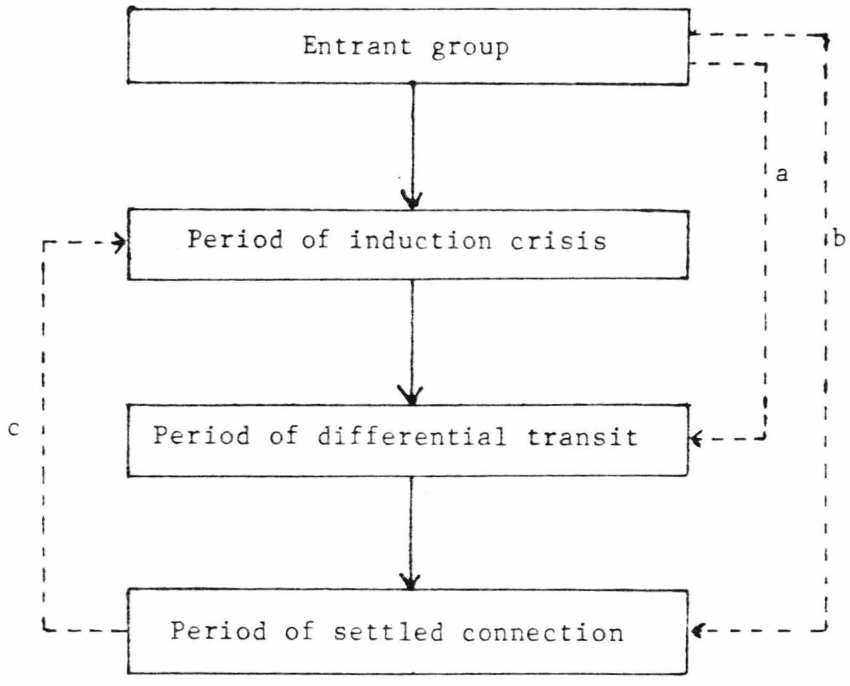

Figure 3.1: Rice's et al. theory of turnover as a social process

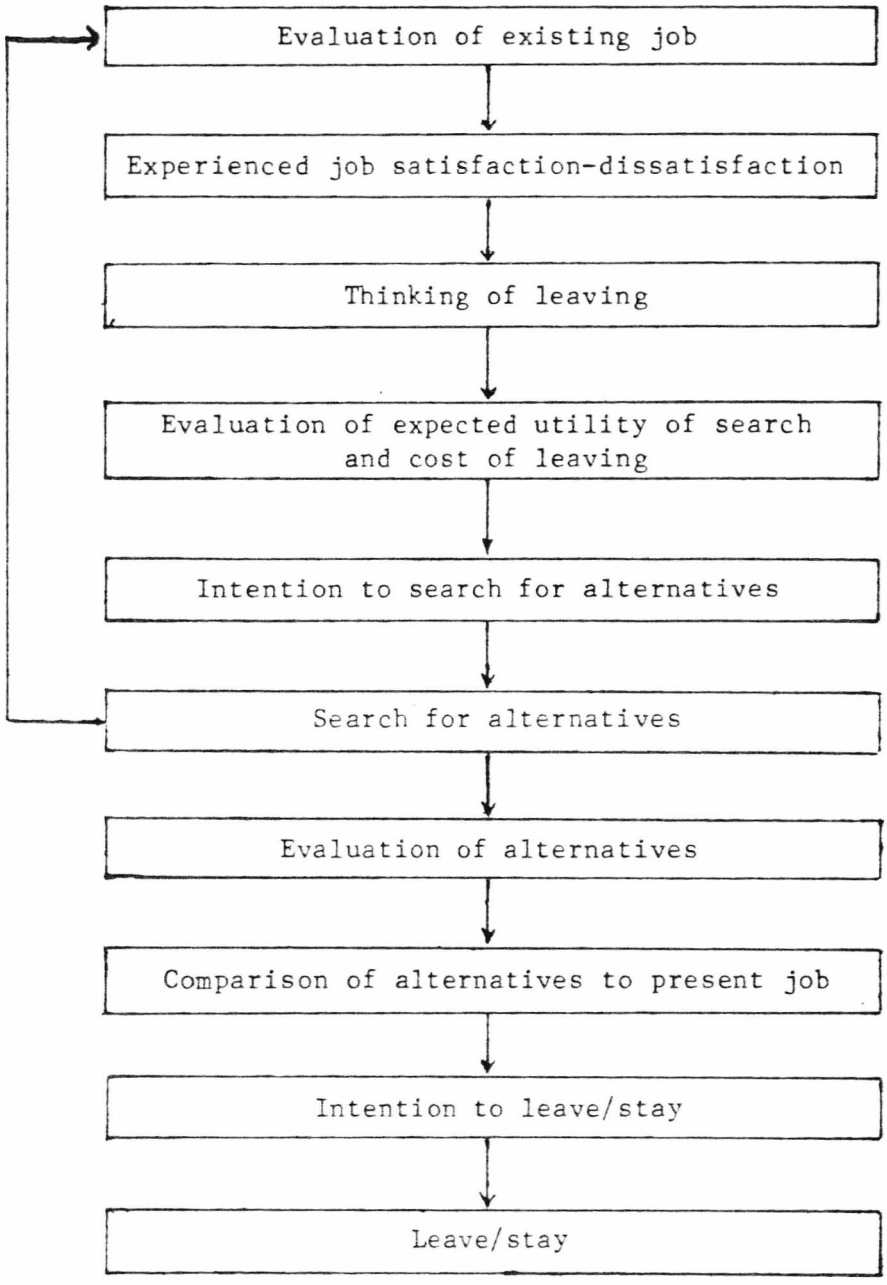

Figure 3.2: Mobley's heuristic model of the employee withdrawal decision process

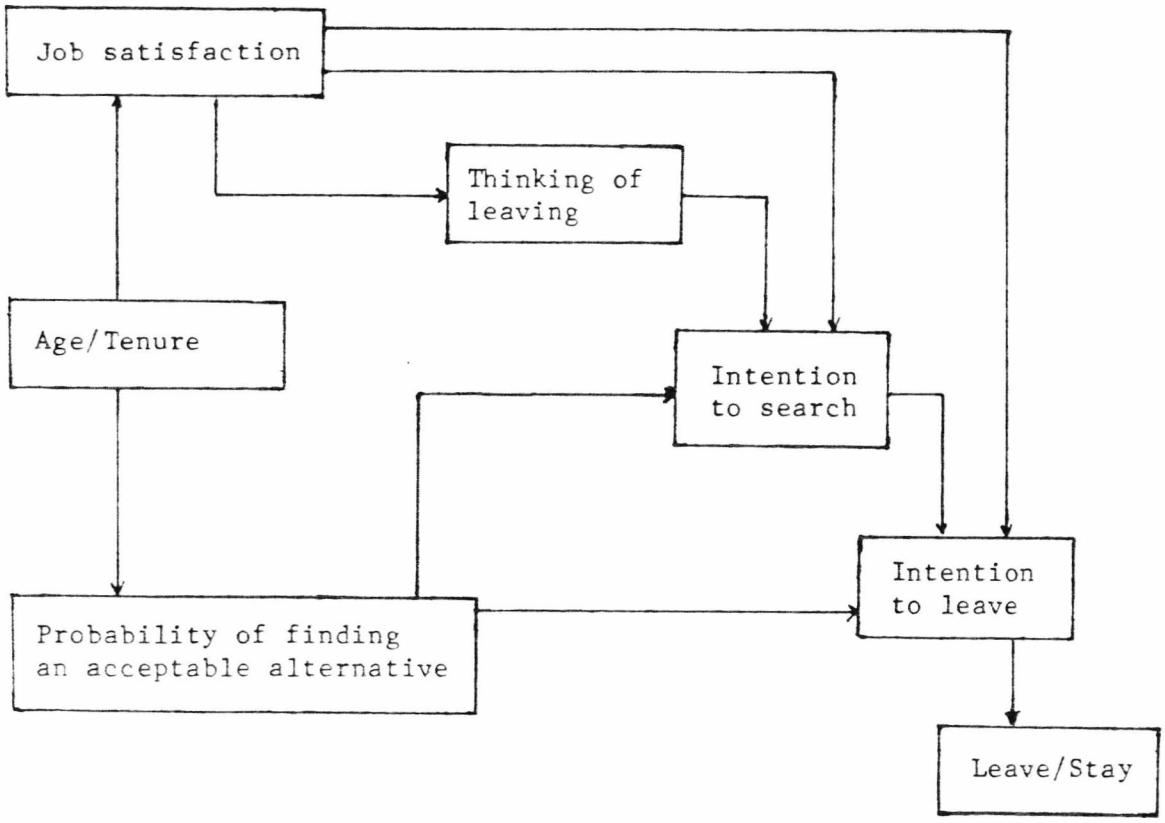

Figure 3.3: The Mobley, Horner, and Hollingsworth (1978) model of the turnover process.

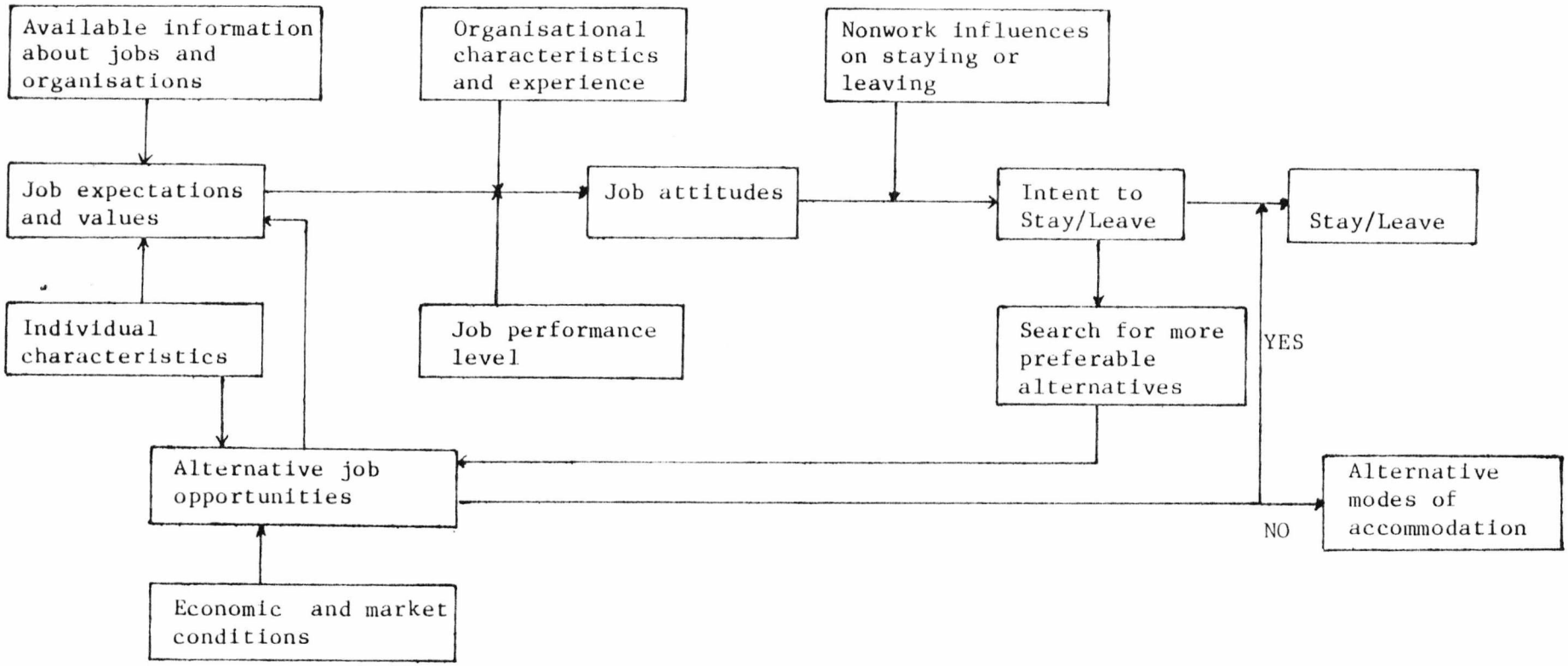

Figure 3.4: The Steers and Mowday (1981) model of the turnover process

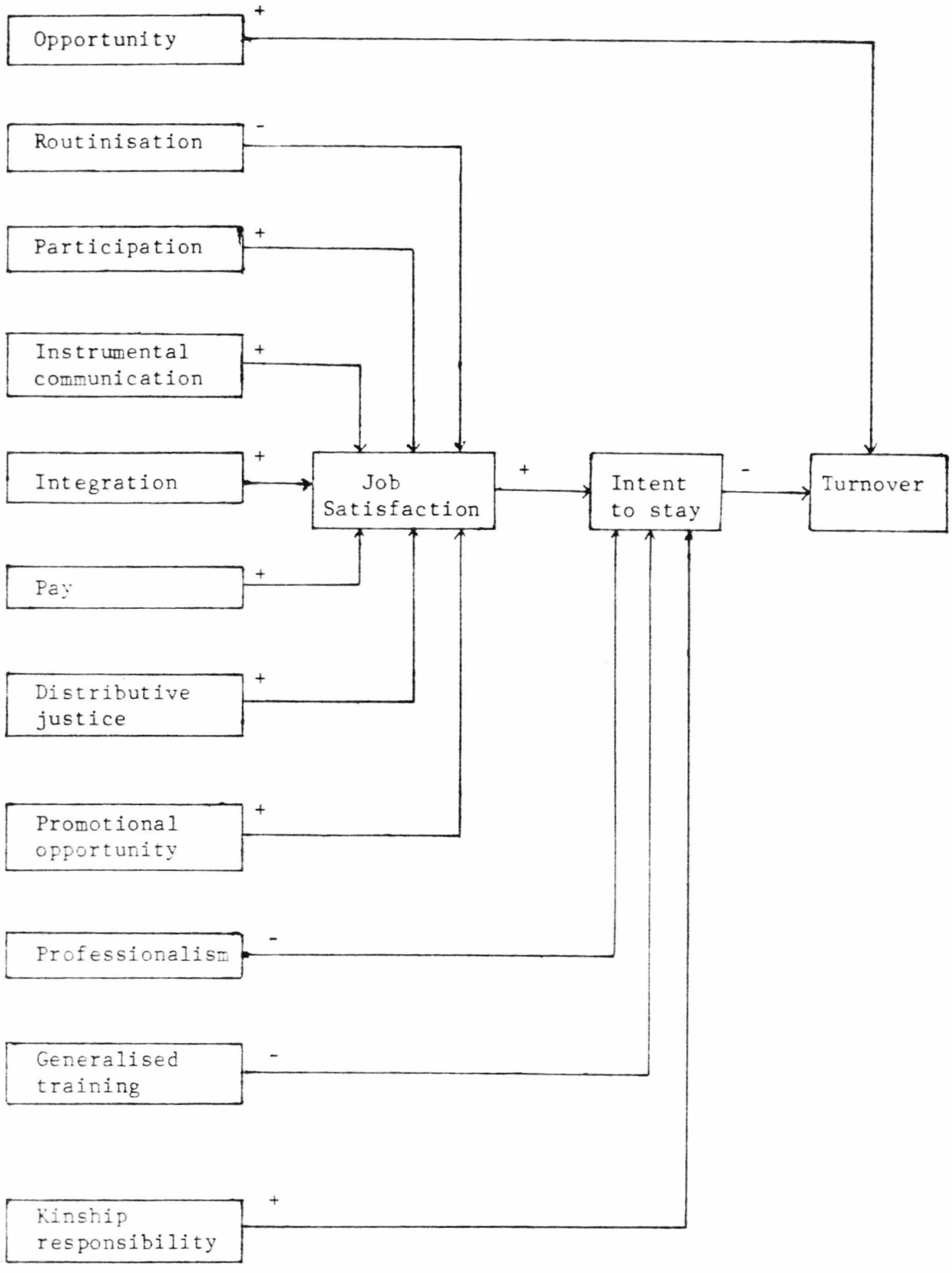

Figure 3.5: The Price and Mueller (1981) causal model of the turnover process.

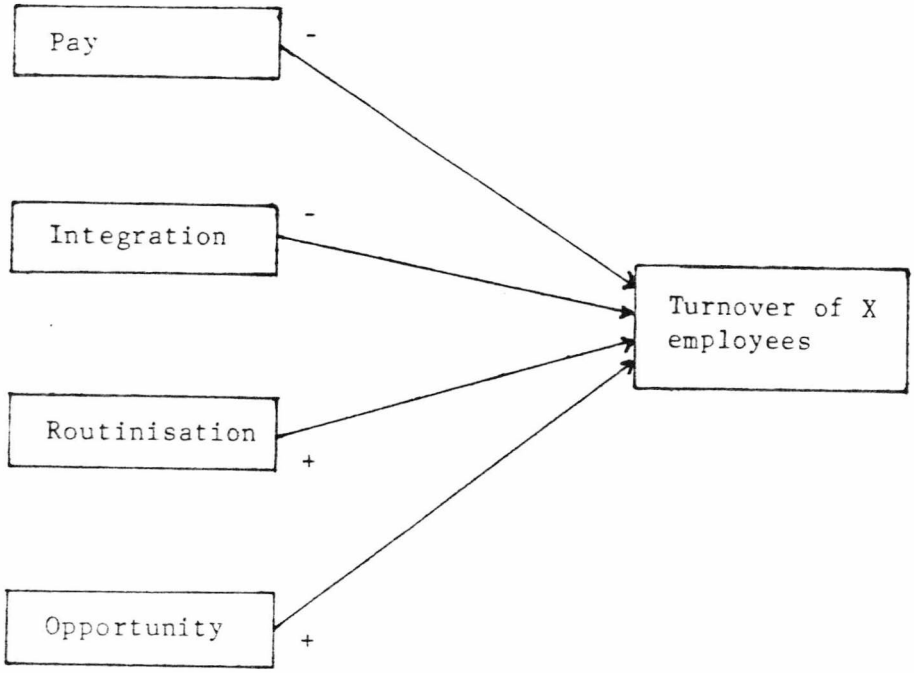

Figure 3.6: Association between job characteristics or external characteristics and turnover of employees with the same personal characteristics

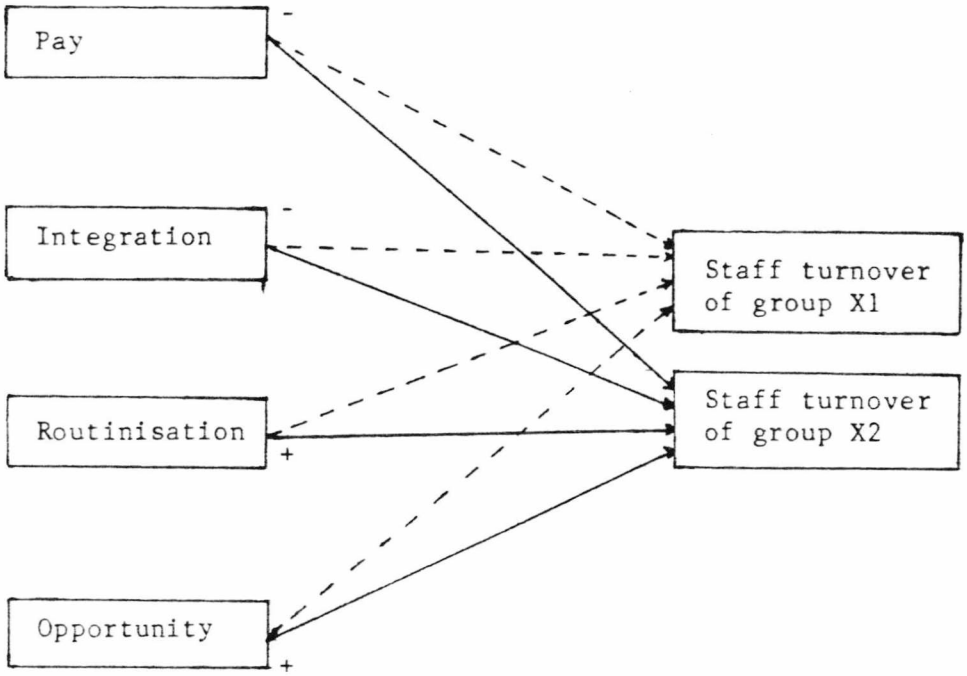

Figure 3.7: Association between job characteristics or external characteristics and turnover of two groups of employees each one with the same personal characteristics

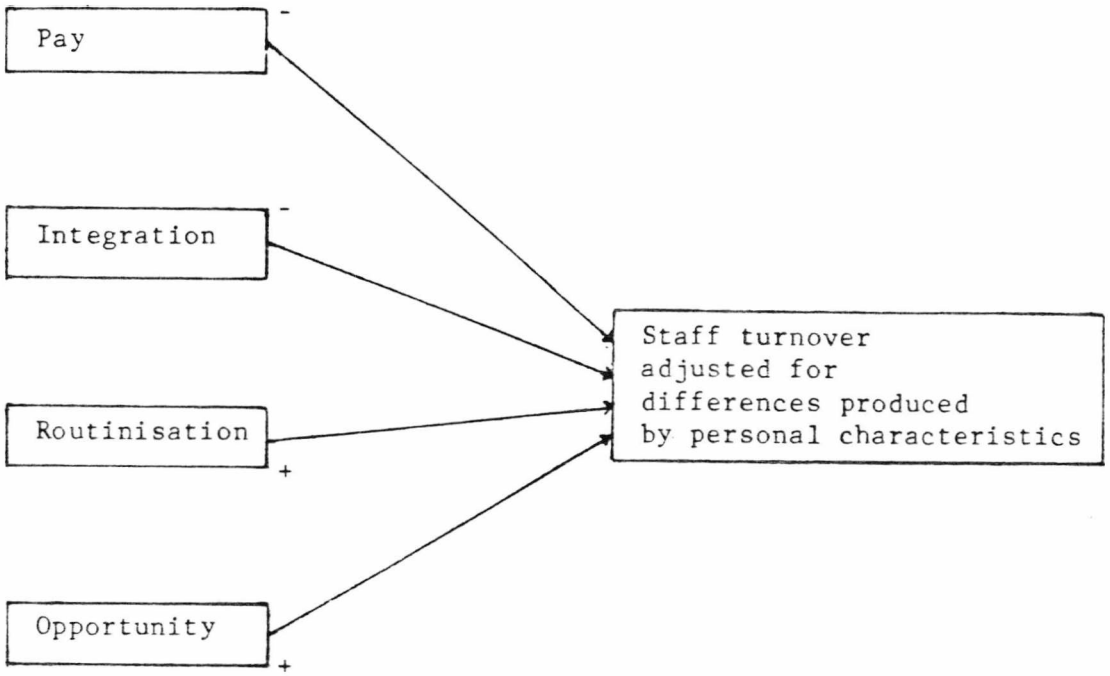

Figure 3.8: Association between job characteristics or external characteristics and staff turnover adjusted for differences produced by personal characteristics

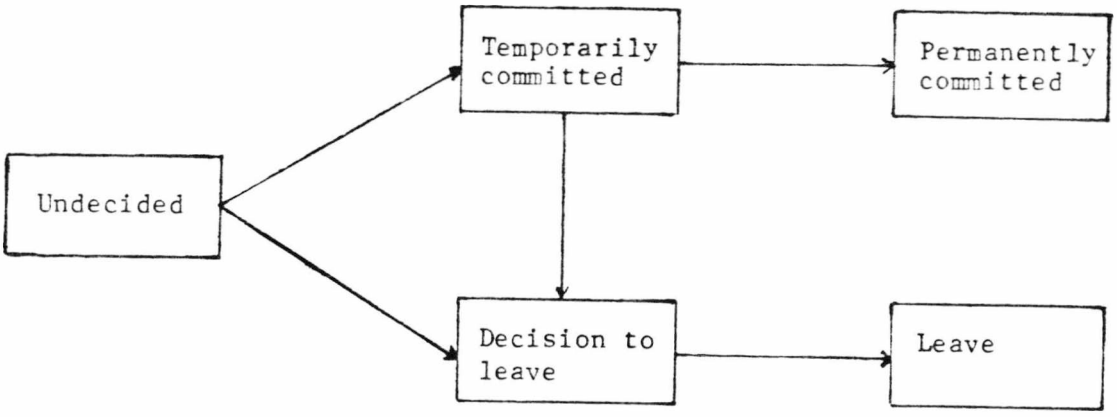

Figure 3.9: Herbst's network model of the turnover process

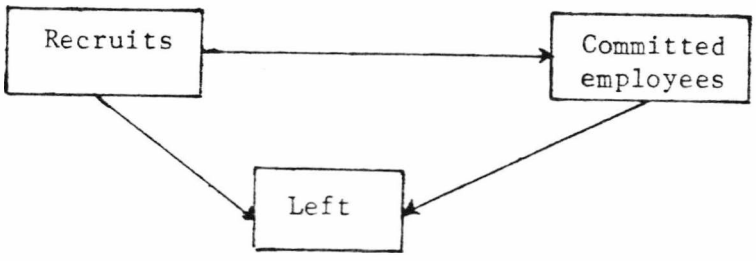

Figure 3.10: Clowes' network model of the turnover process

CHAPTER FOUR

INTERRELATIONS AND IMPLICATIONS OF STAFFING PROBLEMS IN THE PERSONAL SOCIAL SERVICES

In this chapter I shall illustrate the interrelations between staffing problems defined in Chapter 2 (e.g. staff turnover or wastage, vacancies and recruitment), and then discuss their implications.

4.1 Interrelations of staffing problems

The most important staffing problems faced by the personal social services at various times in the post-war period - high staff turnover or wastage rates, high vacancy rates, low rates of recruitment, and shortages of high-calibre candidates - are closely interrelated, not only because of the direct influence of one problem on another, but also because they have fairly similar basic causes, which have been discussed in Chapter 2. I illustrate the interrelationship between these staffing problems schematically in Figure 4.1, together with some of their more serious implications. The connections between these staffing problems can be interpreted as either causation or association, and will be discussed below.

High staff turnover or wastage rates will raise the vacancy rates (arrow A) simply because of the delays in replacing staff who leave (it is impossible to replace staff immediately). Conversely, high vacancy rates are likely to raise turnover or wastage rates (arrow B) because high vacancy rates imply overwork to employees remaining with the organisation, and this produces dissatisfaction with the job and low staff morale, which is likely to reduce the willingness of the employees to participate in the organisation's goal or to lead them to decide to leave.

High vacancy rates will raise the required rate of recruitment (arrow C) because vacant posts have to be filled for the success and survival of the organisation, under the assumption that recruitment is attempted when posts are vacant. On the other hand, high vacancy rates are likely to hinder recruitment because potential candidates will find the organisation less attractive, and this means a low recruitment rate (arrow D) which retains high vacancy rates (arrow E).

The relationship between turnover or wastage and recruitment is both indirect (through vacancies) and direct, the latter following from the fact that high turnover or wastage rates will reduce the attractiveness of the organisation (provided that turnover or wastage becomes known or available to prospective staff or recruits), and thereby hinders replacement (arrow F).

The shortage of high-calibre candidates leads organisations to recruitment of low-calibre staff (arrow G), which will raise the turnover or wastage rates (arrow H), because low-calibre staff, and particularly those without professional qualifications, have a high propensity of leaving (see Chapter 5).

In summary the following hypotheses about the interrelations between staffing problems can be made. First, staff turnover or wastage is positively related with vacancies. That is, as turnover or wastage increases, vacancies increase, and vice versa. This will be tested later. Second, staff vacancies are positively related with recruitment. That is, as vacancies increase, recruitment increases, under the assumption that recruitment is attempted when posts are vacant. Third, high turnover or wastage and vacancy rates hinder recruitment. Fourth, staff turnover or wastage is positively related with low-calibre staff. This fourth hypothesis will be tested later (see Chapter 5).

4.2 Implications of staffing problems

The staffing problems discussed in the previous section have a number of implications for the personal social services. Most, if not all, of these implications can eventually be traced through to deleterious influences on the quality of care and thus the quality of life enjoyed by clients. In other words, staffing problems influence the effectiveness and efficiency with which organisations pursue their tasks of preventing the need for care and meeting those needs when they arise.

In order to make clear the influences of staffing problems on the effectiveness and efficiency of the personal social services, I will refer to the production of welfare model of Davies and Knapp (1981). This "production of welfare" perspective views the social care service or agency as a production unit, akin to the firm of conventional microeconomics, which combines resources and other factors to produce "outputs" of various kinds and at various levels (see Figure 4.2). Final outputs are defined as measures of the ultimate effectiveness of the home in pursuing its explicit and implicit policy goals. Such goals or objectives for, say, services for the elderly will include the maintenance of independence and of health, the improvement of morale, life satisfaction and psychological well-being, compensation for disability, and the reduction of isolation. Intermediate outputs are defined as measures of the range and quality of care services rendered to clients. These final and intermediate outputs are

achieved or produced through the combination of resource and non-resource inputs. The resource inputs are the conventional factors of production - principally manpower, physical capital, provisions and other consumables. It is also useful to distinguish the three basic components of the manpower input into production process, viz. the number of staff, the number of hours worked by each of them, and the nature and quality of the services rendered during these hours. The non-resource inputs are those determinants of final and intermediate output which are neither physical nor tangible. Some of these non-resource inputs are within the control of the policy-maker, such as characteristics of the social environment of the home and the experiences of residents immediately prior to, and during, admission to the home; others are not controllable by the policy-maker, such as some of the physical characteristics of the residents. This theoretical model of production of welfare may be applied (with suitable amendment) to other areas of the personal social services.

The foregoing discussion and the relationship between inputs and outputs which is presented schematically in Figure 4.2 indicate that any improvement of manpower inputs will have positive effects on the intermediate and final outputs. Therefore, any disturbance in manpower could influence the final output.

The most frequently cited implications associated with staffing problems in the personal social services are: poor staff-resident relationships, discontinuity of care, rising costs, difficulties in manpower planning, operational disruption, and low staff morale. Here, however, I am going to discuss the most important implications of staffing problems.

1. High staff turnover or wastage rates imply discontinuity of the caring process, which has a potentially detrimental effect on the quality of care, especially on the life of those who live in residential homes (elderly people, children separated from their families, etc.) or on those for whom the care process dominates other influences. A high rate of staff turnover or wastage means a multitude of "strangers" in a residential home, which is both confusing and distressing to residents, lowers the quality of caring services because of a reduction in "the fund of staff skills and experience" (Booth, 1978), and generally damages the social environment within the residential home. In a residential home for children, it is unrealistic to expect children to form close and permanent ties with staff who change jobs so often (Berridge, 1981). This is because children become emotionally dependent upon an adult, a parent substitute, and when that adult leaves breaks the continuity of a close daily relationship. The importance of continuity in the caring process has been voiced by many authors (Williams, 1967; Weinberger, 1974; British Association of Social Workers, 1975; Department of Health and Social Security, 1976; Kitchen, 1980; Knapp and Missiakoulis, 1983).

2. High staff turnover or wastage rates imply operational disruption (Staw, 1980). For example, when a number of employees leave, it

may affect the ability of others to produce their work because of interdependence of work roles within the organisation, in particular, if the organisation is highly specialised and the employees who leave are key members of the organisation. It is apparent that the loss of members of the higher grades will cause greater disruption to the organisation than the loss of members of the lower grades.

3. High staff turnover or wastage rates imply demoralisation to the remaining workforce (Staw, 1980). Staw argues that "turnover may undermine the attitudes of those remaining. Those remaining in the organisation may see their own fates as less desirable (left behind) and they may question their own motivation for staying. In essence, turnover provides salient cues about the organisation and a role model for others". In other words, staff turnover or wastage precipitates further staff turnover or wastage.

4. High staff turnover or wastage rates affect manpower planning in the personal social services and influence the gap between supply and demand of manpower. For example, the estimation of the number of qualified social workers who would be required in future years in the personal social services is obviously affected by the wastage rate of qualified social workers. The consequences of the disparity between supply and demand have already been discussed elsewhere (Chapter 1). Berridge (1981) quotes the following extract which emphasises the effects of excessive staff turnover or wastage on manpower planning:

"A major problem facing those who plan training for residential social workers is the high turnover (and perhaps wastage) rate of a proportion of the staff. While one can assume that trained staff are likely to remain in the service rather longer, having thus invested in the profession, it is quite likely that a proportion of mobile staff will continue to be a feature of all types of residential care ... "

5. High staff turnover or wastage rates imply high vacancy rates, which are associated with the following consequences. First, staff-client relationships will be poorer because a high vacancy rate reduces the amount of time that staff can spend with clients, collectively and individually. This means a reduction of the final output of the organisation. For example, when a home for elderly people is understaffed, care and supervisory staff must spend a greater proportion of their time on domestic duties and physical care, and less on the social and psychological needs of residents (Townsend, 1962; National Corporation for the Care of Old People and Age Concern, 1977). Of course, vacancy rates are substitutable with overtime, but only up to a point. Second, staff morale will be lower because of the additional strain placed on the staff that remain in the organisation. This reduces the intermediate and final output of

the organisation, because low staff morale is likely to reduce the willingness of the employees to participate in the organisation's goal. Third, recruitment will be hindered because potential candidates will find the organisation less attractive. This will lead the organisation to recruit staff of low calibre. It is often argued that poor staff-client relationships are a feature of organisations with staff of low calibre (Williams, 1967; Younghusband, 1978; Department of Health and Social Security, 1979). This means reduction of the final output of the organisation.

6. High staff turnover or wastage rates imply high required rates of recruitment (through vacancies), which are associated with the following consequences. First, the cost of the caring process will be raised due to the additional expenses of finding replacement personnel. As I argued elsewhere, when employees leave an organisation, others must be recruited for the survival and success of this organisation. Recruitment takes place through some mechanism of selection and can involve substantial costs to the organisation, such as cost of advertising, cost of the time spent on interviews during the selection process, cost of training new employees, and so on (National Old People's Welfare Council, 1966; Allen and Cameron, 1971; Orton, 1972; Staw, 1980; Berridge, 1981). Second, the performance of new

employees will be lower during the initial time period because each new employee has to get accustomed to the new environment or to be trained in order to obtain the required level of the final output. Third, there may be poor relations between new employees and established staff and thus perhaps a reduction of final output. "Individuals who are members of an organisation for a long time have a large amount of interaction with other individuals in the organisation, and some of this interaction results in the formation of close friends. When turnover is high, this opportunity to interact declines, and few close friends are formed" (Price, 1977). Fourth, there may be poor relationships between new employees and clients because new employees are "strangers" in the organisation. This could mean poor quality of care with effects on final outputs. Fifth, it is sometimes argued that insufficient interviews are undertaken during the selection process (insufficient with respect to factors pertaining to personal characteristics of the candidates) which can raise staff turnover and could be discernible at the time of interviews. A plausible explanation could be that employing bodies which have to interview a significant number of candidates are likely to neglect some of the personal characteristics of the candidates which may lead the employees to leave. Finally, high required rates of recruitment could lead employing bodies to unsuccessful recruitment for a number of

reasons. The most important one is the shortage of high-calibre candidates which leads employing bodies to recruit low-calibre staff in their attempts to fill longstanding vacant posts for the organisation's survival. As I argued elsewhere, this means reduction of final output. Another problem is the insufficient public esteem for some organisations, which creates difficulty of recruiting staff of the right calibre. For example, residential homes for the elderly have been facing the problem of recruiting sufficient high calibre staff for a long time, because residential care of the elderly has for long been held in relatively low esteem by social services personnel and the public alike (Department of Health and Social Security, 1979; Knapp and Missiakoulis, 1983). The National Old People's Welfare Council (1966) pointed out that the chief difficulties of recruitment, in residential homes for the elderly, would seem to lie in the following factors:

(a) "The overall shortage of personnel for the social services ... The facilities for training in the developing Younghusband Courses will create a high demand for qualified social workers, who will consequently be in short supply, with keen competition on the part of the employing bodies."

(b) "The fact that the work is residential and often isolated. Residential work inevitably has disadvantages as compared with posts which have regular hours of work ... and other centres of normal life."

(c) "The fact that caring for the old has only limited appeal. It carries with it at present insufficient public esteem and recognition."

7. High staff turnover or wastage rates affect a number of organisational variables such as the administrative burden, formalisation and communication. Turnover or wastage is likely to cause an increase to the administrative staff, because of the increased work in the organisation due to replacement of leavers, since selection and recruitment processes are part of the work of the administrative staff in the organisation. Support for this effect is found in Price (1977). He cited a number of empirical studies which support this effect of turnover on the administrative burden. "When personnel turnover is high, more training and supervision of newcomers are required, which raises administrative intensity. In addition to raising administrative intensity, high personnel turnover has a direct effect on administrative expenses. It is suggested that with increasing personnel turnover, greater administrative expenditures are incurred to meet the costs of employee separation, recruitment and placement" (Kasarda, 1973).

Turnover or wastage of managerial staff probably produces an amount of formalisation, simply because the new managers are

unfamiliar in their new surroundings and substitute formal rules for informal ones. Of course, turnover of non-managerial staff is likely to affect formalisation in a similar way. In support of this causal relationship between managerial turnover and formalisation, Price (1977) quotes the following relevant extract: "With the ousting of the old middle and lower management personnel, the new diecast managers suddenly found themselves confronting the workers and the union. The old web of human relations broke with lower management personnel no longer able to manipulate vertical loyalties to mediate the conflict between management and workers. Consequently, the new managers, unfamiliar in their new surroundings and cut off from the normal flow of social relations, turned more and more to impersonal rules to implement their policies" (Cole, 1971).

Turnover or wastage is likely to reduce communication. For example, turnover of social work staff involved in the planning and implementation of social work activities, could reduce communication (e.g. frequent contact between direct care staff and personnel involved in the planning and implementation of social work activities), simply because new staff are unfamiliar in their new surrounding.

It should be noted that wastage (e.g. movement of employees out of social work) beyond the above implications already discussed has a further implication which is felt nationally. For example, when employees trained in social work leave their job and move to another

workplace related to social work, they can employ their skills and knowledge in the new job. On the contrary, if they move out of social work their expertise and practice is lost to the personal social services. Wastage of staff trained in social work means unsuccessful human capital investment, simply because employees specialised in social work become more indispensable to personal social services and dispensable to other forms of employment

Of course, there are circumstances in which a certain amount of staff turnover may be desirable. Turnover "infuses an agency or organisation with new blood, enthusiasm, new ways of approaching old problems" (Kermish and Kushin, 1969) and one should therefore have in mind an optimum rate of turnover, or equivalently an optimum length of service. "There are probably decreasing returns to staff experience after some optimum length of stay has been reached so that a certain amount of (selective) staff turnover may be desirable" (Knapp and Missiakoulis, 1983). White (1978) argues that the best length of staff stay should be defined not in terms of years but in terms of the relationship between staff and clients. Staw (1980) outlined a number of potential positive consequences of turnover. For example, turnover could increase organisational performance, simply because performance is generally a joint function of skills and effort. While experience may contribute positively to job skills and knowledge, effort may be

at its highest when the individual first arrives in the organisation. In addition, turnover could increase performance simply because the labour market has improved over time, allowing the organisation to recruit increasingly better members. Turnover may reduce conflict in the organisation, simply because it may help to resolve deep-seated conflicts among organisational membership. Turnover could have a positive effect on membership attitudes if undesirable supervisors or co-workers leave the organisation. Also, turnover could increase staff morale because it may be the primary determinant of promotion opportunities. Finally, turnover may lead to organisational innovation and adaptation, because new employees may bring new ideas (e.g. implementing new treatment programmes in the caring process means innovation). Price (1977) cited a number of studies which support the idea that turnover promotes innovation. He stated the following proposition: "Successively higher amounts of turnover probably produce successively higher amounts of innovation at a decreasing rate". Also he supports that high turnover rates of managerial staff probably produce low amounts of centralisation. One explanation for this could be that a manager will not be able to exercise power unless he or she has knowledge of the standard operating procedures of the area where the conformity of the organisational norms is to be secured.

4.3 Conclusion

The discussion of the present chapter emphasises the crucial importance of staff turnover in the personal social services, and stresses the urgency of action by employing bodies for staffing policies which may help to keep turnover or wastage low or reduce it in cases where it is excessive.

The illustration of the interrelationships between staffing problems presented in section 4.1 showed that staff turnover or wastage creates vacancies and consequently the need for recruitment, and that there is a direct influence of one problem on the other. Also, the shortage of high-calibre candidates in the personal social services leads to unsuccessful recruitment which influences turnover or wastage.

Considering the interrelations of these problems and their common causes, there will be certain ways in which these problems can be lessened. For example, replacement of leavers without delays could help to keep vacancy rates low, and thus avoid turnover which may be caused by high vacancy rates and likely hindrance of recruitment. Adoption of appropriate selection procedures to ensure the right entrants who are chosen, could help to avoid turnover which may be caused by unsuccessful recruitment. Common causes such as pay, working conditions, career structure, and other factors already discussed in Chapter 2, have to be taken into account because they may influence staffing problems in multiple ways due to their interrelations. For instance, low pay will raise turnover, will retain high vacancy rates simply because low pay reduces the attractiveness of the organisation which creates difficulties in recruitment. Consequently, high vacancy rates will raise turnover rates and thus staffing problems will deteriorate in a spiral way.

The discussion of the implications of staffing problems faced by the personal social services (e.g. high staff turnover or wastage rates, high vacancy rates, difficulties of recruitment, shortages of high-calibre candidates) indicates that the study of staff turnover and wastage in the personal social services is of fundamental importance. This importance comes from the following main implications. First, turnover or wastage damages clients in care (e.g. discontinuity of the caring process, poor staff-client relationships, etc.). Second, turnover or wastage affects manpower planning. Third, turnover or wastage imply raised costs of care.

Considering the seriousness of these implications, it is clear that the success and survival of an organisation, particularly in the personal social services, depends upon its employment force. In other words, an organisation can obtain its goals only if it operates with a sufficient number and quality of staff. Therefore, the employing bodies in the personal social services have to weigh the costs of operating with high staff turnover or wastage and high vacancy rates against the cost of keeping them low.

In the next chapters I will make some recommendations for staffing policies, based on the statistical analyses concerning staff turnover and wastage in the personal social services, which will be helpful for reducing these problems.

CHAPTER FIVE

TURNOVER AND WASTAGE IN THE SOCIAL WORK PROFESSION AT THE INDIVIDUAL LEVEL

The aims of this chapter are multifold. First, I shall examine who leaves social work. Second, those personal characteristics of social work staff, and their locations within a social services department, which are associated with high propensities to change jobs (turnover) and to move out of social work (wastage) are identified. Third, I will describe and apply the technique of logit analysis which can correct for a number of past deficiencies in the analysis of staff turnover and wastage. Fourth, the prediction equations estimated here will be used to predict individual probabilities of leaving in each local authority. These predicted individual probabilities will be used to standardise crude staff turnover and wastage rates in an area level analysis which is described in chapter 6.

Before dealing with the above aims, it is essential to present some evidence on the association between social work staff turnover and correlates or causes, and to present some general background information.

5.1 Implications and associations of social work staff turnover or wastage and general background information

In chapter 4 it was argued that high staff turnover and wastage rates are likely to undermine the effectiveness of the personal social services. "The effectiveness of social work services depends in no small measure on the quality and quantity of social workers available to man these services. And both quality and quantity are affected negatively by staff turnover, that is, by employed social workers leaving their job for another job, within or outside of social work" (Loewenberg, 1979). I also identified a number of consequences of staff turnover and wastage. The most important implication of social work staff turnover and wastage is discontinuity of care, which makes crises all the more prolonged and long-term planning of intervention and help all the more difficult (Williams, 1967; Weinberger, 1974; BASW, 1975; Department of Health and Social Security, 1976; Kitchen, 1980; Berridge, 1981; Knapp and Missiakoulis, 1983). In view of the crucial importance of staff turnover and wastage in social work, it is surprising and disappointing to learn that relatively little attention has been paid to turnover in this area (Loewenberg, 1979; Berridge, 1981).

Despite the lack of substantial research, there is some evidence that the correlates and causes of staff turnover and wastage discussed in chapter 2 have been found to have relevance in the social work context. For example, Loewenberg (1979), in a review of the causes of

turnover among social workers, supports the association between turnover and personal characteristics such as length of service, age, sex, education, level of responsibility, professionalisation, marital status and so on. He also supports the association between turnover of social workers and characteristics of the job such as working conditions, pay and promotion opportunities, met expectations, autonomy, routinisation, supervision and so on. Finally he describes the influences of job satisfaction and opportunity (i.e. the availability of alternative jobs) on turnover. Kermish and Kushin (1969) investigated turnover in the social work staff of a public welfare agency in the USA. Their study was based on two principal sources of data. First, the investigation of agency personnel records showed that 321 social workers left the employ of the agency during a two-year period (1965-1967): this figure represented an annual turnover rate of 28.9 per cent. The investigation revealed that of those who left the agency, 53.3 per cent were under 25 years of age, and 24.7 per cent were between the ages of 26 and 30. One-third (i.e. 32.1 per cent) were employed for a period of one to two years, and another 26.5 per cent stayed for a period of two to five years. Thus young employees and those with short length of service seem to be more prone to turnover. Second, the interviews of fifty leavers of the 321 social workers who left revealed that 46 per cent left social work for

reasons such as pregnancy, child care problems, husband reassigned, and personal reasons. More than one-half (54 per cent) left social work for reasons related to agency atmosphere and policy. Also, the interviews revealed that salary and fringe benefits were viewed as relatively unrelated to the reasons for leaving. Instead, respondents mentioned the following complaints:

1. Overwhelming job demands.
2. Poor morale and atmosphere within the agency.
3. Inability to be of real help to the client.
4. Poor supervision.
5. Little respect, encouragement and support for the worker by agency administration.
6. Little opportunity to use one's own initiative and to be creative.

Berridge (1981) investigated staff turnover in community homes for children. His study revealed that turnover of social work staff in residential homes for children could be attributed to the hours of work, the stress of residential work, pay, promotion, policy disagreements within the homes, lack of professional status, staff relationships, accommodation, and so on. The most frequently mentioned reason for leaving by respondents under study was the hours of work. One in three indicated that this was a contributory factor towards leaving. Finally, some evidence for factors influencing turnover in the social work profession is found in Younghusband (1978), Sumner and Smith (1969), Social Policy Research Limited (1975), Williams (1967), Townsend (1962), Knapp and Missiakoulis (1983) and Knapp and Harissis (1981).

The data used for the study reported in this chapter were collected by the Department of Health and Social Security from all English and Welsh local authorities. Information was requested for all staff employed by social services departments on 30 September 1975, 1976 and 1977 (there was no available data beyond 1977), and for all staff who left employment during the twelve months previous to the census day. For all staff (leavers and stayers) basic information on age, sex, length of continuous service with the present employer, educational qualifications, professional (social work) qualifications and workplace locations (e.g. area office, headquarters, hospital for the mentally ill, hospital for the mentally handicapped, etc.) were given (table 5.1).

The form used by the Department of Health and Social Security to get information for staff turnover and wastage is presented in table 5.1a. For the purpose of the present study, I distinguished leavers according to their subsequent destination or reasons for leaving. Thus from table 5.2, wastage is defined as the movement of employees to a non-social work job (i.e. movement out of social work), and movement into social work is defined as the movement of employees to another social work job.

Non-social work jobs refer to the following subsequent employments or reasons for leaving:

a) undertaking further education not related to social service work
b) post with University or further education institute
c) post with local authority department other than social services
d) non-social work with non-local authority employer
e) resignation for domestic reasons (marriages etc.)
f) other reason (specified).

Social work jobs refer to the following subsequent employments:

g) undertaking further education relating to social service work

h) other local authority social services department

i) probation service

j) social work with non-local authority employer.

Those leavers who retired through age, ill-health or death, or left for unknown reasons, were all excluded from the analyses of staff wastage. The first group were omitted because they will be of little interest to employers (unavoidable wastage), whilst the second group were omitted because they could not be allocated to a subsequent employment or reasons for leaving. On the contrary, staff turnover includes the above categories of leavers. That is, staff turnover, is defined as the total of leavers, no matter what is their subsequent destination or the reasons for leaving.

These statistical returns, therefore, provide not a sample but a population of information suitable for an analysis of staff turnover and wastage. The 1975 collection was the first national collection of data on local authority social work staff. Previous studies of staff turnover and wastage have had to focus on much smaller samples of staff. These samples have either been determined by job specification, as in the studies of staffing problems amongst almoners (Younghusband, 1978, p.287), medical social workers (Moon and Slack, 1965), children's homes staff (Hulley, 1973; and later Berridge, 1981) and old people's homes staff (Williams, 1967); or have focused on one or a few local authorities, as did Social Policy Research Limited (1975) and Goldberg and Warburton (1979).

In the present section I will report some information for all staff (leavers and stayers) during the period 1975-77, and then analyse turnover and wastage rates more rigorously by personal characteristics and workplace location.

In table 5.3 I present some information for the "field social work staff" employed by local authorities in England and Wales, in order to construct a profile of the labour force, and to get a picture of the turnover and wastage position. "Field social work" - hereafter social work - includes attachment to hospital for the mentally ill or mentally handicapped, other hospitals, child guidance clinics, GP practices and health centres (see table 5.1).

It can be seen that every year a significant number of social work staff change jobs. The figures indicate turnover rates of 15.4, 14.3 and 14.2 per cent of total employment (leavers plus stayers) for each year since 1975. These percentages indicate that turnover has been falling slightly from year to year. One explanation for this lies in the fact that unemployment rates have been high since 1975 and vacancy rates have been lower. Consequently the opportunity of available jobs is low and the movement from one job to another more difficult. Another important characteristic in table 5.3 is the percentages of wastage which indicate that the proportion of these leavers who did not move on to a related form of employment in the personal social services is very high (34.3, 38.3 and 41.2 per cent respectively). This suggests that there is need for further investigation on staff

wastage in the personal social services. In other words, there is need to find out what factors push or pull employees to move to a form of employment not related to social work. Also it can be seen that the wastage rates are increasing from year to year despite the steadily rising unemployment rates. A plausible explanation for this trend of wastage rates could be that 60 per cent of the social work staff are women and they are "more prone to wastage", as I argued in chapter 2. This is obvious from table 5.12 where the figures show that movement of women out of social work (wastage) for domestic reasons is very high and increased over the period (24.7, 28.5 and 31.4 per cent for each year respectively). Clearly this kind of movement produced the increase of wastage rates from year to year. Without further information it is not clear why this reason for leaving social work should have become more important over time. One plausible explanation is a cohort effect - the expansions of social work services in the early 1970s brought a large number of "new" people into the personal social services. By 1975, and more so by 1977, "domestic reasons" for leaving social work either provided a justification the need for which was brought about by "burn-out" or simply reflected wishes to, say, start a family. The early 1970s cohort of appointees to social work was probably the largest and most significant over the last twenty or more years. Later in this chapter I will be examining the "burn-out" or "coping threshold" among field social work staff.

Table 5.4 demonstrates the variation in turnover rates between local authorities in England and Wales, and gives a picture of the extent to which local authorities suffered high turnover rates. We can see that a large number of local authorities suffered a loss of employment of more than 15 per cent a year: 78 local authorities in 1975, 73 local authorities in 1976 and 70 local authorities in 1977 experienced turnover of more than 15 per cent. Also, table 5.4 shows that a significant number of local authorities suffered a loss of employment of more than 20 per cent: 44 local authorities in 1975, 35 local authorities in 1976, and 30 local authorities in 1977. At the other end of the scale few local authorities suffered a loss of employment of less than 10 per cent. Table 5.4 also shows that the number of local authorities suffering from very high turnover rates fell significantly between 1975 and 1977. For example, in 1975 there are twenty local authorities suffering a loss of employment more than 25 per cent, in 1976 and 1977 there are only ten or eleven local authorities suffering from very high turnover rates. This probably reflects the changes in the labour market discussed above (and see the next chapter). Nevertheless, table 5.4 suggests a need for further investigation of staff turnover in the personal social services, because a very significant number of local authorities are suffering from high turnover rates. A more comprehensive picture of staff turnover by local authority is given in Chapter 6, table 6.7.

5.2 A description of turnover and wastage in the social work profession during the period 1975-1977

In this section I report a description of turnover and wastage in the social work profession during the period 1975-77. The section has a number of aims. First, the descriptive analysis provides a picture of the number and kinds of people who stay in their post or leave their post during the period of study. Second, it provides a picture of leavers' destinations (i.e. movement into social work or movement out of social work, etc.). Third, it allows a description to be made of turnover and wastage with regard to a number of differences which have not previously been studied in this form of employment. For example, there are differences in the sex ratio, the age distribution and so on. Fourth, the descriptive analysis will be the precursor to explanation and model building.

However, a descriptive analysis is insufficient on its own for the examination of the influences of personal characteristics on staff turnover and wastage, because it does not allow the simultaneous examination of all personal characteristics at one time. For example, by considering the difference in the sex ratio, we can say that females are more likely to leave than males, but this characteristic is correlated with other personal characteristics such as age, marital status and so on, and so sex differences may not be the real source of turnover differences. Therefore, it is necessary to examine the association between turnover or wastage and all personal characteristics simultaneously, in order to find out who leaves social work. In section 5.3 I will describe a multivariate statistical technique (logit analysis) which allows the simultaneous examination of all personal characteristics.

(i) Variation of turnover rates by personal characteristics and workplaces

Table 5.5 shows the number of staff in post (stayers) on 30 September for each year and the number of staff who left (leavers) during the period (one year) ending on 30 September for each year, and the percentages of turnover by sex. It should be noted that turnover rates presented in table 5.5 and in the following tables are calculated by the formula stated in table 5.3.

It can be seen from table 5.5 that turnover rates are higher among women than among men. The difference between turnover rates among men and women has been supported by many investigators of staff turnover in other occupations. A number of plausible explanations for this sex difference have been cited in Chapter 2.

In table 5.6 I present the variation of turnover rates between age groups. Table 5.6 shows that the turnover rate in the social work profession is inversely related to the age of employees. In other words, as the age increases the turnover rate decreases. This seems very clear in chart 5.1. Also table 5.6 indicates that the groups of employees aged under 34 years are more prone to turnover for each year. This suggests that young employees are not satisfied with their present job and look for another job elsewhere hoping for a better career. Therefore, it is necessary for employers to offer reasonable conditions of employment (e.g. good salary, advancement opportunities, working conditions, etc.) that will attract young employees to stay in their jobs. Including turnover due to retirement in this table produces table 5.6a. It is obvious that turnover rates among employees aged over 60 years are very high for each year (26.9 per cent, 33.2 per cent and 44 per cent respectively).

Table 5.7 demonstrates the variation of turnover rates between length of continuous service groups. We can see that length of continuous service does not appear to influence turnover of social work staff in the same way as in other occupations. That is, we cannot say here that turnover of social work staff decreases as the length of continuous service increases - in contrast to the inverse relationship between the two often noted in previous research. One explanation for this inconsistency would be the growth in the personal social services, which offered a number of promotion opportunities, so that employees moved from one local authority to another in advancing their careers. The movement of leavers from one local authority to another is presented in Figure 5.1. For example, suppose that a number of social work staff left local authority A during the period of study. Part of these leavers moved out of social work (arrow a) and others moved into social work (arrow b). These leavers who moved into social work constitute supply for other local authorities, say, local authorities B and C (arrow c). As I pointed out in chapter 1 there is a disparity between supply and demand in the personal social services. This disparity makes the movement of social work staff easy from one local authority to another. That is why the length of service does not affect the turnover rate of social work staff in the same way, as in other forms of employment. Furthermore, turnover of social work staff by definition is the sum of those who moved out of social work (wastage) and those who moved into social work and those

who retired or left for reasons not known. Therefore, considering the wastage of social work staff, where the supply and demand for employment is determined by the general economic conditions, the association between wastage and length of service is a negative one (see table 5.13). On the other hand, the association between leavers who moved into social work and length of service is a positive one (see table 5.13). These tabular findings support the above discussion.

Table 5.8 shows the variation of turnover rates among employees with different educational qualifications. Clearly the level of education is positively associated with turnover, with an exception for those who hold diploma obtained at university or further education establishments which seems to represent lower turnover rates than those who hold two or more 'A'-levels. Overall, however, better educated employees are more likely to leave than less educated employees.

In table 5.9 I present the variation of turnover among employees with different social work qualifications. It can be seen that employees without social work qualifications have a high propensity of leaving: more than 14 per cent for each year. Also it can be seen that turnover is positively associated with the level of qualifications. In other words, the higher the level of social work qualifications (e.g. certificate of qualification in social work of the CCETSW or declarations of recognition of experience issued by CTC

or the CTSW), the higher the turnover rates. The most plausible explanation for the positive association between social work qualifications and turnover is that highly qualified professional staff, for whom there has generally been an excess demand from local authorities, can more easily use movement between social work jobs to further their careers than promotion within the same department. This option is not usually so readily available for unqualified staff.

Table 5.10 demonstrates the variation of turnover rates among positions of employees. We can see that turnover rates generally are lower among employees in the higher grades or positions than among employees in the lower positions. Also table 5.10 indicates that there is a considerable variation of turnover rates between positions. In 1975 the range of turnover rates between positions was between 10.9 and 17.0 per cent; and similar ranges are observed for the other two years. Finally in table 5.11 I present the variation of turnover rates among workplaces or locations of work. It can be seen that workplaces such as hospitals for the mentally ill, hospitals for the mentally handicapped and other hospitals experienced higher turnover rates than workplaces such as staff on secondment for a period of full-time training, headquarters and area office. This will be further investigated below.

(ii) Variation of leavers' destinations by personal characteristics and workplaces

Table 5.12 presents the variation of leavers' destination among males and females. It is obvious that the movement of employees out of social work (wastage) is higher among women than among men. This difference has been caused predominantly by "domestic reasons". The movement of women out of social work for domestic reasons is 25 per cent or more in each year; on the other hand, the movement of men out of social work for domestic reasons is only between 4 and 6 per cent.

Differences in leavers' destination by length of continuous service are presented in table 5.13 and chart 5.2. It can be seen that wastage is negatively associated with length of continuous service: as the length of continuous service increases, the movement out of social work (wastage) decreases. Wastage of employees with length of service under six months is more than 45 per cent for each year, whereas wastage of employees with length of service four years and over is less than 31 per cent for each year. As I argued above, the negative relationship between wastage of social work staff and length of service is consistent with previous findings; this will be considered again below. Also table 5.13 shows that employees with length of service two years and over, who moved into social work, constitute more than 37 per cent of the leavers for each year. This means movement from one organisation to another, which has a number of consequences for the organisation and for the clients (discussed already in Chapter 4). Once again I stress here the necessity for further investigation of staff turnover in the social work profession in order to find out what factors push or pull social work staff for this movement, from one organisation to another.

Table 5.14 shows the variation of leavers' destinations by different educational qualifications. We can see that generally the movement of employees out of social work (wastage) and the movement of employees into social work is higher among those who are better educated than those who are less educated.

Table 5.15 demonstrates the variation of leavers' destination among employees with different social work qualifications. The movement of employees into social work is higher among employees with social work qualifications than among those who are not qualified. Also we can see that the movement of employees out of social work for "other reasons" is lower among employees with social work qualifications (less than 13.9 per cent for each year) than those who are not qualified (more than 18.1 per cent for each year). Finally, table 5.15 shows that the proportions of employees with social work qualifications who are moving into social work are higher than those moving out of social work (wastage). This means that specialisation influences the movement of social work staff from one local authority to another, because specialists are more attracted by local authorities. On the other hand, this reduces wastage because employees specialised in social work have specific human capital which they do not wish to "waste" outside the personal social services.

In table 5.16, I present the variation of leavers' destinations among grades or positions of employees. It is obvious that the movement of employees into social work is higher among those in the

higher positions or grades. The movement of team leaders and senior social workers into social work comprise more than 39 per cent of those who left each year. The movement of social work assistants into social work comprise less than 26 per cent of the social work assistants who left each year. On the other hand, the movement of team leaders and senior social workers out of social work constitutes less than 37 per cent of the leavers for each year, and in particular wastage for other reasons is less than 14 per cent for each year. The movement of social work assistants out of social work is much higher at more than 40 per cent of leavers.

Finally in table 5.17, I present the variation of leavers' destination among workplaces (i.e. location of work). It can be seen that the proportions of employees located in headquarters and area offices who are moving into social work are higher than those employees located in other workplaces such as hospitals for the mentally ill, hospitals for the mentally handicapped, etc. The movement of employees who are located in headquarters and area offices into social work constitutes more than 34 per cent of the leavers for each year. On the other hand, the movement of employees who are located in other workplaces into social work constitutes in general less than 33 per cent as an average for the three years. Also we can see that, generally, the movement of employees into social work is higher than the movement of employees out of social work (wastage) for other reasons. In some cases the difference is greater by a factor of

more than two. This means that social work staff were not satisfied by the workplace or by the local authority in which they were posted and moved to another workplace or to another local authority and the same workplace. The movement of employees from one workplace to another or from one local authority to another could be reduced by determining the factors which cause this movement and then applying the required staffing policies.

5.3 Individual level analyses on factors predicting the probability of leaving or staying

In the previous section I attempted to reveal the importance of factors such as personal characteristics and location of work in determining the individual probability of leaving or staying. In other words, to find out who changes job and who does not (turnover), and who moves to another social worker job and who moves elsewhere (wastage).

This study is one of individual decision making which involves the modelling of behavioural phenomena in which the dependent variable is defined by the choice of individuals over a finite and unordered set of alternatives. For example, in the study of staff turnover, the alternatives are to leave employment or to stay in a job. Previous studies of staff turnover which have sought to predict whether or not an employee leaves or stays in a job have used linear models such as multiple regression analysis. Unfortunately, regression techniques

are not wholly applicable in the case of dichotomous dependent variables and can lead the researcher to draw incorrect inferences from the results. The inappropriateness of linear models, when the dependent variable is dichotomous or polychotomous, will be discussed here. Also I shall discuss some of the problems which have been identified throughout the application of multiple regression analysis in a set of data, where the dependent variable was dichotomous. Finally, I shall describe an alternative technique (logit analysis) which has been applied in the present study of staff turnover and wastage.

The inappropriateness of linear models

The inappropriateness of linear models, when the dependent variable is dichotomous, has been voiced by many authors in the past. For example, Goldberger (1964) argued that the assumption that the error term is homoscedastic, which is made when using ordinary least squares in multiple regression analysis, is violated because the variance of the error term depends on the values of the independent variables and is thus not constant. The presence of heteroscedasticity in estimating the parameters has the following consequences:

(a) the estimates are inefficient in that they have larger sampling variances than necessary;

(b) the estimated covariance matrix is biased so that standard tests of statistical significance are inappropriate.

Furthermore, when using the ordinary least squares method there is no guarantee that the predicted values will lie within the interval between 0 and 1. Let the linear probability function in which Y is specified to be a linear function of X's, i.e. the standard regression model:

$$Y_i = X_i\beta + U_i$$

where Y_i takes the values of 0 and 1.

This linear probability function formulation allows $E(Y_i/X_i)$ to fall outside the interval between 0 and 1, which is inconsistent with the definition of Y_i and with the interpretation of the expectation of a probability. Since a linear function can have any value on the real line, there are small or large values of $X_i\beta$ for which $\hat{Y}_i$ is lying outside the unit interval (see Goldberger, 1964; Nerlove and Press, 1973). In addition to the above problems, "the fitted relationship is exceptionally sensitive to the location of explanatory variables and ... the usual tests of significance for the estimated coefficients do not apply. Further, multiple R^2 is no longer meaningful, and estimated standard errors are not consistent" (Nerlove and Press, 1973). Finally, a further problem with dichotomous dependent variables is that "because the Y_i's are not normally distributed, no method of estimation that is linear in the Y_i's will in general be fully efficient" (Cox, 1970, p.17). To avoid these difficulties, efficient non-linear methods of estimation, such as logit and probit analysis, have been devised.

In order to stress the inappropriateness of linear methods when compared with the application of a non-linear method (logit analysis), I applied the multiple regression technique to the same data for one staff category. The results are described in table 5.29.

The preceding discussion of the inappropriateness of linear models suggests the use of non-linear models such as logit analysis or probit analysis when the dependent variable is dichotomous or polychotomous. Of course, the use of non-linear models is more complicated and computationally more expensive than the use of linear models.

Logit analysis

The term "logit" was coined by Berkson (1944) as an analogy with Bliss' use of the term "probit", and is a contraction of the phrase "logistic unit" (see Ashton, 1972, p.10). The term "logit" characterises methods of estimating models with dichotomous or polychotomous dependent variables. Many authors in the past discussed methods which have been proposed for estimating logistic models (see Ashton, 1972; Nerlove and Press, 1973, Dhrymes, 1978). It is not necessary to summarise those early discussions, but it is essential to describe briefly the logit model which I will use to study turnover and wastage in the personal social services.

Let P_i be the probability that the ith individual leaves his post and let $Q_i = 1-P_i$ be the probability that the individual stays in post during a particular time period. In the specification of the model it is natural to define P_i as an ordinate of a cumulative distribution function (CDF) since P_i lies between zero and one, i.e.

$$P_i = F(t) \tag{1}$$

where F(.) is a distribution function. If f(.) is the associated density function then we have

$$P_i = \int_{-\infty}^{t} f(z)dz \tag{2}$$

This expression will be made more specific in the context of turnover in the personal social services by expressing the upper limit t as a function of the attributes of the alternatives involved and the individual making the choice. Thus we may put

$$t = X_{i.}\beta \tag{3}$$

where $X_{i.} = (X_{i1}, X_{i2}, \ldots, X_{ik})$ is a vector of the determinants of the probability of "leaving or staying" and β is a vector of unknown coefficients.

Hence equation (2) can be written

$$P_i = \int_{-\infty}^{X_{i.}\beta} f(z)dz = F(X_{i.}\beta) \tag{4}$$

and $$Q_i = 1-P_i = 1-F(X_{i.}\beta) \tag{5}$$

defining

$Y_i = 1$ if the ith individual leaves the job

$= 0$ otherwise

then we have

$$\Pr\{Y_i = 1\} = F(X_{i.}\beta) \tag{6}$$

$$\Pr\{Y_i = 0\} = 1-F(X_{i.}\beta) \tag{7}$$

Assuming that F(.) is taken to be the cumulative distribution function of the standardised logistic distribution; viz:

$$F(t) = \frac{1}{1+e^{-t}}, \quad -\infty < t < \infty \tag{8}$$

then we can define the logit of p_i by using (1), (3), (8) as

$$\text{logit of } p_i = \frac{1}{1+e^{-Xi.\beta}} \tag{9}$$

$$\text{or} \quad \log \frac{Pi}{1-Pi} = Xi.\beta \tag{10}$$

The model can be estimated by maximising the likelihood function

$$L(Yi/Xi) = \prod_{i=1}^{n} [F(Xi.\beta)]^{Yi} \; [1-F(Xi.\beta)]^{1-Yi} \qquad (11)$$

the log likelihood is

$$L = \sum_{i=1}^{n} Yi \ln F(Xi.\beta) + \sum_{i=1}^{n} (1-Yi) \ln [1-F(Xi.\beta)] \qquad (12)$$

setting to zero the first and second-order derivatives of the above equation with respect to β and specifying the cdf, $F(.)$, we can obtain an estimator of β . Of course, this will be done by numerical methods since the resulting equation will be highly nonlinear (see Dhrymes, 1978).

Predicting the probability of turnover

Employing the logit analysis technique and using data collected by the Department of Health and Social Security on field social work staff employed by English and Welsh local authorities in one of the years - 1976 - I predicted the probability of turnover on the basis of knowledge of factors such as sex, age, education, length of service, social work qualifications, and location of work.

The model has been estimated by maximum likelihood estimation. The maximisation in the present analyses was carried out by using Newton's iterative method. I used as starting values of the

coefficients $\beta_0 = 0$, by employing a computer program developed by Ben Knox formerly of the PSSRU, University of Kent at Canterbury. The convergence criterion employed in the logit estimation was a change in the coefficients equal to an amount less than 10^{-3}. The significance of the coefficients was determined by the likelihood ratio test statistic (i.e. a test of significance of the hypothesis that $\beta = 0$).

Denoting a likelihood ratio by λ, $-2\log_e\lambda$ is distributed assymtotically as chi-square with its degrees of freedom equal to the number of parameters that are determined by the null hypothesis, say r. For large values of the sample size, the chi-square table can be used to determine the value of rejection of the null hypothesis, i.e. the hypothesis that $\beta=0$ will be rejected only if $-2\log_e\lambda >$ chi-square (r) (see Larson, 1974).

In order to study the probability of leaving by social work position I estimated six separate prediction equations which had dependent variables for the groups:

H1= Team leader (or senior social worker in charge of a group of social workers or equivalent)

H2= Senior social worker (not in charge of a group of social workers)

H3= Social worker (basic grade)

H4= Community workers

H5= Trainee social worker

H6= Social work assistant

The dependent variables was defined as:

Hzi= 1 if the employee i left during the year ending 30 September, 1976

= 0 if the employee i stay in post on 30 September, 1976

Where Z=1, ... 6 and i=1, ... Kz (total sample size of staff category Z).

The set of independent variables which I used to construct my "best" prediction equations were derived from the factors listed in table 5.1. None of the factors has more than ordinal properties and so the independent variables were all dummy variables and have been defined as:

Xij= 1 if the employee i has characteristic j

= 0 if the employee i does not have characteristic j

Turnover and wastage differed so markedly between grades that it was considered most useful to estimate separate equations.

A number of different prediction equations were estimated. In tables 5.18 to 5.23, I report the equations considered to be "best", in terms of the usual criteria of parsimony and statistical significance, the latter being indicated by the results of t-tests. In some cases the level of significance was moved up to the 25% (see standard books of statistics), in order to avoid missing good candidates that have been hypothesized to be significant correlates in the past literature. It should be noted that interaction between independent variables was not significant. This has been tested by adding to the model terms that reflect the interaction (i.e. the product of the values of independent variables).

The likelihood ratio test statistics are very highly significant, that is to say, we reject the hypothesis that $\beta=0$ at 0.1% level of ignificance for each of the prediction equations.

The estimated coefficients $\hat{\beta}$ indicate the importance of the various personal characteristics and workplaces in predicting the probability of turnover. In order to calculate the probability of leaving the job for an employee with specified characteristics, we can use the formula

$$\text{probability of leaving} = \frac{1}{1+e^{-(\Sigma\hat{\beta})}}$$

where $\Sigma\hat{\beta}$ means that we add or subtract the coefficients listed in tables 5.18 to 5.23 (according to the directions given in those tables). An example of calculation of turnover probabilities is provided in table 5.39.

From the above formula we can draw a simple rule of thumb which simplifies the discussion of influences on turnover: the larger a positive estimated coefficient in a table, the higher will be the probability of leaving, and the larger a negative estimated coefficient, the lower the probability. Comparison of the coefficients on different characteristics provides an indication of the relative importance of these characteristics in predicting turnover. Here I shall discuss the results presented in tables 5.18 to 5.23, with respect to the direction and magnitude of influence on the probability of leaving, for each of the personal characteristics and location of work.

Sex

From tables 5.18 to 5.22, which refer to team leaders, senior social workers, social workers, community workers, and trainee social workers, we can see that the estimated coefficients on the male dummy variable are negative. This means that males are less likely to leave their job than females. This sex difference accords with the general conclusions of turnover studies in other occupations (Silcock, 1954; Bucklow, 1955; Marsh and Mannari, 1977) and with some previous social work research (Kermish and Kushin, 1969; Webb, 1973; Loewenberg, 1979). There are a number of plausible explanations for this sex difference already discussed in chapter 2.

Age

From tables 5.18 to 5.20, and 5.23, it can be seen that the estimated coefficients corresponding to age groups are negative and that they are increasing as age increases. This indicates that the probability of leaving decreases as age increases. Also from table 5.21, we can see that only two age variables appear in the final equation. The coefficients on these two variables are all positive, indicating that younger employees are more likely to leave than aged ones. In other words the relative sizes, and the signs, of the age coefficients reported in the above tables imply quite clearly that the probability of leaving is higher for younger staff. In general the age variables appear to be statistically significant determinants of the probability of leaving (significance at 0.1% level). These findings are consistent with previous studies of staff turnover in other forms of employment and social work staff turnover (Kermish and Kushin, 1969; Hellriegel and White, 1973; Federico et al., 1976).

Education

Five groups of social work staff can be distinguished by reference to their (higest) basic educational qualifications (University or CNAA degree, University diploma or certificate, two or more 'A' levels, five or more 'O' levels, or none of these). The results reported in tables 5.18 to 5.21 and 5.23 suggest different propensities to leave for these social work staff groups. In general the level of education is positively associated with the probability of leaving, that is to say, employees with higher educational qualifications are more likely to leave. For example, it can be seen from tables 5.20, 5.21 and 5.23, that basic grade social workers, community workers, and social work assistants who hold a University degree are more likely to leave than those who hold a University diploma or other basic educational qualifications. These results are consistent with previous studies of turnover (Farris, 1971; Federico et al., 1976; Knapp and Missiakoulis, 1983). A number of plausible explanations for the different propensities to leave may be cited. March and Simon (1958) argue that a higher level of education raises career aspirations and expectations. Price (1977) argues that there is usually an excess demand for better educated employees. The equation for team leaders (Table 5.18) indicates that employees who hold a University degree or equivalent are less likely to leave than those who hold two or more 'A' levels. A possible explanation for this could be that team leaders who hold a University degree or equivalent are posted in better workplaces than those who hold two or more 'A' levels, and thus their career expectations are met. This results in a lower propensity to leave.

Social work qualification

The results presented in tables 5.20 and 5.22 indicate that (basic grade) social workers and trainee social workers who are highly qualified (e.g. holders of the certificate of qualification in social work of the CCETSW or equivalent) have a higher propensity of leaving than those who are less qualified. This social work qualification variable (retained in the equations) appears to be a statistically significant determinant of the probability of leaving (significance at 0.1% level). These findings support the conventional arguments that qualified staff expect to "get on" in the profession and thus be keen to move when opportunities are available, and will also find it much easier to move to other social work jobs because of the preferences of most employers for social work staff qualified. In contrast, the equations for team leaders and senior social workers (tables 5.18 and 5.19) indicate that those who are highly qualified have a lower propensity of leaving than those who hold lower social work qualifications. One explanation for this could be that highly qualified team leaders and senior social workers have met their career expectations. The wastage propensities with respect to qualifications will clearly be of interest in these respects.

Length of service

Length of service measures the continuous service regardless of position within a single social services department. It can be seen

from tables 5.18 to 5.23, that generally the length of service variables appear to be statistically significant determinants of the probability of leaving (significance at 0.1% level). The association is positive. Team leaders and senior social workers with four or more years of continous service are more likely to leave than those with shorter continuous service (tables 5.18 and 5.19). From tables 5.20 to 5.23, which refer to social workers, community workers, trainee social workers, and social work assistants, we can see that employees with two to four years of continuous service are less likely to leave than others. Therefore, my findings are not consistent with previous studies of turnover which have found a negative association between length of service and turnover (Silcock, 1954; Bucklow, 1955; Saleh et al., 1965; Kermish and Kushin, 1969; Berry, 1975; Williams et al., 1979) or with the conclusion reached by previous reviewers of staff turnover (Knowles, 1964; Pettman, 1973; Price, 1977; Loewenberg, 1979; Mobley et al., 1979). There are three possible explanations for this inconsistency. First, the Seebohm and local government reorganisations, coupled with tremendous growth in the personal social services, all experienced in the first half of the 1970s, both disrupted the profession and offered an abnormal number of promotion possibilities (Holme and Maizels, 1978, p.35; Goldberg and Warburton, 1979, p.12). In other words, the social work profession found itself during that period in quite unusual circumstances. Second, it is quite clear that social work, under normal market and organisational

circumstances, is not like most other forms of employment. It is often hypothesised that there is a "coping threshold" for the social worker, beyond which the daily strains of the typical social work job become unbearable, and a move, even perhaps into an employment closely related to social work, becomes necessary. Third, the disparity between supply and demand of qualified social work staff, as I argued in chapter 1, influences the movement of social work staff from one local authority to another, because there are alternative job opportunities. This is obvious from table 5.13, where it can be seen that the movement of employees into social work increases as the length of service increases, whereas wastage decreases as the length of service increases, because wastage is influenced more by national market conditions.

Location of work (workplace)

The logit analyses indicate that the probability of leaving varies significantly between workplaces such as headquarters, hospitals for the mentally ill, child guidance clinics, etc. and that this difference varies between staff categories. For example, it can be seen from table 5.18, that team leaders based at headquarters are much less likely to leave their job than when based elsewhere. In contrast community workers have been found to be more prone to turnover when they are posted to headquarters (table 5.21). Senior social workers working in child guidance clinics are much less likely to leave than

those posted to hospitals for the mentlly ill or other hospitals and units (Table 5.19). Basic grade social workers and social work assistants who are on secondment for a period of full-time training have the lowest probability of leaving, and basic grade staff and assistants who are working in hospitals for the mentally ill or other hospitals (and associated units) are most prone to turnover. Hospital social work is often argued to be "the most widespread and significant formal specialism in local authority social work", although hospital social workers themselves are reluctant to claim specialist status (Brown, 1978). This then would not appear to be a particular source of dissatisfaction and hence explain the higher propensity to leave. Nevertheless, hospital social work is a very different job from other "branches" of social work, particularly when one considers the degree of professional freedom and autonomy, the often strict limitation of the social work task to the hospital setting, and the need to work closely with professionals with different values and disciplinary backgrounds. These could be a possible explanation of the higher propensity of leaving of those posted to hospitals. In conclusion, I would again suggest there is a pressing need for further investigation on turnover between workplaces, in order to find out what factors push or pull social work staff to change job, in particular in the hospital settings.

5.4 Individual-level analyses of factors predicting the probability of wastage

More than 34 per cent of social work staff who left their jobs with local authorities during the years 1975-77 did not move to another social work or related position. Considering the deleterious consequences of staff wastage, it is important to attempt to predict the probability of wastage (a leaver moving out of social work) on the basis of knowledge of personal characteristics and location of work. I thus again examined the data for 1976 to find out who moved to a non-social work job or who moved to another social work job. The subsequent employments or reasons for leaving are given in table 5.2

The dichotomous logit analysis was used to predict whether or not each employee in the sample would move to a non-social work job during the year under study. The dependent variable was defined as:

Hzm= 1 if the leaver m moved out of social work (i.e. non-social work job)

= 0 if the leaver m moved to social work (i.e. another social work job)

Where z=1, ... 6 (the six staff grades or positions) and m=1, ...mz (total sample size of leavers of staff category z).

Considering the probability of wastage by position, I had to estimate six prediction equations. The differences between positions in turnover propensity and its determinants, and the different levels of wastage between positions imply a need to examine them separately. The costs of wastage are, as I have already argued, likely to be different between positions. The set of independent variables used to construct the prediction equations are listed in table 5.1. The independent variables were again dummies defined as:

Xmj= 1 if the leaver m has characteristic j

= 0 if the leaver m does not have characteristic j

A number of different prediction equations was estimated. I report the equations considered to be the best in tables 5.24 to 5.28, where "best" is defined in terms of the criteria discussed in the previous section (5.3), also the likelihood ratio test statistics described in the section 5.3. The likelihood ratio test statistics are very highly significant. That is to say, the hypothesis =0 is rejected at 0.1% level of significance for all the equations, except the equation for trainees, at 5% level.

The estimated coefficients β given in tables 5.24 to 5.28, are obtained by maximising the likelihood function of equation (11) specified in the previous section, and may be interpreted as measuring the effects of the individual characteristics and location of work on the probability of moving out of social work or moving into social work. The formula for calculating the probability of wastage is the same as that described in the previous section, viz:

$$\text{Probability of wastage} = \frac{1}{1+e^{-(\Sigma\hat{\beta})}}$$

The working of the above formula is illustrated in table 5.39.

In order to discuss the findings with respect to the direction and magnitude of influence of the personal characteristics on the probability of wastage, it is helpful to recall the simple rule-of-thumb: the greater a positive coefficient the greater the probability of wastage, and the greater a negative coefficient the lower the probability of wastage.

Sex

From tables 5.24 to 5.28, it can be seen that males are much less likely to move out of social work than females. There are a number of plausible explanations for this difference, discussed in chapter 2. The sex variable appears to be a statistically significant determinant of the probability of wastage, in the first three equations at 0.1% level of significance and the other two at 5% level of significance. The sex variable was not statistically significant in the equation which refer to the grade "trainee social workers".

Age

The results presented in tables 5.24 to 5.28 indicate that age does not produce differences in the probability of wastage. Only in one equation, for basic grade social workers, have the specified age groups been retained. The coefficients of these age groups do not differ greatly (and are not particularly significant statistically) indicating little difference in the direction of subsequent employment attributable to age. These results(table 5.26) indicate that social workers of the 25-34 age group are marginally more likely to move out of social work than those aged 35 and over. The estimated coefficient corresponding to the under 25 age group was an unexpected result.

Education

The logit analyses indicate that the educational variables in general

are statistically significant determinants of the probability of wastage. The findings show hat the direction and the magnitude of influence, of the educational variables, on the probability of wastage varies between staff categories. For example, it can be seen from table 5.24, that team leaders who hold a diploma obtained at University or further education establishment are more likely to move out of social work than those who hold two or more 'A' levels (but not a great difference in the magnitude of influence on the probability of wastage). Table 5.25 shows that senior social workers who hold a university degree (or equivalent) or those who hold two or more 'A' levels are more likely to move out of social work than those who hold five or more 'O' levels. These two equations which refer to team leaders and senior social workers suggest that better educated employees are more likely to move out of social work than those who are less educated. On the contrary, the equations which refer to trainee social workers and to social work assistants indicate that better educated employees are less likely to move out of social work than those who are less educated (see tables 5.27 and 5.28). A possible explanation for this could be that better educated trainee social workers and social work assistants move to social work jobs, simply because they hope for an advancement opportunity.

Social work qualification

The equations reported in tables 5.24 to 5.28, show that there were no

significant differences in probabilities of wastage attributable to social work qualifications. Only in one equation, that for basic grade social workers, is there a social work qualification variable, and that is not particularly significant statistically. Nevertheless, we can say that social workers who hold the certificate of qualification in social work of the CCETSW or equivalent are less likely to move out of social work than others. This finding supports the conventional argument that "the greater the specialization the fewer the extraorganisational alternatives perceived and hence the lower the wastage" (March and Simon, 1958) - "specific human capital" reduces wastage propensity.

Length of service

Tables 5.24 to 5.28 indicate that the length of service is an important determinant of the probability of wastage (generally significant statistically at 0.1 per cent level). The figures in these tables clearly suggest that length of service and the probability of wastage are negatively associated. In other words, as the length of service increases, the probability of movement out of social work decreases. These results are encouraging because they support the explanations for the association between length of service and the probability of turnover (i.e. the positive association between them) given in the previous section.

Location of work (workplaces)

The equations reported in tables 5.24 to 5.28 show that the variables pertaining to location of work were not particularly significant determinants of the probability of wastage. One explanation could be that social work staff who were dissatisfied by their present workplace might move to another workplace and not out of social work, because there are alternatives in the personal social services. This means that location of work has little effect on the probability of wastage, but we have seen that there are important effects on the probability of turnover.

5.5 Conclusion

Turnover and wastage rates among social work staff were high and subject to variation between personal characteristics and location of work. The available data would suggest that turnover rates have been falling slightly since 1975. On the contrary, wastage rates have been increasing from 1975 to 1977 by 7 per cent, despite the steadily rising rates of unemployment. High turnover and wastage rates have a number of very important implications for the organisations and for clients, as I argued in Chapter 4. Therefore, any recommendation made here for staffing policies that could reduce staff turnover and wastage must be taken into account.

In this chapter I have identified those personal characteristics of social work staff and those work locations of fieldwork staff which

are associated with high probabilities of changing jobs (turnover) and moving out of social work (wastage). At first a descriptive analysis on available data, during the period 1975-1977, indicated that there are differences between stayers and leavers related to personal characteristics and location of work, and that there are important variations in the destination of leavers related to personal characteristics and location of work. A multivariate statistical technique (logit analysis) was therefore employed in order to identify the association between turnover or wastage and personal characteristics.

The logit technique is a relatively new and powerful technique which is particularly well suited to the analysis of staff turnover and wastage when the dependent variable is dichotomous or polychotomous. The logit analysis technique avoids the problems that arise with a multiple regression analysis (e.g. heteroscedasticity, the inappropriateness of standard tests used for statistical inference, the validity of the normality assumption, etc.), and which could thus lead the researcher to draw correct inferences from the results. Of course, the logit analysis technique is more complicated and computationally more expensive than the multiple regression analysis.

The statistical analyses presented in the previous sections revealed that personal characteristics and location of work produce important variations in the probability of individual turnover and wastage. The results have already been discussed, but it would be useful to gather together the various conclusions and policy implications for social services planners and employers:

(a) Males are less likely to change job (turnover) or to move out of social work (wastage) than females. This sex difference was particularly marked in wastage rates. Male leavers were much less likely to move out of social work for domestic reasons than females. On the other hand, male leavers were much more likely to move into social work than females (e.g. 50 per cent of male leavers moved to a job related to social service work, whereas only 29 per cent of female leavers moved to social work). There is need for further investigation, in order to find out what causes this sex difference, and to examine whether female leavers who move out of social work for domestic reasons later return to the labour force of personal social services. The data collected in the mid-1970s cannot shed light on this possibility, and no national data collection since then has been able to provide further evidence. A special study of this phenomenon is needed.

(b) Younger employees are more likely to leave their present social work job than older ones. For example, social work staff aged under 35 had a higher propensity to change jobs than their older colleagues. The wastage probabilities are not particularly related to age. Career changes seem most likely for the youngest staff only. Whatever the explanation, these age differences in the probabilities of leaving may influence the recruitment policies of social services employers.

(c) The differences in turnover and wastage probabilities attributable to differences in basic educational qualifications have been found to be significant. The higher the basic educational qualifications held, the greater the probability of changing jobs or moving out of social work. For example, social work staff with a university degree or equivalent have a higher probability of turnover or wastage than those who hold a lower-level educational qualification. This means that career aspirations and expectations are not met in their present social work job, and they leave for a better opportunity. A possible remedy for this problem is to offer career opportunities on the basis of educational qualifications.

(d) The differences in turnover and wastage probabilities attributable to differences in social work qualifications have been found to vary among staff categories. Employees posted in the higher positions (i.e. team leaders and senior social workers) are less likely to leave when they are holders of the certificate of qualification in social work or declarations of recognition of experience issued by CTC or CTSW. On the contrary, employees posted in the lower positions are more likely to leave when they are highly qualified, perhaps because they try to find a better social work job elsewhere, since their propensity to move out of social work has been found to be very low. The loss of qualified social work staff for an organisation means poor quality care, higher costs, and so on (Chapter 4).

(e) The length of continuous service has been found to be a very significant determinant of the probability of turnover and wastage. Whilst the propensity of changing a social work job increased with the length of service, the propensity of moving out of social work was highest for those with length of service under two years.

(f) The probability of turnover varied for social work staff in different locations within the social services department, but the probability of wastage was independent of location. In general, social work staff posted to hospitals have a higher propensity to change jobs than staff posted to other workplaces such as headquarters, child guidance clinics, etc. Whilst this result is important for standardising or qualifying the influences of other factors, it reflects an influence on turnover which is presumably beyond the control of employers.

Clearly much more research on the turnover and wastage of social work staff is needed in order to find out what factors push or pull employees to change social work jobs or to move out of social work, and to formulate efficient manpower policies for the personal social services. The personal characteristics which have been examined here constitute correlates of turnover and wastage. That is, they produce differences in the probability of turnover or wastage, but do not

cause turnover or wastage. For example, better-qualified employees are more attracted away from the organisation than unqualified employees. This means that the push or pull effects of factors differ among individuals. Therefore, any study of the causes of turnover and wastage has to take into account the differences produced by personal characteristics and location of work.

The prediction equations estimated in this chapter will be used to predict individual probabilities of leaving, which can be used to standardise crude turnover and wastage rates at the local authority level in an area level analysis. This is the subject of the next chapter.

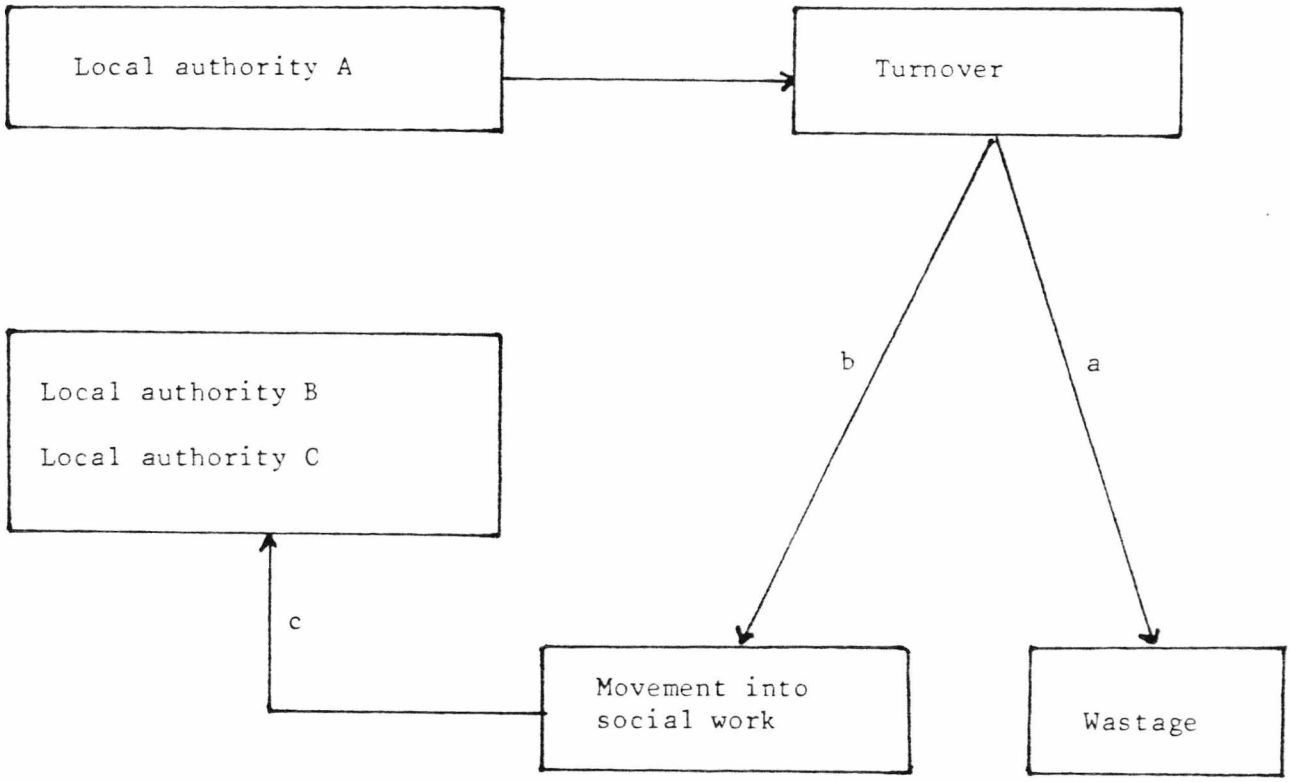

Figure 5.1: Movement of leavers out of social work (wastage) and movement into social work.

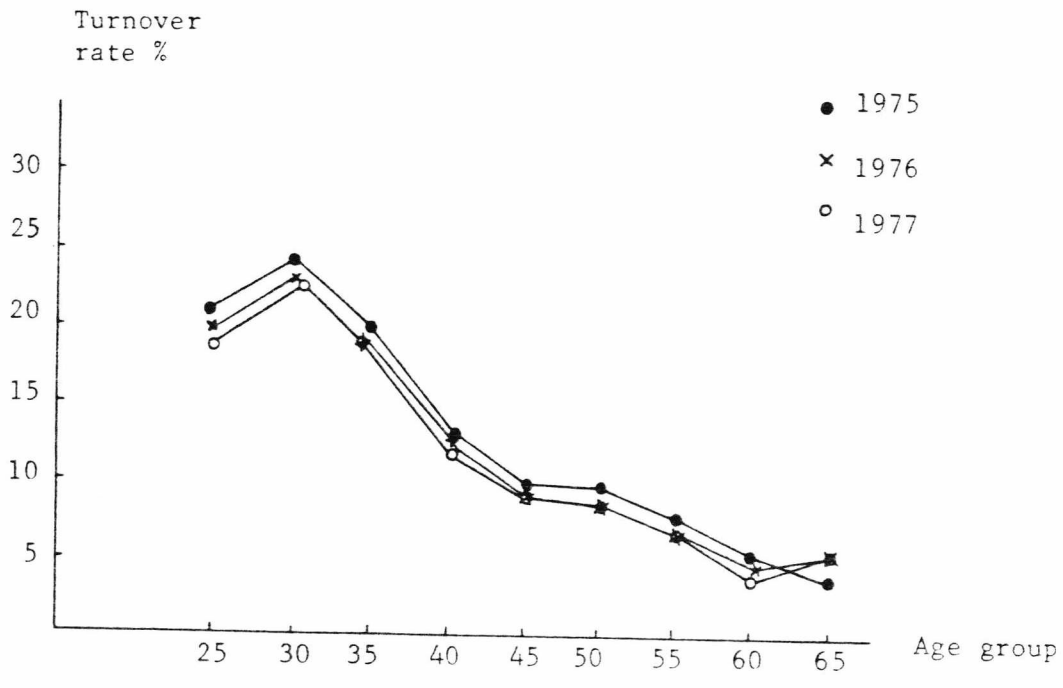

Chart 6.1 : Turnover rates by age groups (excluding retirement, illness and death)

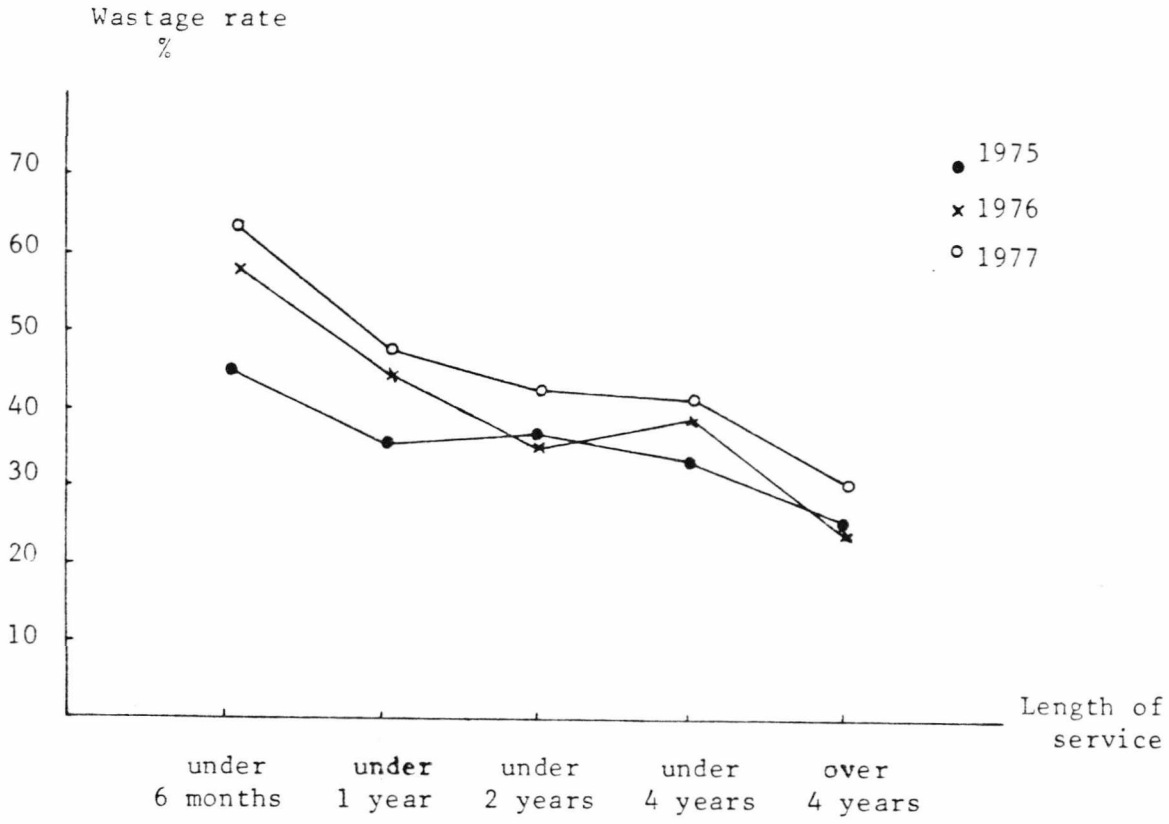

Chart 6.2 : Movement of leavers out of social work (wastage) by length of service

Table 5.1 : List of variables pertaining to personal characteristics that are related with staff turnover and wastage in the social work profession

Sex

E1= male
E2= female

Age

F1= under 25
F2= 25-29
F3= 30-34
F4= 35-39
F5= 40-44
F6= 45-49
F7= 50-54
F8= 55-59
F9= 60 and over

Basic Education

G1= Degree (including CNNA or equivalent)
G2= Diploma obtained at University of further education establishment
G3= Two or more 'A' levels (or equivalent)
G4= Five or more 'O' levels (or equivalent)
G5= None of the above

Position

H1= Team leader (senior social worker in charge of a group of social workers or equivalent)
H2= Senior social worker (not in charge of a group of social workers)
H3= Social worker
H4= Community worker
H5= Trainee social worker
H6= Social work assistant

Primary Qualification

I1= Certificate of qualification in social work of the CCETSW or equivalent
I2= Declaration of recognition of experience issued by CTC or the CTSW
I3= Advanced certificate or certificate in the residential care of children or certificate in residential social work
I4= Certificate or diploma of the deaf welfare examination board
I5= Home teachers or social welfare officers for the blind certificate of the college of teachers for the blind
I6= None of the above

Length of service

L1= Under 6 months
L2= 6 months, but under 1 year
L3= 1 year, but under 2 years
L4= 2 years, but under 4 years
L5= 4 years or more

Location of work

J0= Staff on secondment for a period of full-time training
J1= Headquarters
J2= Area office
J3= Hospitals for the mentally ill including special units
J4= Hospitals for the mentally handicapped including special units
J5= Other hospitals and units
J6= GP group practices or health centres
J7= Child guidance clinics
J8= Other

Table 5.1a : Notes for guidance on completion of staff turnover and wastage form

1. This return covers whole time senior social workers, social workers, community workers, trainee social workers and social work (welfare) assistants whose last day of service with the social services department fell during the period 30 September 1974 to 29 September 1975 incusive.

2. Senior social workers includes team leaders. Trainee social workers were staff paid on trainee grade scale who were employed with a view to being seconded for full-time training on a course lasting a year or more. Social work assistant were staff employed to assist social workers but who were not instructors, attendants/escorts or clerical staff or other grades separately identified on summary Form 001.

3. A separate line should be completed for each member of the staff who ceased to be employed in this social sevrices department during the period stipulated. Staff who left the authority's employment whilst on secondment for full-time training should also be included.

4. Where the length of service is sought it should only relate to the last complete period at the time of termination. For an officer who has had a break in service with a particular authority the length of service should relate only to the time between recommencement of service and the current termination. Secondment for a period of full-time training should not be considered as a break in service. Length of continuous service with a social services deparetment refers to length of service regardless of position. For this purpose the period served should include the time spent with those authorities or parts of authorities which have been incorporated or amalgamated as a result of local government reorganisation or the period served whilst employed with a public authority or institute prior to the time of transfer to a local authority because of government or commission recommendations. Thus where an officer was employed before reorganisation by a social services department of an authority part or all of which now come within the present authority's area, then the length of service should also include service with the other authority.

NOTES AND CODING INSTRUCTION

The name of the authority should be inserted in the space provided and the sheets numbered in sequence.

Column 2 - Identity

Insert here a local reference or identity number (Payroll or staff number, not the name) which will enable the particular entry to be identified in the event of a query.

Column 3 - Sex

Code each entry	Male	1
	Female	2

Table 5.1a (continued)

Column 4 - Month and Year or Birth

Enter month and year of birth in four digit form eg for a person born on 9 November 1930 insert 11:30.

Column 5 - Basic Education

Insert one code only. If more than one qualification is held code the quaification held that first appears in the list below.

Degree (including CNAA or equivalent)	1
Diploma obtained at University or further education establishment	2
Two or more 'A' levels (or equivalent)	3
Five or more 'O' levels (or equivalent)	4
None of the above	5

Column 6 - Position

Insert the position code:-

Team lead (senior social worker in charge of a group of social workers or equivalent)	31
Senior social worker (not in charge of a group of social workers	32
Social worker	33
Community worker	34
Trainee social worker	35
Social work assistant	36

Column 7 - Primary Qualification

Insert one code only. If more than one qualification is held code the qualification held that first appears on the list below:-

Certificate of qualification in social work of the CCETSW or equivalent*	1
Declaration of recognition of exprience issued by CTC or the CTSW	2
Advanced certificate or certificate in the Residential Child Care of Children or certificate in residential social work	3
Certificate or diploma of the deaf welfare examination board	4
Home teachers or social welfare officers for the blind certificate of the college of teachers for the bling	5
None of the above	6

* The equivalent qualifications are: qualifications in medical or psychiatric social work or family case-work obtained by specialist or applied social studies course (including the Certificates of the Institute or Medical Social Workers); the certificate or subsequently, the Letter of Recognition isued by the Central Training Council in Child Care; the Certificate in Social Work of the Council for Training in Social Work; or qualifications as a probation officer.

Table 5.1a (continued)

Column 11 - Length of continuous service with this social services department regardless of position (see note 4)

Code as follows:

Under 6 months	1
6 months, but under 1 year	2
1 year, but under 2 years	3
2 years, but under 4 years	4
4 years or more	5

Column 12 - Remarks

Insert here details of "others" when codes 8 or 98 are used in Columns 9 or 10. Prefix the details with the appropriate column marker.

Table 5.2 : Subsequent employment or reasons for leaving in the social work profession, together with variables' numbers

Z31= Undertaking further education not related to social service work (but not seconded)
Z32= Undertaking further education relating to social work (but not seconded)
Z33= Other LA social services department
Z34= Probation service
Z35= Post with University or further education institute
Z36= Post with LA department other than social services
Z37= Social work with non-LA employer
Z38= Non-social work with non-LA employuer
Z89= Retirement through age or ill-health (including death)
Z90= Resignation for domestic reasons (marriage etc.)
Z98= Other reaon specified
Z99= Not known destination or reason

Table 5.3 : Annual turnover and wastage of field social work staff during the period 1975-1977

		1975	1976	1977
A.	Number of staff in post at the end of the period, 30 September (stayers)	19,817	20,112	20,437
B.	Number of staff who left during the period (leavers)	3,596	3,364	3,394
C.	Turnover rate as percentage	15.4	14.3	14.2
D.	Wastage rate as percentage	34.3	38.3	41.2

Notes:

1. The numerical expression used to assess the amount of turnover was the following (see discussion on turnover measurements chapter 2, for details):

$$\text{turnover rate} = \frac{\text{No. of leavers during the period}}{\text{Total number of leavers and stayers during the period}}$$

2. The wastage rate was calculated by the formula:

$$\text{wastage rate} = \frac{\text{No. of leavers who moved out of social work during the period}}{\text{No. of leavers during the period}}$$

Movement out of social work due to retirement and unknown destination are excluded.

3. "Field social work" includes attachments to hospitals, GP practices, health centres and child guidance clinics.

Table 5.4 : Variations in social work staff turnover between local authorities

Turnover percentages	Number of local authorities		
	1975	1976	1977
0 - 9.99	8	8	10
10 - 14.99	28	34	33
15 - 19.99	34	38	40
20 - 24.99	24	24	20
25 - 29.99	14	7	6
30 and over	6	4	4
Total	114	115	113

Note: The numerical expression used to assess the amount of turnover was the following:

$$\text{Turnover rate} = \frac{\text{No. of leavers during the period}}{\text{Total number of leavers and stayers during the period}}$$

Table 5.5 : Variation of turnover rates among male and female

Sex	No. of staff in post	No. of staff who left	Turnover rate %
Male:			
1975	7345	1046	12.5
1976	7476	1068	12.5
1977	7627	988	11.5
Female:			
1975	12472	2550	17.0
1976	12636	2296	15.4
1977	12810	2406	15.8

Table 5.6 : Annual turnover rates by age groups (excluding retirement, illness and death)

Age group	Year ending 30 September 1975	1976	1977
under 25	20.3	19.1	18.8
25 - 29	24.6	23.9	24.0
30 - 34	21.1	19.0	19.2
35 - 39	14.4	14.0	11.9
40 - 44	10.8	9.5	9.9
45 - 49	10.3	8.5	8.2
50 - 54	8.6	6.1	6.2
55 - 59	5.8	4.7	4.1
60 and over	3.6	4.8	4.7

Table 5.6a : Annual turnover rates by age groups (including retirement, illness and death)

Age group	Year ending on 30 September 1975	1976	1977
Under 25	20.5	19.2	18.9
25 - 29	24.9	24.0	24.0
30 - 34	21.4	19.2	19.4
35 - 39	14.8	14.1	12.1
40 - 44	11.3	9.9	10.2
45 - 49	11.0	9.2	8.7
50 - 54	9.6	6.6	6.9
55 - 59	7.8	6.8	7.3
60 and over	26.9	33.2	44.0

Table 5.7 : Annual turnover rates by length of continuous service

Length of Continuous Service	Year ending on 30 September 1975	1976	1977
Under 1 year	19.4	19.6	11.3
1 year, but under 2 years	12.7	17.7	17.8
2 years, but under 4 years	20.9	13.6	16.3
4 years or more	23.4	17.9	21.9

Table 5.8 : Annual turnover rates by educational qualifications

Basic education		Number of staff in post	Number of staff who left	Turnover rate %
Degree (including CNAA or equivalent)				
	1975	4832	1063	18.0
	1976	5687	1279	18.4
	1977	6132	1273	17.2
Diploma obtained at University or further education establishment:				
	1975	1888	330	14.9
	1976	2140	318	12.9
	1977	2231	362	14.0
Two or more 'A' levels (or equivalent)				
	1975	1677	378	18.4
	1976	2077	411	16.5
	1977	2084	415	16.6
Five or more 'O' levels (or equivalent)				
	1975	2677	445	14.3
	1976	3183	492	13.4
	1977	3128	457	12.7
None of the above:				
	1975	5672	698	11.0
	1976	6769	828	10.9
	1977	6804	840	11.0

Note: For staff with more than one educational qualification only that which first appears in the list is recorded.

Table 5.9 : Annual turnover rates by social work qualifications(1)

Social work qualifications		Number of staff in post	Number of staff who left	Turnover rate %
Certificate of qualification in social work of the CCETSW or equivalent(2):				
	1975	7868	1391	15.0
	1976	8950	1446	13.9
	1977	10415	1614	13.4
Declaration of recognition of experience issued by CTC or the CTSW:				
	1975	320	51	13.7
	1976	300	46	13.3
	1977	202	48	19.2(3)
Advanced certificate or certificate in the residential care of children or certificate in resid. social work:				
	1975	201	31	13.4
	1976	195	26	11.8
	1977	155	22	12.4
Certificate or diploma of the deaf welfare examination board:				
	1975	23	2	8.0
	1976	19	5	20.8(3)
	1977	21	1	4.5
Home teachers or social welfare officers for the blind certificate of the college of teachers for the blind:				
	1975	286	53	15.6
	1976	257	27	9.5
	1977	263	25	8.6
None of the above or other:				
	1975	10879	1906	14.9
	1976	10389	1814	14.9
	1977	9381	1629	14.8

Table 5.9 (continued)

Notes:

(1) For staff with more than one social work qualification only that which first appears in the list is recorded.

(2) The equivalent qualifications are: qualifications in medical or psychiatric social work or family case-work obtained by specialist or applied social studies course (including the certificates of the Institute of Medical Social Workers); the certificate or subsequently, the Letter of Recognition issued by the Central Training Council in Child Care; the Certificate in Social work of the Council for training in social work; or qualification as a probation officer.

(3) These high turnover rates have been caused by retirement, illness and death (see table 5.15)

Table 5.10 : Annual turnover rates by grade or position

Grade/Position		Number of staff in post	Number of staff who left	Turnover rate %
Team Leader (1):				
	1975	2584	315	10.9
	1976	2703	303	10.1
	1977	2749	307	10.0
Senior Social Worker (2):				
	1975	1292	218	14.4
	1976	1443	225	13.5
	1977	1687	251	13.0
Social Worker:				
	1975	11415	2338	17.0
	1976	11443	2156	15.9
	1977	11538	2141	15.7
Community Worker:				
	1975	273	42	13.3
	1976	375	55	12.8
	1977	435	44	9.2
Trainee Social Worker:				
	1975	1607	230	12.5
	1976	1375	168	10.9
	1977	1177	191	14.0
Social Work Assistant:				
	1975	2646	453	14.6
	1976	2773	457	14.2
	1977	2851	460	13.9

Notes:

(1) Senior social worker in charge of a group of social workers or equivalent
(2) Not in charge of a group of social workers

Table 5.11 : Annual turnover rates by location of work (workplaces)

Location of work		Number of staff in post	Number of staff who left	Turnover rate %
Staff on secondments for a period of full time training:				
	1975	2054	86	4.2
	1976	1861	72	3.7
	1977	1751	61	3.4
Headquarters:	1975	1072	199	15.7
	1976	972	169	14.8
	1977	1051	171	14.0
Area Office:	1975	13951	2684	16.1
	1976	14235	2492	14.9
	1977	14425	2508	14.8
Hospitals for the mentally ill including special units:				
	1975	566	124	18.0
	1976	566	109	16.4
	1977	664	121	15.4
Hospitals for the mentally handicapped including special units:				
	1975	61	17	21.8
	1976	65	9	12.2
	1977	79	16	16.8
Other hospitals and units:	1975	1685	406	19.4
	1976	1828	416	18.5
	1977	1872	401	17.6
GP group practices or health centres:				
	1975	12	5	29.4
	1976	12	-	-
	1977	15	1	6.3
Child guidance clinics:	1975	186	33	15.1
	1976	205	26	11.2
	1977	230	28	10.9
Other:	1975	229	42	15.5
	1976	367	71	16.2
	1977	345	40	10.4

Table 5.12 : Destination of leavers and reasons for leaving by sex

Sex		Total of leavers	Movement to social work %	Movement out of social work (wastage) For domestic reasons %	For other reasons %	Total of wastage %	Retirement illness, death %	Not known destination %
Male:								
	1975	1044	49.6	3.9	18.6	22.5	5.2	22.7
	1976	1068	52.5	4.5	18.9	23.4	6.2	17.9
	1977	980	50.4	6.0	20.3	26.3	7.7	15.6
Female:								
	1975	2548	29.0	24.7	14.5	39.2	5.9	26.0
	1976	2296	29.0	28.5	16.7	45.2	6.1	19.7
	1977	2367	28.4	31.4	16.1	47.5	7.2	17.1

Table 5.13 : Destination of leavers and reasons for leaving by length of continuous service

Length of continuous service		Total of leavers	Movement to social work %	Movement out of social work (wastage) For domestic reasons %	For other reasons %	Total of wastage %	Retirement illness, death %	Not known destination %
Under 6 months:	1975	372	18.8	14.8	30.4	45.2	1.6	34.4
	1976	265	15.1	16.6	45.3	61.9	1.9	21.1
	1977	206	14.6	19.9	44.2	64.1	0.5	20.9
6 months, but under 1 year:								
	1975	700	32.3	19.9	16.0	35.9	1.6	30.3
	1976	533	30.6	24.8	20.8	45.6	0.6	23.3
	1977	374	30.2	22.2	23.5	45.7	1.6	22.5
1 year, but under 2 years:								
	1975	908	36.7	21.5	15.5	37.0	2.2	24.1
	1976	997	41.6	21.1	15.3	36.4	2.1	19.9
	1977	811	36.6	26.3	16.3	42.6	1.5	19.4
2 years, but under 4 years:								
	1975	896	37.8	19.8	15.0	34.8	3.9	23.5
	1976	930	37.8	24.2	15.0	39.2	4.8	18.1
	1977	1161	36.8	26.3	15.6	41.9	4.2	17.1
4 years or more:								
	1975	668	43.0	15.3	9.0	24.3	19.3	13.5
	1976	639	40.1	14.4	9.7	24.1	20.5	15.3
	1977	795	37.5	20.0	10.9	30.9	22.3	9.3

Table 5.14 : Destination of leavers and reasons for leaving by educational qualifications

Basic educational qualifications		Total of leavers	Movement to social work %	Movement out of social work (wastage) For domestic reasons %	For other reasons %	Total of wastage %	Retirement illness, death %	Not known destination %
Degree (including CNAA or equivalent):	1975	1063	37.3	20.3	15.7	36.0	1.8	24.8
	1976	1279	37.0	22.3	19.5	41.8	1.1	20.1
	1977	1273	36.4	26.7	16.3	43.0	1.9	18.6
Diploma obtained at University or further education estabilshment:								
	1975	330	32.1	15.5	13.9	29.4	9.1	29.4
	1976	318	35.2	21.7	15.1	36.8	9.4	18.6
	1977	362	36.7	20.4	19.1	39.5	9.9	13.8
Two or more 'A' levels (or equivalent):	1975	378	39.4	18.3	16.4	34.7	1.6	24.3
	1976	411	42.1	20.7	18.0	38.7	2.2	17.0
	1977	415	38.1	27.5	16.6	44.1	4.3	13.5
Five or more 'O' levels (or equivalent):	1975	445	38.4	22.5	16.0	38.5	3.8	19.3
	1976	492	37.4	25.0	15.9	40.9	3.5	18.3
	1977	457	35.0	23.6	21.4	45.0	4.6	15.3
None of the above:	1975	698	33.8	14.8	14.3	29.1	14.2	22.9
	1976	828	33.2	16.7	16.3	33.0	15.8	18.0
	1977	840	29.8	19.6	16.1	35.7	17.4	17.1

Table 5.15 Destination of leavers and reasons for leaving by social work qualifications

Social work qualifications		Total of leavers	Movement to social work %	Movement out of social work (wastage) For domestic reasons %	For other reasons %	Total of wastage %	Retirement illness, death %	Not known destination %
Certificate of qualification in social work etc.	1975	1391	44.0	20.4	12.4	32.8	3.6	19.6
	1976	1446	42.2	23.5	13.9	37.4	4.0	16.3
	1977	1614	39.6	28.2	13.8	42.0	3.8	14.6
Declaration of recognition of experience issued by CTC etc.								
	1975	51	29.4	7.8	15.7	23.5	37.2	9.8
	1976	46	21.7	2.2	8.7	10.9	54.3	13.0
	1977	48	27.1	8.3	4.2	12.5	52.1	8.3
Advanced certificate or certificare in Res. etc:	1975	31	51.6	19.4	3.2	22.6	9.7	16.1
	1976	26	26.9	30.8	15.4	46.2	7.7	19.2
	1977	22	36.4	27.3	18.2	45.5	4.5	13.6
Certificate or dilpoma of the deaf welfare etc:	1975	2	100.0	-	-	-	-	-
	1976	5	20.0	20.0	-	20.0	40.0	20.0
	1977	1	100.0	-	-	-	-	-
Home teachers or social welfare officers etc:	1975	53	35.8	18.9	11.3	30.2	20.8	13.2
	1976	27	33.3	18.5	3.7	22.2	29.6	14.8
	1977	25	8.0	20.0	8.0	28.0	60.0	4.0
None of the above or other:	1975	1905	29.0	17.5	18.1	35.6	6.0	29.4
	1976	1814	32.4	19.2	20.7	39.9	6.0	21.7
	1977	1629	30.8	20.3	21.4	41.7	8.3	19.3

Table 5.16 : Destination of leavers and reasons for leaving by grade or position

Grade or position		Total of leavers	Movement to social work %	Movement out of social work (wastage): For domestic reasons %	For other reasons %	Total of wastage %	Retirement illness, death %	Not known destination %
Team leader:	1975	315	50.2	14.3	11.1	15.4	8.6	15.9
	1976	303	43.2	17.2	12.2	29.4	13.9	13.5
	1977	306	38.6	22.9	14.4	37.3	14.1	10.1
Senior social worker:	1975	218	40.8	12.4	10.6	23.0	14.2	22.0
	1976	225	42.7	22.2	11.1	33.3	8.0	16.0
	1977	247	39.3	24.3	12.6	36.9	8.9	15.0
Social worker:	1975	2335	35.4	20.5	15.6	36.1	5.1	23.5
	1976	2156	36.5	21.7	17.0	38.7	5.4	19.5
	1977	2109	36.0	25.2	15.6	40.8	7.1	16.1
Community worker:	1975	42	31.0	16.7	14.3	31.0	4.8	33.3
	1976	55	41.8	16.4	14.6	31.0	7.3	20.0
	1977	42	28.6	16.7	23.8	40.5	4.8	26.2
Trainee social worker:	1975	230	32.2	12.2	17.8	30.0	1.7	36.1
	1976	168	42.3	14.9	16.1	31.0	1.8	25.0
	1977	190	35.8	14.7	27.4	42.1	-	22.1
Social work assistant:	1975	452	21.0	18.8	21.0	39.8	4.7	34.5
	1976	457	26.0	21.9	26.7	48.6	4.8	20.6
	1977	453	24.3	23.2	25.2	48.4	6.2	21.2

Table 5.17 : Destination of leavers and reasons for leaving by location of work (workplaces)

Location of work		Total of leavers	Movement to social work %	Movement out of social work (wastage) For domestic reasons %	For other reasons %	Total of wastage %	Retirement illness, death %	Not known destination %
Staff secondment for a period of full-time training:								
	1975	86	33.7	19.8	9.3	29.1	-	37.2
	1976	72	37.5	12.5	25.0	37.5	1.4	23.6
	1977	61	26.2	16.4	45.9	62.3	1.6	9.8
Headquarters:	1975	197	42.1	16.8	21.8	38.6	8.1	11.2
	1976	169	45.0	18.9	14.8	33.7	8.3	13.0
	1977	171	34.5	26.9	19.3	46.2	8.2	11.1
Area office:	1975	2682	36.5	18.3	15.1	33.4	5.6	24.6
	1976	2492	37.6	20.5	17.2	37.7	5.5	19.2
	1977	2508	37.0	23.8	16.7	40.5	6.3	16.3
Hospitals for the mentally ill including special units:								
	1975	124	26.6	21.0	19.4	40.4	5.6	27.4
	1976	109	35.8	24.8	11.9	36.7	9.2	18.3
	1977	121	33.1	22.3	12.4	34.7	13.2	19.0
Hospitals for the mentally hand. including special units:								
	1975	17	35.3	5.9	5.9	11.8	5.9	47.1
	1976	9	22.2	33.3	11.1	44.4	-	33.3
	1977	16	37.5	12.5	12.5	25.0	18.8	18.8

Table 5.17 continued

Location of work		Total of leavers	Movement to social work %	Movement out of social work (wastage) For domestic reasons %	For other reasons %	Total of wastage %	Retirement illness, death %	Not known destination %
Other hospitals and units:	1975	406	26.1	23.2	15.5	38.7	5.9	29.3
	1976	416	26.2	24.5	19.7	44.2	8.7	20.9
	1977	401	24.7	25.9	17.2	43.1	11.2	20.9
GP group practices or health centres:	1975	5	20.0	20.0	20.0	40.0	20.0	20.0
	1976	-	-	-	-	-	-	-
	1977	1	-	100.0	-	100.0	-	-
Child guidance clinics:	1975	33	24.2	21.2	12.1	33.3	9.1	33.3
	1976	26	30.8	26.9	11.5	38.4	3.8	26.9
	1977	28	28.6	28.6	7.1	35.7	14.3	21.4
Other:	1975	42	28.6	2.4	33.3	35.7	4.8	31.0
	1976	71	39.4	16.9	22.5	39.4	7.0	14.1
	1977	40	25.0	17.5	27.5	45.0	10.0	20.0

Table 5.18: Logit analysis for predicting the probability of leaving (turnover) among "team leaders"

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-1.905	0.321	5.92***
Male	-0.242	0.130	1.86
Age			
Under 25	-0.817	1.090	0.75
25-29	-0.801	0.276	2.90**
30-34	-0.941	0.264	3.57***
35-39	-0.676	0.263	2.57*
40-44	-1.573	0.306	5.14***
45-49	-1.221	0.281	4.35***
50-54	-1.879	0.341	5.51***
55-59	-2.073	0.411	5.05***
Education			
Degree or equivalent	0.396	0.155	2.56*
Two or more A-levels	0.526	0.205	2.57*
Social work qualifications			
Certificate or diploma of the deaf welfare examination board	2.784	1.450	1.92
Length of service			
1 year-under 2 years	0.599	0.250	2.39*
2 years-under 4 years	0.443	0.243	1.83
4 years or more	1.497	0.247	6.05***
Location of work			
Headquarters	-1.115	0.431	2.59**

Notes:

1. Sample size is 2,954.
2. Likelihood ratio test statistic = 244.88.
3. Significance indicated by * (5% level), ** (1% level), *** (0.1% level).
4. For staff with more than one qualification, only that which first appears in the list is recorded.
5. The absolute values of t- statistics are reported in this and subsequent tables.

Table 5.19: Logit analysis for predicting the probability of leaving (turnover) among "senior social workers"

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-2.219	0.244	9.08***
Male	-0.572	0.165	3.46***
Age			
35-39	-0.591	0.248	2.38*
40-44	-0.879	0.264	3.33***
45-49	-1.639	0.343	4.77***
50-54	-1.385	0.313	4.42***
55-59	-1.719	0.413	4.16***
Education			
Two or more A-levels	0.528	0.278	1.90
Social work qualifications			
Declaration of recognition of experience issued by CTC or CTSW	-0.724	0.554	1.31
Length of service			
1 year-under 2 years	1.039	0.272	3.82***
2 years-under 4 years	1.452	0.267	5.45***
4 years or more	2.155	0.283	7.62***
Location of work			
Hospitals for the mentally ill including special units	-0.703	0.415	1.69
Other hospitals and units	-0.371	0.206	1.79
Child guidance clinics	-1.130	0.629	1.80

Notes:

1. Sample size is 1,660.
2. Likelihood ratio test statistic = 124.86.

Table 5.20: Logit analysis for predicting the probability of leaving (turnover) among (basic grade) "social workers"

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-0.889	0.126	7.08***
Male	-0.242	0.053	4.57***
Age			
Under 25	-0.566	0.143	3.95***
25-29	-0.131	0.133	0.99
30-34	-0.271	0.140	1.94
35-39	-0.577	0.152	3.79***
40-44	-0.870	0.159	5.47***
45-49	-1.117	0.162	6.90***
50-54	-1.441	0.181	7.97***
55-59	-1.620	0.209	7.77***
Education			
Degree or equivalent	0.272	0.063	4.32***
Diploma obtained at university	0.112	0.088	1.28
Two or more 'A' levels	0.180	0.085	2.12*
Social work qualifications			
Certificate of qualification in social work of the CCETSW or equivalent	-0.395	0.052	7.66**
Home teachers or social welfare officers for the blind certificate	-0.576	0.227	2.54*
Length of service			
1 year-under 2 years	-0.185	0.059	3.12**
2 years-under 4 years	-0.203	0.059	3.44***
Location of work			
Staff on secondment for a period of full-time training	-1.778	0.166	10.11***
Other hospitals and units	0.237	0.077	3.07**

Notes:

1. Sample size is 13,398.
2. Likelihood ratio test statistic = 594.50.

Table 5.21: Logit analysis for predicting the probability of leaving (turnover) among "community workers"

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-2.129	0.378	5.62***
Male	-0.408	0.309	1.32
Age			
30-34	0.919	0.361	2.55*
55-59	0.890	0.624	1.43
Education			
Degree or equivalent	1.100	0.376	2.92**
Two or more A-levels or five or more O-levels	0.739	0.398	1.86
Length of service			
1 year-under 2 years	-0.529	0.353	1.50
2 years-under 4 years	-1.175	0.397	2.96**
Location of work			
Headquarters	0.554	0.376	1.47

Notes:

1. Sample size is 429.
2. Likelihood ratio test statistic = 27.08.

Table 5.22: Logit analysis for predicting the probability of leaving (turnover) among "trainee social workers"

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-2.069	0.120	17.20***
Male	-0.193	0.173	1.11
Social work qualifications			
Certificate of qualification in social work of the CCETSW or equivalent	1.665	0.495	3.36***
Length of service			
2 years-under 4 years	-0.044	0.185	0.24
Location of work			
Headquarters	0.092	0.620	0.15
Hospitals for the mentally ill including special units	0.815	0.659	1.24
Hospitals for the mentally handicapped including special units	2.165	1.420	1.53
Other hospitals and units	0.112	0.433	0.26

Notes:

1. Sample size is 1,538.
2. Likelihood ratio test statistic = 26.8.

Table 5.23: Logit analysis for predicting the probability of leaving (turnover) among "social work assistants"

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-1.234	0.132	9.40***
Age			
30-34	-0.291	0.182	1.60
35-39	-0.839	0.215	3.91***
40-44	-0.969	0.210	4.63***
45-49	-0.713	0.200	3.57***
50-54	-1.193	0.256	4.66***
55-59	-0.851	0.322	2.64**
Education			
Degree or equivalent	0.849	0.169	5.03***
Two or more A-levels	0.759	0.174	4.37***
Five or more O-levels	0.354	0.143	2.48*
Length of service			
1 year-under 2 years	-0.326	0.127	2.57*
2 years-under 4 years	-0.902	0.147	6.13***
4 years or more	-0.855	0.256	3.34***
Location of work			
Staff on secondment for a period of full-time training	-2.591	1.010	2.56*
Hospitals for the mentally ill including special units	0.657	0.333	1.97*
Other hospitals and units	0.494	0.178	2.78**

Notes:

1. Sample size is 3,202.
2. Likelihood ratio test statistic = 285.04.

Table 5.24: Logit analysis for predicting the probability of moving to a non social work position (wastage) among "team leader" leavers

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	1.747	0.436	4.01***
Male	-1.681	0.330	5.09***
Education			
Diploma obtained at university or further education establishment	-0.903	0.466	1.94
Two or more A-levels	-0.997	0.498	2.00*
Length of service			
4 years or more	-0.922	0.337	2.74**
Location of work			
Area office	-0.822	0.429	1.91
Hospitals for the mentally ill including special units	-1.493	0.856	1.74

Notes:

1. Sample size is 217.
2. Likelihood ratio test statistic = 56.28.

Table 5.25: Logit analysis for predicting the probability of moving to a non social work position (wastage) among "senior social worker" leavers

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-2.165	0.737	2.94**
Male	-2.164	0.473	4.58***
Education			
Degree or equivalent	2.367	0.700	3.38***
Diploma obtained at university or further education establishment	1.497	0.768	1.95
Two or more 'A' levels	2.702	0.931	2.90**
Five or more 'O' levels	1.967	0.760	2.59**
Length of service			
6 months, but under 1 year	0.644	0.678	0.95
2 years - under 4 years	0.565	0.401	1.41
Location of work			
Area office	0.588	0.389	1.51

Notes:

1. Sample size is 171.
2. Likelihood ratio test statistic = 56.74.

Table 5.26: Logit analysis for predicting the probability of moving to a non social work position (wastage) among "social worker" leavers

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	2.583	0.541	4.77***
Male	-1.269	0.120	10.60***
Age			
Under 25	-1.401	0.528	2.65**
25-29	-0.765	0.515	1.49
30-34	-0.679	0.525	1.29
35-39	-1.058	0.545	1.94
40-44	-0.895	0.554	1.61
45-49	-1.373	0.565	2.43*
50-54	-0.906	0.594	1.52
Education			
Two or more A-levels	-0.223	0.161	1.39
Social work qualifications			
Certificate of qualification in social work of the CCETSW or equivalent	-0.181	0.113	1.60
Length of service			
6 months, but under 1 year	-0.709	0.251	2.83**
1 year-under 2 years	-1.307	0.234	5.60***
2 years-under 4 years	-1.266	0.235	5.38***
4 years or more	-1.553	0.254	6.12***
Location of work			
Staff on secondment for a period of full-time training	0.883	0.421	2.09*

Notes:

1. Sample size is 1,611.
2. Likelihood ratio test statistic = 210.68.

Table 5.27: Logit analysis for predicting the probability of moving to a non social work position (wastage) among "community worker" and "trainee social worker" leavers

	Community workers			Trainee social workers		
Expanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat.	Coefficients $\hat{\beta}$	Standard errors	t-stat.
Constant	1.767	0.791	2.24*	-0.031	0.695	0.05
Male	-2.151	0.892	2.41*			
Education						
Degree or equivalent				0.779	0.599	1.30
2 or more A-levels				1.304	0.699	1.87
5 or more O-levels				2.297	0.770	2.98**
Length of service						
1 year-under 2 years	-2.239	0.909	2.46*	-0.941	0.479	1.97*
2 years-under 4 years				-1.643	0.569	2.89**
Location of work						
Area office				-0.663	0.465	1.43

Notes:

(a) Community workers

1. Sample size is 40
2. Likelihood ratio test statistic = 11.04

(b) Trainee social workers

1. Sample size is 122
2. Likelihood ratio test statistic = 17.72

Table 5.28 : Logit analysis for predicting the probability of moving to a non social work position (wastage) among "social work assistant" leavers

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	2.491	0.599	4.16***
Male	-0.577	0.295	1.96*
Education			
Degree or equivalent	-1.126	0.343	3.28**
Two or more 'A' levels	-1.084	0.376	2.88**
Five or more 'O' levels	-0.698	0.335	2.08*
Length of service			
6 months, but under 1 year	-1.751	0.511	3.43***
1 year-under 2 years	-2.177	0.486	4.48***
2 years-under 4 years	-1.942	0.516	3.76***
4 years or more	-1.721	0.882	1.95
Location of work			
Area office	0.689	0.370	1.86
Other hospitals and units	0.839	0.498	1.69

Notes:

1. Sample size is 341.
2. Likelihood ratio test statistic = 54.30.

Table 5.29 : Description of the results of the multiple regression analysis

Adopting the standard regression model

$$Y_i = X_{ij}\beta + U_i$$

where Y_i = 1 if the ith individual leaves the job
= 0 otherwise (i.e. stays)

X_{ij} = 1 if the ith individual has characteristics j
= 0 if the ith individual does not have characteristics j

β is a vector of unknown coefficients

U_i is the error term

The results of the multiple regression analysis are presented in table 5.30 for comparison with the results of the logit analysis of the same staff category.

Considering these results we can see that in general the coefficients of determination R^2 and the adjusted $\bar{R}^2$ are very low. For example, the explanation of the dependent variable in the regression equations which refer to staff turnover is less than 0.099 (8.7 per cent). These low values of R^2 and $\bar{R}^2$ stem from the inappropriateness of the method and are not necessarily indicators of poor fit. Also it can be seen that a number of independent variables which have been found to be highly significant in the regression analysis are not, conversely, significant in the logit analysis. This is particularly the case with variables which were highly correlated (see table 5.31). This could lead to incorrect inferences, and thus constitute one of the important problems which stem from the inappropriateness of the multiple regression technique. Finally, claculating the regression equation predictions at a sample of observational points revealed a number of predicted values outside the interval between 0 and 1. It should be noted that only small samples have been examined for practical reasons, and thus I do not present percentages of the predicted values which lie outside the permitted range (0, 1).

Table 5.30 : Regression estimates of staff turnover among "trainee social workers"

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	1.734	0.300	5.78***
Sex: Male	-0.021	0.016	1.31
Age:			
Under 25	-0.758	0.214	3.55***
25 - 29	-0.675	0.214	3.16**
30 - 34	-0.713	0.215	3.31***
35 - 39	-0.774	0.216	3.58***
40 - 44	-0.786	0.217	3.62***
45 - 49	-0.673	0.219	3.07**
50 - 54	-0.738	0.237	3.12**
Basic education:			
Five or more 'O' levels	0.024	0.022	1.08
Primary qualification:			
Certificate of qualification in social work of the CCETSW	0.199	0.072	2.75**
Advanced Certificate or certificate in residential care of children	-0.129	0.086	1.49
Home teachers or social welfare officers for the blind certificate of the college of teachers	0.804	0.298	2.69**
Location of work:			
Staff on secondment for a period of full-time training	-0.979	0.211	4.63***
Headquarters	-0.876	0.219	4.00***
Area office	-0.824	0.211	3.90***

Table 5.30 (continued)

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Hospitals for the mentally ill including special units	-0.795	0.226	3.52***
Hospitals for the mentally handicapped including special units	-0.488	0.298	1.64
Other hospitals and units	-0.874	0.216	4.06***
Child guidance clinics	-0.976	0.364	2.68**
Length of service:			
2 years, but under 4 years	0.032	0.018	1.79

Notes: 1. Sample size n=1538

2. Coefficient of determination, R^2=0.099 and adjusted $\bar{R}^2$=0.087

Table 5.31: Matrix of correlation coefficients in the equation of trainee social workers' turnover

E1	-0.03																				
F1	-0.06	-0.12																			
F2	0.07	0.14	-0.68																		
F3	0.01	0.05	-0.29	-0.18																	
F4	-0.02	0.01	-0.23	-0.14	-0.06																
F5	-0.03	-0.08	-0.20	-0.12	-0.05	-0.04															
F6	0.01	-0.04	-0.16	-0.10	-0.04	-0.03	-0.03														
F7	0.01	-0.02	-0.08	-0.05	-0.02	-0.02	-0.01	-0.01													
G4	0.02	-0.00	-0.09	-0.03	0.06	0.09	0.06	0.08	-0.00												
I1	0.09	-0.02	-0.07	-0.01	-0.02	0.04	0.04	-0.02	0.08	0.03											
I3	-0.03	0.02	-0.05	-0.01	0.09	-0.02	0.02	0.03	-0.01	0.05	-0.01										
I5	0.07	-0.02	-0.03	-0.02	0.09	-0.01	-0.00	-0.00	-0.00	-0.01	-0.00	-0.00									
J0	-0.22	0.07	-0.20	0.16	0.05	0.02	0.01	0.06	0.00	0.04	-0.06	-0.01	-0.03								
J1	0.01	0.03	0.08	-0.04	-0.02	-0.03	-0.02	-0.02	-0.01	-0.01	-0.01	-0.01	-0.00	-0.13							
J2	0.20	-0.02	0.17	-0.14	-0.04	-0.00	-0.00	-0.07	0.01	-0.03	0.04	0.01	0.03	-0.88	-0.12						
J3	0.03	-0.04	-0.02	-0.00	-0.03	-0.02	0.06	0.07	-0.01	-0.02	-0.01	-0.01	-0.00	-0.09	-0.01	-0.08					
J4	0.05	0.01	-0.00	-0.02	0.06	-0.01	-0.01	-0.01	-0.00	-0.01	-0.00	-0.00	-0.00	-0.04	-0.00	-0.03	-0.00				
J5	0.02	-0.12	0.03	-0.01	-0.01	-0.02	-0.02	-0.00	-0.01	-0.02	0.08	0.02	-0.00	-0.18	-0.02	-0.16	-0.02	-0.01			
J7	-0.01	-0.02	0.02	-0.02	-0.01	-0.01	-0.00	-0.00	-0.00	-0.01	-0.00	-0.00	-0.00	-0.03	-0.00	-0.02	-0.00	-0.00	-0.00		
L4	-0.01	0.01	-0.08	0.12	0.03	-0.04	-0.05	-0.00	-0.01	0.04	0.01	-0.01	-0.02	0.30	-0.04	-0.26	-0.03	-0.02	-0.08	-0.01	
	Y	E1	F1	F2	F3	F4	F5	F6	F7	G4	I1	I3	I5	J0	J1	J2	J3	J4	J5	J7	

Table 5.32 : An example of calculation of turnover or wastage probabilities

The following example illustrates how the exact probability of turnover may be calculated for an employee with given characteristics.

Suppose that we are interested to calculate the probability of turnover of a team leader with the following characteristics: male, aged 30, holder of a university degree, with 3 years continuous service in this department, and based at headquarters.

From table 6.18 we select those listed characteristics which apply to this particular team leader and add or subtract them as indicated. Thus we calculate the probability of turnover as:

Start with	-1.905	(constant for all team leaders)
subtract	0.242	because male
subtract	0.941	because aged 30-34
add	0.396	because university degree holder
add	0.443	because services of 2-4 years
subtract	1.115	because based at headquarters
Total	-3.364	

So we have probability of turnover = $\frac{1}{1+e^{-(\Sigma\beta)}} = \frac{1}{1+e^{3.364}}$

$= 0.033$ or 3.3%

In the same way we can calculate the probabilities of wastage for an employee with given charcteristics.

CHAPTER SIX

TURNOVER AND WASTAGE IN THE SOCIAL WORK PROFESSION AT AREA LEVEL

In this chapter I will examine the association between staff turnover and wastage rates, on the one hand, and job characteristics and other external characteristics of areas on the other. There are marked and important variations in staff turnover and wastage rates among local authorities.

In order to obtain satisfactory results for the association between staff turnover or wastage and area level factors such as attractiveness, expenditure on social work, expenditure on residential and community care, proportions of staff at different positions, staffing ratios, unemployment rates, community indicators etc., the method adopted is to standardise the crude turnover and wastage rates for individual characteristics. The crude rates can be very misleading, since they mask the real problems faced by local authorities and provide a misleading picture of the policy implications. The reasons which led me to standardise turnover and wastage rates were: first, variations in the probability of turnover or wastage produced by personal characteristics and location of work (see chapter 5); and second, evidence that employees are distributed differently among local authorities, according to their own personal

characteristics and their location of work (see, for example, the figures for five local authorities presented in table 5.3). The weights used for the standardisation are based on the estimated individual probabilities of turnover and wastage for each local authority derived from a principle of reducing the heterogeneity of error variances which results from area differences of the population (i.e. employment distributed differently among local authorities).

Before proceeding to describe the method used to standardise turnover and wastage rates, I shall review briefly the relevant literature.

6.1 The standardisation of rates

When comparing the statistical rate of some phenomenon in two or more groups, researchers generally need to control for those factors that can distort the comparison. For example, when comparing the mortality rates of two areas or countries, researchers try to control for differences in age, sex and ethnic composition. The technique commonly used to accomplish this is "standardisation" of the mortality rates for the two areas by relating them both to a standard population with specified age-sex-race composition. Standardised rates are artificial. For example, an age-sex-race standardised mortality rate indicates what the overall (or crude) mortaliy rate of a population would be if it had the age-sex-race composition of the standard population while retaining its own age-sex-race specific mortality rates (Kitagawa, 1955).

Reasons for standardisation

Comparison of the crude rate for some event across different populations may be misleading. For example, rates of mortality are usually affected considerably by the age-sex-composition of the population, therefore, the comparison of crude rates at all ages is likely to be misleading as a measure of the mortality. Some form of average of the mortality rates at ages is required which allows for the fact that populations differ in their structure. This average is reached by a process of standardisation, a process which leads to a weighted average and thereby to more comparable indices (Hill, 1971, p.219). This is obvious in table 6.4 where I present a sample of five local authorities with the same crude turnover rates but different age-sex-education compositions of employment. Cochran (1968) argued that in some investigations, comparison of the means of a variate Y in two study groups may be biased because Y is related to a variable X whose distribution differs in the two groups. He stressed the necessity for trying to remove this bias by using a device of standardisation (adjustment by subclassification). Osborn (1975) noted that in the study of the effects of several factors on vital rates, the single-factor specific rates can be misleading if the factors are not independent.

For example, stillbirth rates vary with maternal age, birth interval, social class, region, etc. Clearly such factors as these are not independent of each other, and consequently single-factor

specific rates do not necessarily reflect the independent effect of the factor on the rate. For instance, if the risk of stillbirth increases with the birth interval, the maternal age specific rates tend to be low for younger and high for older mothers simply because maternal age and birth interval are closely associated. Ideally the independent effect of one factor could be assessed by studying multidimensional tables of rates. This approach, however, is seldom rewarding in practice for two reasons: first, the multidimensional classification required for a particular study may not be available, and second, the number of vital events recorded in each cell is likely to be too small to enable rates to be estimated accurately. Fleiss (1973) pointed out that there is no substitute for examining the specific rates themselves, but the following reasons indicate the necessity of standardisation.

1. A single summary index for a population is more easily compared with other summary indices than are entire schedules of specific rates.
2. If some strata are comprised of small numbers of people, the associated specific rates may be too imprecise and unreliable for use in detailed comparisons.
3. For small populations, or for some groups of especial interest, specific rates may not exist. This may be the case for selected occupational groups and for populations from geographic areas especially demarcated for a single study. In such cases, only the total number of events may be available, and not their subdivision by strata.

Methods of standardisation

I shall describe briefly the most well known methods of standardisation discussed by Armitage (1971), Hill (1971), and Fleiss (1973). There are two main approaches: direct and indirect methods of standardisation.

(i) Direct standardisation

The direct method requires knowledge of all the specific rates of the population being studied. The data necessary for its implementation are:

1. The schedule of specific rates for the population being studied, say $C_1 \ldots . C_I$.
2. The distribution across the various strata for a selected standard population, say $P_{S1} \ldots . P_{SI}$

The direct adjusted rate is

$$DAR = \sum_{i=1}^{I} Ci\ Psi$$

It should be noted that different standardised rates must result if a different standard population is chosen because the standard rate depends strongly on the composition of that population (Hill, 1971). Therefore, the choice of the standard population constitutes a problem in standardisation.

One advantage of the direct method is that, if stratum by stratum, the specific rate in one group is equal to the specific rate in a second group, then, no matter which population is chosen as standard, the direct adjusted rates will be equal. Another advantage is that, consistent inequalities among specific rates, stratum by stratum, yield direct adjusted rates bearing the same inequalities. Thus if each specific rate in group 1 is greater than the corresponding rate in group 2, the direct adjusted rate for group 1 will be greater than that for group 2, no matter what the composition of the standard population.

(ii) Indirect standardisation

Indirect standardisation is applied when some of the specific rates are unreliable and possibly not available. The data necessary for its implementation are:

1. The crude rate for the population being studied, say C.
2. The distribution across the various strata for that population, say $P_1 \ldots P_I$.
3. The schedule of specific rates for a selected standard population, say $C_{S1} \ldots C_{SI}$.
4. The crude rate for the standard population, say C_S.

The indirect adjusted rate is

$$IAR = C_S \frac{C}{C^1}$$

that is, the crude rate for the standard population, C_S, multiplied by the ratio of the actual crude rate for the given population, C, to the crude rate, C^1, which would exist if the given population were subject to the standard populations schedule of rates.

where $C^I = \sum_{i=1}^{I} Csi\ Pi$

As with the direct method, the indirect standardised rates will depend upon the standard population that is used, and thus the choice of the standard population again constitutes a problem in standardisation.

Indirect standardisation does not completely adjust for differences in population composition. Thus, when attempting to explain variability across groups of indirect adjusted rates, one should bear in mind that, whereas variation of schedules of specific rates accounts for most of it, variations in population composition may still account for some of it (see Fleiss, p.161).

(iii) The standardised mortality ratio

The standardised mortality ratio is an index which expresses the rise or fall in mortality, based on observed and expected deaths. That is to say, the expected number of deaths would be compared with the number that actually occured to give an index of the change in mortality that has taken place. For example, if we are interested in mortality over a wide age range, in both sexes, and in a number of areas, it will be inappropriate to use a crude rate because of area differences in the age/sex distribution of the population at risk. Therefore, some form of standardisation is needed and the most widely accepted approach is the standardised mortality ratio, which is an indirect method with the following index:

$$S.M.R. = O_i / E_i$$

where O_i is the number of observed deaths in the ith area and E_i is the expected number of deaths in the ith area based on age/sex specific death rates in a standard population (see Pocock et al. 1981). Hill (1971) pointed out that this indirect method (standardised mortality ratio) allows one to dispense entirely with the fictitious standardised rates, when using as standard rates the mortality by sex and age to calculate the expected number of deaths.

The standardised mortality ratio index has been used extensively in the study of occupational mortality. Thus using as standard rates the mortality rates of all males, we can calculate the number of deaths that would have occured in the population of a particular occupational group if it had had the standard rates. The expected deaths are compared with the observed deaths by expressing the latter as a percentage of the former. "This form of standardised comparison can also be usefully applied in an experimental situation. e.g. a clinical trial, if the groups to be compared differ in some important feature. Thus the total number of deaths (or other events) observed in the treated group can be compared with the number that would have occurred if the fatality rates at ages in the control group had been operating" (Hill, 1971, p.217).

Problems of standardisation

An essential problem with standardisation of crude rates is the determination of the weighting scheme to be used in forming the

standardised rates. The nature of the comparison dictates the choice of specific weights for standardisation in some cases, but not in others. "Commonly, it is required only that the same weights are used for both groups in the comparison and, in order that the indices be meaningful, that the weights reasonably reflect the distribution of each group over the control variable" (Kaltoh, 1968). This led to a variety of standardisation procedures: Laspeyres and Paasche index numbers are examples in the field of economics; the standardised mortality ratio and the direct standardisation are examples from demography.

"For survey analysis, where typically sampling errors are important, it is proposed that the weights be derived from a principle of minimizing the sampling errors. To explain this principle more exactly it is necessary to distinguish between estimation and hypothesis testing. Standardisation can be used to obtain an estimate (and a related confidence interval) for the amount of difference between the two groups under study, and in this case the principle is to determine the weights in order to minimise the variance of the estimator. The technique can also be used to develop an overall significance test of the difference between the two groups and then the principle is to determine the weights in order to maximise the power of the test" (Kalton, 1968, p.119). Fryer et al. (1979) considering the problem of adjusting various early infant mortality rates of local authorities in England and Wales for variations in

their circumstances, pointed out that the usual direct and indirect methods of adjustment are not suitable when we intend to correct for a relatively large number of factors. Instead they employed regression analysis, which allows the researcher to cope more easily and reliably with a large number of explanatory variables, especially if an appropriate regression model turns out to be relatively simple. Whether the number of factors is large or small the regression approach also allows their weighting relative to their importance in the presence of others, and to trace the effects as further factors are introduced. They used as dependent variables the proportion of deaths Pi and the logit transform log $(P_i/(1-P_i))$ with weights taken to be inversely proportional to the variances of the dependent variable. Many authors used unweighted multiple regression to study death rates (Gardner et al. 1969; Elwood et al., 1977). Others transformed the rates and then use the multiple regression technique (see Butler et al., 1969, p.46; Osborn, 1975).

Pocock et al. (1982) presented a paper concerning the methods and problems of statistical analysis for studies of mortality. They argued that in evaluating the geographic association between mortality and other characteristics, multiple regression techniques may be used. They stressed that when multiple regression is applied, the basic decision concerns the choice of dependent variable. The standardised mortality ratio (SMR) for cardiovascular disease might seem a natural choice of dependent variable, but in fact they used log (SMR) assuming

that the effects of variables on mortality are multiplicative. During the discussion of this paper at a Royal Statistical Society Seminar, a number of criticisms were made. For example, Professor Fox pointed out that while the area may have certain characteristics the individuals in those areas also vary widely. Therefore records of individuals can be used to study the mortality of people according to their own socio-economic characteristics. The authors replied as follows: "We endorse Professor Fox's concern that epidemiological studies of individuals are needed to build on the interesting but preliminary findings that are revealed from area mortality studies." The authors pointed out that a fully weighted regression is inappropriate because it assumed all the residual variance is due to sampling error.

They also argued that unweighted regression is more appropriate than fully weighted regression when mortality rates are based on substantial numbers of deaths. In an earlier paper concerning regression of area mortlity rates, Pocock et al. (1981) argued that if the areas (in their analyses these were towns) vary considerably in size of population and number of deaths involved, unweighted regression may be inappropriate because areas with large populations provide more reliable mortality rates and hence should receive greater weight in any analysis. Also, a fully weighted regression, with weights inversely proportional to binomial sampling variances will tend to over-weight the larger towns, since the residual mean square

from the resultant regression will usually be larger than would be expected from sampling variation. One cannot expect to include all factors which are influencing the mortality risk in a town, since some factors will be either unknown or impossible to measure. Thus, although one hopes that a high proportion of the between-town variation in mortality rates will be explained by the variables in the regression model, one is liable to find that many of the residuals will be larger than could be attributed to sampling error alone. The authors proposed an intermediate solution via maximum likelihood which takes account of three sources of variation in mortality rates: sampling error, explanatory variables and unexplained differences between areas.

6.2 Standardisation of staff turnover and wastage rates

As I argued in chapter 3, leaving (turnover and wastage) can be regarded as equivalent to "death" (Silcock, 1954). Furthermore, the binary data theory is applicable to mortality rates and turnover rates because these rates constitute proportions of populations which are classified into two types. For example, the mortality rate is the proportion of deaths of a population classified into two classes (i.e. deaths and survivors). The turnover rate is proportion of leavers of a population classified into two classes (i.e. leavers and stayers). Finally, there are factors distributed differently in areas, which produce variations in mortality and turnover rates. Therefore, the preceding discussion addressed to reasons and problems on standardisation of mortality rates, unquestionably applies to standadisation of staff turnover and wastage rates.

Some years ago Veenstra (1930) presented a method of adjusting turnover rates by analogy to adjustment of mortality rates. For instance, if S1, S2, S3, ... are the staff turnover rates for length of service groups 1, 2, 3, ... and the proportions of employees in each group in the typical or standard company are represented by P1/P, P2/P, P3/P, ... then the total adjusted staff turnover rate may be found from the formula

$$S = S1P1/P + S2P2/P + S3P3/P + \ldots$$

We have seen how staff turnover and wastage rates vary considerably between different groups of employees. For example, younger employees are likely to be more sensitive to factors such as payment, job attractiveness, etc., than employees in the older age groups. Therefore, it is essential to weight staff turnover and wastage rates suitably in order to obtain satisfactory results for the association between these rates and job characteristics or other external factors at the area level, since employee characteristics are distributed differently among local authorities (see the example in table 6.3).

The statistical analyses of staff turnover and wastage at the individual level (chapter 5), indicated that the probabilities of turnover and wastage are strongly related to personal characteristics and workplaces. Therefore, the predicted individual probabilities of leaving in each local authority could be suitable weighting factors and thus overcome the problems of standardisation discussed above.

It should be noted that the population under study is not subject to sampling error because we have n=N. That is to say, there is only one possible random sample, consisting of all members of the population (i.e. total of leavers and stayers), and hence the sample mean, $\bar{Y}$, is equal to the population mean μ ,also the sample variance, S^2, is equal to the population variance σ^2, since

$$\sigma^2=\Sigma(Yi-\mu)^2/N-1 \text{ and}$$

$$S^2=\frac{\Sigma(Yi-\bar{Y})^2}{n-1} = \frac{\Sigma(Yi-\mu)^2}{N-1},$$

because n=N and $\bar{Y}=\mu$ so there is no discrepancy between the estimates obtained from the chosen sample and the corresponding results of the complete count (i.e. sampling error). As Zarkovich (1965) argued, "sampling errors arise from the fact that the estimates are not based on all the units constituting the population but only on a fraction of them. The discrepancy between the estimates and the corresponding census totals are called sampling errors". Therefore, the statistical analyses are not affected by sampling error variations, and thus will derive satisfactory results, pre-supposing that other sources of variation are taken into account (e.g. area differences).

In what follows an attempt will be made to describe and compare three types of staff turnover and wastage rates, viz:

a) the crude staff turnover and wastage rates

b) the standardised staff turnover and wastage ratios

c) an empirical weighted logit transform of staff turnover and wastage rates.

(i) Crude staff turnover and wastage rate

As I argued above, when individuals are classified into two types say, N1 and N2, with probabilities P and 1-P the number of individuals of type N1 in a population size N follows a binominal distribution with population proportion N1/N. If for the ith individual we represent the observation by a random variable, Yi we can define

Yi= 1 for leavers

0 for stayers

Then

E(Yi)=prob(Yi=1)=Pi,

prob(Yi=0)=1-Pi and

var (Yi)=Pi(1-Pi).

For the N individuals we have N independent random variables Y1, Y2, Y3,... YN, consequently we have

N1=ΣYi=Y1+Y2+Y3+...YN,

since Yi=0 or 1. Therefore, the mean and variance of the random variable N1 is

E(N1)=P+P+....+P=NP and

var(N1)=P(1-P)+P(1-P)+ ...+P(1-P)=NP(1-P).

The mean and variance of the population proportion is

E(N1/N)=P and

var(Ni/N)=P(1-P)/N.

If we denote the number of leavers with the letter L and the number of stayers with the letter S, then the proportion of leavers is L/N, where N=L+S, so we have:

1. Crude staff turnover rate: $CTRi=\frac{Li}{Ni}$

where i= 1, 2, ..., 113 local authorities

Li= No. of leavers during the period of study in the ith local authority

Ni= The sum of leavers and stayers during the period of study

(i.e. Ni=Li+Si) in the ith local authority

Si= No. of employees in post at the end of the period

(i.e. 30.9.76) in the ith local authority

2. Crude staff wastage rate: $CWRi = \frac{L'i}{L'i+''i} = \frac{L'i}{Mi}$

where i= 1, 2, ...113 local authorities

L'i= No. of leavers who moved out of social work during the period of study in the ith local authority (movement out of social work due to retirement and unknown destination are excluded)

L''i= No. of leavers who moved into social work during the period of study in the ith local authority

and $M_i = L'i + L''i$

Crude staff turnover and wastage rates may be misleading in area level studies because of area differences in the age/sex distributions of the population under study.

(ii) Standardised staff turnover and wastage ratio

The proposed standardised staff turnover and wastage ratio is similar to standardised mortality ratio; recalling the definition given by Pocock et al (1981), "SMR=Oi/Ei where Oi is the number of observed deaths in the ith area and Ei is the expected number of deaths in the ith area based on age/sex specific death rates in a standard population".

It can be seen that the standardised mortality ratio is merely the ratio of the actual to the expected crude rate, i.e.

$$\frac{Oi}{Ti} \Big/ \frac{Ei}{Ti} = \frac{Oi}{Ei}$$

where Ti the total population in the ith area.

This measure seems a reasonable adjusted rate as I already discussed in section 6.1, but there is a risk of oversimplification when the expected number of deaths in the ith area is based on age/sex specific death rates in a standard population. Therefore, it is essential to improve this measure by improving the way of estimating Ei.

In the case of turnover and wastage I attempted to improve this measure by statistically estimating the number of expected leavers and the number of expected movers out of social work. Using the estimated logit expression (i.e. the prediction equations of my individual level analysis) I calculate the predicted individual probabilities of leaving in the ith local authority

$$\hat{P}ij = \frac{1}{1+e^{-(\Sigma Xij\beta i)}}$$

where i=1, 2, ..., 113 local authorities, j=1, ...J "staff types" of leavers and stayers in the ith local authority, β_i is the vector of

estimated coefficients, and Xij is the vector of personal characteristics of an employee. The vector Xij varies between local authorities, and hence the probabilities $\hat{P}ij$ are invariant across them and thereby provide a suitable standard population for standardisation. The predicted number of leavers (i.e. the expected number of leavers) in ith local authority is then $\sum_{j=1}^{J} Nij\ \hat{P}ij$

For practical reasons I used the mean probability of leaving Pi of the Ni employees in the ith local authority

$$\bar{P}i = \frac{\sum_{j=1}^{J} Nij\ Pij}{Ni} \quad \text{or} \quad Ni\bar{P}i = \sum_{j=1}^{J} Nij\ Pij$$

where Ni= the sum of leavers and stayers during the period of study in the ith local authority (i.e. $Ni=\Sigma Nij$).

An example will help to understand the procedure. Suppose that in a local authority, there are 10 social workers (i.e. leavers and stayers during a period of study) distributed by their personal characteristics in three groups as follow (the list of variables pertaining to personal characteristics are presented in Table 5.1):

3 employees with personal characteristics E1, F1, G1, L4, J1

3 employees with personal characteristics E1, F1, G1, L4, I1, J2

4 employees with personal characteristics E1, F1, G1, L4, I5, J5

Using the estimated logit expression for the individual level analysis for social workers,

$$\text{Logit of } Pij = \frac{1}{1+e^{-(\Sigma Xij\beta i)}}$$

where $Xij\beta i$= -0.889 - 0.242 E1 - 0.566 F1 - 0.131 F2 - 0.271F3

-0.577 F4 - 0.870 F5 - 1.117 F6 - 1.441 F7 - 1.620 F8

+0.272 G1 + 0.112 G2 + 0.180 G3 - 0.395 I1 - 0.576 I5

-0.185 L3 - 0.203 L4 - 1.778 J0 + 0.237 J5

We thus obtain the predicted individual probabilities for the 10 social workers in the local authority. See table 6.5 for the hypothetical calculation of the individual probabilities.

From the table 6.5 we have

$$\bar{P}i = \frac{\Sigma PijNij}{\Sigma Nij} = \frac{\Sigma PijNij}{Ni} \quad \text{or} \quad \bar{P}iNi = \Sigma PijNij = 1.345$$

which is the expected number of leavers in the local authority under study.

So we define the standardised staff turnover and wastage ratios in the following way:

1. Standardised staff turnover ratio: $STRi = \frac{Li}{NiPi}$

where $\bar{P}i$= The mean probability of leaving of the Ni employees in the

ith local authority

$\bar{P}i$ is estimated by the prediction equations reported in my individual level analysis of staff turnover

2. Standardised staff wastage ratio: $SWRi = \frac{L'i}{Mi\bar{P}i}$

where $\bar{P}i$= The mean probability of movement out of social work of the Mi leavers in the ith local authority

($\bar{P}i = MiPi/Mi$)

$\bar{P}i'$ is estimated by the prediction equations reported in my individual level analysis of staff wastage.

The use of standardised staff turnover and wastage ratios as dependent variables in the area level analysis of staff turnover and wastage has two main purposes:

(a) it reduces the area differences (see the discussion of the comparison between rates below), and hence the heterogeneity of error variances which results from these area differences is reduced; and

(b) it enables an expression of the magnitude of each factor's effect on variation of staff turnover and wastage and a comparison of the relative importance of the explanatory variables.

Of course, the use of standardised staff turnover and wastage ratio as dependent variables implies that we assume that the factors (explanatory variables) have additive effects (i.e. there are no significant interaction effects). If, on the other hand, the data clearly indicate that the effects are multiplicative, then it is reasonable to use log(STR) and log(SWR) as dependent variables. Pocock et al (1982), assuming that the effects of explanatory variables on mortality are multiplicative, used log(SMR) as the dependent variable in their own work.

(iii) Empirical weighted logit transform of staff turnover and wastage rates

As I argued earlier, the individuals of the population under study are classified into two types ie. "leavers" and "stayers". Considering a population of N individuals there are L leavers and N-L stayers, with proportion R=L/N and with probability of leaving P. Define Q=1-R. The logit of R is then:

$$Y=\log R/Q$$

substituting R we obtain the crude transform

$$Y=\log R/Q = \log [(L/N)/(1-L/N)] = \log L/(N-L) = \log L/S$$

A difficulty arises if L=0 or N, then R=0 or 1 and Y= $-\infty$ or ∞, respectively. One plausible way of modifying the above transform is to define

$$Y = \log(L+1/2)/(S+1/2)$$

If a high proportion of the values of R are 0 or 1, it is probably wise to use the modified transform (Cox, 1970; Armitage, 1971, p.376).

Many investigators in the past used the crude logit transform as dependent variable because it reduces the heterogeneity of error variances. For example, Elwood et al. (1977) in a study of area mortality rates, used the crude logit transform log [di/(ni-di)] as dependent variable, where di is the number of deaths and ni is the population at risk in the ith area. It should be noted that this crude logit transform may be misleading because does not reflect the differences between the groups of employment according to their own personal characteristics. I illustrate this by considering two local authorities A22 (Haringey) and A39 (North Tyneside) which have exactly the same number of leavers (L=18) and the same number of stayers (S=81), and thus the crude logit transform for these local authorities is exactly the same (i.e. log(L/S)=log(18/81), from Table 6.7). But we can see from table 6.6 that the distribution of leavers and stayers is different between the two local authorities according to personal characteristics and therefore the crude logit transform is misleading because it masks these differences, since leaving is strongly related with the personal characteristics of employees.

This problem may be reduced by weighting the crude logit transform with an appropriate weight. Here, however, I attempted to reduce this problem on the basis of empirical weights. That is, I used a weighting coefficient W=P(1-P), expressed in terms of the predicted individual probabilities of leaving in each local authority. Then attaching a weight NW to the logit Y=log(L/S), and thereby weight each value of Y in inverse proportion to its variance (see Armitage, 1971, p.376).

I define the weighted logit transform of staff turnover and wastage rates as follows:

1. Weighted logit transform of staff turnover rate: $Zi=Yi/NiWi$

   where $Yi= \log(Li/Si)$

   $Wi= \bar{p}i(1-\bar{p}i)$, the weighted coefficient in terms of the estimated mean probability of leaving $\bar{p}i$ of the Ni employees in the ith local authority.

2. Weighted logit transform of staff wastage rate: $Zi'=Yi'/MiWi'$

   where $Yi'= \log (L'i/L''i)$

   $Wi'=\bar{p}i'(1-\bar{p}i')$ the weighted coefficient in terms of the estimated mean probability of movement out of social work $\bar{p}i'$ of the Mi leavers in the ith local authority

Note: For staff categories where a large proportion of local authorities had Li=0 or Ni, I used the modified formula.

Comparison between the three rates

Considering the distribution of leavers and stayers by personal characteristics in the two local authorities considered before - A22 (haringey) and A39 (North Tyneside) - we can see that the specific rates of leaving between the two local authorities vary significantly (table 6.6). Also the estimated mean probability of leaving, based on the distribution of individual characteristics which reflects the variation of leaving between the groups of emplopyees, differ in the two local authorities (0.156 and 0.150 correspondingly). On the other hand the crude staff turnover rates are exactly the same (i.e. 18.2 per cent). Therefore, crude staff turnover rates are misleading because they mask the variation between specific rates of leaving. The standardised staff turnover ratio and the weighted logit transform which are adjusted by the mean probability of leaving seem to reflect the differences of specific rates. For instance the standardised turnover ratio in the local authorities A22 and A39 is correspondingly 1.166 and 1.209.

Considering the commonly used measure of relative variation, i.e. the coefficient of variation of the three used rates: $V = \sigma/\bar{Y}$, where σ is the standard deviation and $\bar{Y}$ the mean of the dependent variable. We obtain from table 6.7 the following coefficients of variation

For crude staff turnover rate:

$$V = \sigma/\bar{Y} = \qquad = 0.3411 \text{ or } 34.11\%$$

For standardised staff turnover ratio:

$$V = \sigma/\bar{Y} = \qquad = 0.3281 \text{ or } 32.81\%$$

For weighted logit transform of staff turnover rate:

$$V = \sigma / \bar{Y} \qquad = 0.7875 \text{ or } 78.75\%$$

These results reveal that the standardised turnover ratio is more uniform than the other rates (see standard books of statistics). Therefore the standardised staff turnover ratio reduces the area differences more than the other used rates and consequently the heterogeneity of error variances which results from area differences will be more reduced.

Examination of the residuals of the regression equations presented in tables 6.8 to 6.35, indicated that in general the regression equations with dependent variable equal to the standardised staff ratio tend to be more successful in reducing the heterogeneity of error variances.

Finally considering the advantage of standardised mortality ratio (discussed in section 6.1) which is similar to standardised staff turnover and wastage ratio, I conclude by saying that the standardised staff turnover and wastage ratio seem a reasonable choice of dependent variable.

6.3 Area level analyses of variations in staff turnover

This section is concerned with the examination and explanation of variations of staff turnover in the social work profession among local authorities in England and Wales, due to factors such as job characteristics and external characteristics.

Using data collected by the Department of Health and Social Security from all English and Welsh local authorities during the period 1975-1976 (one year), and employing the multiple regression technique, I constructed six prediction equations, that is to say, one for each staff category:

Team leaders

Senior social workers

Social workers (basic grade)

Community workers

Trainee social workers

Social work assistances

As dependent variable, I used the standardised staff turnover ratio described in the previous section viz:

$$STRi = Li/Ni\bar{P}i$$

where Li= No. of leavers during the period of study in the ith local authority

Ni= The sum of leavers and stayers during the period of study in the ith local authority

$\bar{P}i$= The mean probability of leaving of the Ni employees in the ith local authority.

The set of independent variables pertaining to mean attractiveness, expenditure on social worker, percentage of expenditure spent on support services, expenditure on residential and community care, proportions of staff at different grades, staffing ratios, indicators of the volume of social work, unemployment rates, population density, and community indicators, are listed in Table 6.2.

It should be noted that the variable "mean attractiveness" is determined by the system. Therefore, I had to estimate a system of two potentially simultaneous equations, of the form

$$Y1t = \gamma 11Xt + U1t$$

$$Y2t = \beta 21Y1t + \gamma 21Xt + U2t$$

The first equation gives the mean attractiveness, and the second predicts staff turnover. Where X are the predetermined variables, t is the time period and U the error term. Obviously Y1t can be determined without reference to Y2t and having done so we can then determine Y2t. The system is therefore recursive (Dhrymes, 1970). For a better understanding, I write the equations in matrix form

$$Y = YB + XC + U$$

This system is said to be simply recursive if the equations and variables of the system can be so numbered that the matrix B is upper triangular and the covariance matrix is diagonal. "Upper traingularity for the matrix B means that the first equation contains, in addition to Y1t, only predetermined variables (X's). The second equation contains, in addition to Y2t, at most only Y1t and predetermined variables (X's) and, in general, the kth equation contains, in addition to Ykt, at most only Y1t, Y2t ... Y(k-1)t and predetermined variables (X's) ...." (Dhrymes, 1970, p.305). Clearly, the simultaneous equations estimated in the present analyses constitute a recrusive system and thus the application of ordinary least squares will yield consistent and unbiased estimates of the parameters (see Dhrymes, 1970; Johnston, 1972).

A number of different equations were estimated for each staff category. Independent variables were included or excluded from equations according to their individual statistical significance (measured by the t-statistics). The level of significance was moved up to 25% for inclusion of some variables which were hypothesized to be good candidates for the explanation of turnover and wastage. The performance of each regression equation was measured by the coefficient of determination (R^2) indicating the proportion of the variation in the dependent variable explained by the set of variables that remained in the equation. In fact, I used the adjusted ($\bar{R}^2$) as the working criterion because the coefficient of determination (R^2) will never decrease as additional explanatory variables are added to regression (see Johnston, 1972). The best equations, in terms of the above criteria, are reported in tables 6.8 to 6.13, and will be discussed below with respect to the magnitude and the direction of the influence of factors on staff turnover. Some of the equations rest on multiple regression estimates for small numbers of observations relative to the numbers of included variables. This is due to missing data. That is, a number of variables (e.g. unemployment, community indicators etc.) included in the equations had a small proportion of missing values. These variables were retained in the equations because of their importance which has been stressed by the past literature. Furthermore, the assumption of a linear model "that the number of observations must exceed the number of parameters" (see Johnston, 1972, p.122), is <u>not</u> violated, and the sample size is adequate for statistical analysis (there are more than 49 observations).

It should be noted that for comparison reasons, beside the use of standardised staff turnover ratio as dependent variable, I used as dependent variable the following two rates (described in section 6.2):

a) the crude staff turnover:

$CTR_i = L_i / N_i$

b) an empirical weighted logit transform of staff turnover:

$Z_i = Y_i / N_i W_i$

The results of the equations with dependent variables the above rates in general were similar to those equations with dependent variable the standardised staff turnover ratio. In particular, the results of the equations with dependent variable the crude turnover rate were not expected to be sufficient. An explanation for this could be that when turnover rates are based on substantial number of leavers unweighted regression is an appropriate procedure (see section 6.1; and Pocock et al. 1982, p.324). These findings are reported in tables 6.18 to 6.23 (crude staff turnover rates) and tables 6.27 to 6.32 (weighted logit transform of staff turnover), only for comparison, because I believe that inferences should be made with a degree of caution, for reasons which I have discussed in the previous section. That is, standardised turnover ratios reflect the differences of specific rates with respect to personal characteristics (e.g. age, sex, education etc.). Also the standardised turnover ratio is more uniform than the other rates and more successfully reduces the heterogeneity of error variances. Here, however, I shall discuss only the findings which refer to equations with dependent variables the "standardised staff turnover ratio".

Job characteristics

(a) Mean attractiveness. Mean attractiveness of each local authority as a place in which to work, judged by about 500 trainee social workers at the outset of university social work training course in 1976 (survey by Prof. Collison). Authorities are scored: 1 (very unattractive), through 6 (indifferent) to 11 (very attractive) as a place in which to work. The attractiveness of a particular area as a place in which to work is the psychological determinant of the combination of the individual's existing links with areas, and the attributes of the authority itself: whether it possesses characteristics which are likely to make it a pleasant place to work. For example, salary, advancement opportunities, nature of work, professional support and so on (see Bebbington and Coles, 1978; Bebbington, 1979; Collison and Kennedy, 1984)). Of course, there are external characteristics which are likely to affect the attractiveness of a local authority, for example, population density, unemployment rates and other factors over which neither the employer nor the employee can exercise control.

It is accepted that the attractiveness of local authorities in recruiting qualified social work staff varies considerably. Some authorities are able to recruit as many qualified workers as they would wish at the salaries they offer. Others, offering similar salaries, are unable to do so. Despite national wage agreements, authorities are to some degree able to compensate for their differing

relative advantages by offering more or less pay, making it more or less easy to obtain an appointment at higher levels, and in other ways. To the extent that they do so, they are acknowledging what amounts to variation in the prices that they have to pay for workers of comparable calibre" (see Bebbington, Davies and Coles, 1979). The marked variation of attractiveness between local authorities and the wide demand for qualified social work staff leads to keen competition between the employing bodies. This competition implies increasing costs of employment, because the employing bodies in their attempt to attract qualified social work staff have to increase the level of salary (assuming that the adjustment of demand and supply of qualified social work staff will take place through the price mechanism).

From tables 6.8, 6.11 and 6.13 it can be seen that the turnover of team leaders, community workers and social work assistants is negatively associated with mean attractiveness: "more attractive" areas experience lower turnover. Local authorities which experience high staff turnover rates can do little to influence this "attractiveness" if it is exogenously or historically determined. There may be some attributes of the authority itself which can be improved (e.g. payment, advancement opportunities etc), but staffing policies to increase the attractiveness of a local authority are themselves not costless. The majority will be exogenously determined.

(b) Expenditure on social work. It was possible to examine two variables which could be regarded as indicators of expenditure on social work. The first was the "percentage of total expenditure on fieldwork" which has been found to be not particularly significant statistically and not in the expected direction. The second was the "expenditure on fieldwork employees" (i.e. includes expenses only of employees in fieldwork). This was turned to an "average expenditure per staff member" which could be related to the average income of those providing social work (i.e. social workers, trainee social workers, social work assistants etc.). This variable has been retained only in the equation for social work assistant (table 6.13), and was not statistically significant. This finding shows that turnover of social work assistants is not associated with the average expenditure per staff member which could mean that turnover and income are not related.

(c) Percentage of expenditure on support services. Table 6.8 shows that the percentage of expenditure on support services (i.e. day care, community care, miscellaneous support services) is negatively associated with staff leaving among the "team leaders" grade. This finding suggests that an increase in the percentage of expenditure on support services could reduce turnover. Of course, the influences of this variable on staff turnover are indirect, and were expected to affect significantly only turnover of team leaders, simply because team leaders are more responsible for the improvement of the provision of personal social services.

(d) Expenditure on residential and community care. The expenditure on residential and community care (i.e. residential care for handicapped children, for the elderly, for the mentally ill, mentally handicapped etc.) include running expenses such as supplies and services, expenses on general equipment and so on. Clearly these factors have indirect influences on turnover of fieldwork staff, stemming from their responsibility to adjust the use of certain resources to the particular needs of individuals, families or groups and so on. The equations presented in tables 6.8 to 6.13 indicate that staff turnover is negatively associated with factors such as net expenditure per 1000 population 65 and over, net expenditure per 1000 population 18-64 (mentally ill), net expenditure per 1000 population 18-64 (sheltered employment) etc. (Statistically significant at 0.1 per cent level.) This means that more generous expenditure on residential and community care tends to reduce turnover of social work staff.

(e) Proportions of staff at different positions. The average number of subordinates per supervising staff member and the average number of supervising staff per subordinate, are factors with direct influence on staff leaving, for the following reasons. First, some areas of service provision may require more supervision than others, for example, field social workers may require more than, say, home helps (see Cohen and Hall, 1977). Second, the responsibility of the

supervisor to carry out his task, which has two functions, that of being supportive to his team and accountability to check that the social workers are carrying out their statutory duties may have an effect (see Kakabadse and Worral, 1978). Third, there is a degree of substitutability between the staff of different grades, for example, substitution of social work assistants for some basic social workers and vice versa (see Judge, 1976; Bebbington, Davies and Coles, 1979). Fourth, the need for staff of different categories, (e.g. social workers, social work assistants etc.) to carry out social work tasks in the personal social services, could generate more work for supervisory staff, because supervising staff have to carry out tasks which are peformed by subordinates.

My results indicate that as the average number of supervising staff per subordinate increases the leaving of subordinates decreases and vice versa. For example, the average number of supervising staff per trainee social worker, is negatively associated with the turnover of trainee social workers (table 6.12). The average number of supervising staff per social work assistant, is negatively associated with the turnover of social work assistants (table 6.13). On the other hand the average number of social work assistants per senior social worker, is negatively associated with the turnover of senior social workers (table 6.9), and the average number of senior social workers per team leader is negatively associated with the turnover of team leaders (table 6.8). These findings suggest that the average

number of supervising staff per subordinate, and the average number of subordinates per supervising staff member are factors with significant effects on social work staff turnover, and thus has to be taken into account by planners and employers in the personal social services, in particular by local authorities which are suffering from high turnover rates.

(f) Staffing ratio. The factor "total number of staff per 1000 population" indicates the fieldwork staffing ratio at 30 September 1975. It has been retained only in one equation, which refers to the position "senior social worker". Table 6.9 shows that the total number of staff per 1000 population is positively related with senior social worker turnover. Although not statistically significant, this is consistent with the past literature, suggesting that as the population per staff member increases, staff turnover increases. This result supports the Williams Committee Report (1967) which recommended that staffing ratios have to be changed and calculated on a basis which allows a 40 hour week.

(g) Indicators of the volume of social work. Factors such as proportion of handicapped persons to the total of population and average number in residential care per 1000 population (children, elderly, mentally handicapped etc.), indicate the volume of social work in the personal social services. The equations show that not all

of these causal influences are exactly as were expected, but nevertheless suggest the existence of a positive association between these factors and turnover. For example, the proportion of handicapped persons to the total of population is positively associated with social worker turnover (table 6.10). The average number in residential care - total of the elderly per 1000 population 65 and over, is positively related with trainee social worker turnover (table 6.12). The average number in residential care - total of the mentally handicapped per 1000 population aged 18-64, is positively related with social worker turnover (table 6.10), and so on. That is to say, as the amount of work falling to the social work profession increases so turnover increases, simply because a large amount of work implies long hours or greater pressure of work, and this produces job dissatisfaction which leads employees to the decision of leaving. Berridge (1981) observed that the most frequently mentioned reason for leaving by those who left community homes for children was the "hours of work". One in three of the social work staff indicated that hours of work was a contributory factor towards leaving. Also he noted that the working week for residential child care workers varies among local authorities, and that local authorities have different attitudes towards overtime worked in community homes. My findings indicate that if a local authority increased the number of social work staff in order to reduce the amount of work in the personal social services, this would reduce staff leaving, other things being equal.

External characteristics

(a) Unemployment. Unemployment rates are indicators of the opportunities of available jobs. As I argued in chapter 2, unemployment rates are expected to be negatively associated with staff turnover. In other words in periods with high levels of unemployment, staff turnover tends to fall and in periods with low levels of unemployment staff turnover tends to increase (see Behrend, 1953; Pettman, 1975; Price, 1977). It should be noted that unemployment rates at the area level were not used because the proportion of missing values was too high. Instead of unemployment rates, I used the increase in the number unemployed between 1974 and 1975.

My results are in part consistent with previous studies. For example, it can be seen that unemployment is negatively associated with turnover among team leaders and basic social workers (tables 6.8 and 6.10). That is, as the change in number unemployed increases so turnover decreases. The positive relationship between unemployment and trainee social worker turnover (not particularly significant statistically), and the positive relationship between unemployment and turnover among senior social workers and community workers were unexpected results (tables 6.9, 6.11 and 6.12).

(b) Population density. The population density, measured as persons per acre, district-weighted, has been retained only in two equations. The equation reported in table 6.12 shows that population density is

positively related with turnover among trainee social workers (statistically significant and on the expected direction). A plausible explanation for this could be that local authorities with high population density have above average levels of need, which means higher pressure of work and consequently higher turnover. Bebbington (1979) considering priorities in job choice among local authorities has found that trainee social workers prefer to work in areas with low population density. Also Loewenberg (1979) cited a report of high turnover rates for London probation workers who were attracted from inner city jobs to the suburbs where housing costs were lower and promotion opportunities better. This is a reason which influences the variation in costs between local authorities. The association presented in table 6.11 between population density and turnover of community workers was not in the expected direction.

(c) Community indicators. Community indicators such as the percentage of married couples with more than four children, the percentage of one parent families with children and other variables indicating the population change in local authorities (i.e. migration into and out of the area), have been found to be significant determinants of staff leaving. Of course the influences of these variables cannot be easily interpreted. Nevertheless, it is essential to discuss the most important findings of those which are in the expected direction. For example, the equation for the basic grade

social workers (table 6.10) suggests that local authorities in which migrants per 1000 population into the area from rest of GB increases, are suffering from higher turnover rates. Also the equations presented in tables 6.12 and 6.13 indicate that turnover of trainee social workers and social work assistants is high in local authorities where the estimated net annual migrants (1975-76) per 1000 population has grown. A plausible explanation for the positive influences lies in the fact that migration into an area causes a population increase, and this means greater need for personal social services and increased work for social workers. Table 6.13 shows that the higher the percentage of married couples with more than four children, in a local authority, the higher the turnover of social work assistants. Also as the percentage of lone parent families with children increases turnover of social work assistants increases. One explanation for these associations could be that the above factors are expected to produce a greater need for social intervention, and consequently increase the amount of work. Neither the employer nor the employee can exercise control over "community indicators", but it is possible to take some action in order to reduce their indirect influences on staff turnover. For example, high pressure on social work (i.e. the consequence of the above factors) could be reduced by increasing staffing ratios.

6.4 Area level analyses of variations in staff wastage

As we saw in chapter 5 over 38% of the social work staff who left their jobs with local authorities in 1975-76 did not move to another social work or related position. Also from table 6.14 it can be seen that the variation between local authorities in staff wastage is considerable. For example, the wastage rates for social workers ranged from zero in Barking, Doncaster, St. Helens and Leicestershire (local authorities A14, A45, A67 and A81) to 100 per cent in Walsall, Isle of Wight, Gwynedd and Powys (local authorities A78, A96, A109 and A111). Yet these local authorities have similar crude turnover rates (see table 6.7). Therefore, it is essential to examine the association between staff wastage and job characteristics or other external factors at area level.

Using the set of data already described in section 6.3 and employing the multiple regression technique I constructed three prediction equations, for the following staff categories:

Team leaders

Basic social workers

Social work assistants

I considered only the above staff categories because only for these was the sample size adequate for statistical analysis.

As dependent variable, I used the standardised staff wastage ratio, viz:

$$SWRi = L'i / Mi\bar{P}'i$$

where L'i= No. of leavers who moved out of social work during the period

of study, in the ith local authority (retirement, illness, death and unknown destination are exlcuded)

$$Mi = L'i + L''i$$

L''i= No. of leavers who moved into social work during the period of study, in the ith local authority

$\bar{P}'i$= The mean probability of movement out of social work of the Mi leavers in the ith local authority ($\bar{P}'i=\Sigma MiP'i/Mi$, see section 6.2).

The set of independent variables was that used for staff turnover, listed in table 6.2. A number of equations were estimated. I report in tables 6.15, 6.16 and 6.17 the equations considered to be the best in terms of the criteria discussed in the previous section. Also the variables which had a small proportion of missing values, were retained in the equations for reasons discussed in section 6.3.

As in the previous section, I used for comparison reasons, the crude wastage rate and an empirical weighted logit transform of staff wastage as dependent variables (described in section 6.2). The results were similar to those equations with dependent variable the standardised staff wastage ratio, for reasons discussed in the previous section. I present the results only for comparison, in tables 6.24 to 6.26 and 6.33 to 6.35. Here, however, I shall discuss the findings which refer to equations with dependent variable the "standardised staff wastage ratio", with respect to the magnitude and the direction of the influence of variables on staff wastage.

Job characteristics

(a) Mean attractiveness. The variable "mean attractiveness" has been retained only in one equation, which refers to grade "social work assistants" (table 6.17) and its influence is not in the expected direction. It was hypothesised that the mean attractiveness does not have important push or pull effects on wastage (movement of employees out of social work), simply because leaving caused by mean attractiveness of an area should logically lead to social work job in another area. Nevertheless, I had to examine the effects of mean attractiveness on wastage because it reflects a number of characteristics not included in the list of explanatory variables (see section 6.3).

(b) Expenditure on social work. Tables 6.15 and 6.17 suggest that factors pertaining to expenditure on social work such as "average expenditure per staff members" which includes expenses only of employees in fieldwork and "percentage of expenditure spent on fieldwork" may help to explain the very considerable differences in wastage rates between local authorities. The higher the average expenditure per staff members and the higher the percentage of expenditure spent on fieldwork, in a local authority, the lower the wastage rate of team leaders and social work assistants. Therefore, local authorities which experienced high wastage rates have to increase the income of social work staff in order to reduce the movement of employees out of social work.

(c) Percentage of expenditure on support services and expenditure on residential and community care. The percentage of expenditure on support services and the expenditure on residential and community care are variables with indirect influences on staff wastage rates, through the responsibility of the social work staff for the effectiveness of the personal social services. These influences are probably not important in their own right, but contribute to the push or pull effects on wastage in conjunction with other job characteristics. From tables 6.15, 6.16 and 6.17 it can be seen that the higher the percentage of expenditure on support services the lower the wastage of team leaders, social workers, and social work assistants. Also the higher the percentage of expenditure on residential care and the higher the percentage of expenditure for day care the lower the wastage rates of team leaders and social work assistants. The positive relationship between wastage and some of the factors pertaining to expenditure on residential and community care was not expected.

(d) Staffing ratio. The factor staffing ratio (measured by the total number of fieldwork staff per 1000 population at 30.9.75) has direct influences on staff wastage rates. The equation for basic grade social workers (table 6.16) indicates that staffing ratio is positively associated with wastage (statistically significant at 5 per cent level). This result suggests that the higher the population per staff member the higher the wastage rate. Once again I stress here the necessity for changes on the staffing ratios in local authorities, which will help to reduce the amount of work and lessen the number of hours per week, so that personal social services may be a relatively less unattractive employment compared to others.

(e) Indicators of the volume of social work. It is hypothesised that indicators of the volume of social work are positively associated with staff wastage, simply because large amounts of work produce job dissatisfaction and consequently movement of employees out of social work (i.e. movement to other forms of employment where pressure of work is less than that of the social work profession). The results indicate that the influences of some variables of those which reflect the amount of work are not in the expected direction. Nevertheless, there is found some evidence for the positive association. For example, table 6.15 shows that as the average no. in residential care - total of children per 1000 population under 18 increases, wastage increases. From tables 6.16 and 6.17 it can be seen that the higher the percentage of children at home under supervision the higher the wastage rate. Also table 6.17 suggests that the higher the proportion of handicapped persons to the total of population the higher the wastage rate, and the higher the percentage of population aged 18-64 in day care - sheltered employment the higher the wastage rate. In other words as the number of needy individuals increases the pressure on social work staff increases, and in consequence staff wastage increases through job dissatisfaction.

External characteristics

(a) Unemployment. It is accepted that unemployment rates are indicators of the opportunities of available jobs. Therefore a

negative relationship between staff wastage and unemployment might be expected. As I argued in the previous section, I used the increase of unemployed during the previous year of the study period, instead of unemployment rates which had a high proportion of missing values. However, with the exception of the result in table 6.17, there is no evidence to support this expectation.

(b) Population density. The factor "persons per acre-district weighted" which is a measure of the population density has been retained only in one of the three equations, and its influence is not in the expected direction (table 6.16).

(c) Community indicators. Community indicators are hypothesised to have important influences on staff wastage because they reflect need characteristics such as percentage of married women working more than 30 hours with child under 5, percentage of married couples with more than four children and so on. They also reflect characteristics which influence the local labour market (e.g. percentage of economically active aged over fifteen, percentage of unskilled workers etc). The equation for social work assistants (table 6.17) indicates that the percentage of married women working more than 30 hours with child under 5, the percentage of married couples with more than four children, the percentage of lone parent families with children, and the percentage of migrants coming into the area from the rest of Great

Britain are factors associated positively with wastage of social work assistants. These findings suggest that the higher the pressure on staff due to the greater needs, the higher the wastage rate. Also it can be seen from table 6.17 that the higher the percentage of economically active aged over fifteen the lower the wastage rate. A possible explanation for this association could be that as the percentage of economically active aged over fifteen increases opportunities for social work assistants to find a new job not related to social work decreases. The influences of the above factors on staff wastage for team leaders and social workers of the basic grade were not significant and not in the expected direction.

6.5 Conclusion

In the present chapter I attempted to stress the necessity of standardisation of staff turnover and wastage rates and the problems of standardisation, and secondly to identify those job characteristics or external characteristics, which are associated with staff turnover and wastage rates at area level.

Considering the first aim, I would conclude that the crude staff turnover and wastage rates are misleading because they mask variations between specific staff turnover and wastage rates in different areas. As I argued elsewhere social work staff is distributed differently among local authorities, according to personal characteristics and location of work, and it is accepted that staff turnover and wastage

rates vary considerably between different groups of employees. Therefore, it is necessary to standardise staff turnover and wastage rates with a suitable weight. The determination of a suitable weight is an essential problem of standardisation which has been pointed out in section 6.1. In the present study, I attempted to overcome this problem of standardisation by using a method with weights based on the predicted individual probabilities of leaving in each local authority, which has been found to reduce significantly the heterogeneity of error variances which results from area differences of the population.

The statistical analyses presented in this chapter identify the association of staff turnover and wastage with a number of available factors pertaining to job characteristics or external characteristics at the area level. In fact these equations comprise rather a mixed bag of causal relationships and casual or concomitant associations. Bearing in mind that the available data were not designed for a study of staff turnover, I cannot pretend that these equations explain staff turnover and wastage, but they suggest the probable orders by magnitude and direction of the examined factors which are associated with staff turnover and wastage.

Table 6.1 : Local authority codes

Code	Name	Code	Name
A1	Camden	A30	Redbridge
A2	City of London	A31	Richmond
A3	Greenwich	A32	Sutton
A4	Hackney	A33	Cleveland
A5	Hammersmith	A34	Cumbria
A6	Islington	A35	Durham
A7	Kensington	A36	Northumberland
A8	Lambeth	A37	Gateshead
A9	Lewisham	A38	Newcastle
A10	Southwark	A39	North Tyneside
A11	Tower Hamlets	A40	South Tyneside
A12	Wandsworth	A41	Sunderland
A13	Westminster	A42	Humberside
A14	Barking	A43	North Yorkshire
A15	Barnet	A44	Barnsley
A16	Bexley	A45	Doncaster
A17	Brent	A46	Rotherham
A18	Bromley	A47	Sheffield
A19	Croydon	A48	Bradford
A20	Ealing	A49	Calderdale
A21	Enfield	A50	Kirklees
A22	Haringey	A51	Wakefield
A23	Harrow	A52	Cheshire
A24	Havering	A53	Lancashire
A25	Hillingdon	A54	Bolton
A26	Hounslow	A55	Bury
A27	Kingston	A56	Manchester
A28	Merton	A57	Oldham
A29	Newham	A58	Rochdale

Code	Name	Code	Name
A59	Salford	A87	Buckinghamshire
A60	Stockport	A88	Cambridgeshire
A61	Tameside	A89	Essex
A62	Trafford	A90	Hertfordshire
A63	Wigan	A91	Norfolk
A64	Knowsley	A92	Oxfordshire
A65	Liverpool	A93	Suffolk
A66	Sefton	A94	Dorset
A67	St. Helens	A95	Hampshire
A68	Wirral	A96	Isle of Wight
A69	Hereford and Worcester	A97	Kent
A70	Salop	A98	East Sussex
A71	Staffordshire	A99	West Sussex
A72	Warwickshire	A100	Wiltshire
A73	Birmingham	A101	Avon
A74	Coventry	A102	Cornwall
A75	Dudley	A103	Devon
A76	Sandwell	A104	Gloucestershire
A77	Solihull	A105	Somerset
A78	Walsall	A106	Clwyd
A79	Wolverhampton	A107	Dyfed
A80	Derbyshire	A108	Gwent
A81	Leicestershire	A109	Gwynedd
A82	Lincolnshire	A110	Mid Glamorgan
A83	Northamptonshire	A111	Powys
A84	Nottinghamshire	A112	South Glamorgan
A85	Bedfordshire	A113	West Glamorgan
A86	Berkshire		

Note: There is no data for three local authorities (Leeds, Surrey and Waltham Forest).

Table 6.2 : List of explanatory variables related with staff turnover and wastage in the social work profession, area level

V1 = Population
V2 = Percentage of expenditure spent - on fieldwork
V3 = - on residential care
V4 = - on support services
V5 = Number of handicapped persons - blind and partially sighted
V6 = - deaf and hard of hearing
V7 = Number of other handicapped persons
V8 = Fieldwork staff - total number
V9 = - total number per 1000 population
V10 = Average no. in residential care - total of children per 1000 population under 18
V11 = - % of children boarded out
V12 = - % of children at home under supervision
V13 = Average no. in resid. care - total of the elderly per 1000 population 65 and over
V14 = Average no. in resid. care - total of younger physically handicapped
V15 = - total of younger physically hand. per 1000 pop. 18-64
V16 = Average no. in resid. care - total of mentally handicapped adults per 1000 population 18-64
V17 = Average no. in resid. care - total of mentally hand. children
V18 = - total of mentally hand. children per 1000 population under 18
V19 = Average no. in resid. care - total of mentally ill per 1000 population 18-64

V20 = Total no. per 1000 pop. 18-64 - day care, sheltered employment
V21 = No. of main meals served in authorities - total per 1000 population 65 and over
V22 = Net expenditure per 1000 pop. 65 and over - residential care for the elderly
V23 = Net expend. per 1000 pop. 18-64 - residential care for younger physically handicapped
V24 = Net expend. per 1000 pop. 18-64 - residential care for mentally handicapped adults
V25 = Net expend. per 1000 pop under 18 - residential care for mentally handicapped children
V26 = Net expend. per 1000 pop 18-64 - residential care for mentally ill
V27 = Net expend. per 1000 pop 18-64 - day care, sheltered employment
V28 = Net expend. per 1000 pop - community care, domestic help
V29 = Net expend. per 1000 pop 65 and over - community care, meals provided
V30 = No. of Irish immigrants per 1000 population
V31 = No. of new C/wealth immigrants per 1000 pop.
V32 = No. of econ. active aged 15 and over per 1000 population aged 15 and over
V33 = No. of unskilled workers per 1000 economically active
V34 = Married women working more than 30hrs with children under 6 per 1000 married women working with child under 5
V35 = No. of lone parent families per 1000 families with children
V36 = No. of married couples with more than 4 children per 1000 married couples

V37 = Mean attractiveness
V38 = Migrants per 1000 pop (1971) - into area from rest of GB
V39 = - within area
V40 = - out of area to rest of GB
V41 = Estimated net annual migrants 1975-6, per 1000 population
V42 = Population density (persons per acre district weighted)
V43 = Average number of social workers per supervising staff member
V44 = Average number of social work assistants per supervising staff member
V45 = Average number of senior social worker per team leader
V46 = Average number of social workers per senior social worker
V47 = Average number of social work assistants per senior social worker
V48 = Average number of supervising staff per social work assistant
V49 = Average number of supervising staff per trainee social worker
V50 = Average number of supervising staff per social worker
V51 = Average number of community workers per supervising staff member
V52 = Increase of the unemployed during the previous year (1974-75)
V53 = Average expenditure per staff member
V54 = Proportion of handicapped persons to the total of population.

Note: Earnings statistics were not used because they had a relatively wide margin of sampling error and the proportion of missing values was too high (see New Earnings Survey 1975, 1976).

Table 6.3 : Distribution of employment (leavers and stayers) by local authority and personal characteristics in the position "social workers"

Personal characteristics	Local authority				
	A17	A37	A41	A47	A104
Sex:					
male	33	49	43	36	42
female	75	59	63	73	65
Age:					
under 25	14	20	21	18	12
25-29	46	35	22	55	40
30-34	14	16	9	11	16
35-39	12	7	19	9	9
40-44	1	7	13	4	3
45-49	9	14	10	4	8
50-54	3	2	4	5	8
55-59	8	5	3	2	5
Over 60	1	2	5	1	6
Education:					
Degree	30	20	18	66	32
Diploma	11	2	3	8	7
Two or more 'A' level	16	16	20	7	9
Five or more 'O' level	24	20	23	8	34
Non	27	50	42	20	25
Total of employment	108	108	106	109	107

Notes:

1. I present the distribution of employment by three personal characteristics only and by local authorities which have approximately the same number of employment, in order to indicate that employees are distributed differently among local authorities, according to their own personal characteristics.

2. The names of local authorities are given in Table 6.1.

Table 6.4 : Distribution of specific leaving rates by sex, age and education in local authorities with the same crude rate (position, "social workers")

Personal characteristics	Local authority				
	A37	A63	A77	A93	A101
	%	%	%	%	%
Sex:					
male	18.4	12.5	0	11.3	10.2
female	16.9	19.7	27.3	23.8	20.7
Age:					
under 25	15.0	22.2	33.3	0	16.2
25-29	25.7	32.0	30.7	32.6	30.3
30-34	12.5	10.0	16.7	0	7.7
35-39	42.8	25.0	0	0	12.5
40-44	14.3	0	0	44.4	9.5
45-49	7.1	0	0	7.1	3.2
50-54	0	14.3	0	12.5	11.4
55-59	0	0	0	0	14.3
Over 60	0	0	0	25.0	50.0
Education:					
Degree	20.0	0	30.0	25.0	26.3
Diploma	0	20.0	0	0	10.0
Two or more 'A' level	12.5	37.5	40.0	26.3	14.3
Five or more 'O' level	25.0	6.2	12.5	16.6	27.7
Non	16.0	17.1	0	15.5	11.6

Notes:

a) In this table I present the distribution of employment leaving only for three personal characteristics, as an example, in order to indicate that leaving of employees is distributed differently among local authorities, according to personal characteristics

b) The local authorities presented here have exactly the same crude rate of leaving, i.e. 17.6% (see table 6.7)

Table 6.5 : Predicted individual probabilities

Probability of leaving P_{ij}	Number of employees N_{ij}	$P_{ij}N_{ij}$
0.125	3	0.375
0.130	3	0.390
0.145	4	0.580
	10	1.345

Table 6.6 : Distribution of leavers and stayers by sex, age, and education in two local authorities which have the same number of leavers and stayers

Personal characteristics	Local authority A_{22}			Local authority A_{39}		
	Leavers L	Stayers S	Specific rate %	Leavers L	Stayers S	Specific rate %
Sex:						
male	10	32	23.8	9	25	26.4
female	8	49	14.0	9	56	13.8
Age:						
under 25	2	4	33.3	6	21	22.2
25-29	7	32	17.9	6	24	20.0
30-34	5	21	19.2	1	6	14.3
35-39	1	8	11.1	3	11	21.0
40-44	0	5	0	0	5	0
45-49	0	3	0	1	5	16.6
50-54	0	4	0	0	5	0
55-59	0	2	0	1	3	25.0
Over 60	3	2	60.0	0	1	0
Education:						
Degree	5	30	14.3	7	20	25.9
Diploma	1	5	16.6	5	21	19.2
Two or more 'A' level	1	8	11.1	2	9	18.2
Five or more 'O' level	6	17	26.1	2	7	22.2
Non	5	21	19.2	2	24	7.6

Notes:

a) the crude turnover rates of the two local authorities are exactly the same, i.e. 18/99=18.2%

b) the estimated mean probability of leaving is 0.156 in local authority A_{22} and 0.150 in local authority A_{39}

c) the standardised turnover ratio and the weighted logit transform are correspondingly 1.166, -0.115 and 1.209, -0.119

Table 6.7 : Distribution of leavers and stayers by local authority, and the corresponding mean probability of leaving, crude turnover rate, standardised turnover ratio, and weighted logit transform of turnover rate, in the position "social workers"

Local authority	Employment			Mean probability of leaving	Crude turnover rate	Standardised turnover ratio	Weighted logit transform
	Leavers	Stayers	Total				
	L	S	N=L+S	$\bar{P}$	L/N	$L/N\bar{P}$	$\log(\frac{L}{S})/NW$
A1	38	128	166	0.181	0.229	1.267	-0.049
A2	3	9	12	0.198	0.250	1.260	-0.576
A3	28	93	121	0.169	0.231	1.373	-0.071
A4	29	118	147	0.175	0.197	1.127	-0.066
A5	30	89	119	0.194	0.252	1.301	-0.058
A6	16	112	128	0.175	0.125	0.715	-0.105
A7	20	79	99	0.178	0.202	1.134	-0.095
A8	76	208	284	0.174	0.268	1.539	-0.025
A9	37	110	147	0.173	0.252	1.453	-0.052
A10	50	140	190	0.175	0.263	1.501	-0.037
A11	26	107	133	0.173	0.195	1.128	-0.074
A12	37	136	173	0.181	0.214	1.180	-0.051
A13	56	122	178	0.204	0.315	1.545	-0.027
A14	6	23	29	0.142	0.207	1.461	-0.381
A15	10	51	61	0.172	0.164	0.951	-0.187
A16	10	53	63	0.135	0.159	1.172	-0.226
A17	23	85	108	0.172	0.213	1.236	-0.085
A18	14	62	76	0.168	0.184	1.096	-0.140
A19	10	52	62	0.157	0.161	1.025	-0.201
A20	19	80	99	0.150	0.192	1.282	-0.114
A21	8	48	56	0.146	0.143	0.981	-0.257
A22	18	81	99	0.156	0.182	1.166	-0.115
A23	12	46	58	0.186	0.207	1.114	-0.153
A24	7	62	69	0.148	0.101	0.686	-0.251
A25	5	84	89	0.142	0.056	0.396	-0.260
A26	9	46	55	0.156	0.164	1.048	-0.225
A27	4	28	32	0.143	0.125	0.875	-0.497
A28	14	52	66	0.156	0.212	1.358	-0.151
A29	15	51	66	0.202	0.227	1.126	-0.115
A30	11	46	57	0.164	0.193	1.178	-0.183
A31	14	29	43	0.179	0.326	1.817	-0.115
A32	8	30	38	0.150	0.211	1.414	-0.275
A33	38	183	221	0.142	0.172	1.208	-0.058
A34	21	100	121	0.156	0.174	1.115	-0.098
A35	18	129	147	0.145	0.122	0.844	-0.108
A36	16	69	85	0.157	0.188	1.203	-0.130
A37	19	89	108	0.150	0.176	1.176	-0.112
A38	17	123	140	0.140	0.121	0.867	-0.117
A39	18	81	99	0.150	0.182	1.209	-0.119
A40	9	53	62	0.137	0.145	1.058	-0.242
A41	16	90	106	0.160	0.151	0.944	-0.121
A42	20	175	195	0.162	0.103	0.634	-0.082
A43	15	108	123	0.157	0.122	0.776	-0.121

Table 6.7 (Continued)

Local authority	Employment: Leavers L	Stayers S	Total N=L+S	Mean probability of leaving $\bar{P}$	Crude turnover rate L/N	Standardised turnover ratio $L/N\bar{P}$	Weighted logit transform $\log(\frac{L}{S})/NW$
A44	8	28	36	0.178	0.222	1.246	-0.237
A45	5	55	60	0.154	0.083	0.541	-0.307
A46	9	57	66	0.158	0.136	0.862	-0.210
A47	12	97	109	0.178	0.110	0.619	-0.131
A48	19	109	128	0.158	0.148	0.939	-0.103
A49	4	43	47	0.141	0.085	0.604	-0.417
A50	12	77	89	0.151	0.135	0.894	-0.163
A51	12	58	70	0.129	0.171	1.329	-0.200
A52	19	175	194	0.152	0.098	0.646	-0.089
A53	38	325	363	0.146	0.105	0.715	-0.047
A54	14	59	73	0.154	0.192	1.249	-0.152
A55	9	47	56	0.145	0.161	1.110	-0.238
A56	49	247	296	0.182	0.166	0.908	-0.037
A57	7	53	60	0.134	0.117	0.870	-0.291
A58	10	42	52	0.150	0.192	1.284	-0.217
A59	15	63	78	0.170	0.192	1.131	-0.130
A60	15	47	62	0.148	0.242	1.631	-0.146
A61	13	41	54	0.157	0.241	1.534	-0.161
A62	13	49	62	0.160	0.210	1.308	-0.159
A63	15	70	85	0.139	0.176	1.271	-0.152
A64	16	42	58	0.167	0.276	1.652	-0.120
A65	65	333	398	0.164	0.163	0.996	-0.030
A66	11	80	91	0.157	0.121	0.771	-0.165
A67	7	51	58	0.153	0.121	0.791	-0.265
A68	15	84	99	0.154	0.152	0.983	-0.133
A69	27	125	152	0.156	0.178	1.140	-0.077
A70	8	68	76	0.157	0.105	0.673	-0.213
A71	23	188	211	0.158	0.109	0.689	-0.075
A72	14	64	78	0.145	0.179	1.237	-0.157
A73	32	274	306	0.164	0.105	0.637	-0.051
A74	17	94	111	0.162	0.153	0.944	-0.113
A75	11	49	60	0.161	0.183	1.143	-0.185
A76	12	75	87	0.150	0.138	0.920	-0.165
A77	6	28	34	0.163	0.176	1.085	-0.333
A78	4	56	60	0.137	0.067	0.486	-0.372
A79	8	45	53	0.175	0.151	0.861	-0.225
A80	37	203	240	0.160	0.154	0.967	-0.053
A81	0	163	163	0.166	0	0	0
A82	13	106	119	0.153	0.109	0.715	-0.136
A83	5	56	61	0.151	0.082	0.544	-0.310
A84	31	250	281	0.170	0.110	0.650	-0.053
A85	16	99	115	0.144	0.139	0.965	-0.128
A86	14	83	97	0.155	0.144	0.931	-0.140

Table 6.7 (continued)

Local authority	Employment: Leavers L	Employment: Stayers S	Total N=L+S	Mean probability of leaving $\bar{P}$	Crude turnover rate L/N	Standardised turnover ratio $L/N\bar{P}$	Weighted logit transform $\log(\frac{L}{S})/NW$
A87	6	54	60	0.167	0.100	0.600	-0.264
A88	22	105	127	0.164	0.173	1.059	-0.090
A89	36	310	346	0.146	0.104	0.713	-0.050
A90	52	172	224	0.173	0.232	1.341	-0.037
A91	20	172	192	0	0.104	0	0
A92	18	116	134	0.175	0.134	0.770	-0.097
A93	22	103	125	0.143	0.176	1.229	-0.101
A94	19	142	161	0.143	0.118	0.827	-0.102
A95	65	260	325	0.149	0.200	1.343	-0.034
A96	4	26	30	0.152	0.133	0.876	-0.484
A97	43	245	288	0.141	0.149	1.058	-0.050
A98	16	144	160	0.143	0.100	0.697	-0.112
A99	20	139	159	0.147	0.126	0.859	-0.098
A100	8	85	93	0.146	0.086	0.589	-0.204
A101	52	244	296	0.151	0.176	1.161	-0.041
A102	18	73	91	0.128	0.198	1.542	-0.138
A103	43	163	206	0.137	0.209	1.528	-0.055
A104	15	92	107	0.160	0.140	0.878	-0.126
A105	12	69	81	0.135	0.148	1.094	-0.185
A106	8	78	86	0.163	0.093	0.572	-0.194
A107	11	57	68	0.154	0.162	1.053	-0.186
A108	15	120	135	0.168	0.111	0.660	-0.110
A109	7	76	83	0.180	0.084	0.469	-0.195
A110	19	114	133	0.168	0.143	0.853	-0.097
A111	2	22	24	0.131	0.083	0.636	-0.878
A112	19	130	149	0.172	0.128	0.740	-0.090
A113	24	114	138	0.176	0.174	0.987	-0.078

Table 6.8 : Regression of standardised staff turnover ratio for "team leaders" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	6.553	1.949	3.36***
Mean attractiveness	-0.362	0.185	1.96*
Percentage of expenditure spent on support services	-0.064	0.030	2.13*
Expenditure on residential and community care			
Net expenditure per 1000 pop. 65 and over	-0.038[a]	0.026[a]	1.45
Proportion of staff at different positions			
Average number of senior social workers per team leader	-0.263	0.217	1.21
Average number of community workers per team leader	1.462	1.173	1.25
Unemployment			
Increase of the unemployed during the previous year (1974-75)	-0.589	0.457	1.29
Community indicators			
No. of new c/wealth immigrants per 1000 pop.	0.009	0.007	1.20

Notes:

1. Sample size, n=98
2. Coefficient of determination, R^2=0.109 and adjusted $\bar{R}^2$=0.039
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.9 : Regression of standardised staff turnover ratio for "senior social workers" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-3.870	1.701	2.28*
Percentage of expenditure spent on support services	0.040	0.038	1.06
Expenditure on residential and community care			
Net expenditure per 1000 pop. 65 and over	0.092[a]	0.048[a]	1.94
Net expenditure per 1000 pop. 18-64 (mentally ill)	1.321[a]	1.256[a]	1.05
Net expenditure per 1000 pop. (domestic help)	-0.357[a]	0.330[a]	1.08
Net expenditure per 1000 pop. 65 and over (provided meals)	-0.504[a]	0.204[a]	2.47*
Proportions of staff at different positions			
Average number of social work assistants per senior social worker	-0.637	0.269	2.37*
Staffing ratio			
Total number of staff per 1000 pop.	1.896	1.299	1.46
Indicators of the volume of social work			
Average no. in residential care - % of children at home under supervision	0.046	0.031	1.47
Unemployment			
Increase of the unemployed during the previous year (1974-75)	1.464	0.467	3.14**
Community indicators			
No. of new c/wealth immigrants per 1000 pop.	-0.025	0.016	1.52
Estimated net annual migrants 1975-76 per 1000 pop.	-0.028	0.024	1.17

Notes:

1. Sample size, n=57
2. Coefficient of determination, R^2=0.382 and adjusted $\bar{R}^2$=0.231

Table 6.10 : Regression of standardised staff turnover ratio for "basic social workers" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-6.019	5.124	1.17
Mean attractiveness	0.054	0.047	1.16
Expenditure on social work			
Percentage of expend. spent on fieldwork	0.058	0.053	1.09
Percentage of expenditure spent on support services	0.071	0.052	1.36
Expenditure on residential and community care			
Percentage spent on residential care	0.067	0.051	1.32
Net expenditure per 1000 pop. 18-64 (mentally handicapped adults)	-0.381[a]	0.185[a]	2.05*
Indicators of the volume of social work			
Proportion of handicapped persons to the total of population	6.814	4.680	1.46
Average no. in residential care - % of children at home under supervision	0.012	0.008	1.61
Average no. in residential care - total of younger physically handicapped	-1.128[a]	0.532[a]	2.12*
Average no. in residential care - total of the mentally handicapped adults per 1000 pop. 18-64	0.360	0.275	1.31
No. of main meals served in authorities per 1000 pop. 65 and over	0.008[a]	0.007[a]	1.20
Unemployment			
Increase of the unemployed during the previous year (1974-75)	-0.126	0.085	1.49
Community indicators			
Migrants per 1000 pop. - into area from rest of GB	0.007	0.003	2.68**
Migrants per 1000 pop. - within area	-0.005	0.004	1.24

Notes:

1. Sample size, n=95
2. Coefficient of determination, R^2=0.348 and adjusted $\bar{R}^2$=0.243

Table 6.11 : Regression of standardised staff turnover ratio for "community workers" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-3.697	2.313	1.60
Mean attractiveness	-0.264	0.184	1.43
Expenditure on social work			
Percentage of expenditure spent on fieldwork	0.160	0.058	2.75**
Percentage of expenditure spent on support services	0.062	0.035	1.75
Expenditure on residential and community care			
Net expenditure per 1000 pop. 18-64 (sheltered employment - day care)	-0.004	0.001	2.95**
Indicators of the volume of social work			
Average no. in residential care - total of the mentally ill per 100 pop. 18-64	4.063	1.435	2.83**
Average no. in day care - total no. per 1000 pop. aged 18-64	1.409	1.013	1.39
Unemployment			
Increase of the unemployed during the previus year (1974-75)	0.539	0.423	1.28
Population density			
Persons per acre - district weighted	-5.587	2.003	2.80**
Community indicators			
No. of unskilled workers per 1000 economically active	0.012	0.008	1.51

Notes:

1. Sample size, n=66
2. Coefficient of determination, R^2=0.348 and adjusted $\bar{R}^2$=0.243

Table 6.12 : Regression of standardised staff turnover ratio for "trainee social workers" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-2.518	4.754	0.53
Expenditure on social work			
Percentage of expenditure spent on fieldwork	0.205	0.095	2.16*
Expenditure on residential and community care			
Net expenditure per 1000 pop 18-64 (younger physically handicapped - residential care)	0.006	0.002	4.16***
Net expenditure per 1000 pop. 18-64 (mentally ill - residential care)	-0.013	0.004	3.58***
Net expenditure per 1000 pop. 18-64 (sheltered employment - day care)	-0.010	0.002	4.03***
Net expenditure per 1000 pop. (community care - domestic help)	-0.892[a]	0.439[a]	2.03*
Proportion of staff at different positions			
Average number of supervising staff per trainee social worker	-0.500	0.153	3.27**
Indicators of the volume of social work			
Average no. in residential care - total of the elderly per 1000 pop. 65 and over	0.268	0.113	2.37*
Average no. in residential care - total of younger physically handicapped per 1000 pop. 18-64	-7.864	1.819	4.32***
Average no. in residential care - total of mentally handicapped adults per 1000 pop. 18-64	-4.442	1.511	2.94**
Average no. in residential care - total of mentally handicapped children per 1000 pop. under 18	5.750	2.815	2.04*
Average no. in residential care - total of mentally ill per 1000 pop. 18-64	10.004	3.985	2.51*
Total no. per 1000 pop. 18-64 - day care, sheltered employment	4.853	1.577	3.08**
No. of main meals served in authorities total per 1000 pop. 65 and over	-0.275[a]	0.090[a]	3.06**

Table 6.12 (continued)

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Unemployment			
Increase of the unemployed during the previous year (1974-75)	1.252	0.797	1.60
Population density			
Persons per acre - district weighted	20.622	8.443	2.44*
Community indicators			
No. of unskilled workers per 1000 economically active	0.073	0.021	3.50***
No. of economically active aged over 15 per 1000 pop. aged over 15	-0.011	0.008	1.41
Migrants per 1000 pop. - into area from rest of GB	-0.102	0.053	1.91
Migrants per 1000 pop. - out of area to rest of GB	0.118	0.057	2.06*
Estimated net annual migrants 1975-76 per 1000 population	0.131	0.047	2.76**

Notes:

1. Sample size, n=55
2. Coefficient of determination, R^2=0.645 and adjusted $\bar{R}^2$=0.436

Table 6.13 : Regression of standardised staff turnover ratio for "social work assistants" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-1.490	2.099	0.71
Mean attractiveness	-0.120	0.079	1.51
Expenditure on social work			
Average expenditure per staff member	-0.158[a]	0.086[a]	1.84
Percentage of expenditure on fieldwork	0.034	0.027	1.25
Expenditure on residential and community care			
Net expenditure per 1000 pop. 18-64 (mentally handicapped adults - resid. care)	0.867[a]	0.511[a]	1.70
Net expenditure per 1000 pop. 18-64 (mentally ill - resdidential care)	-1.341[a]	0.650[a]	2.06*
Proportion of staff at different positions			
Average number of supervising staff per social work assistant	-0.108	0.053	2.06*
Indicators of the volume of social work			
Average no. in residential care - % of children at home under supervision	-0.033	0.015	2.16*
Average no. in residential care - total of mentally handicapped adults per 1000 pop. 18-64	-0.882	0.648	1.36
Total no. per 1000 pop. 18-64 - day care sheltered employment	-0.793	0.391	2.03*
Proportion of handicapped persons to the total of population	-21.395	10.193	2.10*

Table 6.13 (continued)

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Community indicators			
No. of economic active aged over 15 per 1000 pop. aged over 15	0.005	0.003	1.72
No. of Irish immigrants per 1000 pop.	-0.018	0.008	2.33*
Married women working more than 30 hrs with child under 5 per 1000 married women	-0.002	0.001	1.65
No. of lone parent families per 1000 families with children	0.019	0.006	2.92**
No. of married couples with more than 4 childen per 1000 married couples	0.014	0.007	2.09*
Estimated net annual migrants 1975-76 per 1000 population	0.035	0.013	2.68**

Notes:

1. Sample size, n=73
2. Coefficient of determination, R^2=0.448 and adjusted $\bar{R}^2$=0.290

Table 6.14 : Crude wastage rate by local authority, in the position "social workers" (movements out of social work due to retirement and unknown wastage are excluded)

Local authority	Wastage rate %	Local authority	Wastage rate %	Local authority	Wastage rate %	Local authority	Wastage rate %
A1	43.48	A30	77.78	A59	75.00	A88	66.67
A2	66.67	A31	23.08	A60	38.46	A89	46.15
A3	28.00	A32	20.00	A61	8.33	A90	12.50
A4	39.13	A33	61.11	A62	38.46	A91	66.67
A5	57.14	A34	86.67	A63	57.14	A92	76.92
A6	46.15	A35	41.18	A64	31.25	A93	58.82
A7	40.00	A36	76.92	A65	67.65	A94	57.14
A8	40.35	A37	38.89	A66	55.56	A95	55.56
A9	39.39	A38	50.00	A67	0.00	A96	100.00
A10	50.00	A39	37.50	A68	66.67	A97	78.12
A11	56.25	A40	37.50	A69	41.67	A98	0.00
A12	88.00	A41	46.15	A70	85.71	A99	54.55
A13	60.78	A42	58.33	A71	76.19	A100	33.33
A14	0.00	A43	55.56	A72	69.23	A101	59.09
A15	55.56	A44	37.50	A73	45.00	A102	56.25
A16	44.44	A45	0.00	A74	30.77	A103	62.86
A17	52.17	A46	50.00	A75	20.00	A104	63.63
A18	33.33	A47	77.78	A76	22.22	A105	50.00
A19	62.50	A48	37.50	A77	60.00	A106	33.33
A20	46.67	A49	33.33	A78	100.00	A107	12.50
A21	25.00	A50	11.11	A79	50.00	A108	50.00
A22	50.00	A51	16.67	A80	59.46	A109	100.00
A23	87.50	A52	25.00	A81	0.00	A110	44.44
A24	50.00	A53	34.29	A82	72.73	A111	100.00
A25	75.00	A54	30.00	A83	66.67	A112	58.33
A26	25.00	A55	11.11	A84	86.21	A113	47.06
A27	66.67	A56	48.48	A85	58.33		
A28	54.55	A57	85.71	A86	69.23		
A29	69.23	A58	44.44	A87	50.00		

Table 6.15 : Regression of standardised staff wastage ratio for "team leaders" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	47.881	28.899	1.66
Expenditure on social work			
Percentage of expenditure spent on fieldwork	-0.536	0.305	1.76
Percentage of expenditure spent on support services	-0.496	0.294	1.68
Expenditure on residential and community care			
Percentage of expenditure spent on residential care	-0.574	0.294	1.96*
Net expenditure per 1000 pop. 18-64 (mentally handicaped adults)	0.004	0.001	2.65**
Indicators of the volume of social work			
Average no. in residential care - total of children per 1000 pop. under 18	0.152	0.086	1.76
Average no. in residential care - % of children at home under supervision	-0.040	0.039	1.02
Average no. in residential care - total of mentally handicaped adults per 1000 pop. 18-64	-3.688	1.544	2.40*
Community indicators			
No. of economically active aged over 15 per 1000 pop. aged over 15	0.010	0.006	1.63
Estimated net annual migrants 1975-76 per 1000 pop.	0.039	0.033	1.17

Notes:

1. Sample size, n=54
2. Coefficient of determination, R^2=0.254 and adjusted $\bar{R}^2$=0.101
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.16 : Regression of standardised staff wastage ratio for "basic social workers" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	1.457	0.397	3.67***
Percentage of expenditure spent on support services	-0.020	0.008	2.51*
Expenditure on residental and community care			
Net expenditure per 1000 pop. 18-64 (younger physically handicapped)	0.345[a]	0.174[a]	1.99*
Net expenditure per 1000 pop. 18-64 (mentally ill)	0.804[a]	0.359[a]	2.24*
Staffing ratio			
Total number of staff per 1000 pop.	0.378	0.165	2.29*
Indicators of the volume of social work			
Average no. in residential care - % of children at home under supervision	0.012	0.008	1.48
Average no. in residential care - total of younger physically handicapped per 1000 pop. 18-64	-0.266	0.231	1.15
Average no. in residential care - total of mentally handicapped childen per 1000 pop. under 18	-0.460	0.283	1.63
Average no. in resiential care - total of mentally ill per 1000 pop. 18-64	-0.857	0.514	1.67
Population density			
Persons per acre - district weighted	-0.633	0.548	1.16
Community indicators			
No. of unskilled workers per 1000 economically active	-0.005	0.002	2.41*
Migrants per 1000 pop. within area	0.004	0.003	1.28

Notes:

1. Sample size, n=100
2. Coefficient of determination, R^2=0.314 and adjusted $\bar{R}^2$=0.228
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.17 : Regression of standardised staff wastage ratio for "social work assistants" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	12.516	9.065	1.38
Mean attractiveness	0.428	0.066	6.49***
Expenditure on social work			
Average expenditure per staff member	-0.243[a]	0.102[a]	2.38**
Percentage of expenditure spent on fieldwork	-0.170	0.095	1.79
Percentage of expenditure spent on support services	-0.168	0.098	1.72
Expenditure on residential and community care			
Percentage of expenditure spent on resid. care	-0.132	0.096	1.37
Net expenditure per 1000 pop. 18-64 (mentally handicapped adults)	0.685[a]	0.344[a]	1.99*
Net expenditure per 1000 pop. under 18 (mentally handicapped children)	0.830[a]	0.392[a]	4.67***
Net expenditure per 1000 pop. 18-64 (mentally ill)	0.937[a]	0.446[a]	2.10*
Net expenditure per 1000 pop. 18-64 (day care - sheltered employment)	-0.970[a]	0.465[a]	2.09*
Net expenditure per 1000 pop. (community care - domestic help)	0.574[a]	0.137[a]	4.18***
Indicators of the volume of social work			
Proportion of handicapped persons to total of population	11.738	8.756	1.34
Average no. in residential care - total of children per 1000 pop. under 18	-0.229	0.049	4.69***
Average no. in residential care - % of children at home under supervision	0.018	0.012	1.52
Average no. in residential care - total of younger physically handicapped per 1000 pop. 18-64	-0.802	0.290	2.76**
Average no. in residential care - total of mentaly handicapped adults per 1000 pop. 18-64	-1.250	0.518	2.41*
Average no. in residential care - total of mentally handicapped children per 1000 pop. under 18	-6.194	1.471	4.21***
Total no. per 1000 pop. 18-64 (day care - sheltered employment)	0.990	0.333	2.97**

Table 6.17 continued

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Unemployment			
Increase of the unemployed during the previous year (1974-75)	0.487	0.168	2.90**
Community indicators			
No. of economically active aged over 15 per 1000 pop. aged over 15	-2.330[a]	2.104[a]	1.11
Married women working more than 30 hours with child under 5 per 1000 married women working	0.002	0.001	2.38**
No. lone parent families per 1000 families with children	0.015	0.007	2.03*
No. of married couples with more than 4 children per 1000 couples	0.012	0.006	2.19*
Migrants per 1000 pop. - into area from rest of G.B.	0.012	0.010	1.27
Migrants per 1000 pop. - out of area to rest of G.B.	0.018	0.012	1.44
Estimated net annual migrants 1975-76 per 1000 pop.	-0.034	0.012	2.94**

Notes:

1. Sample size, n=49
2. Coefficient of determination, R^2=0.820 and adjusted $\bar{R}^2$=0.626
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.18 : Regression of crude staff turnover rate for "team leaders" in are level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	0.100	0.122	0.82
Mean attractiveness	-0.026	0.014	1.87
Expenditure on residential and community care			
Net expenditure per 1000 pop. 65 and over	-0.004^{a}	0.002^{a}	1.68
percentage of expend. spent on residential care	0.005	0.002	2.11*
Unemployment			
Increase of the unemployed during the previous year (1974-75)	-0.059	0.035	1.65
Community indicators			
No. of new c/wealth immigrants per 1000 pop.	0.981^{a}	0.570^{a}	1.72

Notes: 1. Sample size, n=98
2. Coefficient of determination, $R^2 = 0.089$ and adjusted $\bar{R}^2 = 0.040$
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.19 : Regression of crude staff turnover rate for "senior social workers" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-0.728	0.229	3.18**
Percentage of expenditure spent on support services	0.013	0.005	2.46*
Expenditure on residential and community care			
Net expend. per 1000 pop. 65 and over	0.017[a]	0.006[a]	2.69*
Net expend. per 1000 pop. 18-64 for mentally handicapped adults	0.102[a]	0.080[a]	1.28
Net expend. per 1000 pop. 18-64 for mentally ill	0.345[a]	0.165[a]	2.09*
Net expend. per 1000 pop. - domestic help	-0.128[a]	0.046[a]	2.79**
Net expend. per 1000 pop. 65 and over - meals provided	-0.047[a]	0.039[a]	1.21
Proportion of staff at different positions			
Average number of social work assistants per senior social worker	-0.108	0.035	3.05**
Staffing ratio			
Fieldwork staff - total number per 1000 pop.	0.341	0.180	1.90
Indicators of the volume of social work			
Average no. in residential care - % of children at home under supervision	0.006	0.002	1.39
No. of main meals served in authorities total per 1000 pop. 65 and over	-0.013[a]	0.009[a]	1.32
Unemployment			
Increase of the unemployed during the previous year (1974-1975)	0.185	0.061	3.05**
Community indicators			
No. of new c/wealth immigrants per 1000 population	-0.004	0.002	1.85
Estimated net annual migrants 1975-6, per 1000 population	-0.006	0.003	1.83

Notes:
1. Sample size, n=56
2. Coefficient of determination, $R^2 = 0.484$ and adjusted $\bar{R}^2 = 0.324$
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.20 : Regression of crude staff turnover rate for "basic social workers" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	0.189	0.058	3.24**
Mean attractiveness	0.011	0.008	1.65
Expenditure on social work			
Average expenditure per staff member	-0.008[a]	0.006[a]	1.37
Expenditure on residential and community care			
Net expenditure per 1000 pop. 18-64, for mentally handicapped adults	-0.083[a]	0.028[a]	2.97**
Indicators of the volume of social work			
Proportion of handicapped persons to the total of population	0.698	0.689	1.01
Average no. in residential care - % of children at home under supervision	1.180[a]	1.071[a]	1.10
Average no. in residential care - total of younger physically handicapped	-0.199[a]	0.077[a]	2.57*
No. of main meals served in authorities - total per 1000 pop. 65 and over	0.002[a]	0.001[a]	1.76
Average no. in residential care - total of mentally handicapped adults per 1000 pop. 18-64	0.094	0.041	2.29*
Unemployment			
Increase of the unemployed during the previous year (1974-75)	-0.036	0.013	2.87**
Community indicators			
Migrants per 1000 pop. - into area from rest of GB	0.467[a]	0.449[a]	1.04
Migrants per 1000 pop. - within area	-1.176[a]	0.496[a]	2.37*
No. of Irish immigrants per 1000 population	1.120[a]	0.443[a]	2.53*

Notes: 1. Sample size n=95
2. Coefficient of determination, $R^2 = 0.493$ and adjusted $\bar{R}^2 = 0.418$
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.21 : Regression of crude staff turnover rate for "community workers" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-1.006	0.362	2.78**
Mean attractiveness	-0.033	0.028	1.17
Percentage of expend. spent on support services	0.013	0.006	2.43*
Expenditure on social work			
Percentage expend. spent on fieldwork	0.032	0.009	3.59***
Expenditure on residential and community care			
Net expend. per 1000 pop. 18-64, sheltered employment	-0.603[a]	0.212[a]	2.85**
Indicators of the volume of social work			
Average no. in resid. care - total of mentally ill per 1000 population 18-64	0.720	0.228	3.15**
Total no. per 1000 pop. 18-64, sheltered employment	0.200	0.156	1.28
No. of main meals served in authorities - total per 1000 population 65 and over	-0.014[a]	0.007[a]	2.00*
Unemployment			
Increase of the unemployed during the previous year (1974-75)	0.154	0.065	2.37*
Population density	-0.404	0.361	1.12
Community indicators			
No. of unskilled workers per 1000 economically active	0.003	0.001	2.39*

Notes:
1. Sample size, n = 66
2. Coefficient of determination, $R^2 = 0.422$ and adjusted $\bar{R}^2 = 0.317$.
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.22 : Regression of crude staff turnover rate for "trainee social workers" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-0.838	0.256	3.27**
Mean attractiveness	0.066	0.030	2.16*
Expenditure on residential and community care			
Net expend. per 1000 pop. 18-64, for mentally ill	-0.686[a]	0.261[a]	2.63*
Indicators of the volume of social work			
Average no. in residential child care - total of mentally handicapped children	0.003	0.001	1.82
Proportion of handicapped persons to the total of population	6.617	4.222	1.57
Average no. in residential care - total of mentally handicapped adults per 1000 pop. 18-64	-0.192	0.153	1.26
Average no. in residential care - total of younger physically handicapped	-1.217[a]	0.415[a]	2.94**
Average no. in residential care - total of children per 1000 population under 18	0.046	0.015	2.99**
Community indicators			
Migrants per 1000 pop. - out of area to rest of GB	0.009	0.004	1.56
Estimated net annual migrants 1975-76, per 1000 pop	0.008	0.005	1.55
No. of married couples with more than 4 children per 1000 married couples	-0.004	0.003	1.14
No. of unskilled workers per 1000 population economically active.	0.004	0.003	1.38

Notes:
1. Sample size, n = 62
2. Coefficient of determination, $R^2 = 0.382$ and adjusted $\bar{R}^2 = 0.247$.
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.23 : Regression of crude staff turnover rate for "social work assistants" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-0.573	0.308	1.86
Mean attractiveness	-0.013	0.011	1.13
Expenditure on social work			
Percentage of expend. spent on fieldwork	0.009	0.004	2.20*
Average expend. per staff member	-0.023[a]	0.013[a]	1.81
Expenditure on residential and community care			
Net expend. per 1000 pop. 18-64 resid. care for mentally handicapped adults	0.106[a]	0.076[a]	1.40
Net expend. per 1000 pop. 18-64 resid. care for mentally ill	-0.142[a]	0.094[a]	1.51
Indicators of the volume of social work			
Total no. per 1000 pop 18-64 day care, sheltered employment	-0.148	0.060	2.45*
Proportion of handicapped persons to the total of population	-3.895	1.567	2.49*
Average no. in resid. care - total of mentally handicapped adults per 1000 pop 18-64	-0.181	0.098	1.85
Community indicators			
No. of Irish immigrants per 1000 pop.	-0.003	0.001	2.67**
Married women working more than 30hrs with child under 5 per 1000 married women working	-0.237[a]	0.163[a]	1.45
Estimated net annual migrants 1975-76 per 1000 population	0.005	0.002	2.65*
Migrants per 1000 pop - out of area to rest of GB	0.003	0.002	1.67
Migrants per 1000 pop - into area from rest of GB	-0.002	0.001	1.51
No. of econ. active aged 15 and over	1.051[a]	0.374[a]	2.81**
No. of lone parent families per 1000 families with children	0.003	0.001	3.28**

Notes:
1. Sample size, n=73
2. Coefficient of determination, $R^2 = 0.390$ and adjusted $\bar{R}^2 = 0.230$
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.24 : Regression of crude staff wastage rate for "team leaders" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	0.524	0.221	2.37*
Expenditure on residential and community care			
Net expend. per 1000 pop. 18-64 resid. care for mentally ill	-0.320[a]	0.291[a]	1.10
Net expend. per 1000 pop. 18-64 - day care, sheltered employment	0.632[a]	0.260[a]	2.43*
Indicators of the volume of social work			
Average no. in resid. care - total of younger physically hand. per 1000 pop. 18-64	0.692	0.195	3.54***
Average no. in resid. care - % of children at home under supervision	-0.009	0.008	1.11
Proportion of handicapped persons to the total of population	-11.157	5.483	2.03*
Average no. in resid. care - total of mentally hand. children per 1000 pop. under 18	0.300	0.276	1.08
No. of main meals served in authorities total per 1000 pop. 65 and over	0.022[a]	0.009[a]	2.47*
Community indicators			
Married women working more than 30hrs with child under 5 per 1000	-0.760[a]	0.506[a]	1.50

Notes:
1. Sample size, n = 85
2. Coefficient of determination, $R^2 = 0.239$ and adjusted $\bar{R}^2 = 0.159$
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.25 : Regression of crude staff wastage rate for "basic social workers" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-1.526	0.696	2.19*
Expenditure on social work			
Percentage of expend. spent on fieldwork	0.028	0.009	2.93**
Expenditure on residential and community care			
Net expend. per 1000 pop under 18 - resid. care for mentally handicapped children	-0.220[a]	0.085[a]	2.58*
Net expend. per 1000 pop 18-64 - day care, sheltered employment	-0.202[a]	0.167[a]	1.21
Net expend. per 1000 pop 18-64 - resid. care for younger physically handicapped	0.212[a]	0.135[a]	1.57
Net expend. per 1000 pop 65 and over - resid. care for the elderly	0.015[a]	0.007[a]	2.14*
Net expend. per 1000 pop. 18-64 - residential care for mentally ill	0.879[a]	0.375[a]	2.35*
Indicators of the volume of social work			
Average no. in resid. care - % of children boarded out	0.006	0.004	1.53
Average no. in resid. care - total of mentally ill per 1000 population 18-64	-0.621	0.414	1.50
Proportion of handicapped persons to the total of population	-7.180	3.999	1.80
Average no. in resid. care - total of younger physically hand. per 1000 pop 18-64	-0.206	0.161	1.28
Proportion of staff at different positions			
Average number of supervising staff per social worker	0.412	0.276	1.49

Table 6.25 (continued)

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Unemployment			
Increase of the unemployed during the previous year (1974-75)	-0.256	0.093	2.75**
Population density	-1.162	1.033	1.12
Community indicators			
Migrants per 1000 pop - within area	0.007	0.003	2.36*
No. of econ. active aged 15 and over per 1000 pop. aged 15 and over	0.244[a]	0.905[a]	1.38
Estimated net annual migrants 1975-6, per 1000 population	0.013	0.005	2.77**
No of Irish immigrants per 1000 population	0.011	0.005	2.38*

Notes: 1. Sample size, n=63
2. Coefficient of determination, $R^2 = 0.570$ and adjusted $\bar{R}^2 = 0.408$
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1 level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.26 : Regression of crude staff wastage rate for "social work assistant" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	16.802	6.841	2.46*
Mean attractiveness	0.153	0.042	3.61***
Percentage of expenditure spent on support services	-0.168	0.069	2.42*
Expenditure on social work			
Percentage of expend. spent on fieldwork	-0.167	0.071	2.36*
Average expenditure per staff member	-0.274[a]	0.064[a]	4.25***
Expenditure on residential and community care			
Net expend. per 1000 pop. 18-64 - resid. care for mentally handicapped adults	0.188[a]	0.157[a]	1.20
Percentage of expend. spent on resid. care	-0.174	0.069	2.52*
Indicators of the volume of social work			
Average no. in resid. care - total of mentally hand. children per 1000 pop. under 18	-0.356	0.293	1.21
Unemployment			
Increase of the unemployed during the previous year (1974-75)	0.249	0.104	2.38*
Community indicators			
Married women working more than 30 hours with child under 5 per 1000 married women working	0.231[a]	0.540[a]	2.28*
No. of married couples with more than 4 children per 1000 married couples	0.008	0.003	2.40*
Migrants per 1000 pop. - out of area to rest of GB	0.004	0.002	1.78

Notes:
1. Sample size, N = 80
2. Coefficient of determination $R^2 = 0.368$ and adjusted $\bar{R}^2 = 0.266$
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.27 : Regression of weighted logit transform of staff turnover rate for "team leaders" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	14.431	8.216	1.76
Mean attractiveness	0.611	0.326	1.88
Percentage of expenditure spent on support services	-0.206	0.102	2.01*
Expenditure on residential and community care			
Percentage of expend. spent on resid. care	-0.131	0.098	1.34
Net expend. per 1000 pop. 18-64 (sheltered employment - day care)	0.003	0.002	1.91
Proportion of staff at different positions			
Average number of senior social worker per team leader	-1.999	0.400	3.00**
Indicators of the volume of social work			
Average no. in residential care - % of children boarded out	-0.128	0.043	2.99**
Average no. in resid. care - total of the elderly per 1000 pop. 65 and over	-0.114	0.085	1.34
Community indicators			
No. of c/wealth immigrants per 1000 pop.	0.020	0.011	1.77
No. of unskilled workers per 1000 active	0.026	0.016	1.67

Notes:
1. Sample size, n = 106
2. Coefficient of determination, $R^2 = 0.255$ and adjusted $\bar{R}^2 = 0.186$
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.28 : Regression of weighted logit transform of staff turnover rate for "senior social workers" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	2.834	7.473	0.38
Expenditure on residential and community care			
Net expend. per 1000 pop. 18-64, for mentally handicapped adults	-0.010	0.005	1.92
Indicators of the volume of social work			
Average no. in resid. care - % of children boarded out	0.183	0.176	1.04
Average no. in resid. care - total of mentally ill per 1000 pop. 18-64	16.078	12.961	1.24
Proportion of staff at different positions			
Average number of social workers per senior social worker	-2.302	0.812	2.83**
Population density	69.102	21.254	3.25**
Community indicators			
No. of new c/wealth immigrants per 1000 population	-0.396	0.077	5.14***

Notes:
1. Sample size, n = 88
2. Coefficient of determination, $R^2 = 0.293$ and adjusted $\bar{R}^2 = 240$.
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported.

Table 6.29 : Regression of weighted logit transform of staff turnover rate for "basic social workers" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-0.308	0.119	2.59*
Mean attractiveness	0.050	0.012	4.17***
Expenditure on residential and community care			
Percentage of expend. spent on resid. care	-0.004	0.002	1.78
Net expend. per 1000 pop 65 and over - community care, meals provided	-0.009[a]	0.006[a]	1.45
Proportion of staff at different positions			
Average number of supervising staff per social worker	-0.201	0.090	2.25*
Indicators of the volume of social work			
Average no. in resid. care - total of younger physically handicapped	0.225[a]	0.145[a]	1.54
No. of main meals served in authorities - total per 1000 population 65 and over	0.004[a]	0.003[a]	1.10
Population density	0.301	0.161	1.87
Community indicators			
No. of new c/wealth immigrants per 1000 pop	1.072[a]	0.610[a]	1.76
No. of unskilled workers per 1000 econ. active	0.913[a]	0.620[a]	1.47
Married women working more than 30 hrs with child under 5 per 1000 married women	-0.263[a]	0.149[a]	1.59
Migrants per 1000 pop. - within area	0.002	0.001	1.49

Notes: 1. Sample size n = 107
2. Coefficient of determination, $R^2 = 0.469$ and adjusted $\bar{R}^2 = 0.407$
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.30 : Regression of weighted logit transform of staff turnover rate for "community workers" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-29.812	11.680	2.55*
Mean attractiveness	-1.258	0.935	1.35
Percentage of expenditure spent on support services	0.265	0.180	1.47
Expenditure on social work			
Percentage of expend. spent on fieldwork	0.888	0.298	2.98**
Expenditure on residential and community care			
Net expend. per 1000 pop. 18-64, day care, sheltered employment	-0.008	0.005	1.47
Indicators of the volume of social work			
Average no. in resid. care - total of mentally ill per 1000 population 18-64	16.103	7.332	2.20*
Unemployment			
Increase of the unemployed during the previous year (1974-1975)	3.254	2.164	1.50
Population density	-23.977	10.185	2.35*
Community indicators			
No. of unskilled workers per 1000 economically active	0.062	0.041	1.52

Notes: 1. Sample size, n=66
2. Coefficient of determination, $R^2 = 0.265$ and adjusted $\bar{R}^2 = 0.162$
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.31 : Regression of weighted logit transform of staff turnover rate for "trainee social workers" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-16.707	3.861	4.33***
Mean attractiveness	1.108	0.404	2.75**
Expenditure on residential and community care			
Net expenditure per 1000 pop 18-64, for mentall ill	-0.008	0.004	2.11*
Proportion of staff at different positions			
Average number of supervising staff per trainee social worker	-0.326	0.226	1.44
Indicators of the volume of social work			
Average no. in resid. care - total of mentally handicapped children	0.031	0.018	1.75
Proportion of handicapped persons to the total of population	121.950	62.817	1.94
Average no. in resid. care - total of mentally handicapped adults per 1000 pop. 18-64	-2.831	2.127	1.33
Average no. in resid. care - total of younger physicall hand. per 1000 pop 18-64	-6.567	2.213	2.97**
Average no. in resid. care - total of children per 1000 pop. under 18	0.624	0.242	2.58*
Population density	13.401	12.923	1.04
Community indicators			
Migrants per 1000 pop. - out of area to rest of GB	0.139	0.063	2.19*
Estimated net annual migrants 1975-76, per 1000 pop.	0.082	0.075	1.10
No. of married couples with more than 4 children per 1000 married couples	-0.079	0.050	1.57
No. of unskilled workers per 1000 economically active	0.067	0.041	1.63

Notes: 1. Sample size, n = 62
2. Coefficient of determination, $R^2 = 0.465$ and adjusted $\bar{R}^2 = 0.320$
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.32 : Regression of weighted logit transform of staff turnover rate for "social work assistants" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-7.544	2.422	3.11**
Mean attractiveness	0.296	0.122	2.41*
Expenditure on residential and community care			
Net expend. per 1000 pop. 18-64 for mentally ill	-0.005	0.001	3.78***
Net expend. per 1000 pop. under 18, for mentally handicapped children	1.060[a]	0.582[a]	1.82
Proportion of staff at different positions			
Average number of supervising staff per social work assistant	-0.337	0.081	4.16***
Indicators of the volume of social work			
Average no. in resid. care - total of mentally ill per 1000 pop. 18-64	3.421	1.605	2.13*
Average no. in resid. care - total of mentally hand. children per 1000 pop. under 18	-4.208	1.930	2.18*
Average no. in residential care - % of children at home under supervision	-0.031	0.025	2.28*
Average no. in residential care - total of children per 1000 pop. under 18	0.130	0.060	2.16*
Community indicators			
No. of Irish immigrants per 1000 pop.	-0.013	0.013	1.05
Estimated net annual migrants 1975-76, per 1000 populatioon	0.047	0.020	2.28*
No. of econ. active 15 and over per 1000 pop.	0.010	0.004	2.67**

Notes: 1. Sample size, n = 72
2. Coefficient of determination $R^2 = 0.500$ and adjusted $\bar{R}^2 = 0.409$
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.33 : Regression of weighted logit transform of staff wastage rate for "team leaders" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-4.133	2.099	1.97
Expenditure on residential and community care			
Net expend. per 1000 pop,. 65 and over - community care, meals provided	0.695[a]	0.216[a]	3.22**
Net expend. per 1000 pop 18-64 resid. care for younger physically handicapped	0.003	0.002	1.40
Indicators of the volume of social work			
Total no. per 1000 pop 18-64 day care, sheltered employment	4.786	2.734	1.75
Average no. in resid. care - total of mentally hand. children per 1000 pop. under 18	4.879	3.861	1.26
Unemployment			
Increase of the unemployed during the previous year (1974-75)	-2.106	1.303	1.62
Population density	-13.335	11.443	1.17
Community indicators			
Migrants per 1000 pop. - into area from rest of GB	0.151	0.078	1.96
Migrants per 1000 pop. - out of area to rest of GB	-0.089	0.084	1.06

Notes:
1. Sample size, n = 68
2. Coefficient of determination, $R^2 = 0.231$ and adjusted $\bar{R}^2 = 0.127$
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.34 : Regression of weighted logit transform of staff wastage rate for "basic social workers" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	-0.418	1.138	0.37
Mean attractiveness	-0.347	0.117	2.97**
Expenditure on social work			
Percentage of expend. spent on fieldwork	0.073	0.041	1.78
Expenditure on residential and community care			
Net expend. per 1000 pop. 18-64 - resid. care for mentally ill	0.004	0.001	2.73**
Net expend. per 1000 pop. 65 and over - resid. care for the elderly	0.081[a]	0.025[a]	3.28**
Net expend. per 1000 pop 18-64, day care sheltered employment	-0.936[a]	0.825[a]	1.13
Indicators of the volume of social work			
Total no. per 1000 pop. 18-64 - day care, sheltered employment	0.827	0.754	1.09
Average no. on resid. care - total of mentally hand. children per 1000 pop. under 18	-3.190	0.984	3.24**
Average no. in resid care - total of mentally ill per 1000 population 18-64	-4.016	1.768	2.27*
Community indicators			
Estimated net annual migrants 1975-1976 per 1000 popultion	0.055	0.018	3.11**
No. of married couples with more than 4 children per 1000 couples	0.018	0.011	1.63
No. of unskilled workers per 1000 economically active	-0.019	0.008	2.51*

Notes:
1. Sample size, n = 71
2. Coefficient of determination $R^2 = 0.411$ and adjusted $\bar{R}^2 = 0.301$
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.35 : Regression of weighted logit transform of staff wastage rate for "social work assistants" in area level

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Constant	13.136	7.651	1.72
Mean attractiveness	1.553	0.430	3.61***
Expenditure on residential and community care			
Net expend. per 1000 pop - community care, domestic help	0.003	0.001	4.17***
Net expend. per 1000 pop. under 18 - resid. care for mentally handicapped children	0.014	0.003	5.63***
Net expend. per 1000 pop. 18-64 - resid. care for mentally handicapped adults	0.010	0.003	4.11***
Net expend. per 1000 pop 18-64 - resid. care for younger physically handicapped	0.005	0.002	2.57*
Proportion of staff at different positions			
Average number of supervisory staff per social work assistant	1.945	0.693	2.80**
Indicators of the volume of social work			
Average no. in resid. care - total of mentally hand. adults per 1000 pop. 18-64	-12.214	3.191	3.83***
Average no. in resid. care - total of younger physically hand. per 1000 pop. 18-64	3.131	2.213	1.41
Average no. in resid. care - % of children at home under supervision	0.196	0.089	2.20*
No. of main meals served in authorities, total per 1000 pop. 65 and over	0.403[a]	0.167[a]	2.41*
Average no. in resid. care - total of children per 1000 population under 18	-1.039	0.224	4.63***
Average no. in resid. care - total of mentally hand. children per 1000 pop. under 18	-37.996	8.664	4.39***

Table 6.35 (continued)

Explanatory variables	Coefficients $\hat{\beta}$	Standard errors	t-stat
Unemployment			
Increase of the unemployed during the previous year (1974-75)	6.070	1.235	4.91***
Community indicators			
Migrants per 1000 pop. - out of area to rest of GB	0.498	0.092	5.38***
Estimated net annual migrants 1975-76, per 1000 population	-0.252	0.076	3.31**
No. of econ. active aged 15 and over per 1000 pop. aged 15 anbd over	-0.067	0.014	4.69***
No. of unskilled workers per 1000 economically active	-0.037	0.033	1.12
Migrants per 1000 pop - into area from rest of GB	-0.205	0.078	2.65*

Notes:
1. Sample size, n = 49
2. Coefficient of determination $R^2 = 0.890$ and adjusted $\bar{R}^2 = 0.823$
3. Significance indicated by * (5% level), ** (1% level) and *** (0.1% level)
4. Coefficients and standard errors indicated by a are multiplied by 10^{-3}
5. The absolute values of t-statistics are reported

Table 6.36: Martix of correlation coefficients in the equation of team leaders' turnover

	STR	V52	V22	V45	V4	V51	V37
V52	-0.06						
V22	-0.03	0.00					
V45	-0.09	0.03	0.08				
V4	-0.08	-0.19	0.12	-0.02			
V51	-0.14	-0.19	0.23	0.07	0.22		
V37	-0.15	-0.04	-0.29	-0.01	-0.43	-0.25	
V31	-0.05	0.40	0.58	0.22	0.09	0.13	-0.33

Table 6.37: Matrix of correlation coefficients in the equation of senior social workers' turnover

	STR	V52	V47	V26	V22	V12	V4	V9	V31	V41	V28
V52	0.30										
V47	-0.23	-0.08									
V26	0.01	-0.12	0.15								
V22	0.12	-0.23	0.03	0.09							
V12	0.19	-0.24	0.09	-0.11	0.26						
V4	0.07	-0.37	0.12	-0.13	0.31	0.41					
V9	0.06	-0.36	0.01	0.34	0.42	0.03	0.20				
V31	0.22	0.46	-0.13	0.05	0.26	0.14	-0.10	0.07			
V41	-0.12	0.43	-0.14	-0.12	-0.51	-0.38	-0.56	-0.42	-0.04		
V28	0.02	-0.42	0.11	0.08	0.62	0.28	0.69	0.43	0.03	-0.54	
V29	-0.15	-0.34	0.04	0.19	0.64	0.08	0.30	0.45	-0.07	-0.43	0.35

Table 6.38: Matrix of correlation coefficients in the equation of social workers' turnover

	STR	V54	V39	V24	V12	V14	V52	V2	V3	V37	V16	V38	V21
V54	0.20												
V39	-0.31	0.00											
V24	-0.03	0.04	-0.12										
V12	0.02	-0.07	0.12	-0.16									
V14	-0.21	0.15	0.23	-0.07	0.03								
V52	-0.08	-0.19	0.20	0.04	-0.11	-0.01							
V2	0.01	-0.22	-0.18	0.03	-0.11	-0.10	0.07						
V3	-0.25	-0.09	0.49	-0.02	-0.20	0.22	0.13	-0.19					
V37	-0.22	-0.22	0.54	-0.03	-0.21	0.30	-0.07	0.17	0.35				
V16	0.13	0.23	0.00	0.70	-0.09	-0.02	0.05	-0.02	-0.05	-0.10			
V38	0.31	-0.13	-0.51	0.21	-0.33	-0.12	0.33	0.42	-0.07	-0.13	0.20		
V21	0.36	0.39	-0.30	0.07	-0.10	0.04	-0.04	-0.14	-0.30	-0.33	0.21	0.27	
V4	0.24	0.23	-0.35	0.02	0.24	-0.16	-0.18	-0.39	-0.81	-0.42	0.07	-0.18	0.38

Table 6.39: Matrix of correlation coefficients in the equation of community workers' turnover

	STR	V19	V4	V27	V52	V2	V33	V42	V37
V19	0.25								
V4	0.06	0.06							
V27	-0.25	0.07	0.24						
V52	0.15	0.17	-0.24	-0.06					
V2	0.22	0.06	-0.29	-0.19	0.17				
V33	0.01	0.13	0.32	0.18	-0.41	-0.40			
V42	0.04	0.72	0.27	0.07	0.09	0.10	0.16		
V37	-0.17	-0.31	-0.46	-0.21	-0.06	0.25	-0.20	-0.38	
V20	-0.02	0.04	0.04	0.61	0.01	-0.11	-0.01	-0.04	-0.16

Table 6.40: Matrix of correlation coefficients in the equation of trainee social workers' turnover

	STR	V26	V40	V41	V49	V20	V16	V13	V23	V18	V33	V27	V19	V52	V15	V42	V28	V32	V2	V21
V26	-0.11																			
V40	0.16	0.00																		
V41	0.15	0.03	-0.01																	
V49	-0.10	-0.13	-0.02	0.05																
V20	0.14	-0.08	-0.12	-0.08	-0.04															
V16	0.08	0.06	0.31	0.20	-0.06	-0.15														
V13	0.03	0.09	-0.08	-0.45	-0.02	0.16	-0.14													
V23	0.15	0.45	0.24	-0.13	-0.07	-0.08	0.13	0.30												
V18	0.11	0.30	0.45	0.18	0.02	-0.01	0.48	0.02	0.16											
V33	0.15	0.02	-0.29	-0.55	-0.03	0.08	-0.09	0.59	0.24	-0.18										
V27	0.03	-0.00	-0.34	-0.02	-0.11	0.66	-0.30	0.33	-0.05	-0.24	0.25									
V19	-0.11	0.74	0.02	-0.03	0.04	0.12	0.21	0.12	0.25	0.40	-0.02	0.06								
V52	-0.06	-0.16	0.35	0.25	-0.04	0.07	0.12	-0.25	-0.24	0.15	-0.54	-0.02	-0.06							
V15	0.01	0.37	0.40	-0.24	-0.13	0.05	0.09	0.39	0.75	0.37	0.20	-0.15	0.34	-0.08						
V42	0.19	0.32	0.20	-0.43	-0.20	0.15	0.13	0.23	0.41	0.27	0.31	0.07	0.32	-0.22	0.43					
V28	-0.04	0.13	-0.35	-0.44	-0.15	0.24	-0.15	0.45	0.16	-0.05	0.55	0.32	0.14	-0.41	0.09	0.34				
V32	-0.02	-0.11	0.22	-0.53	-0.28	0.09	0.04	0.33	0.10	0.03	0.26	-0.01	-0.10	0.22	0.20	0.38	0.29			
V2	-0.02	-0.06	0.25	0.40	0.05	-0.09	0.20	-0.49	-0.13	0.10	-0.50	-0.07	-0.00	0.12	-0.15	-0.12	-0.43	-0.32		
V21	-0.03	0.14	0.14	-0.41	-0.08	-0.01	0.07	0.40	0.58	0.20	0.41	-0.05	0.19	-0.24	0.61	0.52	0.20	0.25	-0.17	
V38	0.02	-0.08	0.74	0.44	0.09	-0.25	0.38	-0.44	-0.13	0.40	-0.68	-0.44	-0.01	0.49	-0.02	-0.19	-0.65	-0.08	0.51	-0.23

Table 6.41: Matrix of correlation coefficients in the equation of social work assistants' turnover

	STR	V24	V54	V20	V48	V12	V34	V26	V36	V32	V41	V37	V30	V16	V35	V53
V24	0.21															
V54	-0.20	0.03														
V20	-0.09	-0.04	-0.00													
V48	-0.24	0.11	0.02	-0.00												
V12	-0.14	-0.12	0.02	0.16	-0.14											
V34	-0.26	-0.17	0.16	0.09	0.17	0.01										
V26	-0.17	0.04	0.32	-0.04	-0.17	-0.06	-0.08									
V36	0.08	0.01	0.20	0.08	-0.03	0.31	0.07	0.02								
V32	0.03	-0.04	0.10	0.06	-0.25	0.40	-0.03	-0.13	0.42							
V41	0.11	0.22	-0.09	-0.08	0.20	-0.38	-0.11	-0.02	-0.58	-0.52						
V37	0.07	0.07	-0.09	-0.11	-0.03	-0.41	-0.32	0.07	-0.28	-0.40	0.38					
V30	0.03	0.25	0.17	-0.01	-0.12	0.02	0.03	0.02	0.33	0.40	-0.21	-0.10				
V16	0.08	0.78	0.22	-0.11	0.04	0.00	-0.16	0.11	0.06	0.06	0.16	0.02	0.24			
V35	0.01	0.16	0.54	0.25	-0.13	0.16	0.13	0.34	0.39	0.04	-0.32	-0.04	0.43	0.29		
V53	-0.28	-0.01	0.14	-0.06	0.18	0.07	-0.03	0.09	0.12	-0.02	0.02	0.02	-0.01	0.22	0.09	
V2	0.18	-0.01	-0.18	-0.08	-0.04	-0.17	-0.34	-0.07	-0.18	-0.34	0.26	0.42	-0.10	-0.07	-0.11	0.06

Table 6.42: Matrix of correlation coefficients in the equation of team leaders' wastage

V24	0.11								
V2	-0.14	0.00							
V3	-0.15	0.22	-0.06						
V10	0.18	0.01	-0.23	-0.03					
V12	0.07	-0.10	-0.30	-0.35	0.33				
V32	0.22	-0.18	-0.42	-0.37	0.25	0.48			
V16	-0.04	0.78	0.05	-0.01	0.06	-0.04	-0.09		
V4	0.20	-0.18	-0.49	-0.82	0.16	0.47	0.56	-0.01	
V41	-0.13	0.27	0.31	0.33	-0.59	-0.44	-0.56	0.23	-0.46
	SWR	V24	V2	V3	V10	V12	V32	V16	V4

Table 6.43: Matrix of correlation coefficients in the equation of social workers' wastage

V15	-0.02										
V4	-0.41	-0.03									
V26	0.01	0.11	0.07								
V23	0.10	0.59	-0.01	0.26							
V9	-0.03	-0.01	0.21	0.46	0.17						
V19	-0.14	0.12	0.14	0.82	0.24	0.48					
V42	-0.15	0.05	0.22	0.64	0.25	0.63	0.72				
V12	-0.04	0.05	0.15	-0.18	-0.04	-0.35	-0.11	-0.16			
V39	0.21	0.07	-0.37	-0.16	0.15	-0.29	-0.16	-0.31	0.20		
V18	-0.16	0.17	0.04	0.47	0.04	0.33	0.49	0.47	-0.06	-0.26	
V33	-0.14	0.08	0.28	0.09	0.36	0.21	0.11	0.08	0.22	0.39	-0.17
	SWR	V15	V4	V26	V23	V9	V19	V42	V12	V39	V18

Table 6.44: Matrix of correlation coefficients in the equation of social work assistants' wastage

	SWR	V20	V18	V52	V37	V41	V28	V10	V25	V2	V16	V26	V3	V53	V34	V12	V36	V15	V54	V24	V27	V32	V38	V35	V40	V4
V20	0.08																									
V18	-0.07	-0.13																								
V52	0.24	0.02	0.20																							
V37	0.37	-0.13	-0.16	0.18																						
V41	0.03	-0.15	0.18	0.35	0.34																					
V28	-0.13	0.26	-0.07	-0.47	-0.46	-0.44																				
V10	-0.26	0.36	0.09	-0.38	-0.20	-0.56	0.47																			
V25	0.02	-0.05	0.21	0.17	-0.18	0.20	-0.11	0.14																		
V2	0.06	-0.10	-0.09	0.08	0.43	0.21	-0.32	-0.18	-0.06																	
V16	-0.04	-0.11	0.32	0.12	-0.10	0.06	-0.02	0.07	0.32	0.00																
V26	0.03	-0.02	0.24	-0.15	0.04	0.04	0.18	0.38	0.26	-0.04	0.09															
V3	0.04	-0.08	0.27	0.37	0.22	0.45	-0.62	-0.15	0.25	-0.14	0.01	0.12														
V53	-0.07	0.04	-0.00	0.16	0.20	-0.01	0.02	0.11	-0.04	0.15	0.20	0.05	-0.02													
V34	0.14	0.07	-0.11	-0.21	-0.29	-0.20	0.32	0.05	-0.12	-0.35	-0.09	-0.03	-0.20	-0.29												
V12	-0.30	0.21	0.11	-0.16	-0.47	-0.38	0.34	0.30	0.08	-0.13	-0.06	-0.06	-0.27	-0.05	0.04											
V36	-0.08	0.11	0.12	-0.28	-0.33	-0.62	0.30	0.48	0.08	-0.19	0.16	0.06	-0.34	0.04	-0.02	0.27										
V15	-0.06	0.03	0.41	-0.06	-0.04	-0.22	0.10	0.49	0.40	-0.23	0.05	0.37	0.12	-0.16	0.19	0.03	0.27									
V54	-0.12	-0.01	0.25	-0.31	-0.21	-0.16	0.46	0.52	0.26	-0.15	0.26	0.39	-0.25	0.07	0.22	-0.01	0.23	0.42								
V24	0.07	-0.03	0.19	0.07	-0.08	0.09	-0.13	-0.01	0.24	-0.11	0.75	0.02	0.20	0.09	-0.12	-0.14	0.12	0.02	0.06							
V27	0.09	0.67	-0.27	-0.05	-0.04	-0.03	0.36	0.24	-0.18	-0.06	-0.23	0.04	-0.14	0.03	0.08	0.13	0.05	-0.15	0.11	-0.18						
V32	-0.16	0.09	0.18	0.15	-0.37	-0.46	0.35	0.25	0.10	0.35	0.24	0.01	-0.26	0.02	-0.08	0.41	0.45	0.24	0.18	0.17	-0.03					
V38	0.15	-0.40	0.31	0.50	0.34	0.39	-0.66	-0.37	0.26	0.34	0.27	-0.04	0.41	0.25	-0.52	-0.30	-0.11	-0.06	-0.26	0.22	-0.44	-0.04				
V35	-0.20	0.30	0.26	-0.34	-0.25	0.40	0.40	0.85	0.30	-0.21	0.30	0.37	-0.11	0.13	0.23	0.23	0.39	0.57	0.65	0.12	0.14	0.18	-0.35			
V40	0.03	-0.15	0.31	0.17	0.10	-0.18	-0.19	0.31	0.23	0.11	0.41	0.18	0.13	0.22	-0.31	-0.20	0.42	0.31	0.27	0.21	-0.23	0.23	0.58	0.27		
V4	-0.06	0.14	-0.19	-0.37	-0.45	-0.53	0.73	0.23	-0.18	-0.41	0.01	-0.10	-0.83	-0.06	0.38	0.32	0.44	0.00	0.31	-0.10	0.15	0.45	-0.56	0.22	-0.16	

CHAPTER SEVEN

RECOMMENDATIONS AND GENERAL CONCLUSIONS

The purpose of this chapter is to make recommendations for staffing policies that will lead to reductions in staff turnover and wastage in the personal social services, to make recommendations for the further study of social work turnover and wastage, and to present briefly the general conclusions.

7.1 Recommendations for staffing policies for reducing staff turnover and wastage in the personal social services

As I argued in previous chapters staff turnover has no single cause and, therefore, there is no single way to reduce or minimise it. Certain steps, however, can be taken in all cases to reduce staff turnover or to keep it as low as possible. The following recommendations, which come from the review and the statistical analyses presented in previous chapters, constitute staffing policies that will be helpful in reducing staff turnover and wastage in the Personal Social Services.

(i) Improvement of job characteristics

A glance through the appointments pages of the social work "weeklies" reveals a great deal about the pertinent job characteristics which

influence staff turnover and wastage. The typical job advertisement will specify pay, conditions of service, geographical location, responsibilities and perhaps promotion possibilities. Many employers will often also cite departmental characteristics, ideologies and policies in the hope that these will attract the right kind of staff. These various job characteristics are precisely those discussed in the labour turnover and job satisfaction literatures as important causes or correlates of staffing problems. Therefore, local authorities with high staff turnover and wastage rates could usefully increase wages in so far as this is possible, because labour mobility is assumed to be sensitive to differences in relative wage rates between employers and employments. Whilst non-pecuniary characteristics of the job are probably more important in social work than in many other jobs, there is evidence to suggest that local authorities have raised or attempted to raise salary levels to attract and retain staff (Younghusband, 1978; Sumner and Smith, 1969). Also the establishment of a career ladder by providing opportunities for advancement could help to reduce turnover and wastage rates, because differences in promotion prospects and career policies are expected to produce differences in turnover and wastage rates between social work employers. Some evidence is found in Loewenberg (1979). Finally, the statistical analyses presented in previous chapters, suggest a number of useful staffing policies which may help to reduce turnover and wastage in the social work profession. For example, improvement of attributes of the local

authority itself such as salary, advancement opportunities etc., increase the attractiveness of local authorities as a place in which to work (see Bebbington and Coles, 1978; Bebbington, 1979). Undoubtedly the higher the degree of attractiveness of an organisation the lower the turnover and wastage rates. Changes of staffing ratios and calculation in a way that allows them to lessen the number of hours per week could reduce staff leaving.

(ii) Differential use of social work manpower

The gap between supply and demand for professional social workers is distributed unevenly among fields of practice. Some fields of practice actually have too many professionals for the scope of the service they offer, while other fields cannot attract and hold professionals (e.g. residential homes for the elderly). All kinds of social work manpower, professional and non-professional, are not used differentially, in accordance with particular knowledge and skills. For example, there are cases where social workers do tasks that could be performed by social work assistants or by the client himself (Judge, 1976). This could cause a number of problems, among them a deleterious effect upon the nature of practice itself, and could lead to staff turnover. Therefore, those client needs not explicitly requiring qualified social work may be more efficiently met by different kinds of staff.

(iii) Suitable recruiting methods

It is accepted that the recruiting method (i.e. selection process) is

related to staff turnover and wastage. There is some research evidence to support this view (see Gannon, 1971; Keaveng and Allen, 1979). It has been found that staff turnover was lower among those recruited through current employees than among those recruited through newspaper advertisements or private employment agencies. A plausible explanation could be that persons referred by present employees (friends, relatives) tend to be similar in social and economic class to present employees. Another explanation could be that present employees make detailed job descriptions and make expectations very clear to the applicants. Also recruitment of individuals referred by their high schools or universities are shown to be predictors of stable employment. Finally, the recruitment of former workers who left but now desire to return (re-employment) is a predictor of stable employment (Gannon, 1971). In particular re-employment of married women middle aged whose children are grown-up and their family responsibilities at home have been lessened could be "more stable employees".

(iv) Recruitment of part-time staff

Recruitment of part-time staff may help employees to overcome family responsibilities and thus they become more stable in their jobs. For example, allowing married women with children to work part-time, allows them to care for their children beside the work, and thus they are not obliged to leave their job. Kasteler et al. (1979) in a study of personnel turnover for nursing homes recommended that recruitment of part-time staff such as students and "young" older people who are retired could help to reduce turnover in nursing homes.

(v) Training of newly recruited employees

It is common knowledge that training of newly recruited employees has a number of fruitful results. First, it familiarises employees with the lifestyles and cultures of the various groups in their area. Second, it allows employees to reach the required standards for their jobs. Third, it improves the quality of service. Training leads to increased skills and capability. An additional spin-off is that the higher the skill level the lower the turnover and wastage rates (Behrend, 1953; March and Simon, 1958; Knowles, 1964; Hyman, 1970; Pettman, 1973; Price, 1977).

7.2 Recommendations for further research

I summarise below a number of specific research needs for the study of social work turnover and wastage.

1. The problem of staff vacancies in the personal social services must be systematically examined. In particular the duration of staff vacancies which reflects the difficulties in recruitment.

2. Some attention should be directed toward the source of reference of the recruitment of social work staff. That is, examination of the efficiency of recruitment methods (i.e. selection process), because inefficient recruitment results in turnover and wastage.

3. Causes such as pay, career structure, supervision, working conditions, aspects of organisational structure (i.e. centralisation, communication, formalisation etc), staff stress, hours of work, routinisation and so on, which influence staff turnover and wastage in the personal social services must be systematically examined. These causes should be ranked according to their ability to explain variations in turnover and wastage.

4. Attitude surveys with employees who are still in post (for example, in the form of a mailed questionnaire) could reveal important characteristics for the study of staff turnover and wastage. I recommend the mail questionnaire technique, for the following reasons; first, the mail questionnaire is more economical and provides larger samples for lower costs. Second, it is more convenient to the respondent because he/she can fill in the questionnaire in his/her own preferred time. Third, it can be anonymous and hence increase the response rate. Fourth, it is absent of bias because the respondent is free from any pressure of being observed. Furthermore, an important element which increases the response rate in attitude surveys conducted in the form of mailed questionnaire is the use of the accompanying letter which explains the purpose and the importance of the survey and how recipient was selected (see Erdos, 1970). Another important element which increases the response rate is the construction of a questionnaire characterised by clarity, simplicity and short length.

Finally, when the questionnaire does not reveal the identity of the respondent, there could be questions that will discover the dissatisfaction with job or the intention of employees to leave. In addition to specific questions that might be asked, open-ended questions should be included to give respondents an opportunity to express their feelings about their job or to mention any recommendations that might improve the staffing problems in the personal social services. It should be noted that the collection of data is of fundamental importance for any statistical analysis. Appropriate data means sufficient results of statistical analyses, and thus correct inferences.

5. Personal records of leavers, with information on age, sex, length of service, education, marital status and other individual characteristics could be valuable. These will not themselves show _why_ any individual leaves, but will indicate _who_ leaves (i.e. what kind of employees tend to leave). Also information of the reasons which led the employee to leave have to be recorded. Of course, not everything which is said can be taken at face value but over a period there will be many useful clues.

7.3 General Conclusions

Over the past forty years, the phenomenon of staff turnover has been a popular subject for research among, _inter alia_, economists,

sociologists, statisticians and psychologists. Review studies on staff turnover have identified personal characteristics, job characteristics and external characteristics which are related with it. Whereas important variables related to staff turnover have been identified, conflicting methods regarding its measurement and analysis still arise in the literature.

The aims of the research presented in this thesis were as follows. First, I sought to identify those personal characteristics of social work staff which are associated with high propensities to change jobs or to leave social work altogether. Second, I described and applied appropriate statistical techniques in turnover and wastage studies. Third, suggestions were made for the standardisation of staff turnover and wstage rates. Fourth, I investigated the factors affecting staff turnover and wastage in the personal social services at the area level. Fifth, a number of recommendations were made about staffing policies that could lead to a reduction of staff turnover in the personal social services, and about the further study of social work turnover and wastage.

The results of the statistical analyses presented in chapter 5 which are concerning the first aim showed what kind of employees have high turnover and wastage propensities. For example, females are more likely to change job or move out of social work than males. The probability of moving out of social work was highest for those with only between one and two years' service. The likelihood of changing

jobs was greater among those who held the higher basic educational qualifications. Social work staff with a recognised social work qualification are less likely to change jobs than unqualified staff, and when they do move are less likely to leave social work completely. Finally, turnover and wastage rates varied considerably between workplace locations. The probability of leaving was higher among employees posted in workplaces such as hospitals for mentally ill and mentally handicapped than in workplaces such as secondment for a period of full-time training, headquarters, other hospitals and units.

Considering the second aim, I conclude by saying that logit technique used in the present thesis is particularly well suited to the analysis of staff turnover and wastage. It is certainly true that the logit technique is computationally more expensive than multiple regression analysis, but it avoids all the problems of interpretation and statistical assessment that arise with multiple regression analysis when the dependent variable is dichotomous.

With reference to the third aim, I would conclude that it is necessary to standardise staff turnover and wastage rates at area level analyses, because crude rates across different groups of employees may be misleading, since the probability of changing job or moving out of social work varies considerably between different groups of employees.

The choice of the standard population used to standardise crude turnover and wastage rates has to be based on the principle of reducing heterogeneity. The probability of turnover and wastage, estimated at the individual level, provides an appropriate standard population because it is derived from the personal characteristics which produce differences on turnover and wastage across different groups of employees.

The findings of the statistical analyses on turnover and wstage at the area level, suggest that local authorities which are attractive as a place in which to work suffer low staff turnover and wastage rates. The higher the percentage of expenditure spent on social work support services, and on residential and community care, in a local authority, the lower the turnover and wastage rates. Factors indicating the volume of social work in the personal social services such as percentage of handicapped persons and average number of clients in residential care per 1000 population, have been found to affect significantly and in a positive direction the leaving of social work staff. Also the results suggest that as the population per staff member increases, in a local authority, turnover and wastage rates increases. Finally, community indicators such as percentage of migrants into area from rest of Great Britain, percentage of married couples with more than four children, percentage of lone parent families with children, are factors with important influences on turnover and wastage of social work staff. The higher the percentage of the above community indicators, in a local authority, the higher the turnover and wastage rates.

Considering the last aim, I would conclude by saying that the following recommendations on staffing policies will lead to reduction of staff turnover and wastage in the personal social services.

1. Improvement of job characteristics.
2. Differential use of social work manpower.
3. Suitable recruiting methods.
4. Recruitment of part-time staff.
5. Training of newly recruited employees.

Finally, I made some recommendations for further research that will be very useful for the study of social work turnover and wastage.

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