

THE UNIVERSITY OF HULL

Migration Decisions of the Elderly: an empirical study  
and the development of a general theory

being a Thesis submitted for the Degree of

Doctor of Philosophy

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by

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## ABSTRACT

The thesis sets out to examine the factors which influence the migration decisions of old people and, from this, to develop a more general framework for the study of all migration decisions. Two lines of approach are therefore taken: the first, a study of the 'retirement' migration decision per se, is based on a sample of 294 elderly long distance migrants, local movers and non migrants in five Yorkshire coastal towns; the second develops the main arguments and findings of the empirical section to form a general quantitative theory of decision making, migration behaviour being presented as a special case of this general model.

The empirical study is primarily concerned with the apparent impact of age related social, economic and biological processes on the decision to move, the effects of previous geographical mobility and the importance of earlier visits to the place of eventual destination. A series of models for predicting the distance and direction of migration is then proposed; this is based on findings concerning the importance attached by the elderly migrant to sources of potential social support and the influence of previous travel and migration experience. Tests of these models suggest that moderately accurate prediction of individual behaviour is possible.

The theory of behaviour is developed from a series of parallel themes which span the fields of consumer economics, cognitive psychology, attitude theory and statistical decision theory. These are then drawn together, first in the form of a descriptive model of a behavioural system, and then as a general mathematical model which uses the causal structure postulated in the descriptive system. Finally, an approach to the simulation of the structure of the psychological environment is outlined and the special case of the migration decision is examined in the context of the general theory.

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## CHAPTER 1

### THE PROBLEM OF RETIREMENT MIGRATION

#### Introduction

Between April 1970 and April 1971 approximately 509,500 people aged 60 years or over moved house within England and Wales, 219,000 of them (43%) migrating far enough to cross the boundary of their previous local authority area.<sup>1</sup> (OPCS, 1974b, Table 3A). Many of these migrants moved quite considerable distances very often to areas already heavily populated with other old people.<sup>2</sup> Thus, despite the fact that only 2.3% of the total population in this age category moved between local authorities during that year (Table 1.1) compared, for example, with 10.8% of those aged 15-29, the local impact of this migration is often considerable. Coastal resorts are the most obvious examples of these popular destination areas, and towns like Worthing (with 41.8% of its population aged 60 or more in 1971, against a national proportion of 19.2%), Bexhill (47.4%), Hove (36.9%) and Eastbourne (36.7%) have earned the Sussex coast the popular epithet 'Costa Geriatrica'. (Law and Warnes, 1975, p.531). Other towns approach or, in a few cases, even surpass these proportions, Law and Warnes listing the 'top five' pre-1974 local authorities as Grange-over-Sands (49.1%), Sidmouth (48.3%), Southwold (47.5%), Bexhill, and Budleigh Salterton (47.4%). (Ibid.)

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<sup>1</sup>Pre 1974 local government boundaries.

<sup>2</sup>Although detailed published material is not available from the 1971 Census, a national survey of labour mobility between 1953 and 1963 found that 19.0% of all migrants aged 65 and over had moved at least 30 miles, compared with only 11.9% and 13.8% respectively of the much more mobile 15-44 and 45-54 age groups (Harris and Clausen, 1966, p.129). See also Law and Warnes (1976).

TABLE 1.1

Total Migrants within England and Wales, and  
Migrants between Local Authority Areas, 1970-1971

Age	1971 Total Population ( '000s)	Total Migrants		Migrants between L.A.S.	
		( '000s)	% of total population	( '000s)	% of total population
0-14	11576	1215	10.5	550	4.8
15-29	10236	2052	20.0	1101	10.8
30-49	11728	1111	9.5	550	4.7
50-54	2897	173	5.6	79	2.7
55-59	2976	158	5.3	70	2.3
60-64	2841	151	5.3	67	2.4
65-69	2400	134	5.6	59	2.5
70-74	1778	89	5.0	35	2.0
75+	2318	136	5.9	58	2.5
TOTAL	48500	5218	10.7	2568	5.3

Source: OPCS (1974a, Table 9) and OPCS (1974b, Table 3A)



Not all of these concentrations of elderly people are situated on the coast. Karn for example, presents a map giving the location of 113 'retirement towns'<sup>1</sup> in England and Wales; of these, 19 are situated inland although most are still in fairly close proximity to the seaside, particularly in the South West Region (Karn, 1973, p.49). In many rural areas, particularly in parts of East Anglia and the more remote uplands of central Wales and the northern Pennines, high proportions of elderly people are the inevitable result of a long-standing migration outwards of younger people seeking better economic opportunities afforded by the great urban centres. (See Dewdney, 1968). Yet even in some of these areas, the combination of low cost housing and a rural environment may attract more elderly people to live there. Lemon, for example, notes that retirement migrants are an increasingly important section of the population of several small towns in East Anglia. (Lemon, 1973, p.15). Frequently there is a close link between the purchase of second homes in rural areas and eventual retirement there, even though their original purpose may have been for holidays. (Downing and Dower, undated, p.16).

It is clear, moreover, that retirement migration is not a peculiarly British phenomenon; it has been extensively documented in the USA (for example Manley, 1954; Harlan, 1954; Lenzer, 1965; Walkley, et al, 1966; Barsby and Cox, 1975) and has received some attention in mainland Europe (see Cribier, 1975), whilst Karn (1971, p.ii) cites international retirement communities in climatically favoured areas such as Majorca, the Algarve, and the Bahamas. Yet these communities, and those in Britain, are merely the more obvious manifestations of a much wider phenomenon - the migration of elderly people. It is convenient to use the term 'retirement migration', but it is unlikely that all such moves are motivated purely by an idyll. For the purposes of the present study we thus define retirement migration as 'migration during the period of, or in anticipation of, retirement.'

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<sup>1</sup>Defined in this case as urban districts, municipal boroughs or county boroughs with 20% or more of their population of pensionable age (men of 65 plus, women of 60 plus) in 1966. (The national percentage was 15.5% in 1966).

## Retirement migration as a social and economic problem

Even though the growth of the archetypical retirement area - the seaside resort - has received considerable attention in the literature,<sup>1</sup> the extent to which the phenomenon of the 'retirement town' is socially and economically desirable is still an unresolved question. The reasons for this appear to be as much historical as they are due to a lack of research, the utopian concept of the demographically and socially 'balanced' community being an implicit, but extremely influential, factor in the controversy. Although vague in the extreme (it is generally taken to imply that an 'ideal' socio-demographic structure is one that approaches the national average),<sup>2</sup> this notion has been a central article of faith in much of British town planning in the twentieth century. In fact, one of the fundamental principles of Ebenezer Howard's Garden City concept was based on E.G. Wakefield's comment on mid-nineteenth century British colonial policy (Howard, 1898, pp.103-5):

We send out colonies of the limbs, without the belly and the head, of needy persons, many of them mere paupers, or even criminals; colonies made up of a single class of persons<sup>3</sup> in the community, and that the most helpless and the most unfit to perpetuate our national character .... The ancients, on the contrary, sent out a representation of the parent state - colonists from all ranks.<sup>3</sup>

Amongst the ancients, a colony

.... consisted of a general contribution of members from all classes, and so became, on its first settlement a mature state, with all the component parts of that which sent it forth. (Wakefield, 1849, p.109).

Almost 100 years later, the Reith Committee expressed concern that a New Town should be 'one of diverse and balanced social composition' (New Towns

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<sup>1</sup>See especially Karn (1971, Chapter 1), Pimlott (1947), Gilbert (1954, Chapter 2)

<sup>2</sup>For an interesting discussion of the conflicts involved in implementing this ideal in a practical situation, see Peterborough Development Corporation (1971, p.27).

<sup>3</sup>Wakefield's italics.

Committee, 1946b, Paragraph 24) and that

whilst priority should always be given ... to the demand from people already lodging in the town or being offered local employment or taking up any occupation in the town, the agency should also provide as rapidly as it can for unoccupied persons, such as the retired, who may choose to live there. (New Towns Committee, 1946a, Paragraph 24; *my italics*).

There is, of course, much to commend this objective, both from the point of view of social justice and administrative efficiency; however, there is also a less conscious, almost aesthetic, element in the argument. In an attitude which may be traced back to the heyday of the 'sanitary reform' movement of the mid-nineteenth century, (Briggs, 1968, pp. 18ff), areas displaying marked social segregation have traditionally been regarded as socially pathogenic, particularly where they may be seen as perpetuators of self reinforcing underprivilege. Despite the efforts of a more recent school of planning and urban sociology, invisible cause has been, and still is, frequently confused with visible effect. (See Gans, 1972, Chapters 2 and 3).

In much the same way, the incongruity of heavy concentrations of people of similar age also tends to generate concern, and rarely more so, it seems, than in the case of the elderly. Age and ageing tend to be regarded with some abhorrence in Western culture (Shanas, 1970, p.5), and the visual impact of large numbers of the elderly tends to produce a strong emotional response in the observer. It is true that demographic 'imbalance' may cause inefficient utilisation of community resources, whether of geriatric facilities in a retirement resort or schools in a New Town; but this does not necessarily mean that the 'age ghetto' is intrinsically undesirable. In fact, there are two aspects of the problem which should be considered: first the effects which the presence of a large number of retired people has on the rest of society and, secondly, the effects which such a concentration has on the elderly themselves.

The presence of a large retired population in an area is almost inevitably associated with low per capita expenditure on commercial goods and services on the one hand, and high per capita levels of expenditure on health and welfare

services on the other. Moreover, the influx of small, elderly households can place pressure on the local housing market out of all proportion to the numbers of actual migrants. The typical retirement resort thus tends to present itself as a 'problem' area, where job opportunities for the young are frequently inadequate, social services are stretched to their limit and where the vested interests of the elderly residents form a powerful political lobby against change. Eversley, writing of the difficulties faced by the so-called 'grey' areas which possess important problems of economic structure yet are not so obviously under-privileged as to attract government regional aid, has expressed a not uncommon view which he presents almost as a causal sequence:

Typically, they are those areas, usually relatively inaccessible, which are farthest from London but not so far away as the development areas. But they may also evolve in such apparently favoured locations as East Sussex where a number of influences combine to reduce employment and income: the decline of the holiday industry, the influx of small-income retired folk, lack of suitable employment for the young and a consequent rapid ageing of the population and a fall in spending power. (Eversley, 1968, p.7)

In a similar vein, Barr writes of Worthing:

.... there is strong resistance even to light industry, to town expansion, new roads, housing estates - anything which might upset the traditional character of Worthing as a residential town specially for the retired. Many shopkeepers, already desperate for staff, see light industry as disastrous, draining off what few employees they can now get. The fact is, old persons are Worthing's industry. A lot of people are making a lot of money from that industry.

(Barr, 1965, p.6)

Against this, it is necessary to bear in mind the likely consequences of a cessation of retirement migration to most of these areas. During the past 30 to 40 years, the emphasis in the holiday trade has moved significantly away from the residential seaside holiday towards touring, trips abroad, 'day-tripping' and more 'second' holidays. In theory there may be more lucrative alternatives to the increased inward migration of retired people, but the real choice is often between them and economic and demographic decline. Thus Lemon points out that although retirement migration has exaggerated the effect of the drift of young people away from rural East Anglia in producing a top-heavy

age structure, it does produce an additional population which supports local services and community activities. (Lemon, 1973, p.15; also see Harlan, 1954, pp.338-39).

In effect, an increase of old people may be regarded as an expansion of the export base of the subregional economy. Not only are pensions (whether state or private) a source of income which are completely external to the local economy, but also central government grants for local government and hospital services tend to increase with the number of elderly residents. Gordon has shown that, in 1971, about £10 million was spent on the latter services by or on behalf of retired people who had moved to the South West Region; this generated about £8 million of employment income in the region. (Gordon, 1975, p.12). Moreover, the majority of the pre 1974 local government reorganisation authorities in the South West qualified for the Resources Element of the Rate Support Grant owing to their low rateable values. As long as the per capita rate payments of elderly migrants do not fall too far below those of the average resident population, then retirement migration is profitable. (Ibid, p.13). Gordon estimates that extra employment in service industries associated with each retirement migrant is about 0.28 jobs, and that for most services (except retail distribution and local government) the proportionate effect is considerably higher than for the population as a whole. In Devon and Cornwall, about 6% of total employment may be attributed to the presence of retirement migrants; this compares with a figure of about 12% which is generated by the holiday industry.

A similar conflict between popular belief and the results of academic research exists with regard to the quality of life experienced by the elderly migrants themselves. The pitfalls and problems of retirement by the sea receive periodic and sometimes sensational treatment in the national press,<sup>1</sup> and organisations such as Age Concern have gained considerable publicity when they warn

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<sup>1</sup> See for example, Lowry (1973) 'On the Beach'; the Sunday Times (1/6/75, p.36c), 'Oh, we don't like to be beside the seaside'; The Guardian (2/3/77), 'Old people retiring to seaside misery'; The Guardian (26/5/77), 'Doom and gloom along the geriatric coast.'

that such elderly migrants could be making the 'biggest mistake of their lives', and might find themselves isolated from family and friends (Times, 14/7/75, p.3a). Barr writes of considerable hidden poverty amongst the 'distressed gentlefolk' of Worthing, of cases where people are literally living on the borderline of starvation whilst still maintaining appearances. (Barr, 1965, pp.5-6). The depressing picture is completed by descriptions of the loneliness which can result from a move away from the 'home' town:

One former geriatric nurse told me: 'So often families just don't want to know when their old people die. I have had to beg them to even come to the funeral. They just don't care about them any more.' This is the kind of danger facing a town like Worthing. In years to come it may become one vast old people's ghetto, run by old people for old people, the minority of young people simply opting out of the whole business. (Ibid, p.7).

Yet social workers and voluntary welfare organisations, who provide much of the material for these press reports, are very often poor sources of information about the total experience of elderly migrants. Their view tends to be coloured by individual instances of need and not by the great majority of people who rarely, if ever, call upon their services. This is not to say that severe problems directly attributable to retirement away from the 'home' area do not quite frequently occur; any act of migration is fraught with the risk of failure and the elderly commonly do not possess sufficient capital either to rectify an earlier mistake, or to adjust to a change in circumstances. However, the common view that retirement migration is beset by social problems must be compared with the (admittedly meagre) research evidence.

Perhaps the most thorough examination of satisfaction with the retirement move has been carried out by Karn in her study of elderly migrants in Bexhill and Clacton. It was found that 84% of the Bexhill sample (n=503) and 79% of the Clacton sample (n=487) gave affirmative replies to the question: 'In the light of your knowledge now, and given your time again, would you move to the coast on retirement?' (Karn, 1971, p.191). Hoyt found quite consistently favourable attitudes towards the retirement move even amongst the inhabitants of a large 'mobile home' site in Florida. (Hoyt, 1954, pp.366-69). A considerable majority

of people preferred to live in a community composed of the retired because of certain advantages such as the attainment of equal status as members of the community and range of appropriate social activities. In fact 'sociability' was seen as the chief advantage of living in a 'trailer park'.

Criticisms commonly made of life in retirement communities include a high degree of social isolation experienced by elderly residents; Barr, for example, comments on the frequency of a 'keep myself to myself attitude' which cuts many old people in Worthing off from sources of help and social contact. (Barr, 1965, p.7). In a more general context, however, Rosow has found that residential proximity between the young and the old does not maximise the social integration of the aged; instead old people, like younger people, tend to form friendships with their peers. (Rosow, 1967, pp.294-96). Thus the number of friends an old person has is directly related to the number of other people of similar age and social background in his environment. Moreover, American experience shows that there appears to be:

... a threshold effect in which minimally half the dwelling units in a residential setting must have an older person before strong neighboring patterns are stimulated and interaction is intensified. (Rosow, 1970, p.64).

Obviously these observations should not be translated too literally into the British situation, but even so, it appears to be supported by a certain amount of indigenous research. (See, for example, Barr, 1973).

#### The Objectives of the Study

It is abundantly clear that the phenomenon of 'retirement' migration, at least in its more extreme manifestations, touches on many important social and economic issues. Yet there is a more fundamental question which must be answered before we can attain anything more than a superficial understanding of the effects which the residential movement of old people have on their own lives and on society as a whole. We need to understand something of why they move, sometimes over considerable distances, at a time when so many of their contemporaries are settled as members of the communities in which they have spent at least

part of their working lives.<sup>1</sup> If possible, we must try and penetrate the migrants' ex post facto rationalisations for making the decision to move and reconstruct something of the circumstances which influenced the act of choice at the time that it occurred. It is this fundamental problem of motivation which this study is primarily intended to explore.

#### The search for a theoretical framework

The question of why elderly migrants do migrate implies the existence of some 'prior expectation' against which that behaviour may be measured and evaluated. By presenting migration as the exception rather than the rule amongst old people, we are in effect establishing a norm which relates a particular type of behaviour to a particular characteristic of an individual. Can we explain that relationship? If so, how do we explain it?

Braithwaite has stated that the aim of scientific explanation:

... is to establish general laws covering the behaviour of the empirical events or objects with which the science in question is concerned, and thereby to enable us to connect together our knowledge of the separately known events, and to make reliable predictions of events as yet unknown. (Braithwaite, 1960, p.1; quoted in Harvey, 1969a, p.30).

When assessed against these criteria, the theoretical development of migration as a field of study at the individual, or 'micro' level<sup>2</sup> is still in a very primitive state. The vast majority of studies are entirely empirical in nature and, whilst they are often rich in ad hoc explanations, they rarely present the structured theoretical relationships between sets of events which are necessary for prediction and for testing the degree of correspondence between observation

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<sup>1</sup>Harris and Clausen (1966,p.127) found that two thirds of all people aged 65 and over had lived at least 10 years at their present address.

<sup>2</sup>For the purpose of the current discussion, a distinction is made between 'micro' studies of migration, which are concerned with the behaviour and motivation of individual members of society, and 'macro' studies, which concentrate on the behaviour of people in the aggregate. In the latter situation, migrants are typically represented as flows between parts of an urban system.



and indirectly linked postulates. This is not to say that micro models of the migration process do not exist, but rather that they tend to be 'pseudo-theories'- constructs which 'purport to be theories appropriate for explanation without conforming in any way to the basic model of scientific explanation'. (Harvey, 1969a, p.99). The four main types of explanatory model which Willis has identified as being used, or at least implied, in most sociological studies of migration,<sup>1</sup> represent for the most part little more than a rudimentary, and sometimes rather deterministic, start towards the construction of a general theory of migration behaviour. Concluding their review of the theoretical state of the study of migration, Mangalam and Schwarzweller observed that only a fragmented approach exists, despite an intensification of research activity in recent years. (Mangalam and Schwarzweller, 1968, p.10).

Nevertheless, there were already signs that a new, and more theoretically promising, approach to the micro-study of migration had begun. Whereas most sociological studies, almost by definition, view individual migrant behaviour ultimately from the point of view of its relationship with the broad structure of society, a small number of workers in the field were beginning to focus more attention on the decision making process of the individual migrant himself. The major landmark as far as the empirical manifestation of this more truly behavioural approach is concerned, must certainly be Rossi's classic study of four census tracts in Philadelphia. (Rossi, 1955). A theoretical advance of comparable scope was not, however, achieved until Wolpert published his paper 'Behavioral aspects of the decision to migrate' followed, eventually, by the rather more rigorous paper of Brown and Moore. (Wolpert, 1965; Brown and Moore, 1970). Unfortunately there has been little by way of a major advance since then,

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<sup>1</sup>Willis lists the following areas of sociological research with regard to migration:

(i) the family life cycle; (ii) social-intergenerational and career-mobility, (iii) changes in the characteristics of the residential environment, (iv) 'social and locality participation'. Studies on the assimilation of migrants may be contained in either (iii) or (iv). (Willis, 1974, p.59).

despite the flowering of the 'behavioural school' of geography epitomised by the work of, for example, Downs and Gould. (See Downs and Stea, eds, 1973a). We have been left with a promising start towards the development of a general theory of migration at the micro level, but that is all.

The present study, which commenced in 1970, was therefore largely carried out in a theoretical vacuum, following a well trodden empiricist path. This is not to say that the research design itself possessed no theoretical content, for the first shock waves of the 'behavioural revolution' had already swept through British Geography, and much of the present writers' ideas and hypotheses had been influenced considerably by the approach of North American workers such as Wolpert, Moore and Brown. Concepts such as action space, a geographical translation of Lewin's 'life space', played an important part in the research design but, as they were originally formulated, these were not testable parts of a more embracing theory. (Wolpert, 1965; Herbst, 1961a, p.76; Lewin, 1951, pp.239-40). There was also a depressing tendency in much early work in 'behavioural geography' to dress up research in 'behaviourist' jargon or, as in the case of the ubiquitous environmental 'perception' studies of the late 1960's and early 1970's, to stop short at the really interesting question of why people behave as they do. The geographer's spatial frontier was reasserted and the problem left, by default, to psychologists for further study.

This was not necessarily through laziness on the part of geographers, but seems to have stemmed from an amalgam of lack of self confidence in undertaking more than a 'hit and run' raid across a disciplinary boundary, and of genuine confusion as to which direction should be taken through a highly complex, relatively unstructured discipline such as psychology, particularly as the subject is a minefield of warring factions each claiming a monopoly of the truth. Thus Harvey, after a lucid discussion of the relevance of Charles Morris' theory of signs to an understanding of how people interpret spatial and other information, retreats to the comparative security of classical micro-economic theory with all its problems of assuming man's rationality, of operationalising 'utility', and of

predicting the outcome of situations where the objects of choice are essentially similar and highly capable of substitution. (Harvey, 1969b, p.63; Morris, 1964, 1971).

Confronted with the disappointing barrenness of many of these cherished concepts, the present writer looked again at the results of his own work. Surely after at least half a century of continuous study of migration by a vast number of workers it was possible to begin to theorise fairly rigorously about the underlying processes, to begin to understand them in greater depth than was possible by using the classic methods of ad hoc empirical survey alone. Why had this situation persisted at the micro level when macro level models of migration and urban systems development had achieved very considerable technical sophistication<sup>1</sup> despite the rather simplistic causal mechanisms on which they tend to be based?<sup>2</sup>

It was found that certain key results of the empirical study of retirement migration did, in fact, suggest a basis for theoretical speculation. Furthermore, it became clear that, by assuming that the act of migration is not a unique type of event, it was possible to assemble a coherent body of theory which could potentially be applied in the study of many other situations involving the conscious exercise of choice. The resulting theoretical framework itself was largely based upon contemporary concepts from the fields of decision theory, cognitive psychology, attitude theory and consumer economics. By means of relatively modest extensions to these existing themes it was found that it was possible to construct an integrated model of human behaviour.

This dissertation is thus written in two parts. The first is concerned with the specific phenomenon of retirement migration, whilst the second progresses

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<sup>1</sup>For example, see Wilson's general regional model. (Wilson, 1974, Chapter 11).

<sup>2</sup>The most prolific single example, perhaps, is that of Lowry's 'Model of Metropolis' but includes the whole family of related gravity and spatial interaction models which are based on the proposition that transactions between locations are impeded by the friction of space (time, cost, variety of opportunity and information. (Lowry, 1964; Morrison, 1973, pp.125-6). For an excellent, and concise, review of macro models see Stillwell (1975).

from this narrow field to develop the general model of human behaviour which, it is hoped, will in future provide an adequate theoretical context for the study of migration. The present empirical study cannot, of course, be said to 'test' any part of the theory, as the latter not only did not formally exist when the survey was carried out, but also provided much of the stimulus for the ideas on which the structure of the theory is based. Care has been taken, however, to ensure that the theoretical arguments are not logically dependent in any way upon the results of the preceding survey. The latter may therefore be taken, albeit cautiously, as providing supporting evidence for some portions of the theory, and indicating others where basic assumptions may be in some doubt.

Finally, whilst the writer sympathises with the reader who feels irritated at his having put 'the cart before the horse' in this way, he would like to point out his own extreme sense of frustration at having finished the project with what he would dearly have liked to have started - a theory of migration.

**PART ONE**

**RETIREMENT MIGRATION : THE EMPIRICAL STUDY**

## CHAPTER 2

### SOME DETERMINANTS OF MIGRATION IN OLD AGE

#### Introduction

In modern Western society, the phenomenon of migration almost invariably involves the conscious exercise of choice - whether or not to move, where to move, when to move. The outcome of this decision will generally be of considerable importance to the decision maker (or makers), his household and to the whole complex of his social contacts lying outside the household, comprising relatives, friends, colleagues and acquaintances, for his relationships with very many of them are likely to be directly affected. Obviously, marked differences in the degree of significance attached to the decision are likely to exist between individuals. This may depend on the cost and distance of the move, its anticipated impact on lifestyle, social pressures, recognised risks and the amount of information held about the destination, even the personality of the individual himself. The final decision is unlikely to be made, however, without a large amount of information being gathered and a considerable number of intermediate decisions being made, often over quite a long period of time. As Brown and Moore have argued, migration does not involve a single act of choice but is the culmination of a very complex pattern of events. (Brown and Moore, 1970, pp.2-10).

If the complexity and importance of the decision is combined with the guiding objective of migration - in the broadest sense that of altering the future in some way (Wolpert, 1965, p.162) - it does not require an heroic mental leap to concede that the decision is generally likely to be fairly rational, at least from the decision maker's own point of view. This assumption of the migrant's 'intended rationality' is of great importance to the present study. It implies that individuals with broadly similar overall assessments of a given situation will tend to respond in basically similar ways and, hence, that an identifiable 'cause' may generally be seen to be linked in some way to a measurable effect.

A person's residential location may be regarded as consisting of two separate sets of attributes : 'situational' or accessibility characteristics, for example ease of access to work, schools, shopping and leisure facilities; and 'site' characteristics, the features of the dwelling and neighbourhood. (Brown and Moore, 1970, p.1). Subject to certain constraints, the individual 'consumes' these attributes over his period of residence, but in ever varying quantities as his personal needs and circumstances change. Quite simply, they allow him to carry out the series of activities which, together, constitute his everyday life. The extent to which any given location may permit the individual to meet his needs, actual or anticipated, will largely determine his degree of satisfaction with that location. Wolpert has termed this the person's 'place utility'. (Wolpert, 1965, p.161). Any discrepancy existing between what is minimally required of the location and what it actually affords may result in the individual becoming dissatisfied in certain respects. In other words he may experience 'environmental stress.' (Wolpert, 1966, p.93).

Stress may arise through the operation of a number of factors. For example, it may be experienced because some disadvantageous feature of a location was overlooked when a person first settled there. He may not, perhaps, have originally been aware of his immediate neighbours' addiction to late night parties. Frequently, however, stress may result from a shift in a person's needs or from an external change in his environment. A change of job may greatly lengthen the journey to work; a new road built close to the dwelling may lead to noise and chemical pollution. If the degree of stress exceeds a certain level then adaptive behaviour of some sort may, of course, take place. The installation of double glazed windows may, for instance, ameliorate the noise problems caused by road and neighbours, whereas a change to a faster means of transport may reduce time spent on the journey to work. Satisfactory adjustments of this sort may not always be possible, of course, and it is then that the individual may decide to migrate, assuming of course that the satisfaction gained from remaining in his current place of residence does not still outweigh the total amount of satisfaction which he expects to be afforded by a new location.

The pattern of activities an individual expects to be able to pursue in any given location and the factors which constrain his ability to achieve these expectations, are both largely determined by his personal characteristics.

Three main types of constraint may be envisaged : information level, culturally conditioned tastes and available income. Information level may be broken down into the following components :

- i) The individual's degree of exposure to information sources; this is influenced partly by educational level, intensity of social contact, availability of formal communications media such as television, social status and length of direct experience of the present, and of other, environments.
- ii) His information synthesising ability. An aspect of individual 'intelligence', this characteristic determines which items of information are selected as being relevant to a particular set of goals. This may partly, but by no means necessarily, be reflected in the individual's educational attainments and socio-economic status.

Culturally conditioned tastes differ from information level in that they are the deliberately (as opposed to accidentally) filtered set of alternatives from which the individual will make his choice of activity. For example, attending an opera may not be considered by him to be an acceptable alternative to visiting friends, whereas watching a football match could well be a much stronger contender.

A person's tastes are likely to be strongly influenced by what he sees as external social pressures as well as by his own private values.

To sum up, it is clear that the degree of satisfaction which an individual is likely to feel with regard to his location is the result of a complex interaction between his needs and desires on the one hand, and the available physical and social goods and services afforded by his environment on the other. Migration may, in fact, be regarded as being as much a product of the characteristics and activities of the migrant as of his place of residence. The individual's personal attributes and the ways in which they are related to his everyday pattern of life



are therefore an essential consideration in any attempt to gain an understanding of the motives underlying migration. It follows, therefore, that the starting point for any study of what we here loosely term 'retirement migration'<sup>1</sup>, should be the personal characteristics and the general behaviour of the elderly.

We begin, however, by looking at some overall trends and features of urban society which affect the behaviour patterns of young and old alike. We will then examine some of the effects of social and physiological ageing which help to distinguish the behaviour patterns of old people from those of the young and the middle-aged.

### The Individual in the Urban Environment

A person's residential location provides a focus for the area within which most of his daily activities are concentrated. This area may formally be designated the individual's habitat: 'that part of the environment at which exchanges actually occur between ... organisms and the resources which they utilise'. (Dansereau (1957, p.325). The set of bonds existing between an individual and a set of geographically distributed physical facilities and foci of social interaction may be said to delineate his habitat, both in terms of its spatial extent and of the stability of his position in it.<sup>2</sup>

In societies possessing relatively primitive means of communication or where settlements are isolated by great geographical or cultural distances, the individual's habitat is likely to be spatially fairly discrete. Places of residence,

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<sup>1</sup>Law and Warnes (1973, p.375) distinguish between migration upon retirement, a direct result of 'the impulse to move which takes place upon retirement', and the movement of retired people. To restrict the study of retirement migration, to the former category, however, is to impute a degree of single mindedness to the migrant which is by no means universal. The actual event of 'retirement' is but one aspect of an ageing process which overshadows the behaviour of the elderly. Motivation is thus frequently likely to be complex, and locational adjustments wholly or partly attributable to the cessation of full-time employment may occur well before, or long after, the actual event.

<sup>2</sup>Brown and Moore (1970, p.8) refer to an individual's habitat as his 'activity space', the broader area of which he has knowledge but not necessarily direct experience his 'awareness space'. Together these are said to comprise the person's 'action space'. (See also Wolpert, 1965, p.163).

of social discourse, work, shopping and recreation combine to form a relatively compact area, a cluster of 'activity nodes' which are connected by short transport routes whenever they do not overlap with one another. This dense physical transport/activity network is reflected in the general nature of the individual's social relationships. To draw the common theatrical analogy, the small size and limited geographical extent of the habitat necessitate the individual's playing of a number of 'parts' to the same 'audience'. Thus one individual may possess the combined role of father/employer/ritual leader/teacher with regard to another individual.<sup>1</sup> (Frankenberg, 1966, p.249). These factors all serve to increase the strength of the bonds between the person and his locality and to preserve the stability of his environment.

In more technologically advanced societies this exclusively localised habitat is much less common, and is becoming still less so. For even people who themselves are constrained by income, health or inclination to a very restricted area are affected by the wider geographical horizons of the society in which they live. (See for example Pahl, 1970). Greater physical mobility and the development of telecommunications have effectively removed the tight boundaries which previously circumscribed the potential and actual habitat. Everyday life, admittedly to widely varying degrees, is no longer enacted exclusively within a fairly small area but, frequently, across considerable distances. Social networks have become more open ended and less restricted spatially as means of rapid communication have become generally available, population densities have increased and economic specialisation has become further accentuated. As Webber has pointed out, for large sections of middle class society and an increasing proportion of the working class, place of residence has become much less important for the carrying out of many social and economic activities. (Webber, 1964, p.59). Noting that studies of spatial behaviour are revealing striking variations among population subgroups,

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<sup>1</sup>Frankenberg defines 'social role' in the following way:

The individual in society occupies a number of social positions. 'These social positions bring him into relation with the incumbents of other social positions. People expect appropriate behaviour from the holder of a particular position. The sum of these expectations is the role.' (Frankenberg, 1966, pp.16-17).

Webber goes on to suggest that 'culturally specific spaces must be measured by a wide variety of transformations of the linear-distance scale and by an equally varied collection of value scales.' (Ibid.). Friends and neighbours often may now be meaningfully differentiated, and place of work and some recreation may now possibly (if not always conveniently) be located anything up to some tens of miles away. The result is a tendency for the individual to develop more narrowly defined social relationships for, not only does he less frequently play different parts to the same audience, but also the audiences themselves have few links with other audiences (or, sometimes, even amongst themselves) except through the 'actor' concerned.

If we ask a man to name his friends and then ask them in turn to name their friends, they will all name different people, very likely unknown to the first person; these people would again name others, and so on outwards. There are virtually no closed groups of people in modern society. The reality of today's social structure is thick with overlap - the systems of friends and acquaintances form a semi-lattice, not a tree. (Alexander, 1972, p.412).

This tendency towards an increase in the number and narrowness of social relationships, coupled with the development of a higher number of latent relationships (through membership of formal associations which never bring some fellow members face-to-face; see Frankenberg, 1966, p.250), and an increase in the ephemerality of many relationships, have done much to loosen the bonds of place for many people. Moreover, there is no longer as much compulsion for the individual to assume certain roles which would be regarded as obligatory in more closely knit societies; the long decline in church attendance, for example, cannot simply be explained in terms of television and increased agnosticism!

These changes are by no means universal, variations tending to occur according to social class and overall community size. (Bott, 1971, p.231). Nevertheless, the tendency exists as a background of progressive change to the social intercourse of most people, making it increasingly difficult for substantial ties with any one place to be established. Area of residence is, therefore, no longer necessarily synonymous with a discrete habitat, particularly insofar as its social, as opposed to its physical, attributes are concerned. The location of many centres of social activity may also change without always implying a shift

in the rest of the network. For example, even quite a considerable change in the location of work need not enforce an immediate shift in the place of residence, if at all; similarly a shift in residential location may attenuate friendship networks, but need not destroy them. Again, wide variations exist between individuals according to class, culture, personality, education, income and degree of physical mobility, but the general trend of change has been established as a common culture becomes more widely adopted.

### The Effects of Ageing

'Problems of old age are of two kinds: those that old people actually have and those that experts think they have'. (Rosow 1967, p.1).

Broadly speaking, there are three main aspects of ageing to be considered when investigating its effects of behaviour; these are physiological and psychological effects, economic effects, and social effects.

### Biological Ageing

The physiological and psychological aspects of ageing are, in many ways, its most obvious characteristics. Yet they are frequently the most misunderstood, particularly as the stereotypical old person is often seen as suffering from some of the more extreme pathological accompaniments to old age which are relatively unusual in those aged under 80 years or so. Generalisation is in fact very difficult for, as Chown has pointed out, any living organism has some ability to repair and replenish itself, and changes with age are thus apt to be very complicated. As we all know, the net result from the physiological point of view is that systems and processes work somewhat less effectively in old age than in youth. (Chown, 1972 p.9). Vigorous physical activity becomes less possible and a general reduction in cardio-vascular and metabolic efficiency, and a decline in resistance to disease all contribute towards making the elderly more sensitive to the inadequacies of their physical environment. (See for example, Bromley,

1966, pp.38-65; Kohn, 1971, Ch. 6). Factors such as size and comfort of dwelling, ease of access to shops and places of social contact at both origin and destination are thus all likely to influence the migration decisions of the elderly in rather different ways to those of the young on physiological considerations alone. Studies such as those of Carp have clearly illustrated the importance of the immediate environment of the dwelling to the health and social well being of the elderly. (Carp, 1967).

The process of 'normal' (as opposed to pathological) ageing is also known to affect the psychological functioning of the individual; reduced psychomotor speed is a notable example. (Birren and Spieth 1972, pp.16, 18). However, many experimental results which have found general acceptance in the popular mythology of ageing are open to question. For example, intelligence as measured in cross sectional studies (that is, between generations) appears to reach a peak amongst those in their late 'teens and early 20's and then to decline with increasing chronological age. (Bromley, 1966, pp.229-259; Horn and Cattell, 1966). However, some longitudinal studies<sup>1</sup> have demonstrated that the overall reduction in intellectual ability with age is comparatively slight, at least for those aged under 70 and that, on some measures, a peak is reached between the ages of 40 and 50. (Schaie and Strother, 1968). The reason for the marked differences between generations seems to be largely the long term upward trend in educational standards, particularly as test performance is highly correlated with educational level. (Riley et al, 1968, p.8). It is also important to remember that, in common with younger people, the level of performance amongst the elderly has been shown to be greatly influenced by health, education, intelligence (relative to age peers) and vocational background. Moreover, intellectual decline may be more a function of factors such as ill-health or disuse of capabilities rather than of the direct effects of age. (Baer, 1971, pp.5, 6). Other well attested concomitants of ageing, for example an increase in cautiousness (Botwinick, 1966),

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<sup>1</sup> That is, measurements are taken within the same generation at different points in time.

may be a subjectively rational adjustment to what they and society as a whole view to be their abilities rather than purely a reaction to changes wrought by physical ageing.

It is clear that the elderly are by no means a homogeneous category, even from the point of view of general trends in their basic physical make up. Differences between 'younger' old people (say, between 60 and 75) and the very old, between the highly educated and not so educated, are all causes of greater variation among the over 60's than often exists between 'younger' old people and those of middle age and under. As the vast majority of 'retirement' migrants are aged under 75<sup>1</sup> at the time of their move it is clear that physical ageing is likely to have only a marginal influence on decision making in most cases.

#### Economic Effects of Ageing

The great majority of elderly people, particularly but not solely those who have retired from full-time employment, experience a marked decline in their real income levels. The financial consequences of the act of retirement itself are readily apparent, even for the minority with occupational pension schemes. However, those approaching retirement or who remain in full or part-time employment beyond the pensionable age also suffer, on average, from lower income levels than younger workers. They are, for example, more likely to be made redundant, more likely to remain unemployed once out of work, have a tendency to be concentrated in declining sectors of the economy and have, in any case, a comparatively weak bargaining position for their labour. The older worker tends also to be less mobile geographically than his younger counterpart and is less willing to acquire new skills which, after all, may not be utilised for all that much longer than the period required for retraining. He is also less able to cope with physically demanding work and, as he grows older, is increasingly likely to suffer from longer periods of illness.

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<sup>1</sup> Even taking the narrow definition of 'retirement' migrant as being a mover of statutory retirement age (65 years for males, 60 for females) or over, 69.7% of those moving between local authority areas in England and Wales in the year preceding the 1971 Census were aged under 75. (OPCS, 1974b, Table 3A).

With increasing age, a married woman faces a greater risk of a reduction in income through her husband's death. Even if the husband has already retired, some private pension schemes considerably reduce the level of payment made to his widow. (Karn, 1971, p.120).

Paradoxically, many people embark upon retirement with considerable capital assets, particularly among professional and managerial workers, and the hitherto self-employed. Apart from the frequent possession of a house, and, perhaps, other forms of investment, retirement may, for example, coincide with the maturation of insurance linked savings schemes. Certainly, home ownership appears to be a very important factor in the 'non local' migration of the elderly in Britain owing to the decline of private rented accommodation and the fact that the allocation procedures involved with local authority housing significantly constrain the mobility of many people. (Law and Warnes, 1973, p.376). Home ownership thus frequently presents the opportunity to turn part of a fixed asset into cash whilst, at the same time, moving from a large or inconvenient house in an expensive area to, perhaps, a smaller dwelling in a less expensive area.

The economic position of most elderly people is likely to have a very marked effect on their overall behaviour patterns. In terms of Becker's theory of time allocation (Becker, 1965, pp.502-505), the sharp decline in income and the great increase in 'unproductive' leisure time which most experience on the cessation of work or which may, in the case of women, follow bereavement, will tend to enforce a substitution away from financially expensive 'goods intensive' activities and commodities towards cheaper, 'time-intensive' ones. The potential, or actual, availability of capital may encourage its investment in order to provide a supplement to income (for example, the purchase of an annuity), its direct use as a supplement to income, or its use to purchase assets, notably housing, of a type requiring, say, less expenditure on their maintenance or which permit other desires to be met whilst reducing the recurring costs involved. For example the importance which many old people attach to their gardens may be a rational

means of reducing the cost of increased leisure time. The time intensive activity of gardening is substituted for a direct expansion of other more expensive leisure activities pursued in the comparatively limited time available when they were working. Similarly the popularity of many seaside resorts and rural areas for retirement is partly due to their attractiveness in offering time intensive leisure activities which appeal to the elderly such as walking, associating with other old people, or watching the activities of others. (For example, see Karn, 1971, pp.102, 107). Moreover, the attractions of a better climate (at least in the South and West of England) may to some extent lie in the prospect of lower heating costs as well as in less restricted outdoor leisure and in health reasons.

### Social Effects of Ageing

From the point of view of the individual concerned, the social changes associated with ageing are frequently the most important. Unlike biological ageing, social ageing processes tend to manifest themselves quite rapidly, whilst their impact is not so easily foreseen as in the case of changes in economic circumstances.

What are the main features of social ageing? Broadly speaking, they may be said to stem in the majority of cases from the coincidence of the final 'phase of disintegration' of the family developmental cycle (Turner 1969, p.41) with retirement. Both phenomena are characterised by a loss of both activities and social roles, but other age associated factors, such as increased infirmity and decline in income, also contribute towards this contraction. (Barker and Barker, 1961; Madge, 1969, p.270). For example Townsend, in his study of old people in the London working class district of Bethnal Green, notes that in the eyes of his respondents shortage of money made it harder to reciprocate gestures of friendship. (Townsend 1963, p.149). But, normally, these effects may be said to be of secondary importance, at least in the earlier stages of old age.



The underlying tendency in modern society towards an increase in the number and narrowness of social relationships, has the general effect of considerably reducing the size of the individual's social network as certain roles are lost or are voluntarily discarded. The event of retirement itself is notorious in this respect, as it very often represents the severance of the worker from many of his previous social contacts. Even if contact is maintained with some of his previous colleagues, the nature of his relationships with them of necessity will have been altered considerably. The effects on the individual of this abrupt change may sometimes be dramatic. Golant notes that for a man some elements of retirement are analogous to widowhood for a woman, notably the loss of primary social role and reduced income. Reduced income may sometimes be reacted to as though it were a loss of status and potency which may then create an impediment to the individual's re-establishing or maintaining effective interpersonal relationships. (Golant, 1972, p.9; see also Birren, 1964, p.44). This may be particularly the case when the retiree finds it difficult to substitute other roles and relationships for those lost at his former place of work. Thus Bott's observation that working class families tend (though possibly to a decreasing degree) to display less sharing of social functions between husband and wife would lead us to suspect that the switch to an existence largely centred on the home would have a more traumatic effect on working class men than on the middle class. (Bott, 1971, p.230-31). Townsend, for example, notes that 'to many working-class men retirement is a social disaster'. (Townsend, 1963, p.172). When viewed in these terms, retirement may be seen to be an important source of stress in the life of the individual which will tend to stimulate an attempt to correct the discrepancy which he feels to exist between his current state and his notion of some desired state. For those who can afford the cost and are prepared to face the uncertainties involved, migration is one such response.

It is essential, however, that these aspects of retirement are not exaggerated. Having noted the increasing importance of early retirement in the USA, Barfield and Morgan found that financial factors have considerably more influence on the retirement decision than attitudinal variables. (Barfield and Morgan, 1969, p.3). Also, although Streib found that morale tends to be

higher amongst employed old people than amongst the retired, even when health and socio-economic status were controlled for, Neugarten has pointed out that men generally do not decline significantly in morale (or in health) once a period of adjustment has been allowed for. (Streib, 1956, p.275; Neugarten, 1970, p.20). Whilst attitude varies according to occupational status, the majority of workers seem increasingly to welcome retirement. Evidence of a decrease in satisfaction amongst the retired in fact appears to be largely confined to the case of those who held a negative pre-retirement view of retirement. (Riley et al, 1968, p.351). A major cross-national study has found that retired British workers in general say they miss nothing about their work, and that those who do are more likely to miss the income rather than the work itself. Retirement is primarily seen as a period of rest. (Shanas 1968b, pp.344-345).

The final stages of the family life cycle are also characterised by a tendency towards a contraction of social roles. The 'disintegration' phase may be marked by the departure of children to set up their own households, by the death of one's spouse, by the gradual dispersal or death of other members of the family or of friends. Some theorists, notably Talcott Parsons, have argued that the structure of industrial society with its emphasis on geographical and social mobility, production and specialisation militates against the maintenance of an extended kinship system. (For example, see Parsons 1964, p.102; Vogel 1968, p.129). The background of gradual change in urban society described earlier in this section has aroused speculation that the elderly are increasingly isolated from contact with the rest of society, including their own children. That the lives of many old people are distinguished by a severe loss of social roles, particularly after the age of about 75, is firmly established. (Rosow 1970, pp.59-62). To assume that this tendency is due to industrialisation is, however, erroneous; for example, pre-industrial evidence suggests that three generation households were in the past rare in both Britain and the USA and that large numbers of old people lived alone in towns and rural areas alike. (Friis et al, 1968, p.4). It has also been shown that many of those who are socially isolated

in old age are people who were also relatively isolated when they were younger. (Neugarten, 1970, p.22). Other studies have shown that family relations are quite commonly maintained (although not necessarily unaffected) despite social and geographical mobility;<sup>1</sup> the latter will, of course, tend to have an effect on frequency of contact irrespective of the quality of the relationship.

Several studies over the past 20 years have demonstrated the great importance which old people generally attach to relationships with relatives, particularly their children. Townsend, for example, notes that as age increases, relationships with other family members become more important whilst contacts outside the family become less so. (Townsend, 1963, p.149). Also, unless a great deal of time has elapsed since their last move, most old people have a larger number of regular social contacts with relatives than with friends. (Langford, 1962, p.13). Rosow has also observed that the overall contraction of their social world does not apply to the association of the elderly with their children:

There is abundant evidence that the social areas of the elderly are ordered in priorities. As these shrink, they tend to be shed as successive layers of an onion - formal organisations first, and so on. These priorities form a continuum from formal bureaucratic to intimate personal associations. At the core is the family. Not only are relations with children the last to decline, but indeed they are actually sustained in old age rather than reduced - subject, of course, to limitations of residential distance. In other words, whatever their disengagement or loss of contact with other groups, old people's relations with their children are maintained. (Rosow, 1970, p.61).

The significance of contact with friends and relatives to the aged is, however, subject to considerable variation according to their social and other personal characteristics. For example, although several studies have stressed the need

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<sup>1</sup> In the case of geographical mobility see for example Litwak (1960b), Hubert (1965), Willmott and Young (1967, p.43); for evidence of the effects of occupational and social mobility see Litwak, (1960a), Aken and Goldberg (1969). Willmott and Young (1967, p.75) note that social mobility tends to affect relationships between men more than those between women. It has also been shown that close residential proximity between old people and their children is still common, particularly among the working class. For example, whilst 26% of the middle class of Woodford Green were found to have parents in the same borough, the proportion of working class respondents was 42%.

most of the elderly feel for 'supported' independence in old age (Townsend 1963, pp.37-40), Kutner found that among 'high' socio-economic status groups, frequent visiting with children and relatives was often associated with low morale as he measured it; this was not true of frequent contact with friends. (Kutner et al., 1956, p.118). Among those of 'low' socio-economic status, frequency of visiting had no relationship with morale. Facile causal inferences should obviously be avoided, especially with an American example, but it has been observed in some British studies that social status is conferred by giving and lost in receiving in middle class relationships. (Bell 1969, pp.238-239; see also Hubert 1965, p.64). This is likely to apply both in the case of dependence of an elderly parent on a child or vice versa.

#### Patterns of adjustment to Old Age

How do old people broadly adjust their outlook and behaviour in the face of these processes of biological, social and economic change? Neither of the two principal theories of adjustment - the so called 'activity' theory (Cavan et al, 1949, pp.10-17) and the 'disengagement' theory (Cumming and Henry, 1961, pp.14-16)- satisfactorily explain all the phenomena associated with successful ageing, and yet both are supported by some of the facts.

The activity theory implies that old people have essentially the same social and psychological needs as the middle aged, apart from the inevitable constraints of health. 'Optimal' adjustment to ageing involves staying active and generally resisting the shrinkage of one's social world. Ageing is thus seen to involve the individual in a strategy of maintaining as long as possible the activities and attitudes of middle age, and the subsequent finding of replacement activities for work when he is forced to retire, and of substitutes for friends and relatives lost through death. (Havighurst, 1972, p.303). Disengagement theory, on the other hand, explains the characteristic contraction in the social and physical habitat of the aged by way of a process in which both society and the individual

old person mutually withdraw. Social withdrawal is thus seen as a stage of human development which is both accepted and desired by the elderly; it is a natural rather than an imposed process.

In this view, the older person who has a sense of psychological well-being will usually be the person who has reached a new equilibrium characterised by a greater psychological distance, altered types of relationships and decreased social interaction with persons around him. (Ibid.)

Subsequent studies, however, have clearly indicated that there is no single pattern of adjustment. Quoting an earlier paper (Neugarten, Havighurst and Tobin, 1968), Neugarten delineates three common types of successfully adjusted individual:

- i) 'Reorganisers', who correspond closely with the 'activity' model, substituting new roles and activities for lost ones.
- ii) 'Focused', who are more selective in their activities, devoting their energy to a significantly reduced number of roles.
- iii) 'Disengaged', who are characterised by withdrawal.

The less well adjusted include: those who refuse to relinquish the patterns of middle-age and who, as long as they are successful in this, generally have high life satisfaction; those who reduce their role activity as a defence against ageing rather than as a constructive adjustment; the 'apathetic' and those with a strong need for the emotional support of others. (Neugarten, 1970, p.21; also Havighurst, 1972, p.307).

Clearly, the social effects of ageing discussed in the previous section are the result of the interaction of the characteristics and circumstances of the individual old person with the processes and expectations imposed from without by the rest of society. It is, therefore, virtually impossible to separate cause from effect, at least when dealing with the elderly in the aggregate; it is certainly no more than a convenience to regard the salient features of ageing as part of an autonomous process.

We have seen that the process of growing old involves a number of changes in circumstance which sometimes require quite radical adjustments on the part of the individual. The net result is generally a contraction in the number of activities and roles in which he or she is involved or, at least, a change in their nature. As time passes and health, physical mobility and, perhaps, economic circumstances deteriorate, then the individual may perhaps become more sensitive to some of the basic characteristics of his dwelling and its location relative to public transport, shops and important social contacts. A move to a different house in the same area or even out of the area altogether will, for some old people, be a part of the adjustment strategy.

The empirical study which follows will therefore concentrate mainly on the relationship between some of the fundamental characteristics of the life of old people and the decision to migrate either during retirement, or at around the time that retirement actually occurs. The main points of concern are:

- i) the function of retirement and bereavement as sources of stress in the life of the individual. Both tend to reduce his or her range of social roles and activities whilst, in the case of the former, place of residence is no longer determined by employment. As Vance has noted, the retired may concentrate on their own needs as consumers rather than on the demands the economy has placed on them as producers. (Vance, 1954, p.331; Law and Warnes, 1973, p.375).
- ii) The relationships between previous geographical mobility (and hence looser ties of place, greater experience of migration and its problems) and retirement migration. The effect of social class differences on mobility will also be examined, particularly in the light of the earlier discussion on the decrease in the importance of locality on social and spatial interaction.

- iii) The importance of the previous residential environment to migration. As they become increasingly home centred through the effects of retirement and through the decrease in mobility and activity levels related to health and economic circumstance, the elderly are likely to become more sensitive to the inadequacies of the place of residence. This is of course likely to be closely linked with the possession of too large, or in other ways unsuitable, housing left over from a previous stage in the life cycle.
- iv) As the processes of social ageing increase the importance of family relationships, how does the distribution of relatives and, to a lesser extent, friends relate to the shift in location of the elderly migrant? Does their distribution appear to be connected with the distance and direction of migration?

Another important factor contributing to migratory behaviour amongst the elderly is the mental image which they earlier possessed of the nature of life during old age, particularly of life after retirement. The economic implications of ceasing full-time employment are such that many are encouraged to make early financial provisions in the form of pension fund contributions, savings linked insurance policies, and so on. This awareness, together with the obvious comparison which is frequently made between retirement on the one hand, and the thought of endless leisure on the other, all contribute towards an individual's mental image of his eventual retirement. It is also natural that this impression should frequently be closely related to the concept of the 'holiday' which, after all, is the most sustained period of leisure which very many people ever experience. In many ways, comparison with a prolonged period of unemployment would be more appropriate!

Quoting D. Hobman, director of Age Concern, Suzanne Lowry has written:

'in the 20s and 30s people are concerned with job satisfaction and ambition. A bit later career expectation becomes more defined and a degree of realism enters; a man knows the score, and no longer wants to be king'. At this point fantasies about retirement and how wonderful it is going to be tend to start, but no attempt to consider the problems as they really will be. Come the time for decisions - particularly about accommodation - many up sticks

and off to Bexhill or the Costa Brava in pursuit of the long glorious holiday they feel retirement ought to be. (Lowry, The Guardian, 14.3.73).

This factor, together with more old people with the money, health and length of retirement period to indulge their wishes, be they fantasies or well considered strategies, all help to explain the common coincidence of holiday and retirement areas. A striking example of this link has been shown in a study of second home ownership in Carmarthenshire where 65% of owners stated their eventual intention to retire to their holiday home. (Carmarthenshire County Planning Department, 1973; quoted in Downing and Dower, undated, p.16). Also, Karn mentions a British Travel Association survey in Bexhill which found that 19% of all respondents aged 35 or more, but not yet retired, were 'very likely' to consider moving there on retirement. (Karn, 1971, p.55). Karn goes on to note the strong association, for the English at least, between 'holiday' and 'seaside', and it is significant that, in her study of retirement migrants in Bexhill and Clacton, she found that a sizeable proportion (25% and 17% respectively) gave 'living by the sea' as their principal mental image of retirement. She concludes that the

move to resorts is a positive one to the sea, not just a flight away from the towns. The phrase 'to have a bungalow by the sea' was used, giving a more precise image to the ideal. (Ibid).

The origins of this image are undoubtedly complex and are likely to vary considerably from person to person. Part may, no doubt, lie in the long-standing anti-urban tradition in English culture, a bias which, it has been claimed, may be traced to Roman times. (Briggs, 1968, pp.72-75; Glass, 1972). Other aspects of the retirement image may be traceable to the great migration into the industrial towns which characterised so many areas during the late 18th and the first half of the 19th centuries. In the case of France, where general urbanisation has been much more recent, 'return' migration of the newly retired from the great urban centres to the rural hinterlands in which they originated is a very significant phenomenon. (Cribier, 1975, pp.364-367). It should be noted, however, that a birthplace in one of the environmentally more attractive areas of the Country



is an added stimulus to return. Cribier notes that amongst the 'higher' income groups, only about 10% of those originating in North East France return there for retirement, whilst the proportion for those born in the Midi is about 50%. (Ibid, p.367). Other aspects of the image possibly include the close links between leisure, recreation and the aesthetic experience of landscape which Appleton has speculated as being part of an innate response to the physical environment which is then overlain by our 'tastes'.<sup>1</sup> (Appleton, 1973, pp.177-178, 232-237).

Much of the general image of 'retirement' is likely to contain characteristic elements of particular places. Some will no doubt conform to Stea's concept of 'invisible landscape': conventional, value loaded symbols associated with individual places. (Stea, 1967). Others may be related by sentimental attachments to particular places, although this of course may often be a disincentive to move in the case of residentially stable old people who have acquired a dense network of social and psychological associations with their current residence. Parr has noted the strong attachment for locale found even by slum dwellers, some of whom have been found to display symptoms of genuine grief when located in a 'better' vicinity. (Parr, 1966, p.44). This type of attachment may of course also act as an attraction to a potential retirement migrant who has earlier moved away from, say, the town of his childhood,<sup>2</sup> or the habitual family holiday haunt of previous years.<sup>3</sup> The empirical study will therefore also be concerned with one of the most basic determinants of the image of place - that of previous experience of the eventual destination.

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<sup>1</sup> See also Sonnenfeld (1966, p.72) for a discussion of age related tastes with respect to landscape.

<sup>2</sup> For example, see Karn (1971, p.51). It is also noteworthy that about 50% of her Bexhill respondents had not even considered going elsewhere.

<sup>3</sup> The close relationship between certain seaside towns and holidaymakers from particular classes and areas has frequently been noted (for example, by Mellor, 1962, p.43). Part of this tradition may be traced back to the growth of railway excursions in the 19th century; thus Law and Warnes (1973, pp.377-378) cite the example of holiday and retirement links between Morecambe and South Lancashire, Liverpool, Manchester and the West Riding, particularly Bradford. Walvin, (1976, pp.440, 442) cites the links between Scarborough and the West Riding, York, Newcastle and Teeside, whilst Karn (1971, p.20) notes the quite common occurrence of social class segregation even between neighbouring resorts.

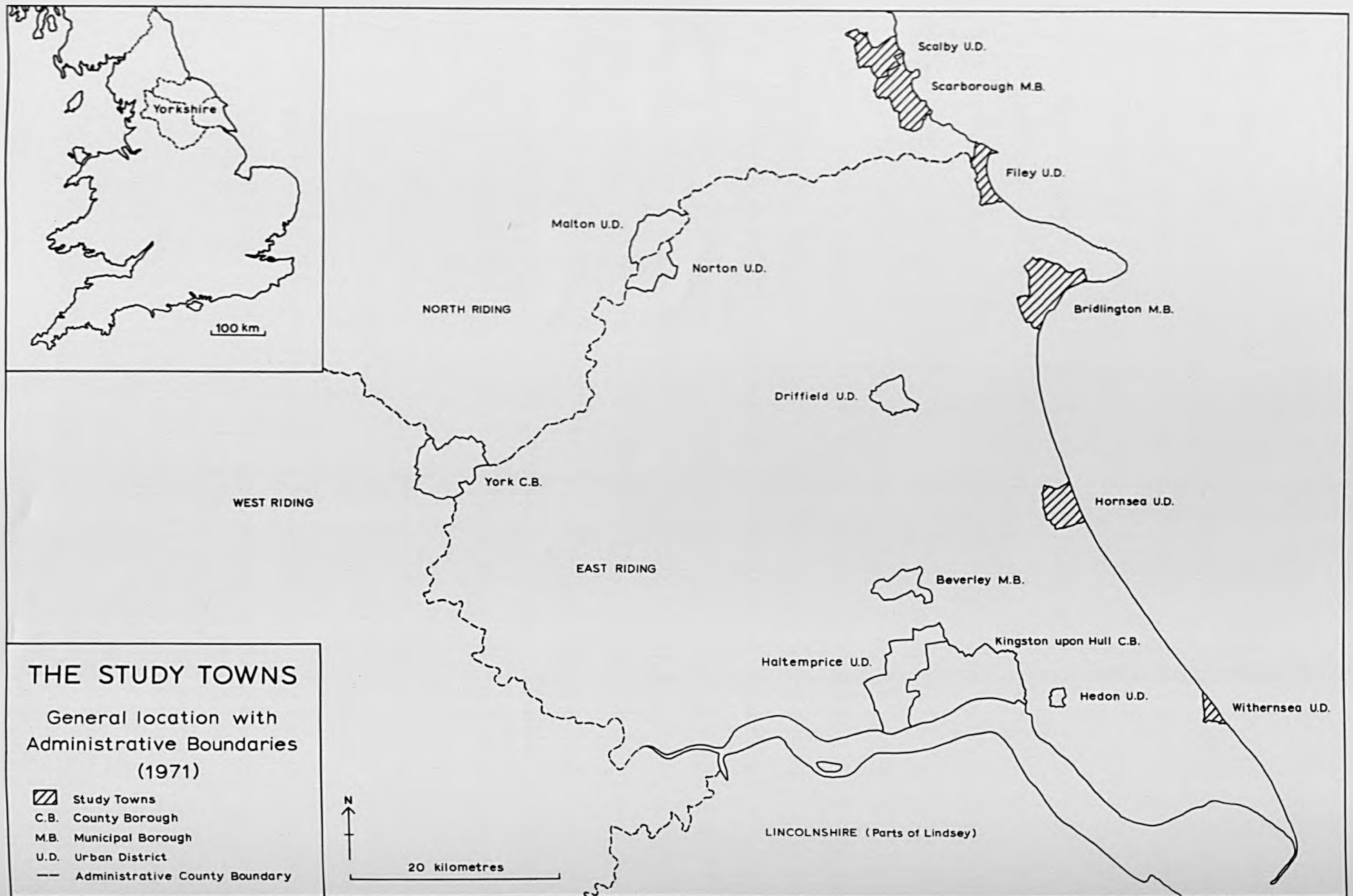


FIGURE 3.1

## RESEARCH DESIGN

## The study area and its demographic characteristics

The empirical study is based on the results of a questionnaire survey carried out in the five Yorkshire coastal towns of Scarborough, Filey, Bridlington, Hornsea and Withernsea (Fig. 3.1). In absolute terms, even the population of the largest (Scarborough)<sup>1</sup> is fairly small at 53,126 in 1971 (Table 3.1) compared with other major seaside resorts such as Blackpool (151,860), Bournemouth and Poole (261,030), and Brighton and Hove (234,435). (OPCS, 1972-73, Table 3). Nevertheless, the resort function largely determines the character of the five study towns and, despite the general decline of the residential holiday industry since World War II, it still makes a vital contribution to the local economy. For example, as recently as 1965, 20% of the entire workforce of the Scarborough Employment Exchange Area was engaged in the 'direct consumption' holiday industry,<sup>2</sup> compared with a North Regional total of 4%. (Lavery, 1968, pp.24, 59-60).

It was pointed out in Chapter 1 that the growth of the resort function is an essential consideration in the study of much retirement migration, and this argument applies with equal force in the five towns studied. Although the historical origins of the industry in the area have been adequately documented elsewhere,<sup>3</sup> a brief examination of this topic is therefore appropriate.

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<sup>1</sup> Defined here as the two contiguous administrative areas of Scarborough Municipal Borough and Scalby Urban District. Since April 1974, these now form part of Scarborough District with a 1971 population of 97,310.

<sup>2</sup> Defined as Standard Industrial Classification (1959) minimum list headings 881, 882 and 884 and including the provision of accommodation, entertainment and sports facilities (Central Statistical Office, 1959).

<sup>3</sup> For example see Lavery (1968), Mayoh (1961).

TABLE 3.1

Study Area: 1971 percentage age/sex distribution of population aged 60 and over compared with the Regional and National totals

	Total Population	60-64 (%)	65-69 (%)	70-74 (%)	75-79 (%)	80+ (%)	Total 60+ (%)	Females 60+ as % of total Popn. aged 60+
Scarborough M.B.	44,440	7.4	7.5	6.2	4.3	4.4	29.8	63.7
Scalby U.D.	8,686	8.3	7.8	5.9	3.4	3.2	28.7	59.6
Total 'Scarborough'	53,126	7.5	7.6	6.2	4.1	4.2	29.6	63.1
Filey U.D.	5,336	9.6	11.5	7.8	4.9	3.6	37.3	60.1
Bridlington M.B.	26,776	8.1	8.5	7.5	5.4	4.9	34.4	62.4
Hornsea U.D.	7,031	6.4	7.0	5.1	4.4	4.3	27.1	62.2
Withernsea U.D.	5,978	6.8	5.9	5.0	3.6	3.3	24.6	61.9
Total Study Area	98,247	7.7	7.9	6.5	4.5	4.3	30.8	62.5
North Region ('000)	3,296	5.6	4.8	3.6	2.3	2.0	18.4	58.3
Yorkshire & Humberside ('000)	4,799	5.8	4.9	3.7	2.4	2.1	19.0	58.9
England & Wales ('000)	48,750	5.8	4.9	3.6	2.4	2.3	19.2	59.1

Source: OPCS (1974a, Tables 9 and 10) and OPCS (1972-73, Table 8)

Whilst the resort functions of Withernsea were entirely a product of the completion of its rail link with Hull in 1854, all four of the other towns had achieved varying degrees of popularity as spas and sea bathing places well before cheap rail excursions made them accessible to the clerical and manual workers of Hull, the West Riding and Teeside. For example, seventeen years before the coming of the railway, Bedell wrote of Hornsea:

It has of late years been increasingly resorted to for sea-bathing, and demand is slowly producing the effect of supply in the building of lodging houses et cetera. (Bedell, 1843, p.3).

Scarborough was pre-eminent amongst these towns and can lay fair claim to be the first English sea-bathing resort, a direct result of the spa which grew up around a medicinal spring in South Bay from the seventeenth century onwards. In fact Granville, writing in 1840, observed that Scarborough during the mid-eighteenth century had been what the fashionable resorts of Brighton, Margate and Hastings had become by his own day:

Then the Earls, the Marquesses, and the Dukes were as thick at that spa as berries are on hedges. (Granville, 1841, p.151).

Despite the subsequent decline of the spas proper, already in evidence in Granville's time, the link between the health and holiday functions of the seaside resort in general had become firmly established in English culture. From an early stage in their development the larger spas undoubtedly attracted many elderly residents through their carefully cultivated reputations for providing a healthy environment, Granville himself noting 'that the claims to a superior longevity in favour of the inhabitants of Scarborough, over that of other parts of Yorkshire, is fully established'. (Ibid, p.193). The spectacular growth of the habit of taking seaside holidays during the nineteenth and early twentieth centuries appears to have reinforced this utilitarian attraction for the elderly with a widespread emotional response stemming from familiarity and the memory of earlier family holidays.

TABLE 3.2

Study Area: Components of total population change 1961-1971

	1961	1971	Intercensal Change			
			Amount 1961-71	% Per Annum		
				Total	Through Natural Change	Through Migration
Scarborough M.B.	43,060	44,440	1,380	0.3	- 0.3	0.6
Scalby U.D.	7,250	8,686	1,436	1.8	- 0.2	2.0
Total 'Scarborough'	50,310	53,126	2,816	0.6	- 0.3	0.8
Filey U.D.	4,703	5,336	633	1.3	- 0.4	1.6
Bridlington M.B.	26,023	26,776	753	0.3	- 0.5	0.8
Hornsea U.D.	5,955	7,031	1,076	1.7	- 0.3	1.9
Withernsea U.D.	4,981	5,978	997	1.8	0.1	1.8
Total Study Area	91,972	98,247	6,275	0.7,	- 0.3	1.0

Source: OPCS (1972-73, Table 2)

The result today is the existence of a large proportion of old people in the traditional resort towns, those of the Yorkshire coast being no exception. As Table 3.1 shows, the combined five towns had 30.8% of their total 1971 population in the 60 plus age category, more than one and a half times the proportion for England and Wales. Filey, with 37.3% was almost twice as great as the national figure. The disparity is especially pronounced in the 70 plus categories, one of the results of which is a slightly higher proportion of females in the elderly populations of the study towns than is the case nationally.

The presence of so many old people leads inevitably to relatively high crude mortality rates and low crude fertility.<sup>1</sup> During the period 1961 to 1971, deaths in the five combined towns exceeded births by 2,900, giving a hypothetical intercensal decrease of 0.32% per annum due to natural change (Table 3.2). The fact that the study area population actually grew by 6,275 during this period amply demonstrates the relative importance of migration in the balance of demographic processes which operate locally. Although published migration data from the 1971 Census is only available at the broad 'Subdivisions of Regions' level, information on migrants by broad age band is available from the Sample Census 1966 for Scarborough and Bridlington municipal boroughs. (General Register Office, 1968, Tables 5A, 5B). This data clearly demonstrates the major role played by elderly migrants in the maintenance of population growth in the resorts. To take the case of 'five year migrants',<sup>2</sup> 21.5% and 26.2% of all migrants to Scarborough and Bridlington respectively were of statutory pensionable age. (Table 3.3). However, net migrants aged 60/65 and over comprised 50.0% of total net migration to Scarborough, and 76.1% in the case of Bridlington.

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<sup>1</sup> For example, the crude birth rates for Scarborough and Bridlington M.B.'s in 1971 were 13.4 and 11.3 per 1000 respectively, whilst crude death rates were 18.4 and 19.1 per 1,000. The equivalent statistics for England and Wales were 16.0 and 11.6 per 1000. (OPCS, 1973, Table E).

<sup>2</sup> Defined as those who had moved into the local authority area during the period 1961-66.

TABLE 3.3

Scarborough and Bridlington inward migration : five year migrants of pensionable age (10% sample Census, 1966)

	Inward Migrants			Net Migrants		
	Total	Aged 60/65	60/65+ as % of Total	Total	Aged 60/65	60/65+ as % of Total
Scarborough M.B.	726	156	21.5	108	54	50.0
Bridlington M.B.	488	128	26.2	92	70	76.1

Source: General Register Office (1968, Table 5B)



## The sampling frame

The adoption of a behavioural approach to the study of retirement migration required a direct survey of migrants, most secondary sources available (notably the Census) providing data only at an aggregate level. Some serious consideration was given to the use of a subset of the 1968-69 Yorkshire and Humberside Migration Survey data (Yorkshire and Humberside Standing Conference of Local Planning Authorities, 1972), but this was rejected on the grounds of comparatively low response rate<sup>1</sup> and rather poor coverage of reasons for moving likely to apply specifically to old people. In particular, use of this data source would have ruled out the study of the effects of the geographical distribution of social networks on the elderly migrant's decision to move.

The main problem in attempting a direct survey of elderly migrants lies in the difficulty of finding a sampling frame confined solely to a representative cross-section of the elderly in general and of migrants in particular. In the early stages of designing the present survey, the most promising source of information appeared to be the Department of Health and Social Security's national pension records which are held at Newcastle upon Tyne. The intention was to monitor all changes of address amongst pensioners moving to or within northern England<sup>2</sup> over a six month period then, using a stratification scheme based upon Moser and Scott's analysis of the socio-economic and demographic aspects of British towns (Moser and Scott, 1961), a postal questionnaire was to be sent to a substantial sample (about 3,000) of these migrants. Unfortunately following the furore concerning confidentiality and accusations of incursions upon civil liberties which preceded the 1971 Census<sup>3</sup>, the DHSS finally decided that it could not sanction access to its records even for the purposes of academic research.

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<sup>1</sup> The data was based on a postal survey, with a general response rate of 49%

<sup>2</sup> Defined operationally as the Yorkshire and Humberside, North and North West Economic Planning Regions. (Ibid, p.3).

<sup>3</sup> See for example The Times, 12.4.71, pp.1a, 2e.

As a result of this refusal, recourse had to be made to the Electoral Register for a sampling frame and the geographical scope of the survey was reduced to five coastal towns in Yorkshire. There were four reasons for this. The first was that, apart from Somerset House and the British Museum, there is no central repository of electoral registers outside the local authority areas directly concerned; the use of the registers for sampling purposes thus really also required reasonable geographical access. Secondly, sampling from the register is, necessarily, a time-consuming process and the number of local authority areas which may be covered in a short period is strictly limited. Thirdly, the use of the Register dictated that there should be two phases to the survey: the first to locate elderly people in general and migrants in particular, the second intensively to interview suitable individuals located in Phase One. This ruled out the wide geographical coverage that a postal survey could offer as personal contact with sampled individuals was felt to be essential to ensure an adequate return on the first phase questionnaires. Fourthly, sampling from the Register for such a small sub-category of the population as retirement migrants is extremely wasteful. Of all individuals of voting age (18 and over) in England and Wales in 1971, only 26.5% were aged sixty years and over and of these only 9.0% had moved between local authority areas in the preceding five years. (OPCS, 1974a, Table 9; OPCS, 1974b, Table 3A). Retirement towns are therefore ideal subjects for the study of retirement migrants if only because of the greatly increased probability of locating such individuals from such a general sampling frame as the Electoral Register.

#### Sample selection method

The survey essentially represented an attempt to discover some of the principal determinants of the 'mover-stayer decision' amongst retired people. This aim suggested two basic requirements of the preliminary (Phase One) sample from the Electoral Register:

- (i) The sample should exclude as many of the 'non-elderly' as possible (in this instance those aged under 60 years).

- (ii) The sample should concentrate on the unit responsible for making the retirement migration decision, a concept which may be broader than simply the individual old person.

At the time that the sample was taken (1971 Register of Electors), a registered elector outside Greater London was qualified for jury service if he or she was under 60 years of age and was either a householder rated in respect of premises of a net annual rateable value of £20 or more, or had freehold property worth at least £10 net per annum within the local authority area, or occupied property held by a lease exceeding 21 years' duration and worth £20 net per annum.<sup>1</sup> A householder did not necessarily have to be an owner occupier and, although certain exemptions from jury service were automatically allowed (for example, for members of the legal profession, police and armed services), most claims to be excused service were (and are still) not considered until after the individual was summoned to court. This meant that the great majority of householders aged under 60 were marked on the Register by the letter J to signify eligibility for jury service. These people could thus automatically be excluded from the Phase One sample.

It has been pointed out in a number of studies that far reaching decisions such as that of migration are more likely to be made with reference to a functional household unit than merely to the needs and desires of an individual decision maker. (Brown and Moore, 1970, p.1). Thus, although one member of the household might well be the principal decision maker, the very fact that other household members will probably have influenced the migration decision to a greater or lesser extent made it necessary to approach this study from the household as well as from the individual point of view. However, as group interviewing of the entire household was ruled out on the grounds of cost, time and complexity, the head of household was assumed to be the principal decision maker.

This approach poses many practical problems, of course. For example, how is the 'principal decision maker' to be located? How accurate is his or her

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<sup>1</sup> Juries Act 1922. Electoral Registers Act 1949.

representation of the influence which other household members, or indeed non members, had on decision making? How are the elements of the original decision-making environment to be captured in situations where there has been subsequent household extinction, fission or reformation? In order to cope with these problems it was necessary to construct a set of interdependent assumptions which permitted the application of a workable sample selection algorithm, the objective of which was to reduce the physical and logistic difficulties of sampling as far as possible whilst introducing minimal bias. The selection algorithm is described in Appendix 1.

Inevitably the use of such a procedure introduces certain biases to the sample design. For example, if the 'target' population (of 'elderly decision-making units') is viewed purely in terms of households, then households with several individuals eligible for inclusion in the survey population have a proportionately greater chance of actually being sampled than households with only, say, one or two individuals. The justification for the approach adopted is that for many old people, the present household is not (even in a vestigial form) really the decision making unit existing prior to the move and the individual should be viewed as the primary decision unit. The most obvious example of this, perhaps, is when an aged widow joins her children's household. To all intents and purposes, therefore, this survey consists of a sample of elderly single, widowed and divorced individuals and of married couples, the male being (somewhat arbitrarily) taken as spokesman in the latter case. When viewed in this way, surprisingly little (measured) bias was evident on a whole series of demographic indicators - a topic which will be investigated in detail later in this chapter.

Another source of bias stemming from the application of the selection algorithm is against the inclusion of such people as an elderly widow living with one or more sons. However, as the 1971 Census only recorded 470 two person male and female households where neither person was married, one was pensionable (and the male was the younger) in the whole of the five eventual study towns out of an eligible survey population totalling 18,595, this type of omission is unlikely to be very serious. (OPCS, 1972-73, Table 16).

A final disadvantage of using the selection algorithm lies in the fact that the exclusion of married women effectively prevents accurate checks against published Census data for certain types of bias. Household size<sup>1</sup> and retirement status are notable examples of this. It is maintained, however, that checks made on variables for which accurate Census comparisons are possible (for example, age and marital status) are sufficiently highly correlated with retirement status and household size to compensate for this deficiency.

By way of compensation, the advantages of the selection method in terms of the reduction of the Phase One interviewing effort (when compared with the application of a simple equal probability selection method to the whole Register) were considerable, resulting in a 51% saving. Moreover, complicated though it appears initially, the selection algorithm was found to be very quick to apply in practice. In fact for the town with the largest sampling interval - Scarborough at one in thirty - an examination rate of almost 2,000 registered electors an hour was maintained.

#### Sample Design

At an early stage in the research design a fundamental decision had to be taken as to whether the drastic reduction of the geographical coverage of the survey (from the three Economic Planning Regions of northern England to five Yorkshire coastal towns) meant that the generality of the results was similarly to be restricted to the elderly population of those towns. It was decided that accurate description of the five towns per se was of secondary importance, and that the main objective of the survey was to present as representative a cross section of elderly migrants to the wide variety of different types of coastal settlement in Northern England, as was possible in such a restricted geographical area. This aim inevitably caused certain problems, not least of which was the fact that the degree to which the results would be truly general would have to be taken largely on trust. This is not quite the obstacle to

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<sup>1</sup> Except of single person households.

scientific veracity as it might initially appear, however, as very many surveys of this type take accurate description of the precise geographical area from which the sample is taken as a primary objective when designing the structure of the sample, whilst presenting the results with the clear implication that statements concerning the characteristics of a much wider target population may be inferred from them. (See Harvey, 1969a, pp.367-9 for further discussion on this point). Confidence in the degree of generality of a set of results must depend upon the entire inferential process from sample to the survey population, and from survey population to the implicit universe. It is maintained that the comparative rigour of the current survey design gives it a degree of generality which would be impossible if its prime intention was simply to describe the elderly population of the five towns.

The penalty for adopting this approach is a decrease in the precision of the results as applied specifically to the aggregate elderly population of the survey areas. This problem will be examined in greater detail later, but it is worth noting that, on the set of population characteristics chosen, the mean value of the square root of the 'design effect' ( $\sqrt{\text{Deff}}$ ) = 1.2756, indicating an average 27.56% increase in the standard error compared with a simple random sample.<sup>1</sup> On the other hand, as the section on measured sample bias will demonstrate, the match between point estimates from the survey on a selection of survey population characteristics is sufficiently good to justify the use of inferential techniques grounded on the assumption of simple random sampling<sup>2</sup>, as well as lending considerable support to the generality assumption. Sufficient guidance will be provided, however, to permit strict survey population parameters (that is, those applying to the aggregate of the five towns) to be computed if desired.

$$^1 \text{Deff}_{ki} = \frac{S_{ki}^2}{S^2(\text{srs})_i} \dots (3.1) \quad (\text{Kish, 1965, p.88})$$

where  $S_{ki}^2$  is the variance of the  $i^{\text{th}}$  population characteristic of the  $k^{\text{th}}$  sample design;  $S^2(\text{srs})_i$  is the variance of the  $i^{\text{th}}$  characteristic of an equivalent simple random sample;  $\text{Deff}_{ki}$  is the design effect of  $k$  on  $i$ .

<sup>2</sup> This assumption is of vital importance to the analysis of the survey results. For an excellent discussion of the conceptual and practical problems involved in the use of analytical statistics with complex sample designs see Kish (1965, pp.582-87).

The first step in the process of determining initial sample size involved the summarisation of the main objectives and hypotheses of the survey as a set of key sub-samples on which the majority of comparisons would be based. These projected comparisons were of two main types:

- (i) Comparisons between categories of migrant, comprising:
1. Inter-urban migrants versus local migrants;
  2. Inter-urban migrants versus non movers;
  3. Inter-urban migrants versus the combined local samples;
  4. Local migrants versus non movers.
- (ii) Comparisons between categories of inter-urban migrant, comprising:
1. Social Classes I & II versus Classes III-V;<sup>1</sup>
  2. Larger towns (Scarborough and Bridlington) versus smaller towns (Filey, Hornsea and Withernsea);
  3. Northern two towns (Scarborough and Filey) versus southern three (Bridlington, Hornsea, Withernsea);<sup>2</sup>
  4. Those married at the time of the move versus those who were single, widowed or divorced;
  5. 'Younger' migrants (aged under 65 at the time of the move) versus 'older' migrants (65 and over)

Stratification proceeded in two stages. The first was implemented during Phase One of the survey and was based on the individual towns, placing priority on comparison (ii.2) followed by (ii.3). An approximate 40%, 30%, 30% distribution of Phase Two inter-urban interviews between the combined three small

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<sup>1</sup> General Register Office (1966, pp.130-48).

<sup>2</sup> In the event, this comparison was not used. Scarborough and Filey were thought likely to be oriented towards Teeside and West Riding retirement migrant streams, whereas the other three towns were more likely to look towards Humberside and the West Riding.

TABLE 3.4

The effectiveness of the sample design: precision ratio for main comparison pairs.

Comparison Type	Maximum Sdp* (%)	Maximum Sdp(srs)* (%)	Precision Ratio (Pr)
<u>Between Migrant Categories</u>			
1. Inter-urban vs. Local Migrants	7.934	7.981	1.0059
2. Inter-urban vs. Non Movers	8.064	6.557	0.8131
3. Inter-urban vs. Local samples	6.160	5.908	0.9590
4. Local Migrants vs. Non Movers	10.104	8.186	0.8102
<u>Inter-urban Migrants</u>			
1. Social Classes I & II VS III - V	7.353	9.029	1.2278
2. Large vs. Small Towns	7.378	10.471	1.4193
3. Northern Two vs. Southern Three Towns	7.288	9.001	1.2351
4. Married (at time of move) vs. Non Married	7.626	9.317	1.2218
5. Younger vs. Older Migrants	7.347	9.160	1.2263

\* Where  $p_1 = p_2 = 50\%$



towns, Bridlington and Scarborough respectively was aimed at, it being felt the larger towns would individually be the more heterogeneous and thus more likely to present problems of greater sample variance. At the second phase of the survey, further stratification was introduced based on movement category information gathered during Phase One (that is, inter-urban, local and non movement). Available resources effectively restricted the Phase Two interviews to about 300 to 350 (depending on response rates), and a priori tests for expected sample precision for each set of comparisons were based on these totals using crude estimates of migrant characteristics based on 1966 Sample Census data. From the results of this analysis, it was decided that the best all round performance would be derived from a total of 200 to 250 completed interviews with inter-urban migrants and a further 100 divided evenly between the local and non movers.

The effectiveness of this scheme may be appreciated from Table 3.4. This compares the actual survey results with the equivalent simple random sample for each of the a priori comparisons by means of the 'precision ratio', Pr, a variant of the design effect (Deff.).

$$Pr = \sqrt{\frac{1}{Deff(d)}} = \frac{Sdp(srs)}{Sdp} \quad \dots(3.2)$$

where Deff(d) is the design effect based on the pooled variance of the two subsamples in the comparison;

Sdp is the standard error of the difference between migrant strata proportions in the current survey;<sup>1</sup>

Sdp(srs) is the standard error of the difference between proportions for an equivalent simple random sample.

The sample proportions  $p_1$ ,  $p_2$ , were both arbitrarily set to the maximum variance case (0.5) in order to standardise the measure.

<sup>1</sup> Defined here as  $Sdp = \sqrt{\frac{p_1q_1}{n_1-1} + \frac{p_2q_2}{n_2-1}} \dots (3.3)$

(Downie and Heath, 1970, p.189)

As Table 3.4 shows, a 19% loss of precision (as measured by Pr) was found to exist in the inter-urban migrants versus non movers and the local movers versus non movers comparisons. This, however, was regarded as an acceptable price for increases in precision for comparisons within the inter-urban migrant stratum ranging from 22% to 41%.

#### The determination of Phase One Sample Size

Having determined the desirable composition of the Phase Two sample, the main problem was how to estimate the minimum number of Phase One sample points from the Electoral Register which could reasonably be expected to furnish a sufficiently large number of inter-urban, local and non migrants for Phase Two. The critical category was that of the inter-urban migrants owing to the comparatively large number of these needed for Phase Two. However, there were two main difficulties in estimating their likely total number in each town:

- (i) The nature of the sample selection algorithm made it difficult to determine how many of the 'non elderly' (that is, under 60 years) would be caught in the Phase One sample.
- (ii) The proportion of those aged over 60 who were classed as 'inter-urban migrants'. In order to allow for migration in advance of retirement but with retirement in mind, a 'migrant' for the purposes of the present survey was defined as an individual now aged between 60 and 79,<sup>1</sup> who had permanently changed his place of residence<sup>2</sup> at some time since his 50th birthday<sup>3</sup>. Inter-urban

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<sup>1</sup> Those aged 80 and over were omitted from the survey on the grounds that failing health, memory, etc. were likely to be more common than amongst 'younger' old people.

<sup>2</sup> That is, for a period of at least three months, and excluding holidays, hospital treatment and other moves of a 'temporary' nature.

<sup>3</sup> This also had the advantage of increasing the likelihood of locating a given number of migrants from the Register.

migrants were defined as those who had undertaken a move of sufficient distance to have completely disrupted most of their previous patterns of social interaction.<sup>1</sup> Operationally, these were defined as migrants between local authority areas. Local migrants were defined conversely as those who had undertaken a move of insufficient distance to have done more than distort the majority of their previous patterns of social interaction. In this case the operational definition was simply 'those who had moved only within their current local authority area'.

The first step was to estimate the overall survey population for the Phase One sampling procedure. For each Town the number of individuals likely to be 'J-listed' (Household heads aged under 60) and an estimate of all women in two person male and female type households was subtracted from the 1966 Census population aged 21 and over. Allowing for general electoral under registration of 4% plus a further 3% loss by February 16th, the publication day of the register (Gray and Gee, 1967, p.13), the 1966 proportion of eligible electors to total population was calculated; this was then applied to the 1970 provisional mid-year population estimate for each of the five towns (General Register Office, 1971). The 1966 proportion of 18-20 year olds was then applied to the mid 1970 population and 50% under registration was assumed for the 1971 Register.<sup>2</sup> The proportion of individuals likely to be selected from the Register who were aged between 60 and 79 inclusive was then estimated by applying the 1966 proportions in these age groups, excluding married women.

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<sup>1</sup> For a discussion of definitions see Willis (1974, pp.3-5). Many sociologists restrict the term 'migration' to a change in residence coupled with a break in community ties, but there is unfortunately no general agreement on what a community is, quite apart from this issue of its spatial extent (ibid.p.4). In fact Hillery (1955) has managed to collect no fewer than 94 definitions of a 'community'.

<sup>2</sup> People aged 18-20 were first enfranchised for the 1970 Register under the Representation of the People Regulations 1969. It is estimated that only about 40% actually registered in October 1969 (Gray 1971, p.18).

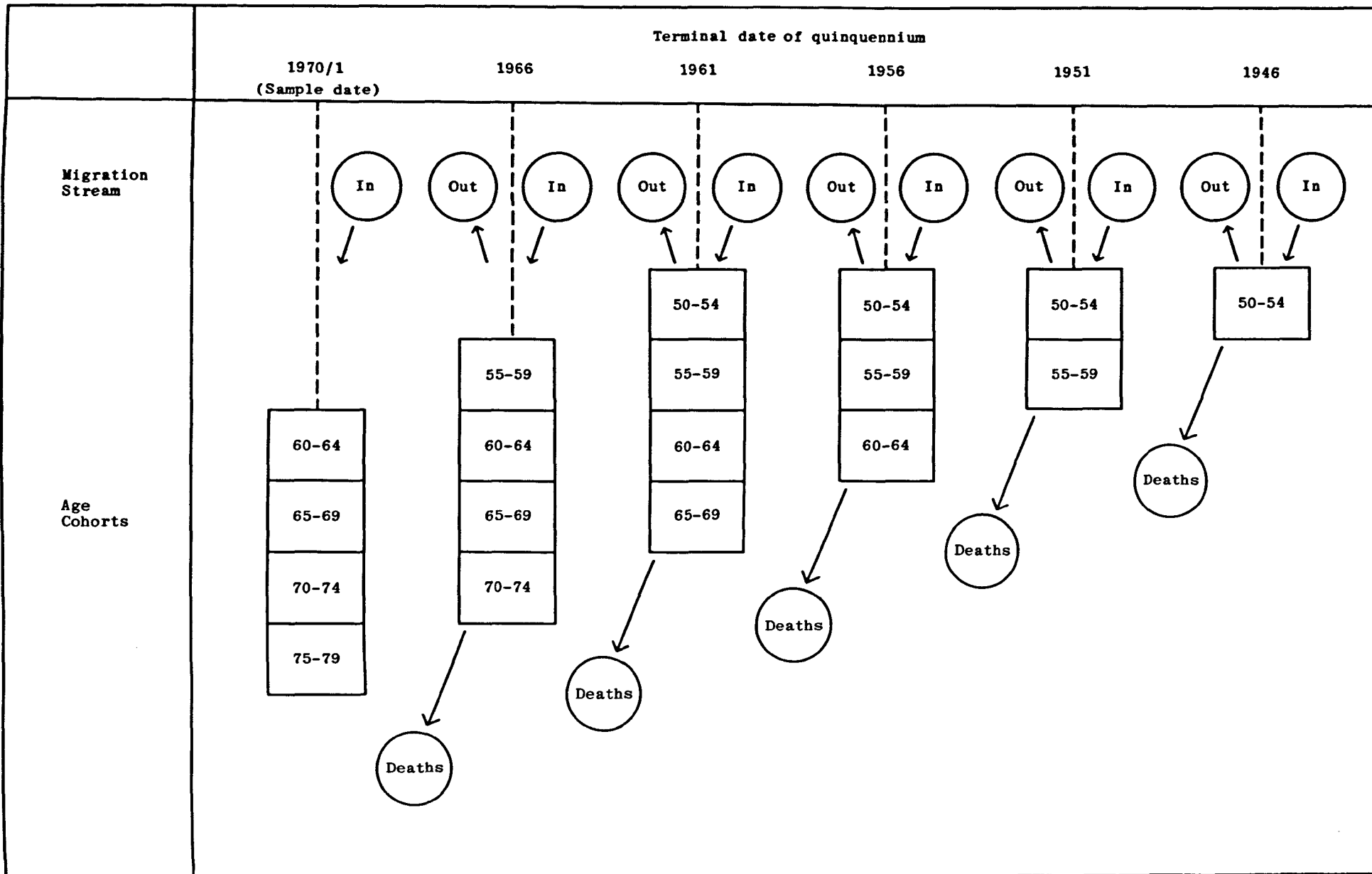


FIGURE 3.2 1971 INTER-URBAN MIGRANT COHORTS (BY QUINQUENNIUM OF ARRIVAL)

The second step was to estimate the proportion of 60-79 year olds who had migrated into each town since the age of 50. The processes involved are illustrated in Figure 3.2. For the sake of speed, the following assumptions were made:

- (i) The 1966 relative age structure for each town was applied to the 1970/1 population.
- (ii) 1966 migration probabilities were applied directly to 1970/1. (General Register Office, 1968, Table 5B).
- (iii) Outmigration probabilities calculated for Scarborough M.B. were applied to Scalby U.D., and Filey U.D., and probabilities calculated for Bridlington M.B. were applied to Hornsea and Withernsea U.D's.
- (iv) All elderly outmigrants were assumed to be matched by an equal number of elderly inward migrants. Also a constant proportion of total population growth in each town was assumed to be due to inward migration in the appropriate age groups (see Figure 3.2).
- (v) The 1966 national life tables (General Register Office, 1968, Table B1) were assumed to be representative of the mean experience for the 60-79 cohorts in the five towns since the age of 50.

The mathematical model of the process illustrated in Fig. 3.2 which was used to estimate the size of the inter-urban migrant population may be presented in general form as follows:

$$\sum_{i=x}^n 5^M I_i^t = (P^t - P^{t-1}) m r^{I_x n} + \sum_{i=x'}^{n-5} P_i^{t-1} S_i^5 (1-m^0) \quad \dots (3.4)$$

TABLE 3.5

Phase One : sample size and response rates

	Total Electorate (1971)	Sample Fraction	Total Sampled*	Total Response	Response Rate (%)	Individuals Eligible for Phase Two		
						Inter- Urban	Local Migrants	Non Movers
Scarborough (with Scalby)	41,054	1/30	696	487	70.0	69	47	68
Filey	4,603**	1/12	192	123	64.1	32	9	17
Bridlington	21,676	1/20	507	329	64.9	70	26	49
Hornsea	5,319	1/8	296	233	78.7	46	15	38
Withernsea	4,156	1/10	199	143	71.9	19	11	32
TOTAL	76,808	1 in 19.63	1,890	1,315	69.6	236	108	204

\* Using selection algorithm

\*\* 220 Electors in Primrose Valley, an area of chalets occupied only in the summer, were omitted.

where:

$\sum_{i=x}^n 5M_i^{It}$  = total in migrants in the  $t^{\text{th}}$  time period aged  $x$  to  $n$ ,  
 $i$  being the quinary age cohort;

$p^t$  = total population (all ages) at the end of quinquennial  
 period  $t$ ;

$mr^{Ixn}$  = proportion of all inward migrants aged  $x$  to  $n$ ;

$x'$  =  $x - 5 \geq 50$ , otherwise  $x' = 50$ ;

$S_i^5$  = 5 year survival rate for cohort  $i$ ;

$m^o$  = probability of a surviving individual out-migrating  
 during a 5 year period;

The total number of inter-urban migrants,  $M_*^I$ , may then be estimated by:

$$M_*^I = \sum_{t=1}^5 \sum_{i=x}^n 5M_i^{It} S_{i+5}^{5(t-1)} (1 - m^o)^{t-1} \dots \quad (3.5)$$

The derivation of these formulae is explained in Appendix 2.

Having estimated the total population of elderly inter-urban migrants in the 5 towns as a whole, the average (Census 1966) proportion of married women aged 60-79 was subtracted. Simple 95% confidence bands (Moser and Kalton, 1971, p.147) were then calculated around the remaining proportion of inter-urban migrants and the lower bound of this range was taken. If an allowance was made for non response rates of up to 40% in this population category, it was estimated that an initial sample of between 1500 and 2000 would yield a Phase Two sample of at least 250 individuals. In the event, this turned out to be slightly optimistic owing to what appeared to be an even higher non response rate amongst the elderly during Phase One.

Details of Phase One sample size and response rates are given in Table 3.5. The attempt to attain approximately equal numbers of inter-urban migrant respondents in Bridlington and Scarborough was highly successful, but there was a considerable proportionate discrepancy between Filey and Withernsea. A somewhat larger sampling fraction was used in Hornsea than in the other two small towns

TABLE 3.6

Total estimated respondent population size compared with actual (Census 1971) population.

Town	Estimated Respondent Population*	Census Population**	Implied Response Rate (%)
Scarborough (with Scalby U.D.)	5,520	9,720	56.8
Filey	744	1,220	61.0
Bridlington	2,700	5,595	48.3
Hornsea	832	1,120	74.3
Withernsea	630	940	67.0
TOTAL	10,426	18,595	56.1

\* i.e. Products of Total Phase One Respondents aged 60-79 and sampling fraction.

\*\* Total Population aged 60-79 minus married females. (OPCS, 1972-73, Table 5A)



as the original intention was to use a subsample of these individuals when piloting the Phase Two questionnaire. Unfortunately, the overall number of inter-urban migrants eventually located was too small to permit this luxury, and the pilot study had to be carried out using names supplied by a voluntary welfare organisation.

Checks made following publication of 1971 Census results suggest that the response rate amongst the elderly might well have been considerably lower than the overall mean Phase One response of 69.58%, even allowing for some distortion created by the sampling method and general inadequacies in the coverage of the Electoral Register. (OPCS, 1972-73, Table 8). As Table 3.6 shows, the true response rate for the elderly could even be as low as 56.07%, although this figure makes no allowance for sampling error or bias in coverage.

#### Survey Phase One: Questionnaire, timing and method of contact

The object of the Phase One Questionnaire (Appendix 3) was simply to determine whether individuals sampled from the Electoral Register were between 60 and 79 years old and, if so, which migrant category they were in. A copy of the questionnaire, together with a covering letter was sent by post to each member of the sample, the completed form being collected by a personal call at the respondent's home. The speed and administrative efficiency of an entirely postal survey was thus combined with the greater effectiveness of personal contact in terms of level of response. Questionnaires were posted in batches from late March 1971 onwards, each batch taking about two weeks to follow up with a call at the appropriate addresses. An allowance for one initial call and two repeat calls was made,<sup>1</sup> an overall rate of 69.58% successful contacts being achieved (Table 3.5). The despatch and collection of questionnaires continued until early July 1971, a three-week interval being allowed whilst the National Census was carried out in April.

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<sup>1</sup> Three repeat calls were used initially (in Hornsea) but time constraints dictated that this should be reduced. The general experience suggests that two repeat calls is usually the most efficient scheme in terms of return on resources spent. (See Moser and Kalton, 1971, pp.176-77).

TABLE 3.7

Phase Two : Sample size and response rates

Response Strata	Total Sampled	Total Response	Response Rate (%)
<u>Scarborough:</u>			
Inter-Urban	69	59	85.5
Local Mover	25	21	84.0
Non Migrant	24	21	87.5
TOTAL	118	101	85.6
<u>Filey:</u>			
Inter-Urban	32	26	81.3
Local Mover	7	6	85.7
Non Migrant	7	4	57.1
TOTAL	46	36	78.3
<u>Bridlington:</u>			
Inter-Urban	70	58	82.9
Local Mover	16	13	81.3
Non Migrant	12	9	75.0
TOTAL	98	80	81.6
<u>Hornsea:</u>			
Inter-Urban	46	36	78.3
Local Mover	7	6	85.7
Non Migrant	10	9	90.0
TOTAL	63	51	81.0
<u>Withernsea:</u>			
Inter-Urban	19	15	78.9
Local Mover	8	5	62.5
Non Migrant	7	6	85.7
TOTAL	34	26	76.5
<u>Totals</u>			
Inter-Urban	236	194	82.2
Local Mover	63	51	81.0
Non Migrant	60	49	81.7
GRAND TOTAL	359	294	81.9

## Survey Phase Two:

### Questionnaire

The questionnaire used in the second phase of the survey was designed with the following considerations in mind:

- (i) It should not take a healthy person more than twenty to thirty minutes to complete. This did not, of course, allow for the inevitable digressions likely to be introduced by a lonely old person or one suffering from some impairment of mental faculties.
- (ii) It should be designed to ensure easy and accurate completion by non professional interviewers. Pre-coding was therefore avoided as this tends to add to the complication and bulk of a questionnaire.
- (iii) It should possess built-in consistency checks on items where errors in memory were likely (as, for example, when the respondent was asked about the time between retirement and a subsequent move).

The main (inter-urban migrant) questionnaire may be seen in Appendix 4. Some modifications were made to those used for interviews with local and non migrants, mainly to avoid inappropriate questions and to simplify the form. The subject matter and wording of questions was tested in a series of 15 pilot interviews using informally selected respondents (see above, page 50).

### Sample Procedure

Owing to the rather low numbers of inter-urban migrants located during Phase One (Table 3.5), all of these individuals were selected for interview at Phase Two. The number of local and non migrants considerably exceeded requirements, however, and a simple random sample of 100 of these was accordingly taken. Each non respondent amongst the latter two migrant types was replaced by

TABLE 3.8

Reasons for non response

Reason	n	%
Death	12	18.5
Illness	6	9.2
Temporarily Away	8	12.3
Moved House	8	12.3
Refusal	26	40.0
No Contact Made	5	7.7
TOTAL	65	100.0

another individual matched for age group, town of residence, sex and migrant type in an attempt to reduce non response errors.<sup>1</sup>

### Interviewing

The interviews were carried out by a team of seven individuals plus the present writer. Three of these were regular members of the University of Hull's standing interview panel and already had extensive social survey experience; the remaining four had been employed as enumerators during the recent Census and had been approached at the recommendation of the regional supervisor of the Census. Apart from the Census, only one of the latter had had extensive previous interviewing experience, in this case with a national market research organisation.

Interviewing began in late September 1971 and continued until early December. Each prospective respondent was notified by letter in advance of the interview, and an allowance was made for a total of four calls at each address. The result was a very high contact rate, in only 5 cases out of a total of 65 non respondents, was no information gathered on the reason for non response (Table 3.8).<sup>2</sup>

### Response Rates

Considering that many likely non respondents to the main questionnaire had already been eliminated during Phase One, the overall Phase Two response rate of 81.9% was a little disappointing (Table 3.7). The general response rate for both phases of the survey was thus reduced to 57.0%, whilst the Census based figure (Table 3.6) is only 45.9%. Response rates, compared between town of residence and migrant type strata, were fairly consistent as Table 3.7 shows. Outright refusal to be interviewed was by far the most common reason for non response (40.0%), followed by death (18.5%, Table 3.8).

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<sup>1</sup> For a discussion of the advantages and disadvantages of this technique, see Moser and Kalton (1971) pp.173, 220-2; Kish (1965) pp.558-562.

<sup>2</sup> The spatial distribution of respondents in each of the study towns is shown in Appendix 5.

TABLE 3.9

Simple standard errors on observed sample percentages

Respondent Categories	n	5%/95%	10/90	15/85	20/80	25/75	30/70	35/65	40/60	45/55	50/50	Critical t.05 (df n-1)
<u>Migrant Type</u>												
Inter-urban	194	1.55	2.13	2.54	2.84	3.08	3.26	3.39	3.48	3.54	3.55	1.97
Local Migrants	51	3.06	4.22	5.02	5.62	6.08	6.44	6.70	6.88	6.99	7.03	2.01
Non Movers	49	3.13	4.31	5.14	5.75	6.23	6.59	6.86	7.05	7.16	7.19	2.01
Combined Local Samples	100	2.18	3.00	3.57	4.00	4.33	4.58	4.77	4.90	4.98	5.00	1.98
<u>Inter-urban Migrant Categories</u>												
Social Classes I & II	83	2.38	3.27	3.89	4.36	4.72	5.00	5.20	5.34	5.42	5.45	1.99
Social Classes II - V	107	2.09	2.88	3.42	3.84	4.15	4.39	4.57	4.70	4.77	4.79	1.98
'Large' Towns	117	2.00	2.75	3.27	3.67	3.97	4.20	4.37	4.49	4.56	4.58	1.98
'Small' Towns	77	2.47	3.40	4.04	4.53	4.90	5.19	5.40	5.55	5.63	5.66	1.99
Married at time of move	128	1.91	2.63	3.13	3.50	3.79	4.01	4.18	4.29	4.36	4.38	1.98
Single, Widowed or Divorced at time of move	66	2.67	3.67	4.37	4.90	5.30	5.61	5.84	6.00	6.09	6.12	2.00
Migrants aged 50-64 (at move)	115	2.02	2.77	3.30	3.70	4.00	4.24	4.41	4.53	4.60	4.62	1.98
Migrants aged 65+ (at move)	79	2.44	3.35	3.99	4.47	4.84	5.12	5.33	5.48	5.56	5.59	1.99

In accordance with the earlier discussion on the intended degree of generality of the results of the survey, Table 3.9 lists the simple standard errors<sup>1</sup> on a range of observed sample percentages based on the population characteristics comprising the main comparison pairs. As it has already been pointed out, however, the particular sample design adopted does result in some increase in variance when results are used for point estimation amongst the population of the five Yorkshire coast towns per se.<sup>2</sup> Kish has shown that multiplying simple random sample standard errors by  $\sqrt{\text{Deff}}$  is an economical method of allowing for the structural effects of a given complex sample design. (Kish, 1965, pp.257-59, 575-77).

One of the main problems in calculating the stratified sample standard error  $S_{ps}$  from equation (3.7) (in order to substitute it for  $S_{ki}$  in equation 3.1) lies in obtaining a reasonably accurate estimate of the strata population sizes. The exclusion of married women from the coverage of the present survey had the unfortunate effect of preventing the use of a number of 1971 Census tables, thus reducing estimates of strata population sizes to three key sets of attributes:

- i) Quinary age group in 1971;
- ii) Sex;
- iii) Marital status.

Values of  $\text{Deff}$  and  $\sqrt{\text{Deff}}$  estimated from these attributes are tabulated by migrant type in Table 3.10.

$$^1 Sp = \sqrt{\frac{pq}{n-1} \left( \frac{1-n}{N} \right)} \quad \dots \quad (3.6)$$

Where  $Sp$  is the standard error of the proportion;  $p$  is the proportion and  $q$  its complement;  $N, n$  are population and sample sizes respectively (Moser and Kalton 1971, p.67).

$$^2 S_{ps} = \sqrt{\frac{1}{N^2} \sum_i \frac{N_i P_i q_i}{n_i - 1} \left( \frac{1-n}{N} \right)} \quad \dots \quad (3.7)$$

where  $S_{ps}$  is the standard error of the population of a stratified sample;  $P_i$  is the proportion in the  $i$ th stratum;  $N_i, n_i$  are the stratum population and sample sizes respectively. (Moser and Kalton, 1971, p.87).

TABLE 3.10

Migrant stratum design effects : key respondent characteristics

Respondent Characteristic	Inter-Urban	Local Mover	Non Migrant	Combined Samples
<u>Current Age Group:</u>				
60 - 64	1.1947	1.1898	1.3280	1.8670
65 - 69	1.1029	1.0648	1.2098	1.6218
70 - 74	1.2243	1.2113	1.1621	1.4429
75 - 79	1.2871	1.3750	1.0072	1.3882
Mean $\bar{\text{Deff}}^*$	1.1942	1.1783	1.2115	1.5881
$\sqrt{\bar{\text{Deff}}}$	1.0928	1.0855	1.1007	1.2602
<u>Sex:</u>				
Deff	1.2076	1.2776	1.2517	1.6325
$\sqrt{\text{Deff}}$	1.0989	1.1303	1.1188	1.2777
<u>Current Marital Status:</u>				
Single	1.2762	1.3691	1.1759	1.6195
Married	1.2098	1.2569	1.2406	1.6649
Widowed and Divorced	1.2131	1.2652	1.2835	1.6708
Mean $\bar{\text{Deff}}$	1.2328	1.2715	1.2455	1.6613
$\sqrt{\bar{\text{Deff}}}$	1.1103	1.1276	1.1160	1.2889
<u>General Mean Design Effect:**</u>				
G $\bar{\text{Deff}}$	1.2115	1.2425	1.2362	1.6273
$\sqrt{G \bar{\text{Deff}}}$	1.1007	1.1147	1.1119	1.2758

$$* \quad \bar{\text{Deff}}_i = \sum_j \text{Deff}_{ij} p_{ij} \quad \dots (3.8)$$

where  $\text{Deff}_{ij}$  is the design effect for the  $j^{\text{th}}$  characteristic of the  $i^{\text{th}}$  set of characteristics, and  $p_{ij}$  is the proportion of  $i$  represented by  $j$ .

$$** \quad G \bar{\text{Deff}} = \sum_i \frac{\bar{\text{Deff}}_i}{m} \quad \dots (3.9)$$

where  $m$  is the number of sets of characteristics



## Bias

The survey was subject to four main possible sources of bias:

- (i) Sampling bias, stemming from the nature of both the sample frame and the sampling algorithm;
- (ii) Bias due to non response;
- (iii) Bias introduced by disproportionate sampling within migrant strata;
- (iv) Response bias.

### Sampling and non response bias

Despite the popularity of the Electoral Register as a sampling frame, only two analyses of its accuracy have so far been published.<sup>1</sup> (Rees and Rees, 1977, p.125). However, it seems that the main sources of bias are towards householders and against the geographically highly mobile. Bearing in mind the fact that the elderly institutional population was specifically excluded from the survey and that the sampling was carried out immediately after the Register was published in February 1971, neither of these factors is likely to be of any great importance in the present survey (see above, page 47). Similarly, although the sampling algorithm is known to discriminate against some minor subcategories of the population (see above p4), none of these is sufficiently important greatly to distort the overall results.

Bias due to nonresponse is potentially much more significant in its effect, particularly bearing in mind the somewhat disappointing response rate to the current survey. Although nothing is known of elderly non respondents to Phase One, information on age and sex is of course available for those individuals who completed this initial questionnaire but did not in the end take part in Phase Two. The percentage distributions of these two characteristics amongst

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<sup>1</sup> These are: Gray, Corlett and Frankland (1950), and Gray and Gee (1967).

TABLE 3.11

Comparison of Phase Two respondents and non respondents : sex

	Males(%)	Females(%)	Total(%)	n
Non Respondents	55.4	44.6	100.0	65
Respondents	58.2	41.8	100.0	294

( $\chi^2_{0.07}$  df1,  $\alpha .786$ )

TABLE 3.12

Comparison of Phase Two respondents and non respondents : age groups

	60-64	65-69	70-74	75-79	Total	n
Non respondents	9.2	44.6	24.6	21.6	100.0	65
Respondents	20.8	36.0	26.5	16.7	100.0	294

( $\chi^2_{6.95}$  df3,  $.10 > \alpha > .05$ )

respondents and non respondents is shown in Tables 3.11 and 3.12, together with  $\chi^2$  tests for significant differences between the two types of individual. Although the null hypothesis cannot be rejected at the  $\alpha \leq .05$  level in either case, the  $\chi^2$  value computed for the age structure table is still fairly high (the critical value of  $\chi^2_{.05}$  being 7.81 at 3 degrees of freedom). Most of this effect may be attributed to the comparatively low percentage of 60-64 year olds amongst the non respondents ( $\chi^2_{3.92}$  df1,  $\alpha .048$ ), and, taking the 60-69 category as a whole, there is very little difference between non respondents (53.8 %) and respondents (56.8 %) ( $\chi^2_{0.09}$  df1,  $\alpha .767$ ). We are therefore able to conclude that on the two fairly crude indications of age and sex characteristics, there appears to be little measurable bias which may be attributed directly to non response.

General bias, attributable to a combination of sample frame, sampling algorithm and Phase One and Two non response effects may, however, be measured on the three key sets of Census attributes. In order to achieve this, the town and migrant type strata were first weighted to allow for the varying sample fractions applied to each town's Electoral Register during Phase One. The differentials between the proportions of inter-urban, local and non migrants located during Phase One and those actually interviewed at Phase Two were then allowed for, giving the equivalent mean values of a simple random sample. The full standard errors of the key characteristics of respondents in the survey were then calculated from the unweighted strata using equation (3.7), and a t-test for significant departure of the weighted sample proportions from the corresponding Census characteristics was applied (Table 3.13).

As the table shows, none of the t values was significant at the  $\alpha .05$  level, although the differences between the weighted sample and the Census were only marginally non significant in the case of single persons (12.6% sample, 17.4% Census) and the 65-69 age group (35.4% sample, 28.9% Census). It should be remembered that this is a very stringent test, of course, and that in order to

TABLE 3.13

Analysis of bias : key respondent characteristics

Respondent Characteristic	Fully weighted % of total sample	Sampling error (full stratification)	Census 1971 % of total survey popn.	t* df 279	$\alpha$
	(%)	(%)	(%)		
<u>Current Age Group:</u>					
60 - 64	23.5	3.4	25.8	0.69	.50 > $\alpha$ >.25
65 - 69	35.4	3.5	28.9	1.84	.10 > $\alpha$ >.05
70 - 74	24.1	3.0	25.8	0.55	$\alpha$ > .50
75 - 79	17.0	2.6	19.5	0.99	.50 > $\alpha$ >.25
<u>Sex:</u>					
Males	59.2		54.7		.50 > $\alpha$
Females	40.8	3.6	45.3	1.24	>.10
<u>Current marital status:</u>					
Single	12.6	2.5	17.4	1.96	.10 > $\alpha$ >.05
Married	51.0	3.7	45.6	1.44	.20 > $\alpha$ >.10
Widowed and Divorced	36.4	3.6	37.0	0.16	$\alpha$ > .50

\* critical  $t_{.05} = 1.97$

test for systematic bias by age or marital status, the application of simultaneous confidence intervals would have the effect of reducing critical  $\alpha$  to .0125 in a four item set (age), and to .0167 in a three item set (marital status) in order to achieve an overall probability value of  $\alpha$  .05 or less.<sup>1</sup>

Bias introduced by disproportionate sampling within migrant strata

The intention to increase the degree of generality of the survey and yet still retain the ability to apply a powerful range of analytical (as opposed to purely descriptive) statistical techniques, involved disproportionate sampling from each of the five towns whilst treating each migrant type stratum as a simple random sample during the analysis (see above, pages 42-43). Although the problem of estimating standard errors strictly applicable to the population of the five towns per se may be overcome through the application of  $\sqrt{\text{Deff}}$  (Table 3.10), the provision of a full set of observations reweighted to allow for disproportionate sampling would obviously be impractical. On the other hand, using the unweighted observations as proxies for the strictly defined survey population incurs the risk of introducing a new, and totally artificial, source of bias. It is therefore necessary to check that this bias does not seriously distort the results within each migrant type stratum when they are treated as simple random samples.

It is a reasonable assumption that the variance of the weighted sample values will be very highly correlated with their unweighted counterparts and that, as a result, the standard error of the difference, Sdp, will tend towards zero.<sup>2</sup> The arithmetic difference between two corresponding proportions is thus a reliable

<sup>1</sup> See Wonnacott and Wonnacott (1972), p.429. This is the equivalent of a one factor analysis of variance, though with a more restricted set of possible simultaneous comparisons.

$$^2 \text{ Sdp} = \sqrt{S^2_{p_1} + S^2_{p_2} - 2r_{12}S_{p_1}S_{p_2}} \rightarrow 0 \quad \text{as } r_{12} \rightarrow 1 \quad \dots (3.10)$$

where  $S^2_{p_1}$ ,  $S^2_{p_2}$  are the variances of the two samples;  $r_{12}$  is the correlation coefficient.

TABLE 3.14

Comparison of fully weighted with unweighted sample values : key respondent characteristics

Respondent Characteristic	Inter-urban				Local Mover				Non Migrant			
	Fully weighted sample %	Unweigh-ted sample %	t* df 189	$\alpha$	Fully weighted sample %	Unweigh-ted sample %	t* df 46	$\alpha$	Fully weighted sample %	Unweigh-ted sample %	t* df 44	$\alpha$
<u>Current Age Group:</u>												
60 - 64	18.0	18.6	0.17	>.50	21.6	21.6	0.0	1.0	30.6	28.6	0.27	>.50
65 - 69	30.9	34.0	0.90	.50 > $\alpha$ >.25	35.3	37.2	0.28	>.50	40.8	42.8	0.26	>.50
70 - 74	28.9	27.8	0.29	>.50	27.4	29.4	0.28	>.50	16.3	18.4	0.36	>.50
75 - 79	22.2	19.6	0.77	.50 > $\alpha$ >.25	15.7	11.8	0.65	>.50	12.3	10.2	0.43	>.50
<u>Sex:</u>												
Males	54.6	57.2	0.66	>.50	52.9	54.9	0.25	>.50	67.4	65.3	0.27	>.50
Females	45.4	42.8			47.1	45.1			32.6	34.7		
<u>Current marital status:</u>												
Single	13.7	12.4	0.56	>.50	9.8	9.8	0.0	1.0	12.3	14.3	0.40	>.50
Married	49.3	51.0	0.40	>.50	43.1	43.1	0.0	1.0	57.1	55.1	0.26	>.50
Widowed and Divorced	37.0	36.6	0.14	>.50	47.1	47.1	0.0	1.0	30.6	30.6	0.0	1.0

\* See Text

Critical t<sub>.05</sub> values: Inter-urban = 1.97; Local Mover = 2.02; Non Migrant = 2.02

indicator of bias. However, it is also helpful to see how far the unweighted sample value lies within the likely range of variation of the fully weighted item as an estimator of the true five towns' population value. The test that  $p_1$ , the unweighted sample proportion, lies within the likely range of error of  $p_2$ , the weighted proportion, may be stated as follows:

$$\alpha \left( -t_{.05} < \frac{p_1 - p_2}{S_{ps}} < t_{.05} \right) = 0.05 \quad \dots \quad (3.11)$$

where  $t_{.05}$  is the critical t value ( $\alpha .05$ ) at  $n-i$  degrees of freedom;

$n$  is the total sample size and  $i$  is the number of strata (in this case 5);

$S_{ps}$  is the standard error of the proportion as defined in equation (3.7).

The results of this test (as applied to the set of key respondent characteristics) and the corresponding sample percentages are shown in Table 3.14, from which it is clear that bias introduced through the use of unweighted sample proportions as estimators for the strictly defined survey population is minimal. In fact the  $\alpha$  values exceed .50 in all but two comparisons.

### Response Bias

There are two main types of response bias: that which is caused by the respondent giving inaccurate answers to questions, and that which is introduced by the interviewer. The former source of bias is, of course, particularly difficult to detect, its effects being alleviated only by careful questionnaire design and piloting. It was encouraging, however, that the questionnaire's built-in consistency checks revealed very few contradictions between answers to different questions, even on items where lapses of memory were expected to be frequent (for example, on the timing and number of moves made).

Tests for interviewer bias were considered to be essential owing to the widely differing levels of previous survey experience of the interviewers and the fact that not all of them could attend the group briefing sessions, making individual briefing and progress review meetings necessary. Each of the seven

TABLE 3.15

Test for interviewer bias: analysis of variance on scores  
for Question 16.

Mean scores (by interviewer)							F Ratio
A	B	C	D	E	F	G	df 6: 203
2.40	2.70	2.50	1.83	1.50	1.57	2.65	1.7322 .25 > $\alpha$ > .10



'hired' interviewers was given similar proportions of inter-urban, local and non-migrants in their 'case loads', together covering 71% of the total number of questionnaires eventually completed. The remaining interviews were almost entirely undertaken by the author and comprised a much lower proportion of inter-urban migrants than the other case loads. For this reason, the analysis of interviewer bias could only be applied to the seven, largely inter-urban migrant case loads.

The analysis was carried out using average response scores on Question 16 of the questionnaire (Appendix 4); this was a checklist of items which concern possible sources of dissatisfaction with the previous place of residence and was therefore very susceptible to errors caused, for example, by not using the required standard question wording, too rapid progression down the list, reluctance to ask certain questions or an over emphasis on others. Scores obtained by each interviewer were subjected to a one way analysis of variance, the results of which are shown in Table 3.15.

Although the general null hypothesis concerning systematic differences between interviewers cannot be rejected on this test, it is important to note that quite wide variations between certain individuals did in fact exist. Even if the full simultaneous confidence intervals are applied, the difference between the interviewer with the highest mean score (B) and the one with the lowest (E) is only marginally non significant at the  $\alpha .05$  level ( $t_{2.70 \text{ df } 60, .10} > \alpha > .05$ , critical  $t_{.05} 2.78$ ). The general conclusion must therefore be that, although interviewer bias is unlikely to be a major problem in the analysis of results, returns made by some individuals may have contained some idiosyncratic elements.

#### A note on the analysis

The analysis of the survey data involved the use of the ECXP survey analysis program (O'Mahoney and Roughly, 1968) on an ICL 1905E computer, Release 6.02 of the SPSS statistical analysis program (Nie et al., eds, 1975) on an IBM 370/135, and a set of programs developed by the present writer for use

on a CompuCorp Beta 326 micro-computer with a 392 tape cassette drive (Woodhead, 1978).

In order to aid the critical interpretation of the results, all statistical tests are presented in the following way:

$$(Xy \text{ df } n, \alpha 1)$$

where  $X$  is the test statistic and  $y$  its value;

$n$  is the number of degrees of freedom (df);

$1$  is the significance level, or  $\alpha$  value, expressed as a probability.

Stress has been laid on the provision of exact  $\alpha$  values wherever possible in order to avoid undue emphasis on the rather crude formality of the classical Neyman-Pearson decision theory approach to hypothesis testing.<sup>1</sup> (Neyman and Pearson, 1933). Thus, although the conventional 5% significance level is still used in the discussion to differentiate between the 'significant' and the 'non significant', the precise risk of a Type 1 error (rejection of a true null hypothesis) is given and with it the degree of confidence we may have in the direction of the relationship between given sample values. The language and results of 'significance testing' are used here in the provision of supporting evidence for, or against, a given theoretical construct, and not as the prime means of inferring its ultimate validity. A 'successful' significance test is neither a necessary nor a sufficient condition for the acceptance of an unquantified theory,<sup>2</sup> and it is worth noting Morrison and Henkel's conclusions after an examination of the question of alternative approaches:

What we do without the tests, then, has always in some measure been done in behavioral science and needs only to be done more and better: the application of imagination, common sense, informed judgement, and the appropriate remaining research methods to achieve the scope, form, process, and purpose of scientific inference. (Morrison and Henkel, 1970, p.311).

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<sup>1</sup> For a scathing critique of the role of the 'significance' test in the social sciences see, for example, Bakan (1970) and Meehl (1970).

<sup>2</sup> Hence the paradox of the universally non-existent true null hypothesis in the context of 'soft' (i.e. unquantified) theory in social science - the greater the power of the test (the smaller the probability of a Type II error) the weaker its corroboration of the theory. (See Meehl, 1970, pp.261-2).

## CHAPTER 4

### MIGRANT CHARACTERISTICS AND SOME GENERAL ANTECEDENTS OF RETIREMENT MIGRATION

#### Introduction

The argument pursued in Chapter 2 laid considerable emphasis on the importance of the individual's personal characteristics and general patterns of behaviour when considering the antecedents of migration. Marital status, health and social class are linked to less overt psychological and economic characteristics which help to determine the potential migrant's level of relative satisfaction with his present environment, and the degree to which he feels that other environments might more closely meet his needs. The nature of these attributes is also partly indicative of the social and economic constraints which inhibit the individual's range of potential migratory behaviour.

Social class has been found to be a particularly rich proxy variable with links to many aspects of human behaviour in countless studies, the field of migration being no exception. (Jansen, 1968, pp. 72-77; Frankenberg, 1966, pp. 155-56; Webber, 1964, p.59; Beshers and Nishiura, 1961, pp. 217-18; Lind, 1969, pp.89-93). On the specific topic of retirement migration, for example, Law and Warnes put forward the general hypothesis that, because those in higher Socio-Economic Groups have been characterised by higher incomes, a higher proportion of owner occupation, and fewer family or friendship ties with specific areas, they are more likely to migrate on retirement. (Law and Warnes, 1973, p.376).

Other factors more peculiar to the individual retired person will also have a considerable indirect influence on his potential to migrate, and on where he is most likely to move. Previous experience of migration and its problems and the degree of familiarity of potential destinations (perhaps established over a lifetime of visiting, in other cases from only a brief encounter), are both likely to influence strongly the individual's view of the range of alternative courses of action which face him. In the meantime, certain events, actual or anticipated, may upset the equilibrium of the old person's behavioural environment, thus

TABLE 4.1

## Inter-urban migrants age structure

60-64 %	65-69 %	70-74 %	75-79 %	Total %	n
18.6	34.0	27.8	19.6	100.0	194

TABLE 4.2

## Age at time of move

	50-54 %	55-59 %	60-64 %	65-69 %	70-74 %	75-79 %	Total %	n
Inter-urban migrants (I-U)	4.1	21.6	34.0	28.9	9.8	1.5	100.0	194
Local movers	19.6	17.6	35.3	21.6	3.9	2.0	100.0	51
Bexhill* (I-U)	5**	14	39	32	8	3	100	495
Clacton* (I-U)	4**	9	31	43	9	3	99***	476

\* Source: Karn (1971, p.30)

\*\* Category actually covering all retired persons aged under 55

\*\*\* 1% of the Clacton sample was aged 80 years or over

TABLE 4.3

## Inter-urban migrant age structure at the time of survey, by destination

Age	60-64 %	65-69 %	70-74 %	75-79 %	Total %	n
<u>Town</u>						
Scarborough	16.9	23.7	32.2	27.1	100.0	59
Filey	15.4	57.7	11.5	15.4	100.0	26
Bridlington	19.0	29.3	29.3	22.4	100.0	58
Hornsea	19.4	30.6	38.9	11.1	100.0	36
Withernsea	26.7	60.0	6.7	6.7	100.0	15

engendering strategies of adjustment which may involve migration. Retirement and bereavement are two severe sources of stress characteristic of old age.

This chapter will examine retirement migration in the light of the antecedent attributes and experience of the migrants.

#### Age, Sex and Marital Status Characteristics of the samples

The age structure of the inter-urban migrant sample is fairly symmetrically distributed amongst the four age categories covered (Table 4.1), the greatest proportions being concentrated in the 65-69 and 70-74 categories (34.02% and 27.84%) respectively). The small numbers in the 60-64 group relative to those aged 65-69 is especially marked ( $\chi^2$  8.25 df1,  $\alpha$  .004). This structure contrasts considerably with that of the local sample which, taken as a whole, has 65% in the under 70 age groups as opposed to 52.57% in the inter-urban sample ( $\chi^2$  5.71 df1,  $\alpha$  .017). The majority of this difference is comprised of non-migrants, no fewer than 71.43% are aged under 70. ( $\chi^2$  4.91 df1,  $\alpha$  .027).

The ages at which inter-urban migrants actually made their moves follows the general pattern displayed by other studies; the period around statutory retirement age represents a peak in what is otherwise a pattern of declining mobility with increasing age. (Harris and Clausen, 1966, pp.10, 126; Karn, 1971, p.30; above, Table 1.1). As table 4.2 shows, the modal age category for migration in the inter-urban sample is 60-64, closely followed by 65-69. This is generally similar to Karn's Bexhill sample, although moves by 55-59 year old migrants to the Yorkshire coast are rather more common than in the South coast resort<sup>1</sup> ( $\chi^2$  5.47 df1,  $\alpha$  .019).

The age distribution displayed by the local migrant sample is also broadly comparable with that of the inter-urban migrants, with the one very striking exception of the 50-54 category, (inter-urban migrants 4.1%, local migrants 19.6%;

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<sup>1</sup> It should be noted that the number of observations in the 75-79 category of the present survey are likely to be depressed by the fact that migrants now aged 80 and over were excluded from the survey. The effect of this is likely to be very slight, however, as an inspection of the numbers in that category of the Bexhill and Clacton samples in Table 4.2 amply demonstrates.

$\chi^2$  12.04 df1, .001 >  $\alpha$ ). This difference may probably be explained by the fact that local moves in this age group are less likely to be prompted by a consideration of needs during retirement and old age than are long distance moves to a seaside resort. Very many inter-urban movers in the 50-54 group are likely to be constrained by the need for employment and so are less likely to move to resorts where job opportunities are, in general, notoriously poor. It is also noteworthy that, of the 38.1% of inter-urban migrants who reported at least one short distance move (that is, within a local authority area) since their 50th birthday, 16.2% made the last of these moves whilst under the age of 54, a figure closely comparable to that revealed by the local migrant sample.

Considerable differences in the age composition of the inter-urban sample also exist between different retirement towns, the hypothesis of no significant difference between the age structure of the five towns being rejected at the 5% level of significance ( $\chi^2$  22.08 df12,  $\alpha$  .037). Withernsea and Filey in particular contrast with the other resorts, having considerable majorities aged under 70 (Table 4.3). These differences in age structure may largely be attributed to the effects of recent housing construction in the smaller resorts. An analysis by age at the time of migration revealed very similar cell percentages for all quinary age groups from 50 to 79.<sup>1</sup> It thus seems unlikely that there were any significant differences in the attractiveness of the settlements to migrants of different ages.

The variations in age composition between the samples from the different towns are also reflected to some extent in the distribution of males and females, those with 'younger' age structures would, a priori, be expected to contain a higher proportion of males than those with more relatively 'older' people. In general, this expectation holds true, the proportion of male non migrants being somewhat, though not significantly, higher than the proportion of male inter-urban migrants (65.31% and 57.22% respectively;  $\chi^2$  1.80 df1,  $\alpha$  .090).<sup>2</sup> The proportion of male local migrants, however, was actually found to be very slightly

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<sup>1</sup> It was not possible to calculate a reliable  $\chi^2$  statistic comparable with that for Table 4.3 owing to the presence of too low expected frequencies in some cells. (See Siegel, 1956, pp.178-9).

<sup>2</sup> Directional hypothesis.

TABLE 4.4

## Marital status at time of move

	Single	Married	Separated or Divorced	Widowed	Total	n	Proportion married, comparison with I-u	
	%	%	%	%	%		$\chi^2$ (df1)	$\alpha$
(I-u) Inter-urban migrants	12.4	66.0	3.1	18.6	100.0	194	-	-
(Lm) Intra-urban migrants	9.8	62.7	7.8	19.6	100.0	51	0.3533	.552
*Bexhill inter- urban migrants	15	79	-	6	100	503	12.0852	<.001
*Clacton inter- urban migrants	5	86	-	9	100	486	33.8624	<.001

\* Source: Karn (1971, p.31), referring to Marital Status of "Head of Retirement Unit".

TABLE 4.5

## Social class structure of the inter-urban and combined local samples

	I Profess- -ional	II Inter- -mediate	III Skilled		IV Semi-skilled		V Unskilled	Total	n
			non manual	manual	non manual	manual			
Inter-urban migrants (I-u) %	6.3	37.4	18.4	25.3	2.6	6.8	3.2	100.0	190
Combined local sample (Lm+Nm) %	5.1	18.2	17.2	33.3	7.1	11.1	7.2	100.0	99

lower than in the inter-urban sample with a percentage value of 54.90 ( $\chi^2$  0.02 ldf,  $\alpha$ .944).<sup>1</sup> The degree of association in the case of the small, 'younger' resorts of Hornsea, Filey and Withernsea as opposed to that of the two larger resorts was considerably stronger (males = 66.2% and 51.3% respectively;  $\chi^2$  3.65 ldf,  $\alpha$ .028).<sup>1</sup>

Karn observed that most old people (about 80% of what she terms 'retirement units')<sup>2</sup> in her survey of elderly migrants to Bexhill and Clacton made the retirement move as a married couple; furthermore she goes on to note the implicit assumption of a retirement shared by both husband and wife that underlay the whole discussion of ideas about moving. (Karn, 1971, pp.31, 49). Although the current survey is based only on an approximation to Karn's 'retirement unit', the proportion of inter-urban migrants who were married at the time of their move is considerably smaller at 66.0% (Table 4.4), a proportion closely comparable to the 62.7% revealed in the sample of local movers at the time of their move ( $\chi^2$  0.35 df1,  $\alpha$ .552). If we consider this in conjunction with the close correspondence between proportions of inter-urban migrants currently married (51.0%) and the joint proportion for the two local samples 49.0%, then it is fairly safe to conclude that the state of being married is not a particularly important distinguishing feature of retirement migrants to towns on the Yorkshire coast.<sup>3</sup>

#### Social Class and Retirement

The relationship between migration selectivity and social class variables such as occupation and education, is a well attested phenomenon.<sup>4</sup> Level of education, the spatial scale of the labour market operating for those in many occupations (particularly professional and managerial), previous migration experience and the

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<sup>1</sup> Directional hypothesis.

<sup>2</sup> Essentially, Karn's 'retirement unit' corresponds with the household.

<sup>3</sup> Allowance must of course be made for some inter-urban migrants who possibly move away from the resort on becoming widowed. The association between greater age and widowhood will also mean that widows will suffer from higher death rates.

<sup>4</sup> For example see Johnson et al (1974, pp.105-107), Jansen (1969, p.70), Willis (1974, pp.19-28), Tarver (1964-5, pp.235, 239-40).



TABLE 4.6

Percentage of inter-urban migrants in social classes  
I and II, by destination

	%	Sample Size n
Scarborough	40.7	59
Filey	45.8	24
Bridlington	45.6	57
Hornsea	47.2	36
Withernsea	26.7	15

TABLE 4.7

Retirement age of retired men (including widow's  
husbands who had died during retirement

	Under 60 %	60-64 %	65-69 %	70+ %	Total %	n
Inter-urban migrants (I-U)	11.4	32.5	48.8	7.3	100.0	123
Combined local sample (LM + NM)	8.3	25.0	63.4	3.3	100.0	60
Bexhill migrants (I-U)*	9	48	39	4	100	316
Clacton migrants (I-U)*	6	28	61	5	100	337

\* Source: Karn (1971, p.24) NB: Data applies to retired men aged 65 and over, whereas Yorkshire data refers to those of 60 onwards.

financial resources necessary to overcome the monetary costs involved,<sup>1</sup> all combine in a self-reinforcing process to give certain members of society a wider knowledge of residential opportunities than others, and both the human and material capital necessary to obtain them. Elderly migrants are by no means exceptional in this respect, and both Karn and Law and Warnes have noted the general bias towards the higher socio-economic classes in retirement migration streams. (Karn, 1971, pp.20-23; Law and Warnes, 1973, pp.379-80). Thus 60% of migrants to Bexhill were in Social Classes I and II, the so-called 'Professional' and 'Intermediate' occupations<sup>2</sup> compared with a proportion of 22.3% of those classifiable for England and Wales in 1971 (Karn, 1971, p.23; OPCS, 1975, Table 32). Considerable variation in the degree to which this is true does, however, exist between resorts, and it is notable that the Clacton migrant sample revealed only 25% in Classes I and II.

The present study also shows a considerable proportion of Classes I and II amongst the inter-urban migrants, amounting to 43.68% of those classifiable (Table 4.5). The local and non-migrant samples, however, possessed almost identical proportions of the first two classes (22.5% and 24.0% respectively), the average for the combined 'local' samples thus being over 20% lower ( $\chi^2$  10.86 df1,  $\alpha$  .001). However, a comparison of the broad social class structure of the inter-urban migrants to each individual resort shows a considerable degree of mutual similarity (Table 4.6). The single exception, Withernsea, with only 26.7% of its migrants in Classes I and II, has too few observations on which to base any reliable conclusions. However, this finding does correspond broadly with the general social class structure of the town relative to the other four resorts.

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<sup>1</sup> The effects of income are not entirely straightforward, however. In the USA, Lansing and Mueller (1967, p.86) found that although mobility rises with income in the 'middle' income range, a point is reached where mobility declines with further increase. This pattern also seems to reflect experience in France. (Cribier, 1975, p.360).

<sup>2</sup> General Register Office (1966, pp.130-48); for a discussion of this scale see Bechhofer (1969, pp.112-13).

The pattern of variation in Social Class between the inter-urban, local migrant and non-migrant samples is not, however, entirely reflected in their educational background, a factor which is also likely to have an important bearing upon the nature of the information at the decision maker's disposal. Thus, although the proportion of non migrants who concluded full-time education before the age of 15 is high (73.5%), the corresponding figure for inter-urban migrants (60.3%) is not quite low enough to permit rejection of the directional hypothesis that it is not significantly lower at the 5% level ( $\chi^2$  2.37 df1,  $\alpha$ .062). Moreover, the proportion of local migrants who left school before the age of 15, (62.8%) is almost identical to that of the inter-urban sample. This finding contrasts somewhat with research findings elsewhere. Bultena and Marshall, for example, found that 63% of a sample of migrants to Florida and Arizona had twelve or fewer years of education, as opposed to 81% of non migrants in the origin area. (Bultena and Marshall, 1970, p.90 ; see also Riley et al, 1968, p.150; Johnson et al, 1974, p.105).

As would be expected, the vast majority of the inter-urban migrants had retired from full-time employment<sup>1</sup> (88.4% of those once economically active). This figure is considerably higher than either of the two 'local' samples which displayed very similar proportions to one another.<sup>2</sup> The combined proportion for the local samples, at 74.0%, is therefore over 14% lower than that of the inter-urban migrants. ( $\chi^2$  6.18 df1,  $\alpha$ .013). However, it is noteworthy, that, of those inter-urban migrants who had retired (including husbands of widows who had lived long enough to retire), 17.3% did so after they had moved to their current town of residence. Some differences in the age at which retired male respondents<sup>3</sup> had actually ceased full-time work are also evident between the inter-urban migrant and the combined local samples (Table 4.7). The migrants were rather more likely to retire before the statutory pensionable age of 65 (43.9%), than were the local samples (33.3%), although the difference is not statistically

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<sup>1</sup> Defined as being over 30 hours a week and excluding 'seasonal' employment.

<sup>2</sup> Local migrants = 72.22%; non migrants = 75.68%.

<sup>3</sup> Including widowed respondents' husbands who had died during retirement.

significant ( $\chi^2$  1.46 df1,  $\alpha$ .118).<sup>1</sup> Allowing for the fact that her results are slightly biased against the younger retired, Karn's Bexhill sample was comprised of considerably more individuals who retired before reaching 65 (57%) than the Yorkshire migrants, whereas her Clacton migrants had somewhat fewer (34%) (Karn, 1971, p.24). However, compared with cross-national survey figures of only 21% for Britain in 1962 (Shanas, 1968b, p.325), both inter-urban and local samples show a relatively high incidence of early retirement. A further difference between the Yorkshire inter-urban migrants and the local samples is that the latter are significantly more likely to retire at the customary age of 65 than are the incomers (48.33% and 31.71% respectively;  $\chi^2$  4.09 df1,  $\alpha$ .043), a fact which again probably reflects differences in the class structure of the two categories of respondent and, amongst other things, their greater independence of State pensions.

#### Health

A further personal attribute which is likely to have a considerable impact on the elderly individual's degree of satisfaction with his residential environment is his state of physical health. Unfortunately, this variable is extremely difficult to measure, not least because of the degree of subjectivity which inevitably enters into a person's assessment of his own relative health. In the current study, this problem was accompanied by the impossibility of eliciting reliable assessments of state of health at the time at which people moved house.

The measurement problem was overcome by means of a scoring system for those activities that an old person living alone would have to perform without assistance. This index, which was used in a major cross-national study has been found to correlate positively with degree of sensory impairment. (Shanas, 1968a, pp.26-29). Also, those with high scores were also more likely to have had a recent illness severe enough to have been confined to bed and to have had some contact with a physician. (Ibid pp.32-3). The index is constructed by means of

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<sup>1</sup> Directional hypothesis.

TABLE 4.8

## Shanas' index of physical incapacity scores

Index Score	Inter-urban	Local Mover	Non Migrant	United Kingdom*		
				Male	Female	All
	%	%	%	%	%	%
0	74.7	66.7	81.6	65	48	55
1 - 2	14.4	-	-	22	25	24
3 - 4	5.2	-	-	7	12	10
5 - 6	3.6	-	-	3	7	5
7+	2.1	-	-	3	8	6
Total	100.0	-	-	100	100	100
n	194	51	49	985	1462	2447

\* Source: Shanas, 1968a, p.28; data excludes institutional population and the bedfast. Frequencies of non zero scores for LM and NM samples have been excluded owing to small sample sizes.

a battery of six questions about tasks ranging in difficulty from 'Can you go out-of-doors without assistance?' to 'Can you cut your own toe-nails?'. (See questionnaire, Appendix 4). Ability to perform a task without any restriction scores 0, performance of task only with difficulty scores 1, whilst inability to perform task scores 2.

In the present study, no attempt was made to relate the measurement of incapacity to the migrant at the time of his decision to move, and results should be interpreted accordingly.

As Table 4.8 shows, all three migrant categories have a high proportion of zero scores relative to the national data, even allowing for their higher proportion of males (who tend to have low scores) and the exclusion of those aged 80 plus. Differences between inter-urban and local migrants, and non movers are not statistically significant and interpretation should necessarily be extremely cautious. The high overall scores are, however, likely to reflect the good physical environment of the resorts, particularly with regard to the absence of air pollution. Local people (that is, the local migrants and non mover samples) are also much less likely than the average to have been employed in the types of heavy industry which might be expected to have marked physical side-effects. The very high proportion of zero scores (81.6%) of the non migrants is likely to be contributed to by its higher proportion of males and of those in the younger age categories. The large number of inter-urban migrants reporting no impairment (74.7%), on the other hand, is likely to be partly due to their bias towards the higher Social Classes. The relatively low figure (66.7%) for local migrants is not so easily explained. However, it is possible that, random effects apart, considerations of physical health may have covertly entered many local movers' decision to change their immediate residential environment, whilst perhaps deterring them from making a longer distance move.<sup>1</sup>

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<sup>1</sup> Test for no significant difference between proportion of zero scores for local movers (66.7%) and non movers (81.6%):  $\chi^2$  2.18 df1,  $\alpha$ .140.

It is apparent that while, on the whole, the demographic and socio economic characteristics of the Yorkshire retirement migrants conform broadly to the patterns established in other studies, there are some notable exceptions. The first is that marriage is not a particularly strong distinguishing feature of the inter-urban migrants. Secondly, although the proportion of Social Classes I and II are much higher than among the two local samples as expected, there appear to be surprisingly few variations in the proportion of higher social class migrants between the resort towns, with the probable (and less surprising) exception of Withernsea. Thirdly, the inter-urban migrants have not experienced a significantly longer average period of full-time education than those in the local samples. Fourthly, despite the fact that a considerably higher proportion of inter-urban migrants than those in the local samples are no longer in full time employment (as one might expect), this difference is more than offset by quite a large number of inter-urban migrants (over 17%) who had only retired after moving.

There are also a number of points of direct significance to the study of the decision processes of 'retirement' migrants. The relatively high frequency of moves made before the (male) statutory pensionable age of 65 suggests that the factors taken into account by many of the migrants when planning the move will only indirectly include a consideration of failing health and the other physical accompaniments to greater age. This suggestion is further borne out by the low incidence of measured physical disability amongst the inter-urban migrants. On the other hand, there is a possibility that rather more local moves may be prompted, at least in part, by some consideration of physical disability. In other words, a short distance move may not simply be a more locally orientated old person's substitute for inter-urban migration.

TABLE 4.9

Inter-urban migrants: length of residence in previous town

Years	Yorkshire Coast	Years	Bexhill*	Clacton*
	%		%	%
0 - 4	17.5	1 - 5	10	8
5 - 9	15.0	6 - 10	12	8
10 - 14	20.0	11 - 15	10	6
15 - 19	11.9	16 - 20	7	6
20 - 39	29.4	20+	55	69
40+	6.7	Unspecified but less than 20	6	4
TOTAL n	100 194	TOTAL n	100 503	100 487

\* Source: Karn (1971, p.34).



The influence of previous migration experience and prior  
contact with the place of destination

In Chapter 2 we noted the obvious connection between the quantity and type of information available to the individual decision maker and his subsequent behaviour. The level of information which a migrant possesses concerning any particular place will largely determine its inclusion in his potential set of alternative destinations. Some of the more important aspects of information are likely to include direct experience of the places in question, and the individual's degree of previous geographical mobility, with its effect of loosening the ties of place and providing him with greater experience of migration and its problems.

Previous mobility

The strong positive relationship between past geographical mobility and an increased propensity to migrate is a well established phenomenon (Willis, 1974, pp.77-80; Johnson et al (1974, p.108), summarised by McGinnis (1968, p.716) in his 'Axiom of Cumulative Inertia'. As time progresses, the social and personal ties which an individual has with an area increase so that greater perceived benefits from the act of migration will be required to induce movement. Bearing in mind the tendency for older people to be more cautious and less willing (and, frequently, less able) to cope with a new environment (see above, page 22), we might expect previous experience of migration to be an even more important factor in the case of 'retirement migrants' than with younger people.

Although comparison with Harris and Clausen's national data is difficult owing to differences in the definition of mobility, Karn suggests that her Bexhill migrants had been rather more mobile than the average indicated by the national survey, 45% of them having lived in their previous town for 20 years or less.<sup>1</sup> (Harris and Clausen, 1966, p.127; Karn, 1971, p.34). The Clacton migrants, however, had been much less mobile in the past, the equivalent proportion being

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<sup>1</sup> Harris and Clausen's data applies to length of residence at current address, whereas Karn's refers to length of residence in previous town.

TABLE 4.10a

## Number of moves whilst aged under 20 by migrant type

Moves	0 %	1-2 %	3-5 %	6+ %	Total %	n
Inter-urban migrants	31.4	42.8	18.6	7.2	100	194
Local movers	29.4	39.2	21.6	9.8	100	51
Non migrants	26.5	47.0	24.5	2.0	100	49

TABLE 4.10b

## Number of moves whilst aged 20-34 by migrant type

Moves	0 %	1-2 %	3-5 %	6+ %	Total %	n
Inter-urban migrants	15.0	59.8	19.0	6.2	100	194
Local movers	7.8	58.8	21.6	11.8	100	51
Non migrants	22.4	59.2	14.3	4.1	100	49

TABLE 4.10c

## Number of moves whilst aged 35-49 by migrant types

Moves	0 %	1-2 %	3-5 %	6+ %	Total %	n
Inter-urban migrants	32.5	46.9	13.4	7.2	100	194
Local movers	29.4	45.1	23.5	2.0	100	51
Non migrants	34.7	55.1	8.2	2.0	100	49

only 31%. As Table 4.9 shows, elderly migrants to the Yorkshire coast appear to exceed the mobility of Karn's respondents by a considerable margin, for no fewer than 63.9% had lived in their previous town for less than 20 years.<sup>1</sup> By way of contrast, 47% of the non migrants and 35% of the local migrants were born in the town in which they still lived. Less than 6% of the inter-urban migrants had moved back to the town of their birth. It is also worth noting that the local movers were much more likely to have lived outside their present town<sup>2</sup> (72.6%) than were the non migrants (44.9%) ( $\chi^2$  6.8 df1,  $\alpha$ .009).

These results suggest a possible link between previous mobility and the propensity to migrate at both the local and the inter-urban levels. Unfortunately, further investigation of this possibility drew negative results. By comparing the number of moves (of all types) made by inter-urban, local and non-migrant samples during earlier stages of the life cycle, it was hoped to test the two hypotheses that:

- (i) either the frequency of movement of local and inter-urban migrants would be similar and also that they would be at a higher level than that of the non-migrants;
- (ii) or else all three samples would show different degrees of mobility, the non migrants being the least - and the inter-urban migrants being the most - frequent movers.

The data, however, supports neither hypothesis, for all three samples show remarkably similar frequency distributions for the three periods up to the age of 50 (Tables 4.10 a-c). It is not until after the age of 50 that appreciable differences may be observed between the three categories, this being a totally unremarkable phenomenon owing to the fact that respondents were differentiated for the purposes of this study on the basis of their migratory behaviour after this age! Frequency of move for inter-urban and local migrants from age 50 onwards is tabulated below (Table 4.11), the inter-urban sample

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<sup>1</sup> Test of hypothesis of no significant difference between the Bexhill and Yorkshire Coast proportions:  $\chi^2$  19.44 df1,  $.001 > \alpha$ .

<sup>2</sup> Excluding stays of under 3 months or wartime service.

TABLE 4.11

Number of moves since the age of 50 : inter-urban  
and local migrants

Moves	1 %	2 %	3-5 %	6+ %	Total %	n
Inter-urban migrants	49.5	27.3	28.0	5.2	100	194
Local migrants	62.7	23.5	11.8	2.0	100	51

TABLE 4.12

Inter-urban migrants : proportions visiting "retirement" town  
before age 50, by age at visit (previous residents excluded)

<20 only	20-34 only	35-49 only	<20- 34	20- 49	<20, 35-49	<20 -49	Never visited before age 50	Total	n
(%) 3.9	5.2	17.6	2.0	17.7	3.3	32.7	17.6	100.0	153

being somewhat more mobile than the local movers (50.5% and 37.3% respectively having moved more than once during this period). This difference is not statistically significant, however<sup>1</sup> ( $\chi^2$  2.34 df1,  $\alpha$  .126). Restrictions on mobility during and immediately following the 1939-45 war may partly explain the basic similarity of movement frequency during the respondents' middle years. Even so, it is difficult to escape the conclusion that simple frequency of movement from childhood to middle-age has at best only a tenuous link with the frequency of moves during late middle and old age.

A comparison of number of moves during each stage of their lives undertaken by inter-urban migrants categorised by social class<sup>2</sup>, also revealed surprisingly similar proportions making each given number of moves. On the other hand, differences in the social composition of the three migrant samples (above, page 64), when taken with the large numbers of local and non-migrants who have never lived anywhere but in their present town, suggest that social class has an important influence in deciding the scale of previous migration, if not its frequency. The relationship between high social class and inter-urban migration is well known and has received much attention elsewhere. (For example see Johnson et al, 1974, pp.102-107; Jansen 1968, pp.9-13, 180-81). As we shall see later, however, the differences in the average distances moved by inter-urban migrants in the two main social class divisions in the current study is not very great and not statistically significant. It seems that social class has more effect on which old people migrate rather than on how far they actually move. This would further suggest that the real differences in the spatial extent of the 'awareness space' (Brown and Moore, 1970, p.8) of old people of different social class may be principally explained by the high proportion of 'stayers' in the lower social categories, rather than by very great differences among the actual movers.

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<sup>1</sup> N.B. It is also necessary to make some allowance for the slightly younger age structure of the local migrants as this will, of course, reduce the number of moves. A check on the frequency of move in each age group up to age 79, however, showed a generally higher degree of mobility amongst the inter-urban sample. The sole exception was for the period of ages 50-54, where 76.8% of inter-urban migrants made no move, as opposed to only 56.7% local movers ( $\chi^2$  7.46 df1,  $\alpha$  .006).

<sup>2</sup> Registrar General's Classes I and II, against Classes III, IV and V.

## Familiarity with the destination

In addition to the 5.7% of the inter-urban sample who had actually been born in the coastal town in which they now live, a further 12.9% had also lived there at sometime or another before they attained the age of 50. Childhood connections seem to be an especially important characteristic of this group, 52.8% of all previously resident individuals having lived in their current town whilst they were aged under 20. For most of the inter-urban sample, however, early associations with any particular place do not seem to have greatly influenced their choice of destination, at least insofar as association can be measured by location of birth. Taking the sample as a whole, the average distance to place of birth before the last inter-urban move was 80.83 km compared with a distance of 94.01 km after the move (paired-t<sup>1</sup> 1.68 df 188,  $\alpha$ .095).

Of those who had not lived in their current town before the age of 50, 82.4% had visited it during this time. By far the highest proportion (32.7%) had made visits throughout each of the three age periods of under 20, 20-34, and 35-49, thus emphasising the long standing connections which many respondents obviously had with their eventual migration destination. (Table 4.12). The period between ages 35 and 49 showed the highest number of migrants reporting visits (71.2%), whereas only 41.8% reported having visited the town before the age of twenty ( $\chi^2$  11.19 df1,  $\alpha$ .001). Between the individual towns, however, there were some noticeable variations in the overall pattern. The small, relatively inexpensive resorts of Withernsea and Filey had much larger numbers of respondents who had not visited them before the age of 50 ( respectively, 36% and 26% of non previously resident migrants) than Bridlington (10%), Scarborough (20%) and Hornsea (11%), although the sub-sample numbers were too small to be statistically significant. It should be noted that Karn found that retired migrants who had either chosen to live in Bexhill and Clacton because house prices were lower than in their preferred area, or because these towns had more to offer in the way of physically suitable housing, were the least likely to

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<sup>1</sup> Nie et al (1975, p.270).

have made earlier visits to the town. There was also a relationship between the lack of a previous holiday or day trip and regret about the decision to move. (Karn, 1971, pp.57, 195-96).

Of those who had visited the town in earlier years, 77.0% (51.3% of all the inter-urban migrants) gave holidays as the main reasons, while 18.3% (12.2% overall) mentioned visits to relatives or friends. Law and Warnes' findings in Llandudno show some similarities in that 50% overall gave holidays as their main previous connection with the resort, 5.4% were born there (as opposed to 5.7% in the current study) and 14.3% had had no previous visit.<sup>1</sup> (Law and Warnes, 1973, p.384). The high proportion of respondents to the Llandudno survey who reported that friends or relatives formed their main connection with the town (26.7%) is not strictly comparable with results in the present study which was more concerned with visiting behaviour per se. Nevertheless, if we assume that many previous residents of the Yorkshire towns will have retained social contacts there, the sum of these plus respondents giving 'social' reasons for their visits results in a roughly comparable overall proportion of 31.2%. However, the very strong connections which existed between social class and previous social links with Llandudno were not present in the case of the Yorkshire survey, although what class differences existed were in the same direction as Law and Warnes' results. (Ibid., p.335). Of all non previously resident migrants in the present study in the R.G.'s Social Classes I and II, 12.3% gave 'social' reasons for earlier visits and 69.2% mentioned holidays. The equivalent figures for Classes III, IV and V are 16.7% and 55.6%.<sup>2</sup> In Llandudno 9.1% of retired migrants in Socio-Economic Groups 1-6, 13 gave 'relatives' as the main previous connection and 63.6% mentioned holidays. The respective figures for the other SEG's were 37.5% and 37.5%.

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<sup>1</sup> Considerable caution is necessary in the interpretation of some of the Llandudno results owing to the small sample size (n = 61).

<sup>2</sup> Comparison between the two social categories gives the following 2 x 2  $\chi^2$  and probability values:

(i) Social reasons:  $\chi^2$  0.28 df1,  $\alpha$ .600;

(ii) Holidays:  $\chi^2$  2.43 df1,  $\alpha$ .119.

## Previous mobility : Summary and Conclusions

In conclusion, it is clear that information based on a large amount of direct experience of the destination is likely to have played an important part in the migrants' eventual choice. Only a small proportion (less than 14% overall) had never visited or lived in the town before the age of 50.<sup>1</sup> On the other hand, a less rational, more emotional component is also likely to have been very prominent in certain respects. The importance of childhood associations in the case of previous residents of the destination town is a notable example, whilst the great preponderance of past holiday connections with the town amongst the other migrants also suggests that feelings about the place itself are likely to be coloured by the 'halo' effects of 'good times' past. The impact of previous mobility on the migration decision is not so clear cut. Whilst the degree of 'local orientation' (as indicated by the proportion of individuals who had never lived outside their current town) is high amongst both local samples, local movers are much more likely to have lived elsewhere than are the non migrants. However, all three migrant types show remarkably similar frequencies of movement, irrespective of distance, from childhood to middle age. No substantial social class differences exist either, suggesting that many differences in the degree of awareness of migration opportunities between the classes may be principally explained by the high proportion of 'stayers' (as far as inter-urban migration is concerned) amongst those of lower social status.

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<sup>1</sup> Less than 20% of inter-urban migrants said that they neither knew their present town well when they first came to live there nor knew anyone already living there. Just over 50% claimed intimate knowledge of the town and knew at least one person living there.



TABLE 4.13

Time of inter-urban move after retirement (including  
widows' husbands who lived to retire and move).

	%
In year of Retirement	39.7
1 year after Retirement	4.6
2 years after     "	5.7
3 years     "     "	4.1
4 years     "     "	15.5
5 years     "     "	5.7
6 or more years     "     "	4.6
Not moved since retirement	7.7
Other*	26.3
<hr/>	
Total %	100.0
n	194

\* Category 'other' comprised of those who have not yet retired, 8.3%, widows whose husbands did not live to retire or move after retirement (17.0%) and those not otherwise classifiable (1.0%).

TABLE 4.14

Length of time before retirement that migration plan was made  
(inter-urban migrants)

	Less than 1 year	1-2 years	2-3 years	3-5 years	5 years and over	No plan made before retire- ment	Total	n
(%)	15.1	10.5	7.9	9.9	11.8	44.8	100.0	152

\* Widows whose husbands did not live to retire and those who, at the time of the survey, had not yet retired are not included.

## The impact of stress in old age : retirement and widowhood

When asked whether they regarded retirement as 'boring and frustrating', 'a time to be enjoyed' or 'something to be accepted and put up with', the great majority of inter-urban migrants (67.5%), local movers (58.8%) and non migrants (61.2%) said that retirement was to be enjoyed. Only 6.7%, 5.9% and 4.1% respectively said that they found retirement boring and frustrating. Nevertheless, despite this uniformly high frequency of positive attitudes towards retired life, there is considerable evidence in other studies that the onset of retirement begins a period of considerable emotional stress for many men. Shanas, for example, has noted that men in western societies find the role of the worker as being central to their self image, and that 'a man is never as aware of his work as at that time when he anticipates retirement'. (Shanas, 1968b, p.320). Most old people will come to adjust their lives to cope with what is often quite a drastic change in economic and social circumstance, although the speed and extent of the adjustment may vary greatly between individuals. The degree of stress involved at the time of retirement, and the extent to which the individual has earlier anticipated the problems involved and has laid plans to cope with them in advance, are likely to have a considerable influence on the adjustment process. It has already been argued (above, page 16 ), that migration may form part of such a strategy of adjustment; to what extent, therefore, is migration during retirement the result of anticipatory planning or an impulsive post hoc reaction to stress?

Karn has noted the close relationship between the actual event of retirement and the timing of migration away from the pre-retirement home. (Karn, 1971, p.29). Thus 45% of her Bexhill sample and 40% of those from Clacton moved in the year of retirement. Inter-urban migrants in the Yorkshire Coast sample, showed no less enthusiasm for moving shortly after retirement as almost 40% moved in the same year as full time employment ceased (Table 4.13). In other words, as many as 60% of those who made an inter-urban move

after retirement<sup>1</sup> (and, in the case of widows, before their husbands died), moved within a year of ceasing work. This picture contrasts sharply with the timing of the short distance moves of the local mover sample, where only 23.5% of this entire category had moved at any time after retirement. However, excluding those who had not yet retired and husbands who had died before retirement, 44.7% of the inter-urban migrants had not started to think seriously about moving until after they had actually retired (Table 4.14)! Of those who had planned in advance, almost half had waited until they were less than two years from retirement, whilst only one fifth had given the matter serious thought more than 5 years before. Only 29.3% of retired local movers had laid any plans to move (successful or abortive) before retirement, whilst the figure for non-migrants was 12.5%. 12.37% of the entire inter-urban sample actually moved 'with retirement in mind' before retirement (though it was not necessarily to the current town nor even an inter-urban move).

Given that retirement tends to have a varied impact - social and economic - on individuals of different social and occupational status, it seems likely that reactions to retirement may also differ between social classes. Following on from this, if attitudes toward retirement differ, do those with a negative outlook tend not to plan ahead of retirement, tending to react after the event? In other words, is migration planning related to the individual's apparent psychological adjustment to retirement and old age?

Obviously it is not possible exactly to recreate an individual's mental outlook at the point of retirement simply by asking a question on his current attitude. Many individual's will have come to acquiesce in a state of affairs they may once have actively disliked. Others may have found that their pre-conceptions of life during retirement were unduly optimistic, factors such as financial difficulties, bereavement, illness or boredom may have reversed an initially favourable outlook. Nevertheless, it is hoped that a very rough guide to the individual's frame of mind as he faced retirement may be obtained in this way.

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<sup>1</sup> The percentage of the total sample who moved after retirement was 66.0%.

Surprisingly, social class appears to have had little effect on response to the attitude question. Whereas 27.5% of respondents in Social Classes I and II said they found retirement was 'boring and frustrating' or 'something to be accepted and put up with', those in Classes III, IV and V were not all that much more discontented with a total of 36.1% in those categories, a difference which is not statistically significant ( $\chi^2$  0.98 df1,  $\alpha$ .322). Reactions to retirement are apparently not simple and clear cut; the effects of class related differences in, say, economic circumstances and social status vis à vis one's erstwhile working peers may often be obscured by the different meaning the actual content of the work seems to have for men in different sorts of job. There is, for example, evidence from studies in the USA that professional and white collar workers tend to be greatly involved with their work and to find it an important source of psychological satisfaction. Workers at lower economic and skill levels, however, are more likely to see work chiefly as a source of income. (Shanas, 1968b, p.321). Bearing in mind the relative lack of relationship between class and retirement attitude in the present study, it is not surprising that the proportions of those who had made no pre-retirement plan to move were very similar between Classes I and II (42.9%) and Classes III, IV and V (44.8%). In fact the most striking feature is perhaps the very degree of similarity! ( $\chi^2$  .0054 df1,  $\alpha$ .934). The prediction that a negative retirement attitude is positively related to the lack of serious planning for migration before retirement, however, found rather more support in the data, a directional  $\chi^2$  test yielding results that were only very marginally non significant. Thus, whilst 37.9% of those with a positive attitude had made no pre-retirement plan, the figure for those expressing feelings of boredom or simply resigned acceptance was 52.7% ( $\chi^2$  2.65 df1,  $\alpha$ .052).<sup>1</sup>

Like retirement, the death of an individual's spouse is likely to cause a drastic loss of social roles, and frequently, to a woman, a significant drop

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<sup>1</sup> Directional hypothesis

TABLE 4.15

## Length of time since spouse died

0-4 years	5-9 years	10-14 years	15-20 years	20+ years	Total %	n
(%) 33.8	21.6	12.3	13.8	18.5	100.0	65

TABLE 4.16

Widowed inter-urban migrants : length of time between  
death of spouse and next move (whole yrs)

Less than 1 year	1-2 years	3-5 years	6 or more	No move made	Total %	n
(%) 20.0	18.5	10.7	13.9	36.9	100.0	65

in income. Thus, even apart from the emotional shock involved, bereavement ranks as perhaps the greatest source of stress experienced by the married elderly. Its impact is felt in very many aspects of the widowed person's daily life and grief may sometimes persist for several years. (Townsend, 1963, pp.197-198). In fact, feelings of isolation and loneliness tend to be more acute amongst the bereft than amongst the truly isolated. (Ibid., p.201). The reaction of the surviving partner may vary greatly from person to person, but it is clear that many adopt a strategy of adjustment which involves migration. Some of these people will move in order to seek the companionship and support of children or other relatives (Wilmott and Young, 1967, p.43); others will perhaps move to smaller, cheaper or more conveniently located housing. Many of the widowed, on the other hand, will try to retain the familiar surroundings and associations of the old home and resist moving, a complete contrast with those to whom the very escape from these associations is possibly the prime motive in moving.

Of the 34.0% of inter-urban migrants who were widowed by the time of the survey, 55.4% had experienced this loss during the previous 10 years and 67.7% during the previous 15 years (Table 4.15). As we would expect, the great majority of individuals had therefore been bereaved after their 50th birthdays and hence, within the period covered by the present survey.

Because of the problems of small sub-sample size, it was decided to ask all widowed migrants how long after their spouse's death the next change of address occurred, irrespective of when the death had taken place and what type of move (local or inter-urban) was involved. It was found that 63.1% of widowed inter-urban migrants had moved after the death and that as many as 20.0% had actually moved within one year (Table 4.16). Numbers of the widowed in the local movers' sample were too small for adequate comparison (n = 18), but proportionately slightly fewer (55.6%) were found to have changed address sometime after bereavement. Sub-sample numbers were also too small to permit comparison between males and females (males n = 11). Comparison based on social class, however, was rather more feasible owing to a more equal distribution between the higher group (Classes I and II) which represented 43.8%

of the widowed and Classes III, IV and V representing 56.3%. The higher social classes were found to be rather more likely to have moved shortly after bereavement, 25.0% moving within one year as opposed to 13.9% of Classes III and under. The difference, however, is not statistically significant owing to the very small sub-sample size ( $\chi^2$  0.65 df1,  $\alpha$ .420). If such a class difference does exist in the universe population, it is likely that it is due in part to factors such as the lower degree of local attachment amongst Classes I and II and their generally greater ability to overcome the financial costs of movement. It should also be borne in mind that the children and other relatives of the middle class tend to be more geographically scattered than those of working class people, thus making a move towards them more likely to be necessary if their companionship is to be substituted for that of the deceased spouse. (Hubert, 1965, pp.65-69; Willmott and Young, 1967, pp.43-44).

#### The impact of stress : Summary and Conclusions

Both retirement and bereavement appear to have brought a very rapid response in the form of migration from many individuals in the inter-urban sample. The lateness or non existence of pre-retirement planning for a high proportion of respondents makes the proportion of moves within one year following retirement appear surprisingly high (nearly 40%), thus emphasising the degree of likely residential stress involved. Again, social class was found to have little or no relationship to variations in the behaviour of the inter-urban sample, although there was some exceedingly weak evidence that respondents in Social Classes I and II were more likely to move shortly after bereavement than those in Classes III to V. No relationship existed between social class and pre-retirement planning for migration, or with attitude to retirement. The latter, however, did appear to have a noticeable influence on planning, those with negative attitudes being more heavily represented in that section of respondents who had not engaged seriously in pre-retirement planning to move. It seems likely that an individual's strategy of adjustment to ageing and retire-

ment markedly influence his migratory behaviour. Any variation in behaviour attributed to social class differences, thus, appears to be swamped by the effects of 'personality' variables.



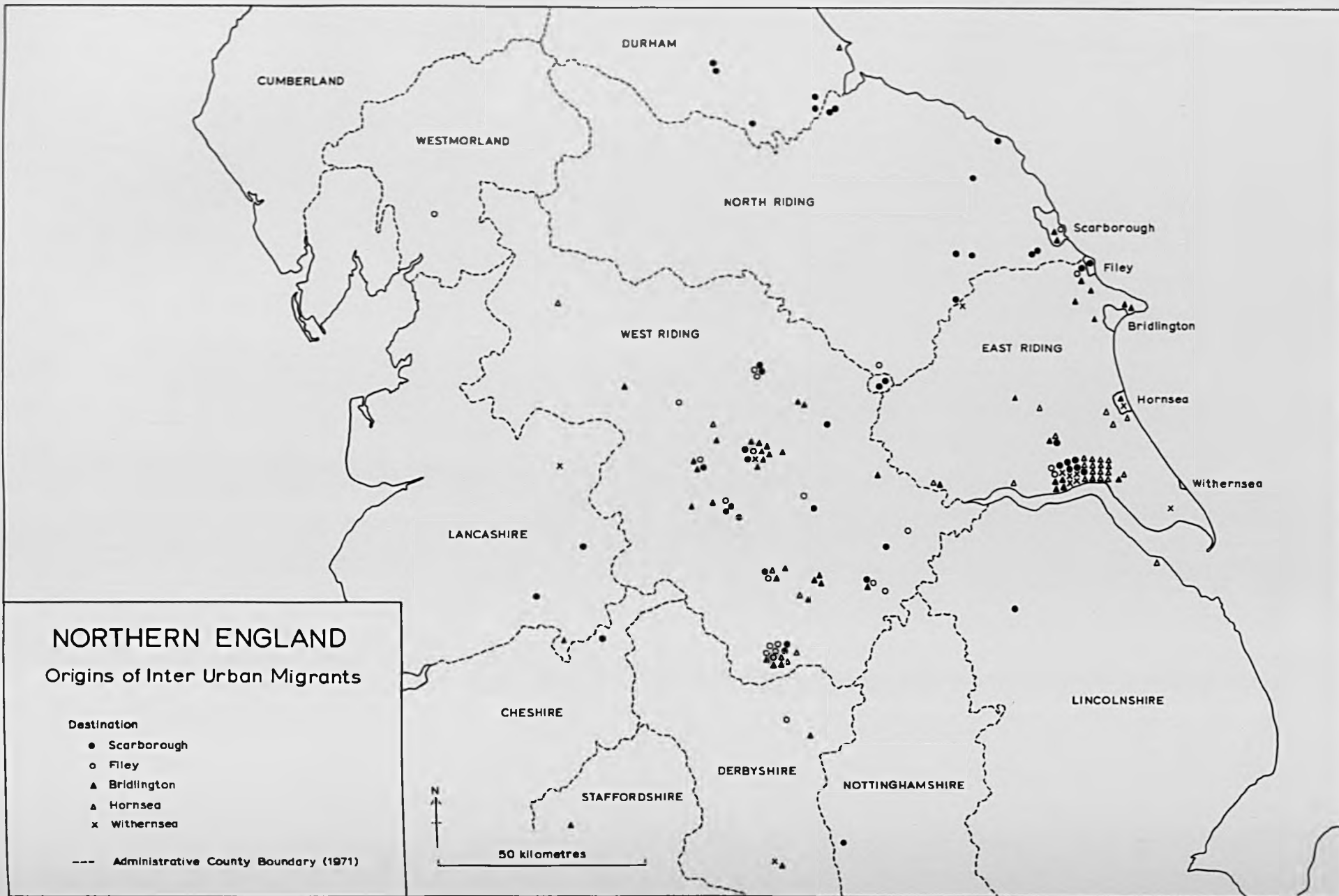


FIGURE 5.1

## CHAPTER 5

### REASONS FOR THE MOVE AND THE SEARCH FOR A NEW HOME

Where did the migrants come from?

Taking the inter-urban migrant sample as a whole, two thirds had moved from addresses in Hull and the East Riding (32.5%) or the West Riding (34.0%) (Table 5.1). The predominantly rural North Riding contributed only 6.7% of the total whilst the pre April 1974 administrative county of Lindsey (South Humberside) remained true to its traditional isolation from areas north of the Humber by supplying only 2 individuals (1%). The South East Region was the third largest supplier of migrants (9.3%), whilst the Northern Region was comparatively insignificant at under 5%.

As might be expected, there are considerable variations between the resorts (Table 5.2, Figure 5.1). The three East Riding towns, which comprise 56% of the overall sample, took nearly 80% of migrants originating in Hull and the East Riding. Hornsea and Withernsea in particular were important destinations for the retired of urban North Humberside, over 60% of their combined samples originating from Hull and the East Riding. Migrants from the West Riding are most strongly represented in Filey (61.5%) and Bridlington (44.8%), the latter actually taking 12.1% more of its total migrants from this region than from nearby Hull and the East Riding. The difference is not, however, statistically significant ( $\chi^2$  0.8 df1,  $\alpha$ .371). Surprisingly the Bridlington sample has a very much higher percentage of West Riding migrants than Scarborough (28.8%), although once more the sample sizes are too small for the difference to be statistically significant ( $\chi^2$  2.57 df1,  $\alpha$ .109). The even greater contrast in the proportion of West Riding migrants between Filey and Scarborough ( $\chi^2$  6.82 df1,  $\alpha$ .009) emphasises the existence of a hierarchy in the spatial extent of five resorts' migrant hinterlands. Thus Scarborough has rather more national 'appeal' as befits its status as a leading resort. For example, two-thirds of all migrants in the total sample who originated in either the Northern or North-western Regions, or in Scotland had moved to Scarborough.

TABLE 5.1

## Origin of migrants, by region

	Hull and East Riding	North Riding	West Riding	North North West Scotland	South East	Lindsey (S Humber) E Midlands E Anglia	Other	Total	n
(%)	32.5	6.7	34.0	7.7	9.3	4.6	5.2	100.0	194

TABLE 5.2

## Origin of migrants, by town of destination

	Hull and East Riding	North Riding	West Riding	North North-West Scotland	South East	Other	Total	n
(%)								
Scarborough	15.3	15.3	28.8	17.00	10.2	13.6	100.0	59
Filey	15.4	-	61.5	-	-	-	100.0	26
Bridlington	32.8	-	44.8	-	6.9	10.3	100.0	58
Hornsea	66.7	-	16.7	-	11.1	-	100.0	36
Withernsea	46.7	-	-	-	-	-	100.0	15

(-) denotes less than 3 observations

Very little social bias by region of origin was found. Migrants from Hull and the East Riding tend to be slightly more strongly represented in the higher social class categories (36.6%) than are those from the West Riding (30.3%), though the difference is far from being statistically significant ( $\chi^2$  0.26 df1,  $\alpha$ .615).

#### Migration Distance

The average distance moved by the inter-urban migrants was 100.61 km<sup>1</sup> (standard error 6.32 km). The distribution is positively skew, though not excessively so (Sk = 1.43) and slightly leptokurtic (Ku = 1.58).<sup>2</sup> Maximum distance moved was 379 km.

Three hypotheses were tested concerning the relationship between distance moved and migrant characteristics:

- (i) Following the discussion in Chapter 2 (pages 18-21 ) on the decline in the importance of immediate locale in the daily life of the individual, we would expect old people of higher social class to be inclined to move further afield than those of lower social class.
- (ii) In the national labour mobility survey, Harris and Clausen found that old people who moved principally to be nearer relatives or friends tended to move further on average than those who 'wanted better surroundings'. (Harris and Clausen, 1966, p.129). Thus, while 23% of the former moved more than 100 miles (161 km), the corresponding figure for the latter

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<sup>1</sup> Excluding the 2.1% who had migrated from overseas (including Ireland)

<sup>2</sup> Index of skewness,  $Sk = \frac{\sum (x_i - \bar{x})^3 / n}{(\sqrt{\sum (x_i - \bar{x})^2 / n})^3}$  (Downie & Heath, 1970, p.68)

Index of kurtosis,  $Ku = \frac{\sum (x_i - \bar{x})^4 / n}{(\sum (x_i - \bar{x})^2 / n)^2} - 3$  (Ibid.)

TABLE 5.3

## Relationship between migrant characteristics and migration distance

Hypothesis	Migrant Category	Mean Migration Distance (km)	Standard Error	t Value	df	$\alpha$ (Directional Hypothesis)
(i) Social Class	Class I and II	103.16	11.09	0.70*	137*	$\alpha > .25$
	Class III-V.	94.06	6.89			
(ii) Age	Under 65	98.99	7.93	0.31	188	$\alpha > .25$
	65+	103.03	10.46			
(iii) Destination Town size	Large	109.75	8.43	1.80	188	$.05 > \alpha > .025$
	Small	86.59	9.28			

\* Separate variance estimate (Nie, Hull et al, 1975, pp.269-270).

category was only 15%. The national survey found that the proportion of people moving to be with relatives increased with age (14.4% for those between 65 and 69, compared with 27.6% for the 75-79 category), but also found that the proportion of those who moved to obtain better surroundings declined somewhat with age (13.3% of those aged 65-69, 9.3% of ages 75-79). (Ibid, p.128). This of course corresponds with the general pattern of increased dependency with advancing age. It was therefore hypothesised that 'older' migrants in the sample will tend to move farther on average than 'younger' migrants.

- (iii) The gravitational hypothesis with regard to migration flows would suggest that the larger towns would tend to draw their elderly migrants from a wider catchment than those of the smaller towns. (See Willis, 1974, pp.86-90). Migrants to Scarborough and Bridlington should therefore have longer average migration distances than those to Filey, Hornsea and Withernsea.

In the event, although all three hypotheses correctly predicted the direction of the difference between the migrant categories, only size of town showed a statistically significant relationship with distance moved (Table 5.3).

#### Reasons for the move

It was argued in Chapter 2 that the parallel processes of biological, economic and social ageing tend to alter substantially the old person's relationship with his physical and social environment. In particular, the loss of social roles associated with retirement, its financial effects and a general reduction in physical activity, conspire to make the elderly increasingly home centred and thus more sensitive to the immediate environment of the dwelling and

neighbourhood. At the same time there is, on average, an increase in the relative importance of kinship ties. In the case of people with spatially dispersed networks of relatives, this might be expected to distort further the relationship between the current place of residence and their desired patterns of behaviour. To what extent, therefore, do the reasons which elderly migrants give in order to explain why they moved reflect these needs? Do they differ from the residentially immobile elderly in their requirements, or simply in their ability or willingness to adjust to changes in circumstance?

By far the greatest number of moves made annually in the British Isles may be attributed to a desire or an externally imposed need, to change the dwelling itself. Harris and Clausen (1966, p.44) found that 56% of all respondents in their national sample of 10,400 migrants moved for housing reasons (excluding marriage), whilst a survey of nearly 10,000 mortgage applicants revealed that 41.8% of those who were already owner occupiers - a particularly important characteristic of most 'retirement' migrants (Karn, 1971, pp.35-38) - moved primarily to obtain 'better' or 'more suitable' property. (Nationwide Building Society, 1970). Similarly, 42% of moves made between 1968 and 1969 within the Yorkshire and Humberside region were made for housing reasons. (Yorkshire and Humberside Standing Conference of Local Planning Authorities, 1972, p.5).<sup>1</sup> However, as migration distance increases, so other considerations become more important, particularly employment. In a study of 551 working age migrants who had moved between Standard Metropolitan Labour Areas, Johnson et al. found that 49.4% had moved primarily because of a change in employment. (Johnson et al., 1974, p.206). Under certain circumstances this proportion may even be considerably higher. Pourcher for example, reports that of migrants to Paris 60% move principally because of their work, a percentage exactly equalled by both in migrants to and out migrants from the Yorkshire and Humberside Region. (Pourcher, 1970, p.193; Yorkshire and Humberside Standing Conference of Local Planning Authorities, 1972, p.5). The obvious corollary, of

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<sup>1</sup> This study was based on a survey of 79,840 migrants, 68,263 of whom had moved within the Region.

course, is that as people lose this principal locational criterion once they retire, they may feel more free to meet what were previously needs of secondary importance by further residential movement. Thus motives connected with the special requirements of increasing age are often likely to be combined with other long standing, but hitherto latent, preferences. In these cases, it is often likely to be the attraction of the potential destination (the "pull" factor), rather than sheer dissatisfaction with the present environment (the "push" factor) which encourages the elderly to move.

This section will examine both the principal reasons given by migrants and non migrants to account for their behaviour and also the relative importance of push and pull factors underlying the decision.

The incidence of 'forced' migration - where the individual can see no choice other than to leave his present home - has long been on the decline in the developed world, albeit with certain historical exceptions. In terms of the so-called 'push/pull' hypothesis (Bogue, 1959), this suggests the intuitively obvious conclusion that, when viewed as a form of compulsion, push factors no longer provide the great stimulus to migration that they undoubtedly did in the industrialising and urbanising Britain of Ravenstein and his 'laws' of migration. (Ravenstein, 1885, 1889). Jansen in his Bristol study, thus found that only one third of migrants interviewed felt that they had been forced to move from their former area<sup>1</sup> and that 54% of these gave reasons connected with employment (that is, lack of work or a job transfer). (Jansen, 1968, p.78). It might be expected, therefore, that push factors would be even less important amongst elderly inter-urban migrants.

In contrast with this empirical evidence, Brown and Moore have presented the migration decision essentially as a reaction to dissatisfaction with the

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<sup>1</sup> These findings at the level of the individual contrast with the less direct (and rather crude) evidence provided by some studies of aggregate populations, however. For example, Masser (1970, p.42) concludes in his analysis of 1961 and 1966 Census data that push factors, such as unemployment levels, appear more important than 'pull' factors, such as wage levels, in stimulating migration between conurbations in Britain.



present environment. The decision is seen as a two-stage process comprising, first, the decision whether or not to seek a new residence and, secondly, the choice of destination. (Brown and Moore, 1970, p.2). In other words, it is primarily a 'push' model with 'pull' factors relegated to a secondary role. The alternative of a situation where the attraction of a newly discovered location is sufficiently powerful to draw the migrant away from his present place of residence is not considered. Under the latter circumstances, the decision to move would, in effect, occur simultaneously with the selection of the destination, and the process may be seen as consisting of a single stage. It is therefore reasonable to assume that, if 'pull' factors greatly predominate, then this single stage model would be a better representation of the migration decision in retirement than the two stage model of Brown and Moore.

Surprisingly, almost 30% of inter-urban migrants in the current study felt that they had been 'obliged' to move from their last address in their previous town. Somewhat less surprising was the discovery that just under 50% of these (17.5% of the total inter-urban sample) had moved for health reasons. A further 24% (7.2% overall) had been living in some form of 'tied' housing which they had had to vacate when they retired. Although the difference is not statistically significant ( $\chi^2$  2.65 df1,  $\alpha$ .104), a considerably higher proportion of local movers had felt obliged to move (43%). The proportions of these who gave health reasons (over 54%; 23.5% overall) or mentioned tied housing (18%; 7.8% overall) are very similar to the inter-urban sample. However, a further 27% of 'compulsory' local movers (11.8% overall) had had to move because of demolition or eviction, compared with only 5% (1.6% overall) of the inter-urban migrants - a stark reflection of the social class differences between the two samples.

These results suggest that at least 30% of the inter-urban sample and 43% of the local movers are likely to have used decision strategies predominantly of the two stage type described by Brown and Moore.

If we broaden the concept of a 'push' factor to include: 'all migration inducing phenomena involving dissatisfaction with one or more characteristics of the current location', then we may obtain some further (if very crude) measure of how frequently Brown and Moore (two-stage) decision strategies are likely to be used by elderly migrants. The inter-urban and the local movers were therefore asked for the two main reasons for their move in addition to any feeling of obligation or compulsion. For the purpose of comparison, non movers were asked whether, given the chance, they would like to 'move house' and why.

It was found that all but 6.7% of the inter-urban sample and 21.6% of the local movers were able to give at least one major reason other than one of sheer compulsion for their move. Of the 93.3% inter-urban migrants giving a main 'voluntary' reason, 39.8% indicated dissatisfaction with the place of origin (push), leaving 60.2% mentioning some feature of the destination which attracted them (pull). This presented a marked contrast with the local movers whose distribution of 'pushes' and 'pulls' were the exact reverse of that of the inter-urban migrants. Thus 60.0% of the 78.4% of local movers giving a main reason apart from one of obligation indicated a push factor and 40.0% a pull.<sup>1</sup> Of the non-movers, 30.6% indicated a desire to move, the great majority of whom (24.5% overall) giving some degree of dissatisfaction with their current circumstances as the principal motive.

In conclusion it seems that decision strategies whose main characteristics are likely to be of the Brown and Moore 'push' type could predominate in voluntary short distance moves of the elderly, although this finding is not statistically significant ( $\chi^2$  1.23 df1,  $\alpha$ .268). Decisions indicating a strong 'pull' (and hence perhaps with a strong element of the single stage strategy) are more common than non compulsory 'push' reasons in the case of inter-urban migrants ( $\chi^2$  7.16 dlf,  $\alpha$ .008). Quite a large number of nonmovers also

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<sup>1</sup> Test of null hypothesis  $H_0$  with regard to inter-urban and local movers:

$\chi^2$  4.66 df1,  $\alpha$ .031

TABLE 5.4

Inter-urban migrants : association between type of  
principal (voluntary) reason for moving and type of secondary reason

Principal reason	Secondary reason Push	Pull	Total %
(%) Push	30.4	69.6	100 n = 23
Pull	60.9	39.1	100 n = 64

$$\chi^2 = 5.15 \text{ df1, } \alpha.023$$

TABLE 5.5

Inter-urban migrants : most frequently mentioned  
voluntary reasons for move

PRINCIPAL REASON:	%
Joining family or friends:	20.4
Dispersal of family, deaths etc:	5.2
'Retirement':	7.9
'Visited the town before and liked it':	13.1
'To be at the seaside':	6.3
Noise, other pollution or pace of city life:	8.4
'Just wanted to move away from.....':	5.3
Business reasons, job etc.:	3.7
House too big:	2.6
Other housing reasons:	9.0
Other reasons:	18.3
TOTAL:	100.0 (n = 181)
SECONDARY REASON:	%
Joining family or friends:	18.2
'Visited the town before and liked it':	22.8
'To be at the seaside':	19.3
House too big:	5.7
Noise, other pollution or pace of city life:	8.0
Other reasons:	26.1
TOTAL:	100.0 (n = 87)

indicated the existence of push factors which, were they free to do so, might induce them to move.

If we assume that a feeling of obligation to move from the previous home invariably constitutes the main reason for moving, however, then 57.7% of the inter-urban migrants moved primarily because of some type of push factor as opposed to 42.3% because of a 'pull' ( $\chi^2$  4.34 df1,  $\alpha$ .037). The result of applying this assumption to the local movers leads to an even greater increase in the importance of push factors, 78.4% moving mainly for this type of reason compared with 21.6% mentioning pull factors ( $\chi^2$  15.37 df1,  $\alpha$ <.001).

It is noteworthy that, of the 44.9% of inter-urban migrants who were able to give a secondary (voluntary) reason for the move, only 26.4% mentioned a push factor. Moreover, there appeared to be a significant degree of association between the mention of push factors as the principal reason and giving a pull factor as a secondary reason, and vice versa (Table 5.4). The two staged nature of the Brown and Moore type decision strategy would in fact suggest that an initial push factor would normally be followed by a secondary process involving an appraisal of the attractions of alternative destinations (pull factors). The converse relationship which applies in the case where a pull factor is given as the principal reason, is not so readily explained. However, it could be argued that the influence of pull factors alone would probably only infrequently overcome the usual inertia associated with migration. Even if a certain measure of dissatisfaction with the present location does not initially stimulate the desire to move, the appearance of a 'better' alternative may often have the effect of creating a feeling of comparative dissatisfaction as the individual's idea of what is attainable is raised.

With regard to the specific reasons given for wishing to move, apart from actual compulsion, the most common amongst inter-urban migrants was a desire to join family or friends (20.4%, table 5.5). Taking all reasons given into consideration, a total of 27.8% of inter-urban migrants said that they

had been influenced to some extent by this factor. Comparison with other studies is difficult owing to differences in type of question asked and coding methods used. Law and Warnes, however, note that 27.4% of elderly migrants to Morecambe mentioned proximity of friends and relatives as a factor in the decision to move, whilst Karn found that in both Bexhill and Clacton the presence of friends or relatives was the most important reason for choosing those particular towns (Bexhill 27%, Clacton 32%). (Law and Warnes, 1973, p.382; Karn, 1971, p.53). All of these findings amongst elderly migrants contrast with the results of the 1975 General Household Survey, which show that only 6% of all migrant households moved to be nearer relatives or friends. (OPCS, 1978, p.80).

The second largest category of main reasons for moving given by the Yorkshire inter-urban migrants was simply that they had 'been here before and liked it' (13.1%). Whereas Karn found that 33% of Bexhill migrants and 19% of those to Clacton said that their main motive for moving had been to live by the sea (Karn, 1971, p.44), only 6.3% of the Yorkshire sample gave 'To be at the seaside' as their main reason; the proportion of those with a second reason giving this response was considerably higher at 19.3%. The simple response 'For retirement' was mentioned by only 7.9% of the Yorkshire sample, whereas nearly one quarter of Law and Warnes' Llandudno sample replied along these lines and did not enlarge further. (Law and Warnes, 1973, p.384). Many of these differences, however, are possibly little more than a reflection of the lack of a standard approach to question wording and interviewing techniques between the different surveys.

Other responses included the wish to escape the stress and pace of city life, many people complaining of its attendant noise and other pollution (8.4%), whilst others simply expressed a desire to leave the previous town or area without directly specifying the reason (5.2%); for example the reply of one Bridlington resident, 'I just wanted to get away from the pit district', typified this category of response. Comparatively few inter-urban migrants gave housing reasons as the principal (voluntary) reason for moving (11.6%). Too large size of the previous house was the most common of these reasons, but even this was given by

only 2.6% of all respondents, whilst only 5.7% of respondents with a secondary reason mentioned it as a subsidiary influence. These findings contrast sharply with those reasons given by the local mover sample, 65.0% of main (voluntary) reasons for moving being directly connected with housing. Almost half of these (30.6% overall) are concerned with either complaints about the previous dwelling being too large (14.3%), or indicate a positive desire for a bungalow or smaller house (16.3%). In addition, well over half of the 30.6% of non movers who expressed a wish to move also gave size of dwelling as their main reason .

Nearly 70% of non movers claimed that they had no wish to move, even if they were at liberty to do so. Most of the reasons given were those implying social attachment and familiarity with the area, responses containing phrases such as 'too settled' (26.5% of those not wishing to move) and 'happy here' (44.2%) were especially common. It is remarkable that only 2 individuals (4%) specifically mentioned the pleasant physical environment of the resort; this suggests perhaps either that aesthetic quality is only important insofar as it is not objectionable to the non mover, or that its positive attributes are only subconsciously appreciated.

The principal voluntary reasons for moving for both inter-urban and local movers are summarised in Table 5.6. Each reply is categorised first according to whether it signifies the operation of a push or a pull factor, and secondly according to whether it pertains to one of the following five topics:

- (i) attributes of the previous or present dwelling ('residential' reasons);
- (ii) the respondent's social environment - friends, neighbour, relatives, feelings of loneliness, etc.
- (iii) the physical environment;
- (iv) public amenities - for example inadequate welfare or leisure facilities for the elderly, poor public transport;
- (v) all other reasons.

TABLE 5.6

Inter-urban and local migrants: types of main reason for move

	PUSH					PULL					Total	n
(%)	Resid- ential	Social Env.	Physical Env.	Public Amenity	Other	Resid- ential	Social Env.	Physical Env.	Public Amenity	Other	Total	n
Inter-urban (I - U)	7.7	12.7	14.9	2.2	2.2	3.9	27.1	23.8	1.7	3.9	100.0	181
Local mover (LM)	42.5	15.0	-	-	-	22.5	7.5	10.0	-	-	100.0	40

( - ) denotes less than 3 observations

TABLE 5.7

Inter-urban migrants: main (voluntary) reason for move, distribution  
of push/pull factors by size of destination town

(%)	Push	Pull	Total (%)	n
Large Towns*	33.0	67.0	100.0	109
Small Towns**	50.0	50.0	100.0	72

\* Bridlington &amp; Scarborough

 $\chi^2$  4.53 df1,  $\alpha$  .033

\*\* Filey, Hornsea, Withernsea

The overriding importance of reasons connected with the social and physical environment in stimulating inter-urban migration is clearly shown in Table 5.6, a vivid contrast with the local movers' emphasis on reasons connected with the dwelling.

Social class differences amongst the inter-urban migrants appear to account for little of the variation in the type of main, voluntary reason given. It had been expected, a priori, that the greater stress placed on proximity to family amongst working and lower middle class people noted in other studies (see above, page 29) would lead to high proportions of those in Social Classes III, IV and V giving 'pull' reasons connected with the social environment. Conversely, those in Social Classes I and II were expected to place less emphasis on this factor but, by way of compensation, more on the 'pull' of the physical environment of the destination. In the event, although the direction of the differences between the Classes was correctly predicted, their magnitude was small and, statistically, not significant. Thus, while 28.4% of those in Classes III to V gave 'pull-social environment' reasons as the principal voluntary consideration when making the migration decision, the proportion of Classes I and II was not that much lower at 20.7% ( $\chi^2$  1.10 df1,  $\alpha$  .295).<sup>1</sup> The inter-Class difference for reasons of 'pull-physical environment' was even smaller with values of 25.6% for Classes I and II and 20.2% for Classes III to V ( $\chi^2$  0.51 df1,  $\alpha$  .476).<sup>1</sup> Very little difference was also found in the overall distribution of 'push' and 'pull' reasons given by the two Class groups, 38.7% of those in I and II giving push reasons as opposed to 35.9% in Classes III to V.

Statistically significant variations in the type of main reason given by inter-urban migrants were found between the five towns ( $\chi^2$  61.21 df40,  $\alpha$  0.017), although none of the individual differences are particularly striking with the one exception of 'push-physical environment' (Scarborough 3.4%, Filey 30.8%, Bridlington 6.9%, Hornsea 30.6%, Withernsea 13.3%). However, if the responses as categorised according to size of destination town the cumulative effects are

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<sup>1</sup> Directional hypothesis



considerable (Table 5.7), the 'large' towns of Scarborough and Bridlington possessing more migrants moving mainly for 'pull' reasons than those of the three 'small' towns.

### An Analysis of 'irritants'

Although direct questions concerning the migrants' reasons for moving are an essential part of any survey aiming at understanding the migration process, there are always a number of obvious difficulties in building a fairly accurate picture of what factors actually influenced the migrants' decision. Elicited reasons, often given some years after the decision to move was made, may not necessarily reflect the individual's overall view of his then current circumstances and needs. This is particularly likely to be the case with factors causing dissatisfaction with the previous residence as their effect may often be cumulative, each on its own not being sufficient to stimulate migration. It may therefore be difficult to get the respondent consciously to assess the significance of these apparently insignificant 'irritants', especially when he feels that pull factors - the attractions of the destination - were the prime motivating force in his decision to move. As it has been suggested, even single stage decision strategies are likely to include an assessment of some push factors, otherwise the inertia associated with the act of moving would rarely be overcome. Because of these considerations, and because of the difficulty of constructing a comparable measure based on heavily symbolic 'pull' factors without extensive earlier survey and experiment, only a checklist of possible irritants pertaining to the previous place of residence was applied to all three main categories of respondent - inter-urban, local and non movers.

Each inter-urban migrant was asked, 'When you moved from your last town, did you move partly because you felt that ...' followed by the 23 item check-list reproduced in Appendix 4 (question 16). Each item was classified according to the type of reason for moving it represented: items (i) to (vii) were classed as 'residential', that is, pertaining to the previous dwelling; items (viii) to

TABLE 5.8

## Inter-urban migrants: summary of 'irritant'

## category scores

Category	Mean Raw score	Mean Standardised score	% with zero score	n
Residential	0.722	0.103	57.7	194
Social Environment	0.516	0.086	65.5	194
Physical Env.	0.768	0.154	52.6	194
Public Amenity	0.294	0.059	82.0	194

(xiii) referred to the respondents social environment; (xiv) to (xviii) the physical environment and (xix) to (xxiii) to factors classed as 'public amenity'. Non migrants were given an identical list, the question being phrased, 'Do you feel that ...', whilst local movers were asked about their previous move. The 'public amenity' items were omitted in the case of the local movers as these tend, by definition, to apply to the whole of a local authority area. An affirmative response to any given item in one of the four categories scores one point for that category; thus the 'residential' category has a maximum score of 7, the 'social environment' has a maximum of 6, and 'physical environment' and 'public amenity' both have 5. 'Standardised' scores were derived simply by dividing each respondent's score for any one category of 'irritant' by the maximum possible number of points for that category.

The overall mean scores for inter-urban migrants by 'irritant' category are shown in Table 5.8. 'Physical environment' has the largest mean standardised score at 0.154, compared with 0.103 for the 'residential' category ( $t_{1.65} \text{ df } 386, \alpha .10$ ) and 0.086 for 'social environment' ( $t_{2.29} \text{ df } 386, .05 > \alpha > .01$ ). 'Physical environment' also has the smallest percentage of zero scores (52.6%), although the difference from the other two categories is not statistically significant. 'Public amenity' has both the lowest mean score (0.059) and, by far, the highest frequency of zero scores (82.0%).

A test was next carried out to determine how far responses to the checklist matched with the giving of equivalent main reasons for the move. The objective was to see whether the checklist contained factors which might have influenced the move in a systematic fashion, but were not revealed in replies to the 'principal (voluntary) reason' question. The approach adopted was straightforward, though rather crude: if the checklist responses simply tended to reflect the main reason given for the move, then those giving 'push' reasons should score most heavily on the corresponding category of the checklist. For example, those giving a 'push-residential' response as their principal reason would be expected, on average, to score more heavily on the 'residential'

TABLE 5.9

Inter-urban migrants : analysis of 'irritant' scores by main reason for move

'Irritant' Checklist Category	Main reason for move (highest and 2nd highest score)	'Irritant' raw mean score	t	df	$\alpha$ (Directional hypothesis)
Residential	(i) Push-Residential	1.357	1.600	39	$.10 > \alpha > .05$ (Critical $t_{.05} = 1.685$ )
	(ii) Push-Physical Environment	0.963			
Social Environment	(i) Push-Social Environment	1.217	3.902	70	$.001 > \alpha$
	(ii) Pull-Social Environment	0.592			
Physical Environment	(i) Push-Physical Environment	1.444	3.425	74	$.001 > \alpha$
	(ii) Pull-Social Environment	0.755			

category of the checklist than for example those giving 'push-social environment' or any of the other types of principal reason. This prediction proved, in the event, to be substantially true, although the test on the 'public amenity' score had to be abandoned owing to an insufficiency of appropriate 'main reason' responses, and the test of the 'residential' score was marginally non significant. The tests were carried out simply by comparing the highest mean checklist category score among each type of 'principal reason' response with the second highest (Table 5.9). It may therefore be concluded that the check-list of 'irritants' conforms reasonably well with respondents' overt reasons for moving, thus giving support to the assumption that the latter is a reliable guide to individual motivation.

How do individuals react to disutilities perceived in their residential environment? An underlying assumption of most models of migration is that individuals will react in some fairly consistent way to the goods and services provided by the habitat, at least when seen through the eyes of those individuals. Sonnenfeld (1969) has argued, however, that different types (psychological and sociological) of individual tend to require different mixtures of aesthetic attributes from their surroundings, a concept he refers to as 'environmental personality'. The crucial question therefore is, apart from displaying their general requirements of the habitat as elderly people, do respondents in the current survey react differently in terms of migration to similar types of stimulus? Specifically, we ask whether local migrants only move short distances because they are psychologically especially sensitive to housing needs which may be met simply by a short move. Secondly, are inter-urban migrants more sensitive to the general shortcomings or attractions of the physical and social environment; and do non movers subjectively experience similar 'irritants' to those who move, thereby suggesting that the reason for their behaviour would need to be explained more in terms of 'personality' (for example, attitude towards risk-taking), than in terms of directly measurable experience of the immediate environment? Conversely, although the hidden influences of personality must certainly exist, may we explain migration behaviour simply in terms of differences in perceived environmental experience?

This problem was approached in two ways. Firstly, the 'irritant' checklist response scores of inter-urban migrants giving different 'pull' factors as their main reason for moving were compared. This was to test the contention that those moving because of, for example, the physical environmental attractions of the destination, are also on average likely to be more sensitive to deficiencies in the physical environment at the place of origin than are other migrants giving 'pull' reasons. In other words, are some individuals more sensitive to the attributes of the physical environment than others? Unfortunately, the test proved to be inconclusive, not least because the very small numbers of respondents giving 'pull-residential' and 'pull-public amenity' as their main reasons for moving (7 and 3 observations respectively) made it necessary to exclude these categories from the analysis. This left only the two categories 'pull-social environment' and 'pull-physical environment'. The mean social environment 'irritant' score was found to be very significantly higher for those giving 'pull-social environment' as their main reason for moving (score = 0.592) than for those giving 'pull-physical environment' (score = 0.163) ( $t_{4.11} \text{ df}89, \alpha < .001$ ). However, the mean physical environment 'irritant' score of those giving 'pull-physical environment' as the main reason (score = 0.698) was actually slightly lower than that of those for whom 'pull-social environment' was the main consideration (score = 0.755) ( $t_{0.37} \text{ df}89, \alpha > .50$ ). Perhaps the concept of 'environmental personality' applies rather more to the individual's social environment than to his physical one, at least, as far as the elderly are concerned.

The second approach involved a comparison of 'irritant' scores of the 'inter-urban', local and non-migrants. If unknown personality factors contribute more to the migration decisions of old people than those which may be measured directly through their subjective assessment of how their environment meets their needs, then we would expect there to be no systematic variations between the scores of these groups.

TABLE 5.10

Inter-urban migrants: analysis of variance - residential 'irritants' score  
by social class and town size

Adjusted* Mean Score				F Ratios			
Social Class I and II	Social Class III - V	Town Size - Large	Town Size - Small	Social Class	Town Size	Interaction Effect	Explained Variation
0.47	0.89	0.67	0.77	8.095	0.452	7.586	5.383
				df1/187	df1/187	df1/187	df3/187
				$\alpha$ .005	$\alpha$ .999	$\alpha$ .006	$\alpha$ .002

\* i.e. controlling each independent variable (Social Class and Town Size) for the effect of the other variable.

There was some concern at the outset that differences in social class distribution between the three samples might obscure the effects of migrant type. Moreover, it also seemed possible that the high incidence of 'pull' factors (67.0%) given by migrants to the two largest towns as their main reason for moving (as opposed to that of migrants to the three small towns - 50.0%) would confuse the issue still further by introducing yet another dimension of variation (see above, Table 5.7). As a preliminary, therefore, a two-way analysis of variance<sup>1</sup> was applied to each irritant category of the inter-urban sample controlling for social class and town size. With the single exception of social class in the case of the residential irritant score (see Table 5.10), no significant differences in scores could be attributed to either social class or town size - a somewhat unexpected result. Presumably, migrants to the large towns thus experience similar 'irritants' to migrants to the small towns, the obvious effects of which are masked in the case of the large towns by their greater 'pull'. The total variation in scores accounted for by the variance model (explained variation) was as follows:

- (i) Residential 'irritant' score: F5.383  
df3/187,  $\alpha$ .002.
- (ii) Social environment 'irritant' score:  
F0.826 df3 / 187,  $\alpha$ .999
- (iii) Physical environment 'irritant' score:  
F1.605 df3/187,  $\alpha$ .188
- (iv) Public amenity 'irritant' score:  
F0.943 df3/187,  $\alpha$ .999

In consequence, it was decided to proceed with a two-way analysis of 'irritant' scores controlling for migrant type and, as a precaution, social class only.

The results of this analysis<sup>2</sup> (Table 5.11) reveal highly significant

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<sup>1</sup> Using SPSS subprogram ANOVA (Nie et al., 1975, pp.398-422).

<sup>2</sup> Care is necessary in interpreting these ANOVA results as some F tests for homogeneity of variance between pairs of migrant types yielded significant differences. ( $\alpha < .05$ ) Some violation of the homoscedasticity assumption (Fraser, 1958, p.197) is therefore likely in the ANOVA.



TABLE 5.11

Analysis of variance: 'irritant' scores by migrant type and social class

	Adjusted* Mean Score					F Ratios			
	Migrant Type I-U	Migrant Type LM	Migrant Type NM	Social Class I & II	Social Class III-V	Migrant Type df2,284	Social Class df1,284	Interaction effect df2,284	Explained variation df5,284
Residential Score	0.74	1.36	0.93	0.64	1.01	6.035 $\alpha$ .003	7.221 $\alpha$ .008	1.934 $\alpha$ .144	5.360 $\alpha$ .001
Social Environment Score	0.49	0.36	0.61	0.59	0.43	1.169 $\alpha$ .312	2.352 $\alpha$ .122	0.299 $\alpha$ .999	1.075 $\alpha$ .375
Physical Environment Score	0.77	0.30	0.30	0.51	0.67	8.687 $\alpha$ .001	1.972 $\alpha$ .157	1.182 $\alpha$ .308	4.021 $\alpha$ .002

\* i.e. controlling each independent variable (migrant type and social class) for the effect of the other variable.

variations between the three migrant types in the scores for two out of three 'irritant' categories.<sup>1</sup> At the same time, in none of the categories did social class explain a significant amount of the total variation, and was less significant than migrant type in all but one (social environment score). Both local movers are shown to have higher residential scores than inter-urban migrants. From the evidence of the question on main (voluntary) reason for the move, this result was to be expected in the case of the local movers. The high value for the non movers, even after allowing for the effects of social class, is less readily explained, especially as they also possessed a higher social environment score (adjusted mean = 0.61) than either of the other categories.<sup>2</sup> Random effects aside, the relatively high residential score amongst non movers could indicate some systematic difference in personality compared with the movers, a surmise which is given even greater credibility when the high 'irritant' scores for these people are compared with their apparently high general level of satisfaction with their current location. Physical environment 'irritant' scores of the inter-urban migrants were very much higher (mean score 0.77) than those of the two local samples (both scores 0.30), but differences among the social environment scores were far from significant. A very considerable, and highly significant, difference in public amenity scores was found between inter-urban migrants (unadjusted mean score 0.29) and non movers (unadjusted mean score 0.94) ( $t_{4.30} \text{ df}_{61}, \alpha < .001$ ).<sup>3</sup>

In conclusion, the preceding analysis provides fairly strong evidence that once the decision to move has been made the migratory behaviour of the elderly in general reflects their own subjective experience of their environment, far more so in fact, than may be explained by some other aspect of personality not considered in this analysis. It should be noted, however, that the analysis

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<sup>1</sup> Public amenity score not applicable to local migrants. Simple t-test between inter-urban movers (mean score 0.29) and non-movers (mean score 0.94):  $t_{4.30} \text{ df}_{61}, \alpha < .001$  (separate variance estimate).

<sup>2</sup> It should be noted, however, that the differences in social environment scores are not statistically significant (Table 5.11).

<sup>3</sup> Separate variance estimate.

was confined to push factors; these are more likely to be based on direct information than is the migrants' view of their destination and thus less susceptible to the influence of personality variables. From the above results, on the other hand, it also seems likely that personality differences may still have a marked influence on non migrant versus migrant behaviour, even though their effects may often be overwhelmed by what appears to be a reaction to a subjectively rational assessment of the residential environment.

#### The Search for a new home :

##### Information channels used

An important part of the potential migrant's search for a new home at his intended destination is his selection of information channels concerning opportunities in the area. Bias in the coverage of each information source will tend to influence the individual's ultimate choice simply through emphasising certain types of housing in certain areas at the expense of others. Rossi found that information sources also varied greatly in effectiveness; thus, despite the fact that 63% of his respondents used had used newspapers as a source, 62% had used 'personal contacts', 57% walking or riding around and 50% estate agents, the proportion of respondents who actually found the places they came to inhabit through these media was 18%. 47%. 19% and 14% respectively.<sup>1</sup> (Rossi, 1955, pp.160-61). Turning to British experience, it has been found that the much higher figures of 39.6% of 'labour' migrants between Standard Metropolitan Labour Areas had found their eventual accommodation through estate agents. (Johnson et al., 1974, p.236). This compared with 13.4% who had used newspapers as a source, and 33.2% who had used personal contacts (of which well over half, that is, 21.6% overall, cited friends or relatives). Only 7.2% of successful searches involved walking or riding around.<sup>2</sup> Karn also notes that although the majority of her sample of retirement migrants had found their houses through

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<sup>1</sup> N.B.- some people had found their homes through more than one information source.

<sup>2</sup> It should be noted that, unlike the British survey, Rossi's sample was dominated by local migrants.

TABLE 5.12

## Primary source of information used to find residence

	Estate Agents	Newspapers	Information from friends, relatives etc.	Walking or riding around	Local Authority	Other	Total	n
(%)							(%)	
Inter-urban Migrants	24.2	12.9	30.4	24.7	2.6	5.2	100.0	194
Local Migrants	7.8	7.8	33.3	17.7	29.4	-	100.0	51

(-) denotes less than 3 respondents

formal sources such as estate agents or newspapers, 18% of the Bexhill migrants and 23% of those at Clacton had been successful largely through the help of friends and relatives. (Karn, 1971, p.58).

In the Yorkshire inter-urban migrant sample, estate agents were the means by which only 24.2% first came to hear of their initial address in their current town (Table 5.12). This proportion is matched by those who noticed that the house (or plot) was for sale as they were passing by (24.7%), whilst a slightly larger number gained the initial information from friends, relative or acquaintances, although the difference is far from being significant ( $\chi^2$  0.93 df1,  $\alpha$ .329). Understandably, local migrants were much less reliant on formal information sources applying to the private property market such as estate agents and the press (15.7% as opposed to 37.1% for the inter-urban sample;  $\chi^2$  7.49 df1,  $\alpha$ .006). However, this difference narrows somewhat once the very large number of local authority tenants amongst the local migrants (29.4%) are allowed for, 22.2% of the remainder using formal sources of information.<sup>1</sup>

Johnson et al. found that those in the lower social class categories tended to rely more upon informal channels, such as relatives and friends and a personal search of the area, than on agents and newspapers. (Johnson et al., 1974, p.236). Those in higher income, managerial, professional and other non-manual groups tended to employ estate agents and newspapers more often. This experience is not reflected in the current survey, however, a somewhat higher (though not significantly so) proportion of inter-urban migrants in Social Classes I and II making use of information from friends, relatives and other personal contacts (34.1%) than those in Classes III to V (26.6%) ( $\chi^2$  0.94 df1,  $\alpha$ .333). Moreover, a marginally higher proportion of Class III to V respondents used formal sources of information than those in Classes I and II (38.5% as opposed to 34.1% :  $\chi^2$  0.22 df1,  $\alpha$ .638). We therefore conclude that, while the search methods of local and inter-urban migrants differ somewhat, presumably simply due to the greater proximity of the former to informal sources of

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<sup>1</sup> Comparison with inter-urban sample:  $\chi^2$  2.35 df1,  $\alpha$ .125.

information, social class appears to have little influence on the migrants' general information sampling strategies.

### Criteria for selecting a new home

The complexity of the processes involved in choosing a new home has been emphasised by many studies. Rossi, for example, makes a distinction between the 'specifications' of a dwelling and its 'attractions', the former being used by the migrant to assemble an initial set of acceptable alternatives, whilst the latter are used in order to select the 'best' of these alternatives. (Rossi, 1955, p.152). Frequently, the attractions upon which the final choice of dwelling or geographical location depends may appear surprisingly trivial. Thus Rossi found that, whilst cost was the most important attraction (60% of migrants mentioning this as having influenced their final choice), outside appearance of the dwelling was the next most important (50%), followed by journey to work (42%) and neighbourhood reputation (38%). (Ibid., p.164). The inevitable conclusion is, therefore, that it is not enough simply to ask migrants about the 'most important' factors influencing their exact choice of dwelling without in some way distinguishing between these two very different stages in the decision process. Unfortunately, most studies of the residential preferences of old people have tended to concentrate on the strategic aspects of choice (specifications) rather than on the tactical considerations of actually choosing from a range of alternatives (attractions). (See for example, Langford, 1962, pp.3-24; Wilson, 1960, p.40; Golant, 1972, p.117). The great weakness of Rossi's approach is the fact that individuals were asked to recall not only what were the 'important things they had in mind when they were looking for a place', but also which specific features (attractions) of their present dwelling played a part in its ultimate selection. (Rossi, 1955, p.153). It is most unlikely that any, but the more recent migrants were able to recall with accuracy the detailed reasons for choosing a particular house in a particular area. On the other hand, presenting individuals with a check list

of dwelling attributes and asking them to indicate which are the most important may also be misleading. One reason is that we would be asking about the total utility the migrant assigns to an attribute rather than its marginal utility, although the latter may eventually determine choice amongst ubiquitous features. (See Lipsey, 1971, pp.155-156). Rossi himself notes that many specifications such as a bathroom, are tacit and only become important if absent. (Rossi, 1955, p.155).

Because of these problems, it was decided to adopt an approach which both concentrated on specifications and kept them at a very general level in order to avoid false emphasis on any attribute stemming from what, after all, was a very artificial situation - the interview.

The objectives of this analysis were similarly straightforward, being largely an extension of the preceding section on the reasons for the move. These may be stated as follows:

- (i) To determine which are the main types of specification an elderly person is likely to have in mind when seeking a retirement home. How important are the 'physical and locational' aspects of the dwelling or its immediate neighbourhood compared with the social and recreational facilities afforded by the whole area in general?
- (ii) To determine whether inter-urban migrants, local migrants and non-migrants are similar in their locational tastes, or whether they show marked variations. For example, the fact that a considerable proportion of the two 'local' categories of respondent had never lived anywhere but in their present town would lead us to expect them to emphasise the importance of familiarity of, and social contacts in, potential locations further afield. By the nature of their moves we might expect local migrants to emphasise physical attributes of the house and neighbourhood rather more than inter-urban migrants. The latter, on the other hand, might be

expected to place rather more emphasis on the more general physical, social and recreational aspects of place.

- (iii) To determine whether those of different social classes display marked differences in taste. In particular, do old people in Social Classes III to V attach greater importance to the presence of social contacts in potential locations than those in I and II?

In addition it was intended to see whether some types of migrant were able to achieve a greater match between their elicited desires and their actual circumstances than others. In other words, which old people appear to be the best adjusted to their locational and residential needs? The specific questions to be answered were:

- (iv) Did the movers show a closer match between desires and actual circumstances than the non movers, or were the needs of the latter well catered for without migration? Also did local migrants show a greater degree of adjustment to housing circumstances than inter-urban migrants, the latter perhaps emphasising locational considerations?
- (v) Did those in Social Classes I and II, with their potentially greater purchasing power, have higher expectations and higher achieved levels of all attributes than those in Classes III to V?
- (vi) Did those moving to the three smaller towns of Filey, Withernsea and Hornsea show some systematic difference in desired characteristics than migrants to Scarborough and Bridlington? In other words, were differences in taste reflected in different choices of destination.



- (vii) Finally, did migrants to the larger towns show a closer match between desires and actual attainments than those to the smaller towns, the latter having a narrower range of potential locational choice within the settlement concerned?

Each respondent was asked a battery of 22 questions concerning the degree of importance he would attach to the presence of various attributes if he were considering moving house to another town. The questions were of four fundamental types:

- (i) Familiarity of place. (See Appendix 4, Question 18a(i)-(iii)), maximum score = 6;
- (ii) Physical location. (Question 18b(i)-(v); (viii)-(ix)), maximum score = 14;
- (iii) Social and recreational (Question 18b(vi)-(vii); (x)-(xii)), maximum score = 10;
- (iv) Housing and neighbourhood characteristics (Question 18c(i)-(vii)), maximum score = 14.

In order to reduce ambiguity in the final aggregate scores of each attribute type, care was taken to include only aspects for which the vast majority of respondents would express some sort of desire or, at worst, indifference. Value loaded items, for example, 'neighbourhood reputation' were also avoided. Eliminating the chances of negative responses thus ensured that the points scale used was truly uni-dimensional, avoiding the assumption that choice between items in any one of the attribute types was of a 'compensatory' nature.<sup>1</sup> The result was a series of items that, whilst they concentrated on housing and location aspects likely to be of importance to the elderly<sup>2</sup> were by no means intended to be exhaustive. However, they were taken to be

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<sup>1</sup> I.e. - that a negative score for one item can necessarily be outweighed by a positive score for another.

<sup>2</sup> For example, see Golant (1972, p.117), Langford (1962, pp.3-24), Riley et al (1968, pp.152-153), Page and Muir (1971, pp.19-52).

representative of their respective general class of items. In the event, one or two items (notably 'mainly retired people as neighbours' and 'having a garden') did generate a very small number of negative responses and these had to be assigned to the 'unimportant' (indifference) category. The overall effect of negative response is very small, however, and unlikely greatly to influence the final results. Scoring for each item was on a three point scale ranging from 'unimportant' = 0, through 'important' = 1, to 'very important' = 2.

Each item was also matched by a question on whether or not the respondent felt that his current location or home actually possessed the attribute he had given a 'degree of importance' rating to. Items in the 'familiarity' group, however, were only asked of inter-urban migrants, the questions referring to their actual situation when they first moved. The items were scored on a binary scale (that is, presence of item = 1, absence = 0), giving the following maximum scores for each attribute:

- (i) Familiarity of place (inter-urban migrants only) = 2;
- (ii) Physical location = 7;
- (iii) Social and recreational = 5;
- (iv) Housing and neighbourhood characteristics = 7.

The scores for the two main types of question - degree of importance and actual presence or absence - will be referred to in the following discussion as 'preference' and 'actual' scores respectively.

#### The Ranking of Specification Types

In order to answer the question of which types of specification criteria are likely to be uppermost in an elderly person's mind when searching for a new home, each individual's preference score for each category of attribute was standardised by dividing by the maximum score for that category. The

TABLE 5.13

Criteria for selecting a new home : standardised preference and actual circumstance

scores by migrant type

Attribute Type	Inter-Urban			Local Migrant			Non Migrant		
	Mean Score	Std. Error	Rank	Mean Score	Std. Error	Rank	Mean Score	Std. Error	Rank
<u>Preferences</u>									
Familiarity of Place	0.342	0.022	3 ***	0.484	0.043	3 ***	0.500	0.044	2 (NS)
Physical Location	0.618	0.014	1 ***	0.616	0.023	1 ***	0.626	0.028	1 **
Social & Recreational	0.233	0.013	4	0.269	0.030	4	0.289	0.023	4
Housing and Neighbourhood	0.479	0.016	2 ***	0.490	0.028	2 (NS)	0.441	0.027	3 ***
<u>Actual Circumstances</u>									
Familiarity of Place	0.656	0.029	4	-	-	-	-	-	-
Physical Location	0.894	0.012	1 ***	0.883	0.025	1 **	0.897	0.022	1 ***
Social & Recreational	0.732	0.019	2 *	0.710	0.039	2 (NS)	0.750	0.034	2 ***
Housing & Neighbourhood	0.684	0.015	3 (NS)	0.636	0.028	3	0.580	0.027	3

Significance of difference (t - test) between score of rank 1 and that of i+1: (NS)  $\alpha > .05$ ;  
 $*.05 \geq \alpha$ ;  $** .01 \geq \alpha$ ;  $*** .001 \geq \alpha$  (NB. In all non significant differences, actual  $\alpha > .25$ ).

results of this are shown in the upper part of Table 5.13. On the whole, all three types of migrant displayed similar rankings of attribute types, Physical Location being given the highest score. In the case of the inter-urban migrants, Housing and Neighbourhood attributes received a very significantly greater score than the rank three category Familiarity of Place ( $t_{5.04} \text{ df}188, \alpha < .001$ ). The two local samples, however, attached much greater importance to Familiarity; thus the Familiarity and Housing scores for the local movers are barely distinguishable whilst, in the case of the non migrants, the former is actually marginally (though not significantly) higher than the latter. Clearly, the inter-urban migrants are distinguished from those in the local samples with respect to their willingness to accept a higher level of uncertainty and a potentially lower level of support at the destination from family and friends.

All three migrant types assigned the lowest score to the Social and Recreational group of attributes, in all cases the difference between it and the next highest rank scores (3) being highly significant ( $\alpha < .001$ ).

#### Differences in preference within and between the three migrant types

A one-way analysis of variance<sup>1</sup> of both 'preference' and 'actual' scores reveals a high level of similarity in the scores of the three migrant types for Physical Location, Social and Recreational and Housing and Neighbourhood attributes. (Table 5.14). The single exception is 'actual' Housing and Neighbourhood ( $\alpha < .01$ ) where inter-urban migrant scores are considerably higher than those of the two local samples, the non-movers having the lowest scores. This appears to indicate that, in terms of the physical attributes of housing, the non movers were least well adjusted to our a priori view of what the elderly in general are likely to regard as desired specifications. Further support for this observation may be gained from an inspection of

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<sup>1</sup> Using SPSS subprogram 'BREAKDOWN' (Nie et al 1975, pp.258-260). Pairwise F-tests revealed no significant heteroscedasticity between migrant types.

TABLE 5.14

Criteria for selecting a new home :

Analysis of variance, raw scores by migrant type

Attribute Type	Mean Score			F Ratio (df2;285)	Signifi- cance level $\alpha$
	I-U	LM	NM*		
<u>Physical Location</u>					
Preference	8.65	8.63	8.77	0.046	$\alpha > .25$
Actual	6.26	6.18	6.28	0.114	$\alpha > .25$
<u>Social and Recreational</u>					
Preference	2.33	2.69	2.89	1.243	$\alpha > .25$
Actual	3.66	3.55	3.75	0.291	$\alpha > .25$
<u>Housing and Neighbourhood</u>					
Preference	6.71	6.86	6.17	0.816	$\alpha > .25$
Actual	4.79	4.45	4.06	5.36	.01 > $\alpha > .001$

\* I-U denotes inter-urban migrants; LM, local migrants; NM, non movers

TABLE 5.15

Familiarity with destination preference:

inter-urban and local samples

Mean Scores		t(df286)	$\alpha$
I - U	Local (LM + NM)*		
2.053	2.950	3.21	.002 > $\alpha > .001$

\* I-U denotes inter-urban migrants; LM, local migrants; NM non movers.

Table 5.11 where a high residential 'irritant' score is recorded for non migrants. It should, however, be noted that the non migrants also had the lowest Housing and Neighbourhood preference scores.<sup>1</sup>

As the analysis of ranked, standardised scores revealed, there were considerable differences in Familiarity preference scores between inter-urban migrants and those in the two local samples - the only preference scores, in fact, to show such variation. Thus the combined local sample scores were almost 44% higher on average than those of the inter-urban migrants (Table 5.15).

Overall, however, there appears to be a remarkable degree of similarity between the preferences, and actual circumstances, of the three migrant types. Are the inter-urban migrants themselves equally homogeneous?

In order to see whether migrants of different social class and different types of destination town possessed any systematic variations in preference, a two-way analysis of variance was applied to the raw scores, controlling for the effects of social class and size of town (Table 5.16).<sup>2</sup> On all four types of attribute, social class accounts for none of the variation in the preference scores, significance levels of 0.999 being calculated in every case! In complete contrast, social class contributes towards a significant proportion of the variation in the 'actual' scores for Physical Location ( $\alpha$ .014) and Social and Recreational attributes ( $\alpha$ .011). Alpha values for 'actual' Familiarity and Housing and Neighbourhood scores are only marginally greater than the 0.05 level ( $\alpha$ .053 and .052 respectively). Social class, therefore, appears to be an important indicator of the ability of the migrant to obtain the desired attributes of a new home, being closely connected with potential purchasing power and, perhaps, greater previous experience of inter-urban migration. It does not (to an extreme extent) appear to influence revealed tastes as measured by the present method.

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<sup>1</sup> Comparison with inter-urban migrant preference score:  $t_{2.39} \text{ df}235, .025 > \alpha > .01$   
Comparison with local migrant preference score:  $t_{1.76} \text{ df}97, .10 > \alpha > .05$

<sup>2</sup> SPSS 'ANOVA' subprogram (Nie et al., 1975, p. 398).

TABLE 5.16

Inter-urban migrants: criteria for selecting a new home - analysis of variance,  
raw scores by social class and town size

Attribute Type	Adjusted* Mean Score				F Ratios			
	Social Class I & II	Social Class III-V	Town Size Large	Town Size Small	Social Class (df1/182)	Town Size (df1/182)	Interaction Effect (df1/182)	Explained Variation (df3/182)
<u>Familiarity:</u>								
Preference	1.92	2.18	2.13	1.99	0.884 $\alpha$ .999	0.265 $\alpha$ .999	0.458 $\alpha$ .999	0.534 $\alpha$ .999
Actual	1.43	1.22	1.43	1.13	3.712 $\alpha$ .053	6.750 $\alpha$ .010	1.146 $\alpha$ .286	3.888 $\alpha$ .010
<u>Physical Location:</u>								
Preference	8.72	8.61	8.76	8.51	0.073 $\alpha$ .999	0.393 $\alpha$ .999	0.272 $\alpha$ .999	0.246 $\alpha$ .999
Actual	6.50	6.08	6.37	6.10	6.096 $\alpha$ .014	2.391 $\alpha$ .120	3.271 $\alpha$ .069	3.921 $\alpha$ .010
<u>Social &amp; Rec:</u>								
Preference	2.27	2.37	2.40	2.22	0.155 $\alpha$ .999	0.457 $\alpha$ .999	1.278 $\alpha$ .259	0.629 $\alpha$ .999
Actual	3.93	3.44	3.78	3.46	6.467 $\alpha$ .011	2.598 $\alpha$ .105	0.220 $\alpha$ .999	3.097 $\alpha$ .028
<u>Housing &amp; Neighbourhood:</u>								
Preference	6.88	6.56	6.37	7.18	0.433 $\alpha$ .999	3.123 $\alpha$ .075	0.229 $\alpha$ .999	1.284 $\alpha$ .281
Actual	5.01	4.59	4.57	5.06	3.745 $\alpha$ .052	5.142 $\alpha$ .023	0.142 $\alpha$ .999	3.008 $\alpha$ .031

\* i.e. - controlling each independent variable (Social class and Town size) for the effect of the other variable.

With the marginally non significant exception of Housing and Neighbourhood preferences ( $\alpha$ .075), size of destination town also had no relationship with attribute preference scores. On the other hand, a migrant to one of the three small towns was significantly more likely ( $\alpha$ .023) to have a home possessing more actual Housing and Neighbourhood attributes than was a migrant to one of the larger towns, perhaps a reflection of higher housing costs in the latter. With regard to the remaining 'actual' attribute scores, migrants to the larger towns appear to be somewhat 'better-off', although apart from Familiarity of Place ( $\alpha$ .010) the differences in scores are not statistically significant. In conclusion, it therefore seems that migrants to the smaller towns exchange 'better' housing conditions for lower levels of other attributes, compared with those available in the larger towns even though this choice is only very faintly represented in differences in their preference scores. This result suggests either that many migrants do not confirm that all of their specifications are met before they choose their new house or, simply, that the items on the specifications scale are not sufficiently comprehensive or became confused with 'attractions' in the minds of the migrants.

#### The match between preferences and actual circumstances

It has already been shown how those in Social Classes III to V tended to be rather worse off in terms of the actual attributes of their current home despite the similarity of their preferences. We will now investigate the relationship between 'preference' and 'actual' scores more closely.

The method adopted involved the construction of a simple index of 'satisfaction potential' obtained by dividing each standardised actual circumstance-score by the corresponding standardised preference score.<sup>1</sup> It is assumed that the higher the 'satisfaction potential' score attained on any single group of

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<sup>1</sup> An index based on familiarity of destination was not, of course, computed for the two local samples, these having no 'actual familiarity' score.



TABLE 5.17

Inter-urban migrants: the match between preferences and actual circumstances -  
analysis of variance, satisfaction, potential scores by social class and town size

Attribute Type	Adjusted* Mean Score				F-Ratios			
	Social Class I & II	Social Class III-V	Town Size - Large	Town Size - Small	Social Class	Town Size	Inter-action Effect	Explained variation
Familiarity	1.53	1.53	1.73	1.22	(df1/187) 0.001 $\alpha$ .999	(df1/187) 3.844 $\alpha$ .049	(df1/187) 0.219 $\alpha$ .999	(df3/187) 1.355 $\alpha$ .257
Physical Location	1.58	1.68	1.64	1.65	0.531 $\alpha$ .999	0.006 $\alpha$ .999	0.010 $\alpha$ .999	0.183 $\alpha$ .999
Social and Recreation	3.33	2.64	3.05	2.77	3.251 $\alpha$ .069	0.514 $\alpha$ .999	0.051 $\alpha$ .999	1.276 $\alpha$ .283
Housing and Neighbourhood	1.85	1.71	1.85	1.65	0.479 $\alpha$ .999	0.962 $\alpha$ .999	1.157 $\alpha$ .283	0.868 $\alpha$ .999

\* I.e. Controlling each independent variable (Social Class and Town Size) for the effect of the other variable.

attributes of place, the less likely the individual concerned will feel dissatisfied with items in the group.

A one-way analysis of variance was initially applied to the physical, location, social and recreational and the housing and neighbourhood satisfaction scores classified by migrant type. The F-ratio values were extremely low, however, and the hypothesis of no significant difference between the three categories could not be rejected. In fact all three alpha values greatly exceeded the 0.25 point! The analysis was then repeated in two-way form controlling for social class as well as migrant type. Again, however, very low F-ratios were computed, alpha values approaching unity being recorded for the main effects of the independent variables in but one instance<sup>1</sup>, and even this almost reached 0.25. We must therefore conclude that, as measured in this study, there is no significant difference in the matching of preference to actual circumstances between either the different migrant categories or between respondents grouped by social class.

Are differences in satisfaction potential scores to be found between the inter-urban migrants who moved to the two larger towns on the one hand and those who moved to Filey, Hornsea and Withernsea on the other? In general the answer is again in the negative as Table 5.17 shows. Bearing in mind the results from the analysis of the separate preference and actual circumstance scores (Table 5.16), this is hardly surprising, thus serving to emphasise the just statistically significant relationship between the familiarity 'potential' score and town size ( $F_{3.844} \text{ df} 1/187, \alpha .049$ ), and also the just non significant relationship between social class and the social and recreational 'potential' score ( $F_{3.251} \text{ df} 1/187, \alpha .069$ ). Before any interpretive significance is attached to these two results, however, it should be noted that the a priori probability of Table 5.17 containing two main effects F ratios with alpha values of 0.069 or less is equal to 0.249. Secondly, even the lowest mean social and recreational potential score shown in Table 5.17, is high relative to scores of the

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<sup>1</sup> Social class with respect to the 'social and recreational' satisfaction potential score ( $F_{1.361} \text{ df} 1/284, \alpha .243$ ). Social Classes I and II mean score = 3.13, Classes III, IV and V = 2.74.

other three types of 'potential', again emphasising the low degree of importance attached to items in this group by the great majority of respondents. Nevertheless, the apparent relationship between migration to the three smaller towns and a low mean familiarity 'potential' score would seem to indicate either that these settlements were chosen on such attributes as, for example, the availability of cheap housing which outweighed the known drawbacks of unfamiliarity, or that many migrants to the smaller towns attached more importance to familiarity of place at the time of survey than they had when they originally moved as a result of their subsequent experiences.

#### Analysis of individual attributes

Although items on the checklist of preferred and actual attributes were not originally intended to be analysed individually, some of the results for the different migrant types do cast some additional light on the migration process. The nature of the difference in Familiarity scores between inter-urban and non-movers is particularly striking when its components are compared. Thus, while 50.0% of inter-urban migrants thought it unimportant to have friends or relatives in the destination town, the proportion of the more cautious non-migrants was only 28.6% ( $\chi^2$  6.40 dfl,  $\alpha$ .011). The proportion of local migrants was an intermediate 35.3%. Interesting variations also may be seen when the attitudes of the inter-urban sample on access to the sea and countryside are compared with the two local samples. Whilst only 25.8% of inter-urban migrants think it unimportant to be near the sea, the combined proportion for the local samples is a very high 45.0% ( $\chi^2$  10.29 dfl,  $\alpha$ .001). On the other hand, almost identical proportions of inter-urban migrants and 'locals' think it unimportant to be within easy reach of the countryside (16.5% and 17.0% respectively). Clearly, the attraction of the sea is much less ubiquitous than that of the countryside, powerful symbol though the former might be to some elderly people.

Among the more striking results was the comparatively high proportion of local migrants who thought it very important to be within easy reach of a choice of social, political or hobby clubs (21.6%, as opposed to 6.2% of inter-urban migrants<sup>1</sup> and 4.1% of non migrants<sup>2</sup>). This result may appear surprising, bearing in mind Willmott and Young's observation in their Woodford Green study that it is the middle class who show a propensity to join formal clubs and similar organisations. (Willmott and Young, 1967, p.82). From this it might be expected that the predominantly lower social status local migrants would place a low priority on this feature compared with the inter-urban migrant. The urban working class of much of northern England does, however, tend to be very club minded; drinking clubs, Masonic-type organisations, servicemen's and Labour clubs are traditionally important components of social life. (Hoggart, 1958, pp.63-4). This, of course, does not explain the low degree of importance attached to access to clubs and so on by the non movers, whose social class structure was very similar to that of the local migrants.

#### General Summary and Conclusions

This chapter has mainly been concerned with the act of migration itself, beginning with an examination of where the elderly migrants originated and the distance they moved, and followed by a discussion of the reasons for the move. Finally, some elements of the search for a new home - information channels used and the strategic aspects of choice - have been explored in some depth.

Overall, some two thirds of migrants to the five towns covered by the survey had moved from either Hull and the East Riding, or from the West Riding of Yorkshire. Scarborough, however, had rather more national 'appeal' reflecting its position as a leading resort. Very little social bias by region of origin was found, neither was there any evidence that old people in the higher social categories were inclined to move further than other respondents.

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<sup>1</sup>  $\chi^2$  9.50 df1,  $\alpha$ .002

<sup>2</sup>  $\chi^2$  5.30 df1,  $\alpha$ .021

The reasons given for moving by both inter-urban and local migrants tended to correspond closely with many aspects of the three ageing processes outlined in Chapter 2. Nearly 28% of all inter-urban migrants, for example, said that they had been influenced to some extent by a desire to join family and friends. Many migrants, both inter-urban and local, had felt obliged to move because of health considerations, whilst somewhat smaller proportions cited tied housing and, in the case of local movers, eviction or demolition. In fact, 'push' factors (in other words, those connected with the place of origin) dominated the main reasons given by both inter-urban and local movers, being especially prevalent amongst the latter. Approximately half of all respondents giving 'push' reasons for moving felt that they had been compelled to move. An examination of the main 'voluntary' reason for moving, however, revealed that a majority (60%) of the inter-urban sample had moved, at least in part, because of pull factors,<sup>1</sup> those connected with aspects of the social and physical environment being particularly common. On the other hand, local movers' replies were still dominated by push factors (60%), the most prominent being those associated with the dwelling, especially too large size. It is noteworthy that nearly 70% of non migrants did not wish to move, mainly for reasons implying social attachment and familiarity with the area rather than for its physical and aesthetic qualities.

Social class differences amongst the inter-urban migrants appeared to account for little of the variation in the type of main voluntary reason given, although the differences were all in the anticipated direction. By way of contrast, the two larger towns possessed a significantly higher proportion of inward migrants who had moved mainly for pull reasons than the three smaller towns.

The application of a checklist of 'irritants' connected with the previous place of residence produced results which appeared to confirm the reliability of the respondents' overt reasons for moving. A test of whether migrants mentioning pull factors as the main voluntary reason for moving tended also to have a high

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<sup>1</sup> I.e. factors associated with the place of destination.

rating on the corresponding categories of the 'irritant' list was inconclusive. However, the mean social environment irritant score was found to be very significantly higher for those giving 'pull-social environment' reasons than for those giving 'pull-physical environment'. With the single exception of social class in the case of the residential score, variation in the irritant scores of the inter-urban migrants could be attributed to neither social class nor town size. On the other hand, highly significant variations were found to exist between the three migrant types for two out of three irritant scores (Residential and Physical Environment). From the results it was concluded that the behaviour of inter-urban compared with local migrants strongly reflected their own subjective experience of environment, but that personality differences may still have a very marked influence on non migrant versus migrant behaviour.

Formal sources of information, such as estate agents and newspapers, accounted for less than 40% of the primary information sources that the inter-urban sample had used in finding a home. Many (30%) had relied on information from friends and relatives, whereas nearly 25% had been successful through a personal search on foot or by car. Local migrants were equally reliant on information from social contacts, but almost as many quoted the local authority as the source, a reflection of the importance of public sector housing in fostering short-distance moves of the elderly. Less than 16% of local migrants had used estate agents or newspapers. Contrary to evidence from other studies, social class appeared to have had little influence on the migrants' general information sampling strategies.

Following a discussion of the problems involved with asking migrants about the specifications the strategic aspects of choice, and the attractions which had influenced their choice of location, the construction of index scores based on both preferred and actually attained specifications was described. On the whole, all three migrant types showed similar rankings of attribute categories, but it was very noticeable that the local and non migrants attached much greater importance to familiarity of place than did the inter-urban migrants. Apparently,

the inter-urban sample was willing to accept a high level of uncertainty and also a potentially lower level of support at the destination from family and friends. The two local samples had much lower actual housing and neighbourhood circumstance scores than had the inter-urban migrants.

Yet again, social class accounted for no significant variation in the preference scores; the actual circumstance scores, however, did show a statistically significant (or near-significant) relationship with this variable. It was concluded that, whilst social class is an obvious indicator of the ability of the migrant to obtain the desired attributes of a new home, it does not appear systematically to influence revealed general tastes as measured in this study. The size of destination town also had no significant relationship with the preference scores, although the higher score of the small towns on housing and neighbourhood preferences was only marginally non significant. Migrants to the small towns were significantly more likely to have higher actual housing and neighbourhood scores than migrants to Scarborough and Bridlington. In fact the general nature of the results was such as to suggest that migrants to the smaller towns exchange 'better' housing conditions for lower levels of other attributes.

With regard to the degree of match between preferences and actual circumstances, no significant difference in the satisfaction potential scores could be ascribed to either migrant type or social class. Size of settlement also had no significant effect, with the single (and statistically rather dubious) exception of the familiarity potential score.

An examination of individual items on the checklist of attributes cast some additional light on the migration process. The difference between inter-urban and non migrants' overall familiarity scores was particularly striking when its components were compared, the former type of migrant being much less concerned with the presence of social contacts in the hypothetical destination town than was the latter. Other notable results included the fact that whilst three quarters of the inter-urban sample thought it either 'important' <sup>or 'very important'</sup> to live by the sea, only just over a half of the local samples thought so. On the other

hand, over 80% of both inter-urban and local samples thought it 'important' or 'very important' to live within easy reach of the countryside.

What general conclusions may be drawn about the decision processes involved in the migration of the elderly? In the first place, there do appear to be strong connections between the social, physiological and economic ageing processes and the reasons for migration actually given by individual migrants. Moves prompted, at least in part, by reasons of bad health, a desire to increase contact with family or friends, unsuitability of the previous dwelling (particularly in terms of size and maintenance costs), and so on, all reflect a subjectively rational adjustment to the effects of certain aspects of ageing. It is also notable in this context that the primary reason for moving was more commonly felt to be a push factor - a response to a shift in needs - rather than a 'pull' stemming from the liberating effects of retirement per se which opened up new opportunities for 'spatial consumption', even in the case of the inter-urban migrants. Moves mainly prompted by an increase in opportunities on retirement (single stage decisions) thus appear to be relatively fewer than those where a strong potential to move has accrued during the years preceding release from the constraining effects of employment on residential location (two-stage decisions). Nevertheless, it should also be borne in mind that pull factors did predominate amongst inter-urban migrants when only 'voluntary' reasons for moving were taken into account.

Secondly, whilst the inter-urban and local migrants appeared to have made their respective types of move largely through a subjectively rational evaluation of the nature of their environment (local movers mainly for housing reasons, long distance migrants for broader social and physical environmental reasons), there appeared to be a marked difference between all migrants and the non movers in the way in which they responded to environmental stimuli. Thus the non movers, whilst often giving strong, frequently emotional, reasons for not wishing to move also possessed comparatively high environmental irritant scores. It is tempting to explain this difference between 'movers' and 'stayers' in terms of the indi-



vidual's reaction to risk and uncertainty, the disutility surrounding the act of moving outweighing his subjective probability of a favourable outcome to such an action. This notion receives some support from the analysis of dwelling specification preferences, although here the dichotomy is not between the movers, who are tolerant of uncertainty and the more cautious stayers, but instead between the inter-urban (low familiarity) on the one hand and the two local samples (high familiarity) on the other. Perhaps the principal characteristic of the non movers is a combination of low tolerance of uncertainty with a high degree of emotional attachment to a specific dwelling and/or neighbourhood. Local movers, on the other hand, appear to be prepared to accept some of the risks involved in moving so long as the level of uncertainty is not greatly increased by moving away from the sources of social and psychological support found in their present familiar environment. Further research on the relationship between the individual's assessment of disutility, opportunity, risk and uncertainty on the one hand, and his view of his financial and other circumstances on the other, is required, however, in order more accurately to estimate the significance of emotional considerations.

Thirdly, remarkably few other differences in taste were found to exist between the three migrant types, irrespective of whether the preference scores were analysed by general attribute groups or by individual items. One of the most notable exceptions, however, was the relatively low score given to proximity to the sea by the two local samples, compared with the uniformly high rating given to countryside accessibility by both inter-urban migrants and the local samples alike.

The fourth conclusion is that differences between the scores and other characteristics of migrants to the larger and to the smaller towns suggest that the two types of settlement may cater for what are, in some respects, quite clear-cut sectors of the 'market'. The three smaller towns, for example, are characterised by a relatively high number of migrants whose main voluntary reason for moving was of a 'push' nature. They also appear to offer 'better'

housing and neighbourhood attributes than the two larger towns, but at the expense of the other major types of attribute, including degree of familiarity. Differences in social class, on the other hand, proved to have little explanatory power in any of the analyses apart from the 'actual' attribute scores. Remarkably, this held true even when a strong element of individual taste was likely to be involved.

## CHAPTER 6

### SOCIAL DETERMINANTS OF MIGRATION

#### Introduction

The increased significance of contact with kin and, to a lesser extent, friends in old age as the tendency towards loss of social roles and increased dependency proceeds, are frequently reflected in the migratory behaviour of the elderly. It has already been shown in the current study that almost 28% of inter-urban migrants gave the desire to join family or friends as either the main, or the second most important, 'voluntary' reason for moving, a proportion closely matched by Law and Warnes' Morecambe sample. (Law and Warnes, 1973, p.382). The influence of social networks on the nature of the decision can be much more subtle than this, however, for the location and quality of inter-personal relationships have a direct bearing on the individual's attitude towards a place, both through indirect information and direct experience acquired when visiting. Karn notes that although only 15% of elderly movers to Clacton and 10% to Bexhill said that their reason for moving was to be with friends or relatives, 32% said they chose Clacton and 27% Bexhill because they had friends or relatives living there or nearby. (Karn, 1971, p.53). Jansen, writing in a more general context, concludes that: 'One may say that while relatives and friends may not directly "cause" a person to migrate, they quite often determine his destination.' Thus a person with a choice of several destinations each affording more or less equal opportunities, will be most likely to choose one where he already has friends and relatives. (Jansen, 1968, p.188).

The potency of direct communication between friends and relatives as an influence on migration is clearly demonstrated by Jansen's Bristol study. For example, he found that almost 60% of migrants said that they would encourage relatives to come and live in the city, whilst almost 80% would encourage friends. (Ibid, p.191). In addition, 10% of the Bristol migrants had already successfully encouraged a friend or relative to move to the city. Friends and

relatives at or near the destination may be viewed by the migrant as potential sources of support as well as of prior information, an important consideration for an old person who may be rather less inclined to take risks (economic and social) than his younger counterpart. It is noteworthy in this context that 30% of inter-urban migrants in the current study found their new home principally through the help of friends and relatives (above page 99 ). Bultena and Marshall report that 53% of their sample of retirement migrants to Arizona and California relied upon friends or relatives to a considerable extent in obtaining information about 'retirement opportunities' in the area. (Bultena and Marshall, 1970, p.91).

A strongly developed network of relatives and friends at the place of origin may, on the other hand, discourage migration. Jansen found that not only was proximity to friends and relatives frequently given as a reason for not wanting to migrate, but also, in the case of those who did move, the fact of their being away from relatives and friends was a common cause of dissatisfaction. (Jansen, 1968, p.188). Understandably, this seems to be particularly true of old people (for example, see Riley et al, 1968, p.153; Langford, 1962, pp.26-27), and Karn notes that comparatively large numbers of elderly migrants had no surviving children at all, and thus possibly fewer strong social ties than other old people, at the time of survey. (Karn, 1971, p.32). Migration may thus be said to be strongly influenced in very many cases by the configuration of the old person's social network, the latter contributing in an important way to the nature of his information concerning alternative locations. In turn, however, the act of migration will of necessity influence the form and function of the network. Here the evidence is sparse and somewhat equivocal.

For those old people with surviving children, increasing age will frequently coincide with increased contact with them. Townsend notes that in most Western Countries, about three-quarters or more of old people with children see them daily or, at least,, once a week. (Townsend, 1963, p.242). Townsend and

Tunstall also note the tendency for many people to join their children when they become widowed or infirm. (Townsend and Tunstall, 1968, p.286). How far is this true of old people migrating to coastal resorts? Apart from their comparatively fewer numbers, Karn found that migrants to Bexhill and Clacton who do have children are geographically extremely isolated from their offspring. (Karn, 1971, p.71). Whereas 42% of old people with children in Britain as a whole have been found actually to live with one of them, and a further 40% within a half hour journey (Townsend, 1968, p.159), the respective proportions for Bexhill and Clacton are only 7% and 10% living with their children, and 11% and 15% living within a half hour journey. Moreover, more old people moving to these two towns were found to have moved away from their children than nearer them. (Karn, 1971, p.74). This Karn suggests is probably due more to the migrants having a period of independence in early retirement rather than because their emotional links with their children were looser than usual. It is not clear, however, how far Karn's results simply reflect the middle-class bias of the retirement migrant stream, for as Shanas observes, middle-class white-collar workers in Britain and the U.S.A. are more likely than the working class to live at a greater distance from their children and are more likely to see them infrequently or not at all. (Shanas, 1968c, p.256).

Karn's results are at variance with some North American evidence. Bultena and Marshall found that 77% of retirement migrants claimed to be experiencing no greater isolation from their children compared with their situation before their move, and that more than 50% had at least one child closer than before. (Bultena and Marshall, 1970, pp.90-92). Moreover, potential isolation was mitigated by the fact that 56% of the migrants reported a relative or close friend in the area, apart from their children. The conclusion drawn from this study was, therefore, that those old people who move to Florida and Arizona tend to be those who are least likely to suffer a disruption of family social ties.

The main concern of this chapter is the examination of the likely effect of the elderly person's social network on his decision concerning whether and

where he should migrate, especial attention being devoted to the themes outlined above. We first examine the approximate nature of the migrant's social network at the time that he moved. This is followed by an assessment of the relationship between the spatial configuration of the network and the distance and direction of the move.

#### The migrant's social networks at the time of the move

The preceding discussion suggests that the presence of strongly developed, geographically concentrated social networks frequently act as powerful disincentives to outmigration. Bearing in mind the great importance which many old people attach to frequent contact with relatives, we would expect that the inter-urban migrants in the current survey would have had somewhat fewer relatives in the town from which they last moved than the local movers (in their current town), or than the non-migrants now have. With regard to the number of inter-urban migrants with children living in their previous town, this is very much the case, the long distance migrants' total of 20.6% being significantly below the 32.0% of the combined local samples ( $\chi^2$  4.03 df1,  $\alpha$ .022).<sup>1</sup> The difference between these two categories of migrant, however, was rather less significant when comparing the number of respondents with other relatives on their own side of the family, 38.7% of inter-urban migrants having relatives in their previous town compared with 47.0% (in their current town) for the local samples ( $\chi^2$  1.70 df1,  $\alpha$ .097).<sup>1</sup>

We have already seen that locational proximity to relatives tends to decline with increasing social status, working class elderly placing a much greater emphasis on this proximity than do the middle class. If this is so, do elderly inter-urban migrants in Social Classes III to V possess more relatives at their place of origin than those in Classes I and II, thus reflecting the general characteristics of lower, versus higher social class? Or are the

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<sup>1</sup> Directional hypothesis

working and lower middle class migrants atypical in that they possess less concentrated kin networks in their previous town than those in higher status groups, the latter being in general less concerned with proximity and therefore less inhibited in their migratory behaviour even when they do possess highly concentrated networks?

In the event, the distribution of those with relatives in their previous town was found to follow the normal pattern of social class. Thus 86.6% of migrants in Classes I and II had no children living in their previous town at the time that they moved, compared with 73.3% in Classes III to V ( $\chi^2$  4.15 df1,  $\alpha$ .041), the latter percentage being very close to that of the combined local samples (68.0%). Similarly, the proportion of respondents in Classes I and II not possessing relatives on their own side of the family in their previous town (69.5%) considerably exceeds that of migrants in the lower status group (55.1%) although the difference is not quite statistically significant ( $\chi^2$  3.54 df1,  $\alpha$ .060). Again, the percentage for Classes III to V was closely comparable with that of the local samples (53.0%).

In much the same way as working class families have been found in other studies to attach more importance to the proximity of kin than their middle class counterparts, so women have been found on the whole to place more emphasis on kinship ties than men. (See for example, Willmott and Young, 1967, pp.59-70; Townsend, 1963, pp.98, 121, 158). This being the case, we might expect female inter-urban migrants to have fewer kin at the place of origin than the male migrants. Similarly, we would expect the wives of married male respondents to have fewer social ties on average than their husbands. However, as far as the evidence provided by the current survey is concerned, these anticipated differences were found not only to be non significant, but in the case of male versus female respondents, the difference was very slightly in the wrong direction! Thus, whilst 63.1% of male respondents had no relatives on their side of the family in their previous town, the proportion of female respondents was only 59.0%; the corresponding proportions for married male respondents and their

wives were 64.4% and 65.4% respectively.

To what extent did the migrants already possess relatives or friends in their destination at the time that they moved?

Almost exactly two-thirds of the migrants (66.5%) had at least one friend or relative living in the destination town at that time. Of these, over half (35.6% overall) had relatives of some sort living in the town. Only 10.3% had children living there. Virtually no difference was found to exist between the proportion of Social Classes I and II who had moved to the town without friends or relatives living there (31.7%) and that of Classes III to V (34.9%); thus no support is lent to the supposition that professional and managerial workers are more likely than those of lower status to move to places where potential social support is less forthcoming. Classes III to V were also found to place no more emphasis on the presence of relatives in general than were Classes I and II (37.8% and 34.2% respectively), whilst Classes I and II were no more likely to have had friends in the town (46.3%) than Classes III to V (43.1%), despite the former's reputation for having geographically more dispersed friendship networks ( $\chi^2$  0.09 df1,  $\alpha$  767). Slightly more respondents in Classes III to V had children living in the town (13.8% as opposed to 8.5%) but, again, the difference is far from being statistically significant ( $\chi^2$  0.79 df1,  $\alpha$  393).

Rather more important differences are revealed when the migrants are analysed by marital status at the time of the move, the results supporting Karn's findings for migrants to Bexhill and Clacton. (Karn, 1971, p.54). Single people were much more likely to have moved to a town where their only existing contacts were friends (50.0%) than were those who were married (26.6%) ( $\chi^2$  4.21 df1,  $\alpha$  .040). Those who were widowed were also much more likely to have moved to a place where their only contacts were with their children (19.4%) than were those who were married at the time of the move (4.8%) ( $\chi^2$  6.48 df1,  $\alpha$  .011). Those who were married were only slightly more likely to have been socially 'self sufficient' than other respondents in that 35.9% of the former had known no one in their present town at the time of the move,



compared with 28.8% of the latter, a difference which is not statistically significant ( $\chi^2$  0.70 df1,  $\alpha$ .402).

There was evidence of some relationship between the size of the destination town and whether or not the migrant had a pre-existing social contact there. It was expected that the two large towns would have a higher number of migrants who had friends or relatives living there purely through the operation of stochastic processes. Thus, 71.8% of migrants to Eridlington and Scarborough had a friend or relative already there at the time that they moved, whereas the proportion for the three smaller towns was only 58.4% ( $\chi^2$  3.14 df1,  $\alpha$ .038).<sup>1</sup>

Do elderly migrants with no friends or relatives living at their destination tend to compensate by joining formal organisations (clubs, associations etc.)? The well known tendency for middle rather than working class people to become involved in activities of this type (Willmott and Young, 1967, pp.85-87) may be confirmed in the case of the current study by a directional significance test.<sup>2</sup> While 48.8% of respondents in Classes I and II report membership of the local branch of at least one club, political group, association, trades or professional organisation, the proportion of those in Classes III to V is only 33.9% ( $\chi^2$  3.69 df1,  $\alpha$ 0.027).<sup>1</sup> However, the survey results suggest a positive relationship between 'club' membership and having prior social contacts in the town rather than the negative relationship hypothesised. Thus 45.7% of those who had prior social contact were 'club' members, as opposed to 29.2% of those who had no prior contact ( $\chi^2$  4.24 df1,  $\alpha$ .040). This result emphasises the dichotomy between the socially active elderly and the socially 'disengaged', and it is interesting to note that those who had no friends or relatives in the town are very slightly, though not significantly, more likely to express a negative attitude towards retirement (38.5%) than those with previous contacts (31.0%) ( $\chi^2$  0.77 df1,  $\alpha$ .380).

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<sup>1</sup> Directional hypothesis

<sup>2</sup> However, see above page 110

In addition to the questions on prior social contacts the migrants had had with their present town and the number and type of relatives which they had possessed in their previous town, local and inter-urban migrants were asked about the location, relationship and frequency of visit to, or from, the three household groups of relatives living away from the previous town of residence whom the respondent saw most often at the time of the move. Kin not seen on average at least once a year were excluded as being much less likely to have a strong personal relationship with the respondent. In addition, the migrants were asked about the locations and frequency of contact of their three 'best' friends at the time of the move. Non migrants were also asked two similar sets of questions concerning their current circumstances.

The objective was to test the following hypotheses.

- (i) At the time of the move, the inter-urban migrants were more remote from centres of 'high quality' social contact (that is, from close friends or relatives) aside from those in their immediate locality, than were the two 'local' (local migrant and non migrant) samples. The inter-urban migrants were thus more likely to be drawn away from their current place of residence.
- (ii) The inter-urban migrants were likely to report fewer high quality social contacts than the 'local' respondents and thus feel freer to move away, irrespective of the locations of close friends and relatives.
- (iii) Aside from relatives living in their previous towns, the inter-urban migrants were not significantly worse off in their new location with respect to accessibility to kin networks (insofar as they have here been crudely measured) than they were previously.
- (iv) Respondents in the Social Classes III to V were less likely

TABLE 6.1

Contacts with relatives outside 'previous' town  
by relationship

Relationship	Inter-urban sample (%)	'Local' samples (%)
Most frequently seen relative:		
Child/Grandchild	29.4	34.0
Other	49.5	52.0
None	21.1	14.0
2nd most frequent:		
Child/Grandchild	16.5	18.0
Other	43.3	45.0
None	40.2	37.0
3rd most frequent:		
Child/Grandchild	6.7	5.0
Other	31.4	35.0
None	61.9	60.0
n	194	100

TABLE 6.2

Contacts with relatives outside 'previous' town  
by visit frequency

Approximate visit frequency	Inter-urban sample (%)	'Local' samples (%)
Most frequently seen relative:		
Once a month or more	41.2	26.0
Less than once a month but at least 3 times per annum	21.7	31.0
Less than 3 times per annum but at least once per annum	16.0	29.0
TOTAL (%)	78.9	86.0
2nd most frequent:		
Once a month or more	25.8	10.0
< 1 per month but $\geq 3$ x p.a.	13.9	23.0
< 3 x p.a. but $\geq 1$ x p.a.	20.1	30.0
TOTAL (%)	59.8	64.0
3rd most frequent:		
Once a month or more	11.3	6.0
< 1 per month $\geq 3$ x p.a.	10.3	13.0
< 3 x p.a. but $\geq 1$ x p.a.	16.5	21.0
TOTAL (%)	38.1	40.0

to move further away from their relatives, but more likely to move from friends, than those in Classes I and II.

#### Contact with relatives and close friends before the move

Whilst slightly more inter-urban than 'local' respondents report no contacts with relatives living outside their previous town of residence at the time of the move (21.1% and 14.0% respectively:  $\chi^2$  1.76 df1,  $\alpha$ .184), the respective proportions with at least three relatives are almost identical (38.14%, 40.0%). Despite Karn's observation that her inter-urban retirement migrants appeared more likely to have no children than the national average for their age group (Karn, 1971, p.74), the 'local' respondents were only slightly (and not significantly) more likely to include their children or grandchildren amongst the three most frequently seen relatives. (Table 6.1). Also the inter-urban migrants turn out to have been far less isolated from relatives before the move than the 'local' respondents (Table 6.2). Despite the slightly lower number of inter-urban migrants reporting contacts, 41.2% saw their most frequently seen relative once or more a month on average, as opposed to only 26.0% of the 'local' group ( $\chi^2$  6.00 df1,  $\alpha$ .014). The respective figures for the second and third most frequently seen relatives are 25.8% (inter-urban) and 10.0% ('locals') ( $\chi^2$  9.16 df1,  $\alpha$ .002) and 11.3% (inter-urban) and 6.0% ('locals') ( $\chi^2$  1.61 df1,  $\alpha$ .205). This result seems to emphasise the effect that geographical isolation has on the social networks of the residents of the resorts.

In order to assess the degree of this comparative geographical isolation, two statistics were taken. The first was the distance between each migrant's place of origin and the arithmetic mean centre ( $R_c$ ) of the locations of the three most frequently seen relatives living outside the place of

TABLE 6.3

Analysis of variance: distance from origin to mean location of relatives and  
to most frequently seen child, by migrant type and social class

	Adjusted* Mean Score				F Ratios			
	Migrant Type		Social Class		Migrant Type	Social Class	Inter-action effect	Explained Variation
	I - U	'Locals'	I & II	III - V				
Distance (km) to mean location of relatives (Origin Rc)	87.26	130.41	124.62	88.89	df1,229 F10.790 $\alpha$ .001	df1,229 F7.624 $\alpha$ .006	df1,229 F0.088 $\alpha$ .999	df3,229 F5.119 $\alpha$ .002
Distance (km) to most frequently seen child (Origin-child)	91.78	143.54	120.08	107.53	df1,98 F5.494 $\alpha$ .020	df1,98 F0.313 $\alpha$ .999	df1,98 F0.367 $\alpha$ .999	df3,98 F1,959 $\alpha$ .124

\* i.e. - controlling each independent variable (Migrant type and Social class) for the effect of the other variable.

origin.<sup>1</sup> This distance we refer to as 'Origin Rc'. The second statistic was simply the distance between the town of origin and the location of the old person's most frequently seen child living outside that town. For convenience we will refer to this as the 'Origin-child' distance, a measure covering 33.5% of the inter-urban migrants and 40.0% of the 'local' respondents. As we have noted from the evidence of other studies however, we might expect differences in the social class composition of the inter-urban migrant and 'local' categories of respondent to confuse the picture, the greater geographical distance to kin commonly displayed by those in higher status groups being a well documented phenomenon. A two way analysis of variance was therefore applied to both Origin Rc and Origin-child, controlling for both migrant type (inter-urban versus 'locals') and social class.<sup>2</sup>

The results of this analysis are shown in Table 6.3. It is clear that whilst a significant proportion of the variance of Origin Rc and Origin-child

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<sup>1</sup> The arithmetic mean centre of an areal population is the bivariate equivalent of the arithmetic mean, being the location of the minimum value of the second areal moment  $M_2$  of a scatter of points in two dimensional space. For a discussion of its properties, see Neft (1966, pp.27-29). The mean location (Rc) for individuals giving less than three relatives was simply computed on the one or two points given. Those not reporting any contacts with relatives were excluded altogether.

<sup>2</sup> It should be noted that, throughout much of the analysis of distance to points of social contact which follows, F tests for homogeneity of variance on single variable scores between pairs of migrant and social class types yielded significant differences ( $\alpha < .05$ ). No single method of transformation was found to give more than a marginal overall improvement in meeting the homoscedasticity assumption (Fraser, 1958, p.197), however owing to the variability of the relationship between the values of the mean and variance of the different distance measures used. Considerable improvements were actually effected in the case of some variables, but this was always to the detriment of others. The 'peculiar-ity' of the data is illustrated by its near symmetrical distribution about the mean rather than the strong positively skew distribution originally expected. For example, in the case of the inter-urban migrant sample, only data on the distance between the origin and the location of the 'best' friend and the mean centre of friends approached the expected distribution with Sk values of 2.3 and 2.4 respectively (see above, page 82). The mean value of Sk for all ten other measures used was only 1.3. It was therefore decided that the data should be used only in its 'raw' (untransformed) state in order to simplify both analysis and presentation. Violation of the homoscedasticity assumption in the analyses of variance is therefore likely and care is necessary in their interpretation. The overall effect in this instance, however, appears to be an exaggeration of the  $\alpha$  values quoted and thus an increased probability of accepting a 'false' null hypothesis.

TABLE 6.4

Inter-urban migrants: analysis of variance, distance (km) to most frequently visited relative by visit frequency and social class

Adjusted* Mean Scores					F Ratios			
Visit Frequency			Social Class		Visit Frequency	Social Class	Inter-action Effect	Explained Variation
≥1 per month	≥3 per annum	≥1 per annum	I & II	III - V				
42.95	110.66	171.70	100.91	76.83	df2,142 F24.693 α .001	df1,142 F 2.681 α .100	df2,142 F 0.229 α .999	df5,142 F11.176 α .001

\* i.e. - controlling each independent variable (Visit frequency and Social Class) for the effect of the other variable.

is accounted for by migrant type ( $\alpha$ .001 and .020 respectively), the alpha values for social class vary from very highly significant ( $\alpha$ .006) in the case of Origin Rc to total independence (computed  $\alpha$ .999) in the case of Origin-child! The adjusted mean scores are no less remarkable, the 'local' categories being situated on average over 43 km further from Origin Rc than are the inter-urban migrants. The difference between those in Social Classes I and II and those in Classes III to V is almost as great, the former being over 35 km further away than the latter. The magnitude of this second result is not, however, unexpected bearing in mind the observations of other workers. (See for example, Hubert, 1965, pp.65-69). The adjusted mean score difference for Origin-child of over 51km between the inter-urban migrants and the 'local' category dramatically emphasises the isolation of the resorts (particularly the northernmost ones) from the major centres of employment. This contrasts with the much smaller (and not significant) amount of 12.55 km by which Social Classes I and II exceed Classes III to V.

It is clear, therefore, that the hypothesis that the inter-urban migrants at the time of the move are more remote from non local 'high quality' social contact than are the 'local' respondents can only be rejected on this evidence, at least as far as kin are concerned. The greater distance of the 'local' respondents from non local relatives does, however, explain their lower frequency of contact with them, particularly as a high proportion of 'locals' are in Social Classes III to V and are thus less able to overcome the cost of travel. To test the relationship between distance to kin, visit frequency and social class, a two-way analysis of variance was applied to the inter-urban migrant's distance between the most frequently seen relative and the place of origin. (Table 6.4). The results of this clearly demonstrate the overwhelming importance of the relationship between distance and visit frequency, relatives seen at least once a month being only 42.95 km away on average as opposed to 171.70 km for those seen only once or twice a year. Social Class categories show a difference in distance scores in the expected



TABLE 6.5

Percentage of respondents with 'best' friends living in town of origin, by migrant type

	'Best friend in same town	Total with friend (%)	Second friend in same town	Total with friend (%)	Third friend in same town	Total with friend (%)
Inter-urban (%)	39.7	83.0	39.2	75.3	34.5	61.9
'Local' respondents (%)	56.0	87.0	59.0	77.0	47.0	64.0
$\chi^2$ (df1)	6.44	-	9.66	-	3.81	-
$\alpha$	$\alpha.011$	-	$\alpha.002$	-	$\alpha.051$	-

TABLE 6.6

Analysis of variance: distance from origin (Km) to mean location of friends,  
by migrant type and social class

Adjusted* Mean Score				F Ratios			
Migrant Type		Social Class		Migrant Type	Social Class	Inter-action Effect	Explained Variance
I - U	'Locals'	I & II	III - V				
46.29	34.83	55.18	38.87	df1,237 F 1.367 $\alpha.242$	df1,237 F 4,325 $\alpha.036$	df1,237 F 0.574 $\alpha.999$	df3,237 F 2.553 $\alpha.055$

\* i.e. - controlling each independent variable (Migrant type and Social class) for the effect of the other variable.

direction (Classes I and II being furthest from their relatives), but the relationship is not a strong one. ( $F_{2.681} \text{ df} 1/142; \alpha .100$ ).

As in the case of relatives, slightly fewer of the 'local' respondents report no contact with a 'best' friend (13.0%) than do the inter-urban migrants (17.0%), the difference of course not being statistically significant ( $\chi^2 0.53 \text{ df} 1, \alpha .467$ ). Numbers from the two categories of respondent reporting having seen at least three best friends are also very similar (65.0% and 61.9% respectively). However, as Table 6.5 shows, the 'local' respondents are much more likely to have had their best friends living locally than were the inter-urban migrants. This greater proximity between best friends and the 'local' respondents is of course reflected in the frequency of visit. Thus, for example, while 55.2% of the inter-urban migrants used to see their best friend at least once a month, the proportion of 'local' respondents was 69.0% ( $\chi^2 4.70 \text{ df} 1, \alpha .030$ ).

How far is the greater emphasis which is placed on local friendships by the 'local' respondents the result of true differences between them and the inter-urban migrants (as we saw in the analysis of distance to relatives), rather than simply a reflection of differences in social composition? As the analysis of variance table (6.6) shows, a much higher proportion of the variance in distance to the arithmetic mean centre of best friends<sup>1</sup> (Origin FRC) is explained by social class ( $\alpha .036$ ) than by migrant type ( $\alpha .242$ ), although the adjusted mean scores of the latter are in the expected directions.

As with visits to relatives, an analysis of variance on data from the inter-urban migrant sample revealed a high degree of association between visit frequency and distance to the 'best' friend ( $F_{56.632} \text{ df} 3 / 146, \alpha .001$ ) when controlling for the effects of social class ( $F_{2.517} \text{ df} 1 / 146, \alpha .111$ ). This time, however, a pronounced interaction effect between visit frequency and social class is present ( $F_{3.101} \text{ df} 3 / 146, \alpha .028$ ), whereas the two variables

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<sup>1</sup> It should be noted that all friends living at the previous location were excluded from the analysis.

are totally independent in the case of distance to the relative. Further analysis suggested that the main factor contributing towards this was that, amongst respondents of lower social status, a decline in visit frequency beyond that of 'less than once a month, but more than three times a year,' was not progressively associated with an increase in distance to the 'best' friend. The sample sizes of the subcategories concerned were unfortunately too small to permit substantiation of this observation.

Conclusion: social networks at the time of the move

The preceding discussion has shown that the 'local' respondents were more remote from relatives living outside their present town than were the inter-urban migrants when living in their previous town. Differences in the social class composition of the two categories were found to contribute very little to total variation in distance. Quite the reverse situation was found to apply when relationships with 'best' friends were analysed, however. Friends of the 'local' respondents were found to live somewhat nearer at hand than those of the inter-urban migrants, but social class was found to explain much more of the variation between respondents. In addition, it was found that the inter-urban migrants were not significantly more likely to report fewer high quality social contacts than the 'local' respondents. We conclude, therefore, that there was nothing in the structural arrangement of the inter-urban migrants' social networks (inasmuch as they have been measured here) which was likely to tie them less strongly to their previous location than the 'local' respondents; neither is there much evidence to show that the migrants were more likely to be lacking in high quality social contacts compared with the individuals in the 'local' samples.

TABLE 6.7

Inter-urban migrants: distance to relatives (living  
outside previous town) before and after the move

Point of Social contact	Mean Distance (Km)	Paired t	df	$\alpha$
Mean centres of relatives (Rc)				
i) From Origin	92.08	0.55	150	.586
ii) From Destination	97.03			
Most frequently seen relative				
i) From Origin	89.36	0.43	150	.670
ii) From Destination	93.45			
Most frequently seen child				
i) From Origin	91.89	0.01	62	.992
ii) From Destination	91.76			

TABLE 6.8

Inter-urban migrants: distance to best friends before  
and after the move

Point of Social contact	Mean Distance (Km)	Paired t	df	$\alpha$
Mean centre of best friends (FRc)				
i) From Origin	47.68	6.86	157	<.001
ii) From Destination	102.16			
Best friend				
i) From Origin	57.43	6.08	157	<.001
ii) From Destination	110.60			

## The effect of the move on distance to relatives and friends

Although the move resulted in little apparent shift in the overall distance of inter-urban migrants to either the mean centre of relatives living outside the previous town of residence (Rc), or the most frequently seen 'non local' relative, or the most frequently seen 'non local' child (Table 6.7), the figures conceal considerable differences between the social classes. For example, whilst mean distance to Rc declined fractionally after the move for those in Classes I and II from 107.54 km to 102.15 km, the distance for those in Classes III to V increased (though not significantly) from 74.36 km to 90.51 km (Paired-t 1.65 df77,  $\alpha$ .102). Also Classes I and II moved further away on average from their most frequently seen non local child (from 105.16 km at the origin to 123.45 km), but Classes III to V moved an almost equal distance towards that child (83.08 km to 66.28 km). As a result, those in the higher social status category were almost twice as far from the most frequently seen child after the move as respondents in Classes III to V (t2.3 df62,  $\alpha$ .025). In general, however, the move did lead to increased overall isolation from children, as evidenced by the increased distance in the mean location of all children mentioned by the respondent<sup>1</sup> from 69.67 km to 94.51 km (paired-t 2.41 df91,  $\alpha$ .018).

By way of contrast, the migrants moved a significant distance away from best friends living outside their previous town (Table 6.8). It was expected that the more locally centred friendship networks of those of lower social class (see Table 6.6) would mean that they were more likely to be relatively further from their friends after the move than were migrants of higher social class, particularly as the two categories had moved very similar total distances. Surprisingly, however, there was very little difference between the classes, those in Social Classes I and II moved on average 52.37 km from the mean centre of best friends (FRc), whilst the average for Classes III to V was 49.63 km.

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<sup>1</sup> This included children living in the towns of previous residence.

TABLE 6.9

'Childless' inter-urban migrants and those not mentioning visits to (or from) relatives living away from previous town : contact with friends

Point of Social Contact	Mean Distance (km)	Paired t	df	$\alpha$
<u>'Childless' Migrants:</u>				
Distance to mean location of friends (FRc):				
i) From Origin	40.78	6.39	83	<.001
ii) From Destination	107.25			
Distance to best friend:				
i) From Origin	55.03	5.37	83	<.001
ii) From Destination	115.33			
<u>Migrants not mentioning visits to (or from) relatives</u>				
Distance to mean location of friends (FRc):				
i) From Origin	32.25	4.71	28	<.001
ii) From Destination	88.64			
Distance to best friend:				
i) From Origin	34.10	3.95	28	<.001
ii) From Destination	86.11			

Further tests were also made to see whether those who did not mention the presence of their children in either their previous or their present town and did not include them amongst their more frequently seen relatives, had moved less far from friends than the average for the migrants as a whole. This was based on the expectation that the social life of the 'childless', (actual or de facto) would be less centred on the family, whilst greater significance would be attached to contact with friends. That this is not in fact the case is amply demonstrated by Table 6.9, the childless moving on average 66.47 km away from FRc, and 60.30 km from their best friend. A similar analysis of migrants who had had no contacts with any relatives outside their previous town also reveals significant average shifts of 56.39 km away from FRc, and 52.01 km from the location of their best friend.

Conclusions: the effect of the move on distance to relatives and friends

The expectation that the migrants would not be significantly worse off in their new location with respect to contact with relatives living away from the migrants' town of origin was, in general, borne out. However, respondents in Social Classes I and II were found to have moved away from their most frequently seen child, whilst those in Classes III to V moved nearer. On the other hand, if we take into account all children mentioned (including those at the place of origin), migrants in both social categories were significantly more isolated from their offspring after the move than before. Respondents in Classes III to V were not found to be more likely to have moved away from the mean location of best friends than those in Classes I and II.

Most striking of all, however, was the comparatively much greater isolation (before and after the inter-urban moves) of the 'local' respondents from their non-local relatives, a fact which places into proper perspective the role of social ties as, at the most, an influence on the migrant's selection of destination rather than on his actual decision to move.

## Points of Social Contact as Predictors of Destination

The preceding section has shown that, on the whole, inter-urban retirement migrants were no closer to relatives and friends after the move than before it, and that in many cases there was even a marked shift away. However, the absolute location of a social contact is not the only thing which might influence the migrant's eventual destination. For example, visits made to friends or relatives living away from the individual's immediate vicinity would contribute towards his knowledge of conditions and opportunities in the spatial sector leading to the social contact. This process is analogous to the build up of sectoral mental maps within a city owing to the influence of travel to work, to the central shopping area, and so on. (See for example Adams, 1969, and Johnson, 1972). Secondly, although a migrant may not be any nearer to particular friends or relatives after the move, a residential shift in the same spatial sector as these contacts is likely to have less of an impact on distance from them than a move in some other direction. The migrant may thus choose to remain within an acceptable distance of friends and relatives even though his exact location is determined by many other factors (for example, the aesthetic quality of the area and housing opportunities).

To test this sectoral hypothesis with regard to retirement migrants to the Yorkshire coast, a predictive model of migration was constructed. Taking the U.K. National Grid as the basic frame of reference (Ordnance Survey, 1972, p.8), the locations of each migrant's most frequently visited relatives (living outside his previous town), and those of his best friends, were standardised so that the origin of the locational grid lay at the migrants' point of origin. The relative locations of the migrant's destinations were then regressed<sup>1</sup> against the locations of points of social contact, the general model being of the linear form:

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<sup>1</sup> The SPSS subprogram 'REGRESSION' (Nie et al, 1975, pp.320-67) was used, this applies the method of ordinary least squares.



D ( $Y_{ei}, Y_{ni}$ )

$$\text{where } Y_{ei} = a_e + \sum_{j=1}^k b_{ej} X_{eij} + u_{ei} \quad \dots (6.1)$$

$$\text{and } Y_{ni} = a_n + \sum_{j=1}^k b_{nij} X_{nij} + u_{ni} \quad \dots (6.2)$$

D ( $Y_{ei}, Y_{ni}$ ) being the destination of migrant i relative to his point of origin, defined on  $Y_e$  kilometers easting and  $Y_n$  kilometers northing; ( $X_{eij}, X_{nij}$ ) is the location of the  $j^{\text{th}}$  point of social contact of migrant i; ( $a_e, a_n$ ), ( $b_{eij}, b_{nij}$ ) are respectively intercept and slope coefficients; ( $u_{ei}, u_{ni}$ ) are the co-ordinates of the error term and k is the number of regressors.

#### Tests and Assumptions

In order to estimate the co-efficients of equations (6.1) and (6.2), it is necessary to satisfy six<sup>1</sup> critical assumptions. (Poole and O'Farrell, 1971, p.148).

Assumption 1:

Each value of ( $X_{eij}, X_{nij}$ ) is observed without measurement error.

Each location - migrant origin and destination, locations of relatives and friends - was coded to the nearest kilometer grid square. Reporting errors are likely to be comparatively small, although if a respondent simply mentioned a large urban area such as London, instead of a locality within it, the gazetteer

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<sup>1</sup> A seventh assumption - that of normality of both the conditional and marginal distributions of each variable in the equation - must also be satisfied if the model is to be used for inferential purposes, rather than merely for point estimation as in the current study. This poses certain problems in the bivariate case, and it is recommended that Mardia's multivariate moment statistics  $\beta_{1,p}$  and  $\beta_{2,p}$  are computed (where  $p = 2$ ).  $\beta_{1,p}$  (skewness) is tested for deviation from zero, and  $\beta_{2,p}$  (kurtosis) from  $p(p + 2)$ . (Mardia, 1970).

TABLE 6.10a

Test for non-linearity : hierarchical regression analysis

$$Y_{ei} = a_e + b_{e1} R_{c_{ei}} + b_{e2} FRC_{ei} + b_{e3} R_{c_{ei}}^2 + b_{e4} FRC_{ei}^2 + b_{e5} R_{c_{ei}}^3 + b_{e6} FRC_{ei}^3 + u_{ei} \dots\dots\dots (6.5)$$

I N C L U D E D    V A R I A B L E S										Variables not included	
Step	Vari-ables	R	R <sup>2</sup>	Increase	Std. Error of Est.	Regr. coeff	Std. Error	F Ratio	$\alpha$	Vari-ables	Partial r
1 (n = 83)	Rc <sub>e</sub>	0.7994 (F70.82) $\alpha < .001$	0.6391	0.6391	39.4632	a <sub>e</sub> = 47.9967	0.0731	50.412	< .001	Rc <sub>e</sub> <sup>2</sup>	0.1954
	FRC <sub>e</sub>					b <sub>e1</sub> = 0.5188				0.1069	10.911
						b <sub>e2</sub> = 0.3532				Rc <sub>e</sub> <sup>3</sup>	0.1501
										FRC <sub>e</sub> <sup>3</sup>	-0.9838
2	Rc <sub>e</sub> <sup>2</sup>	0.8146 (F38.45) $\alpha < .001$	0.6635	0.0244	38.5884	a <sub>e</sub> = 43.9072	0.0757	37.126	< .001	Rc <sub>e</sub> <sup>3</sup>	-0.0928
	FRC <sub>e</sub> <sup>2</sup>			(F2.0258) $\alpha > .10$		b <sub>e1</sub> = 0.4624				0.1162	10.840
						b <sub>e2</sub> = 0.3827					
						b <sub>e3</sub> = < 0.0001	0.0004	0.004	> . 25		
						b <sub>e4</sub> = 0.0014	0.0009	2.473	> . 10		
3	Rc <sub>e</sub> <sup>3</sup>	0.8292 (F27.88) $\alpha < .001$	0.6876	0.0241	37.6674	a <sub>e</sub> = 44.0718	0.1052	15.976	< .001		
	FRC <sub>e</sub> <sup>3</sup>			(F1.8768) $\alpha > .10$		b <sub>e1</sub> = 0.4206				0.1490	16.955
						b <sub>e2</sub> = 0.6134					
						b <sub>e3</sub> = 0.0008	0.0006	1.964	> . 10		
						b <sub>e4</sub> = -0.0008	0.0015	0.315	> . 25		
						b <sub>e5</sub> = < 0.0001	< 0.0001	1.785	> . 10		
						b <sub>e6</sub> = < 0.0001	< 0.0001	5.156	> . 05		

reference for 'London' was simply taken.<sup>1</sup> (Ordnance Survey, 1972). The proportion of error is, therefore, likely to increase inversely with migration distance and positively with size of origin settlement. Owing to the relative isolation of the five destination towns, this is only likely to be significant in the case of migration from Hull to Hornsea and Withernsea.

Assumption 2:

Linearity of the relationship between  $Y_{ei}$ ,  $Y_{ni}$  and each  $X_{eij}$ ,  $X_{nij}$ .

The linearity assumption was tested by means of a hierarchical analysis of the following third order model:

$$Y_{ei} = a_e + b_{e1} Rc_{ei} + b_{e2} FRC_{ei} + b_{e3} Rc_{ei}^2 + b_{e4} FRC_{ei}^2 + b_{e5} Rc_{ei}^3 + b_{e6} FRC_{ei}^3 + u_{ei} \quad \dots (6.3)$$

$$Y_{ni} = a_n + b_{n1} Rc_{ni} + b_{n2} FRC_{ni} + b_{n3} Rc_{ni}^2 + b_{n4} FRC_{ni}^2 + b_{n5} Rc_{ni}^3 + b_{n6} FRC_{ni}^3 + u_{ni} \quad \dots (6.4)$$

where  $Rc_{ei}$ ,  $Rc_{ni}$ ;  $FRC_{ei}$ ,  $FRC_{ni}$  are the arithmetic mean locations of relatives and friends respectively. Each pair of terms  $Rc_{*i}^m$ ,  $FRC_{*i}^m$  was introduced to the equation<sup>2</sup> at regression step  $m$  and an  $F$  test was made for the null hypothesis that the  $m^{\text{th}}$  order terms contribute nothing to the total explained variance ( $R^2$ ) of  $Y_{*i}$ . (Johnston, 1972, p.164). In no case was the increase in  $R^2$ , due to the introduction of the second and third order terms, either statistically or quantitatively significant (Tables 6.10a, 6.10b), and we are consequently able to support the linearity assumption.

Assumption 3:

Mean disturbance is zero for all  $X_{eij}$ ,  $X_{nij}$ .

<sup>1</sup> This actually corresponds to the City of Westminster.

<sup>2</sup> Throughout this analysis only the locations of friends living outside the towns from which the migrant originated were taken into account.

TABLE 6.10b

Test for non-linearity : hierarchical regression analysis

$$Y_{ni} = a_n + b_{n1} R_{cni} + b_{n2} FRC_{ni} + b_{n3} R_{cni}^2 + b_{n4} FRC_{ni}^2 + b_{n5} R_{cni}^3 + b_{n6} FRC_{ni}^3 + u_{ni} \dots\dots (6.6)$$

I N C L U D E D    V A R I A B L E S										Variables not included				
Step	Vari-ables	R	R <sup>2</sup>	Increase	Std. Error of Est.	Regr. coeff	Std. Error	F Ratio	α	Vari-ables	Partial r			
1 (n = 83)	R <sub>n</sub>	0.7222 (F33.25) α < .001	0.5216	0.5216	66.8624	a <sub>n</sub> = 72.3784				R <sub>n</sub> <sup>2</sup>	0.2596			
	FRC <sub>n</sub>					b <sub>n1</sub> = 0.4037				0.1032	15.307	<.001	FRC <sub>n</sub> <sup>2</sup>	0.2255
						b <sub>n2</sub> = 0.4147				0.1039	15.944	<.001	R <sub>n</sub> <sup>3</sup>	0.0306
													FRC <sub>n</sub> <sup>3</sup>	0.0236
2	R <sub>n</sub> <sup>2</sup>	0.7526 (F19.26) α < .001	0.5664	0.0448 (F3.6583) α > .05	64.7264	a <sub>n</sub> = 61.0271				R <sub>n</sub> <sup>3</sup>	-0.0674			
	FRC <sub>n</sub> <sup>2</sup>					b <sub>n1</sub> = 0.3370				0.1038	10.539	<.01	FRC <sub>n</sub> <sup>3</sup>	-0.0317
						b <sub>n2</sub> = 0.3780				0.1026	13.569	<.001		
						b <sub>n3</sub> = 0.0008				0.0005	2.783	>.05		
3	R <sub>n</sub> <sup>3</sup>	0.7542 (F12.53) α < .001	0.5687	0.0023 (F0.1752) α > .25	65.6626	a <sub>n</sub> = 60.6187								
	FRC <sub>n</sub> <sup>3</sup>					b <sub>n1</sub> = 0.3949				0.1661	5.655	<.05		
						b <sub>n2</sub> = 0.4283				0.2080	4.242	<.05		
						b <sub>n3</sub> = 0.0008				0.0005	2.907	>.05		
						b <sub>n4</sub> = 0.0006				0.0005	1.920	>.10		
						b <sub>n5</sub> = <0.0001				<0.0001	0.069	>.25		
	b <sub>n6</sub> = <0.0001	<0.0001	0.272	>.25										

Assumption 4:

Conditional disturbance distribution has a variance which is constant for all  $X_{eij}$ ,  $X_{nij}$ . (Homoscedasticity). Although no formal tests of these two assumptions were made,<sup>1</sup> a visual examination of standardised residuals plotted against the dependent variable for each regression equation did suggest some minor violations. Specific instances of this will be noted in the discussion of individual equations. It should be born in mind, however, that the presence of non zero mean disturbance does not generally introduce more than a small amount of bias to the estimation of the regression coefficients. (Poole and O'Farrell, 1971, p.154). Moreover, the presence of moderate heteroscedasticity is not of crucial importance in the making of point estimates (as opposed to using the coefficients for inferential purposes) unless the variance of the disturbance term  $u_{*i}$  is correlated with each  $X_{eij}$ ,  $X_{nij}$ . (Ibid.).

Assumption 5:

The values of the disturbance term are serially independent.

The known tendency for individual migrants to a given area to have originated from similar locations to one another<sup>2</sup> suggested, a priori, that a considerable degree of autocorrelation might have been present. This would lead to unduly large estimates of the variance of the regression coefficients and render procedures for statistical inference inapplicable. (Ibid). Although the latter consideration per se does not directly concern us here, the presence of significant auto-correlation would worsen the already severe problems involved in applying empirical results based upon one particular spatial system to conditions found in another.<sup>3</sup>

Each set of residuals from regression ( $u_{e*}$ ,  $u_{n*}$ ) was tested individually

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<sup>1</sup> Poole and O'Farrell (1971, p.154) note that no precise test of homoscedasticity is available unless the data is completely normally distributed, a condition which was not fulfilled in the present case (see above, p.126).

<sup>2</sup> This reflects in part the uneven distribution of spatial opportunities as well as social and cultural influences on the mental maps of individual communities.

<sup>3</sup> For a general discussion of the influence of spatial structure on individual behaviour see, for example, Rushton (1969).

TABLE 6.11

Location of relatives and friends : simple correlation coefficients (r)

6.11(a)

EASTINGS	$Y_e$	$Xr_{e1}$	$Xr_{e2}$	$Xr_{e3}$	$Xf_{e1}$	$Xf_{e2}$	$Xf_{e3}$
Destination $Y_e$	189	138	106	65	88	71	54
1st Relative $Xr_{e1}$	0.6914	138	100	62	70	60	45
2nd Relative $Xr_{e2}$	0.7155	0.7031	106	64	57	49	37
3rd Relative $Xr_{e3}$	0.6232	0.5454	0.6971	65	31	32	23
Best Friend $Xf_{e1}$	0.6299	0.6496	0.6776	0.6792	88	60	45
2nd Friend $Xf_{e2}$	0.6401	0.5472	0.6636	0.7365	0.5694	71	46
3rd Friend $Xf_{e3}$	0.5605	0.5469	0.4192	0.4945	0.5090	0.5431	54

6.11(b)

NORTHINGS	$Y_n$	$Xr_{n1}$	$Xr_{n2}$	$Xr_{n3}$	$Xf_{n1}$	$Xf_{n2}$	$Xf_{n3}$
Destination $Y_n$	189	141	108	67	90	74	56
1st Relative $Xr_{n1}$	0.5916	142	105	66	72	64	47
2nd Relative $Xr_{n2}$	0.6087	0.6400	109	67	59	52	39
3rd Relative $Xr_{n3}$	0.6514	0.4890	0.5929	68	33	36	25
Best Friend $Xf_{n1}$	0.5040	0.3735	0.1945*	0.4177	90	63	46
2nd Friend $Xf_{n2}$	0.5976	0.5976	0.3776	0.4369	0.6250	75	47
3rd Friend $Xf_{n3}$	0.6121	0.6121	0.4516	0.6823	0.4065	0.6778	57

Lower Triangles: Pearson's r

Upper Triangles: Number of cases for correlation

\* coefficient not significant at  $\alpha \leq .05$  level (all other values significant to at least  $\alpha \leq .01$  level).

for the presence of autocorrelation using the Durbin-Watson test. (Wonnacott and Wonnacott, 1970, pp. 142-43). Although the univariate application of this test separately to the residuals of the eastings and northings equations is likely to give an over-estimate of the significance of autocorrelation in the bivariate case, in no case tested was it possible to reject the hypothesis of no significant autocorrelation at the  $\alpha \leq .05$  level. We thus conclude that autocorrelation (based on the residential location of migrants) is not a significant factor in our estimation of the influence of points of social contact on the destinations of elderly migrants.

Assumption 6:

Absence of multicollinearity.

A high degree of inter-correlation amongst the 'independent' variables in the equations may lead to some, or all, of the following effects:

- (i) The coefficients of the regression equation tend to become unstable and are characterised by large variances. Use of individual coefficients for inferential purposes may thus be impaired, although their combined use for predicting  $Y_{*1}$  values may not be affected so long as the variables concerned are not removed from their line of collinearity. (Wonnacott and Wonnacott, 1970, pp.59-60).
- (ii) The true effect of an independent variable may be disguised by the behaviour of a 'non-causal' mediating variable also included in the equation.
- (iii) Estimates of coefficients become very sensitive to particular sets of sample data (owing to the 'bunching' effect that collinearity has on the multi-dimensional scatter of point observations). The addition or subtraction of a few observations may sometimes radically alter the coefficient values (Johnston, 1972, p.160).

TABLE 6.12

Simple cross validation analysis to determine stability of the regression model

$$Y_{ei} = a_e + b_{e1} X_{r_{ei1}} + b_{e2} X_{r_{ei2}} + u_{ei} \quad \dots \quad (7.7)$$

$$Y_{ni} = a_n + b_{n1} X_{r_{ni1}} + b_{n2} X_{r_{ni2}} + u_{ni} \quad \dots \quad (7.8)$$

Coeff- icient	Sample 1 (n = 55)		Sample 2 (n = 48)		t df(n <sub>1</sub> + n <sub>2</sub> - 2)	α
	Coeff. Value	Std. Error	Coeff. Value	Std. Error		
a <sub>e</sub>	38.7495	4.5313	42.9531	5.0493	0.6196	>.50
b <sub>e1</sub>	0.5685	0.1031	0.5436	0.1225	0.1555	>.50
b <sub>e2</sub>	0.1784	0.1063	0.1275	0.0993	0.3499	>.50
a <sub>n</sub>	76.4487	10.9640	71.8049	10.5887	0.3047	>.50
b <sub>n1</sub>	0.3412	0.1406	0.2819	0.3992	0.3238	>.50
b <sub>n2</sub>	0.2215	0.1169	0.2025	0.2880	0.1967	>.50
R <sub>e</sub>	0.7577		0.7665			
R <sub>e</sub> Z*	0.9888	0.1387	1.0116	0.1491	0.1112**	>.50
R <sub>n</sub>	0.6599		0.6093			
R <sub>n</sub> Z*	0.7930	0.1387	0.7079	0.1491	0.4180**	>.50

\* Fisher's Z transformation

\*\* df (n<sub>1</sub> + n<sub>2</sub> - 6) (See Downie & Heath, 1970, p.233)



As Tables 6.11a and 6.11b show, a generally high degree of inter-correlation was present within the two sets of regressors. The crucial question with regard to the effectiveness of the estimating equations as predictors of migrant destination therefore concerned the overall stability of the regression coefficients. Two samples ( $p = 0.5$ ), were therefore taken (with replacement) and a cross validation analysis for stability of regression weights made (Guilford, 1954, p.406), using the locations of the most frequently, and second most frequently, seen relatives ( $Xr_{e1}, Xr_{n1}$ ) and ( $Xr_{e2}, Xr_{n2}$ ) as the independent variables. The results are shown in Table 6.12. Despite the highly correlated nature of the locations of these two relatives (Tables 6.11a, 6.11b), the cross validation check demonstrated a remarkable degree of stability, both in terms of the actual regression coefficients themselves and the multiple R values. Even allowing for the relatively large standard errors of the slope coefficients (contributed to, paradoxically, by the presence of collinearity), the exceedingly small t values shown in Table 12 ( $\alpha > .50$  in all cases), the close quantitative similarity of the coefficients themselves strongly support the conclusion that the presence of multicollinearity is unlikely to affect the generality of the results.

Conclusion: the assumptions of the linear model

It is clear from the foregoing discussion that the general linear model, described by equations (6.1) and (6.2) and fitted by the method of ordinary least squares, adequately meets the basic criteria necessary for reliable estimation of  $Y_{*i}$ , at least for the particular universe population of elderly migrants with which we are currently concerned.

Before we go on to look at the actual measured performance of the model as a predictor of migration, however, it is necessary to sound a note of caution. All destinations of migrants recorded were, of course, for the five Yorkshire coastal towns in which the remainder of the survey was carried out. Not only are these settlements relatively close to one another<sup>1</sup>, and thus located in the

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<sup>1</sup> The furthest points of the study area are only 70 km apart.

same general spatial sector relative to the main migrant producing areas (North Humberside, South Yorkshire and the West Yorkshire metropolitan area), but they are also limited in the number of possible sectoral relationships by virtue of their coastal situation. This study is thus rather more constrained by the configuration of opportunities in space than would have been the case had it been possible to sample elderly migrants on the basis of their places of origin, or if the survey had been able to cover a much wider range of destinations. It is therefore intended that the following section should be regarded more as a tentative prelude to such a study rather than as a definitive test of the model.

Finally, the model is not intended to simulate the whole phenomenon of migration, as it assumes that the decision actually to move has already taken place.<sup>1</sup> It thus reflects only the 'pull' factors operating on the direction and distance travelled by the migrants.

Performance of the model for predicting the destination of migrants

Including the first order terms of equation (6.5) and (6.6) (see Step 1 of Tables 6.10a, b), four main variations of the basic model (equations 6.1, 6.2) were tested. The first three of these may be defined as follows:

Model 1 (see equations 6.7, 6.8)

$$Y_{ei} = a_e + b_{e1} X_{r_{ei1}} + b_{e2} X_{r_{ei2}} + u_{ei}$$

$$Y_{ni} = a_n + b_{n1} X_{r_{ni1}} + b_{n2} X_{r_{ni2}} + u_{ni}$$

Model 2

$$Y_{ei} = a_e + b_{e1} X_{r_{ei1}} + b_{e2} X_{f_{ei1}} + u_{ei} \quad \dots \quad (6.9)$$

$$Y_{ni} = a_n + b_{n1} X_{r_{ni1}} + b_{n2} X_{f_{ni1}} + u_{ni} \quad \dots \quad (6.10)$$

<sup>1</sup> For a discussion of problems involved in modelling the so-called 'mover-stayer' dichotomy, see Willis (1974, pp.143-165).

TABLE 6.13

Model 1

Fitted Equation: $Y_{ei} = 46.2394 + 0.4287Xr_{ei1} + 0.3031Xr_{ei2}$		
Std. Error $b_{ej}$	0.0711	0.0698
F-Ratio	36.386	18.843
df	198	198
$\alpha$	<.001	<.001
R 0.8077	R <sup>2</sup> 0.6453	Std. Error of Est. 37.0352
F91.0331	df <del>297</del>	$\alpha$ <.001
Durbin-Watson D	1.9039	( $\alpha$ >.05)
Fitted Equation: $Y_{ni} = 61.0921 + 0.3572Xr_{ni1} + 0.2552Xr_{ni2}$		
Std. Error $b_{nj}$	0.0794	0.0690
F-Ratio	20.249	13.700
df	198	198
$\alpha$	<.001	<.001
R 0.6900	R <sup>2</sup> 0.4761	Std. Error of Est. 71.4847
F45.8980	df <del>297</del>	$\alpha$ <.001
Durbin-Watson D	2.0646	( $\alpha$ >.05)

Model 3 (see Tables 6.10a, b)

$$Y_{ei} = a_e + b_{e1} R_{c_{ei}} + b_{e2} FRC_{ei} + u_{ei} \quad \dots (6.11)$$

$$Y_{ni} = a_n + b_{n1} R_{c_{ni}} + b_{n2} FRC_{ni} + u_{ni} \quad \dots (6.12)$$

(For definition of terms, see Equations (6.3) and (6.4), and Tables 6.11a, b).

Results for Models 1 and 2 are shown in Tables 6.13 and 6.14, and those for Model 3 in Tables 6.10a and b.

The highest overall values of the coefficient of multiple determination ( $R^2$ ) were returned by Models 1 and 3, Model 2 being particularly disappointing with regard to the fit of the  $Y_{ni}$  equation ( $R^2 0.3350$ ). Model 1 yielded the highest  $R^2$  for  $Y_{ei}$  ( $R^2 0.6453$ ) whilst Model 3 yielded the highest value for  $Y_{ni}$  ( $R^2 0.5216$ ). None of the differences between Models 1 and 3, however, were anywhere near statistically significant. The generally better fit of the eastings ( $Y_{ei}$ ) equations is reflected in the associated standard error of estimate statistics given in the tables, the error for  $Y_{ni}$  consistently being about twice as great as that for  $Y_{ei}$ . As Tables 6.10a, b and 6.14 show, the 'marginal product' in terms of migration distance of a shift of one kilometre easting is somewhat greater for relatives than for friends, the relationship being reversed in the cases of north-south shifts. The differences involved, however, are small and are not statistically significant.

The large values of the intercept terms  $a_e$ ,  $a_n$  computed for all three equations are not easily interpreted and therefore require further explanation. Had it been possible to fit the models to data gathered from a sample of all migrants from one particular place of origin, then  $a_e$ ,  $a_n$  could be taken to represent the resultant of all forces of attraction applying to that origin, excluding those explained by the independent variables in the regression equation. These forces would include an 'opportunity' (or gravitational) component in that the presence of a nearby, and/or more heavily populated, potential destination would tend to attract migrants in one particular direction relative to the point of origin. Other forces of attraction would possibly include the comparative appeal that the 'non social' environment of each potential destination has for

TABLE 6 .14

## Model 2

Fitted Equation: $Y_{ei} = 46.1166 + 0.3751Xr_{ei1} + 0.2728Xf_{ei1}$		
Std. error $b_{ej}$	0.0866	0.0766
F-Ratio	18.766	12.692
df	1/66	1/66
$\alpha$	.001	.001
R 0.7609	$R^2$ 0.5790	Std. Error of Est. 39.7050
F44.6967	df 2 65	$\alpha < .001$
Durbin-Watson D	1.8467	( $\alpha > .05$ )
Fitted Equation: $Y_{ni} = 68.7321 + 0.2587Xr_{ni1} + 0.3231Xf_{ni1}$		
Std. Error $b_{nj}$	0.1071	0.0827
F-Ratio	5.831	15.271
df	1/66	1/66
$\alpha$	<.05	<.001
R 0.5788	$R^2$ 0.3350	Std. Error or Est. 87.5558
F16.3694	df 2/65	$\alpha < .001$
Durbin-Watson D	2.0484	( $\alpha > .05$ )

\* Visual inspection of plot of residuals  $u_{ni}$  against  $Y_{ni}$  showed some evidence of non linear relationship.

migrants at the given origin; the aesthetic quality of the area is an obvious example, as is the price and availability of a suitable range of housing. In the present exercise, however, the converse of this situation applies in that the number of destinations is limited but the complete range of potential origins is covered. The value of the expression

$$\text{Arctan} \left( \frac{a_n}{a_e} \right) + 180^\circ$$

could then be taken as a measure of the mean direction of the origin of migrants attracted to the 'non social' environment of the particular destination towns studied, whilst the magnitude of  $a_e$ ,  $a_n$  would represent the relative strength of this attraction as opposed to that exerted on all other possible directions of origin. Unfortunately, these statistics are not particularly informative in the case of migration to the five towns studied, bearing in mind that migration to the Yorkshire coast from the north and east is prevented by the sea and is inevitably dominated from the south by Hull and, from the west, by the West Yorkshire conurbation. For this reason no formal analysis of  $a_e$ ,  $a_n$ , will be made.

Although there is little to choose between Models 1 and 3 in terms of their overall fit to the data (defined on  $R^2$ , the standard error of estimate, and the standard errors of the regression coefficients), we may select Model 1 as being the 'best' overall, being rather more parsimonious in the quantity of raw information required ( $Xr_{*1}$ ,  $Xr_{*2}$  as opposed to  $Rc_{*i}$ ,  $FRC_{*i}$ ). How, therefore, might we describe the combined two-dimensional effect of equations (6.5) and (6.6)?

For any individual migrant, the probability of his actually locating in the area around the point calculated through application of the regression weights in Table 6.13 may be said to approximate to a bivariate normal distribution. This will be centred on the point estimate for the migrant's destination  $D (Y_{ei}, Y_{ni})$ , and its density function for the two sets of co-ordinates  $e$  and  $n$  may be written as:

$$f(e, n) = (2\pi s_e s_n)^{-1} \exp \left[ -(e^2/2s_e^2 + n^2/2s_n^2) \right] \quad \dots \quad (6.13)$$

(Moore, 1970, p.383)

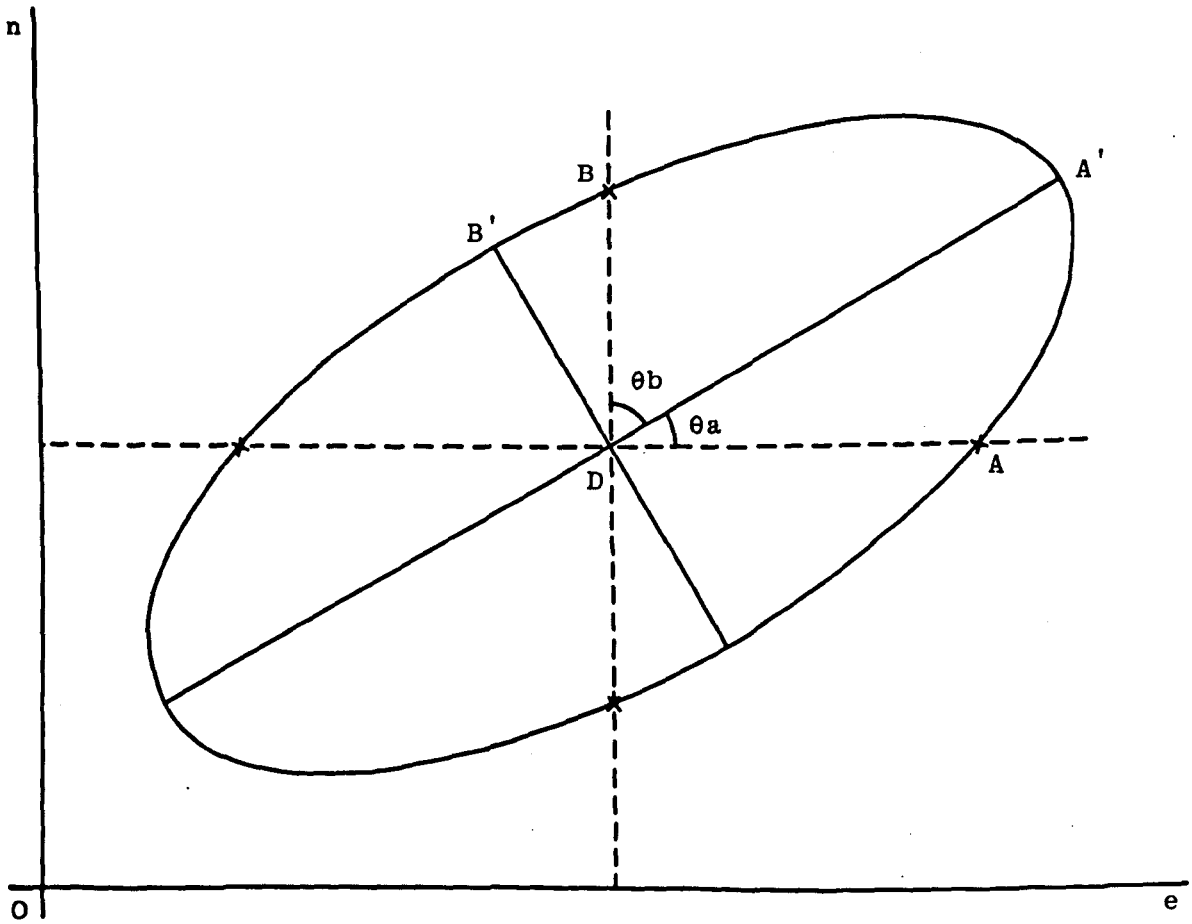


FIGURE 6.1 THE STANDARD ERROR ELLIPSE

(After Lefever, 1926, p92)

where  $s_e$  and  $s_n$  are the standard errors of estimate for the  $Y_{ei}$  and  $Y_{ni}$  equations. Expressed as a two dimensional projection from this three dimensional surface,  $s_e$  and  $s_n$  are thus the points on the e and n axes intersected by the isoprobability ellipse representing one standard deviation of the errors around  $D(Y_{ei}, Y_{ni})$ . In Figure 6.1, the line DA is therefore of length  $s_e$  and DB equals  $s_n$ . We may therefore summarise the nature of the distribution of error about D in terms of the length of the semi major axis  $DA' = s_e'$ , the length of the semi minor axis  $DB' = s_n'$ , their respective angles of inclination  $\theta_a$  and  $\theta_b$ , and the index of eccentricity:

$$c = \frac{s_e'}{s_n'} \quad \dots (6.14)$$

(Yuill, 1971, p.35)

Following Lefever it may be shown that:

$$s_e' = \sqrt{\frac{\cos^2 \theta_a \sum_{i=1}^m e_i^2 + 2 \sin \theta_a \cos \theta_a \sum_{i=1}^m e_i n_i + \sin^2 \theta_a \sum_{i=1}^m n_i^2}{m - 2}} \quad \dots (6.15)$$

$$s_n' = \sqrt{\frac{\sin^2 \theta_a \sum_{i=1}^m e_i^2 + 2 \sin \theta_a \cos \theta_a \sum_{i=1}^m e_i n_i + \cos^2 \theta_a \sum_{i=1}^m n_i^2}{m - 2}} \quad \dots (6.16)$$

where  $e_i$  is the value of residual i from  $Y_{ei}$ ,  $n_i$  is the value of residual i from  $Y_{ni}$ , and m is the number of observations.

Lefever has also shown that:

$$\tan \theta = \frac{-(\sum e_i^2 - \sum n_i^2) \pm \sqrt{(\sum e_i^2 - \sum n_i^2)^2 + 4(\sum e_i n_i)^2}}{2 \sum e_i n_i} \quad \dots (6.17) \text{ (Lefever, 1926, pp.90-91)}$$

The bivariate distribution of the error about any predicted destination

$D(Y_{ei}, Y_{ni})$  using Model 1 may thus be summarised as follows:

Angle of inclination of ellipse  $\theta_a = -83.5310^\circ$ ,  $\theta_b = +6.4690^\circ$

Length of semi-major axis:  $s_e' = 71.8245 \text{ km}$



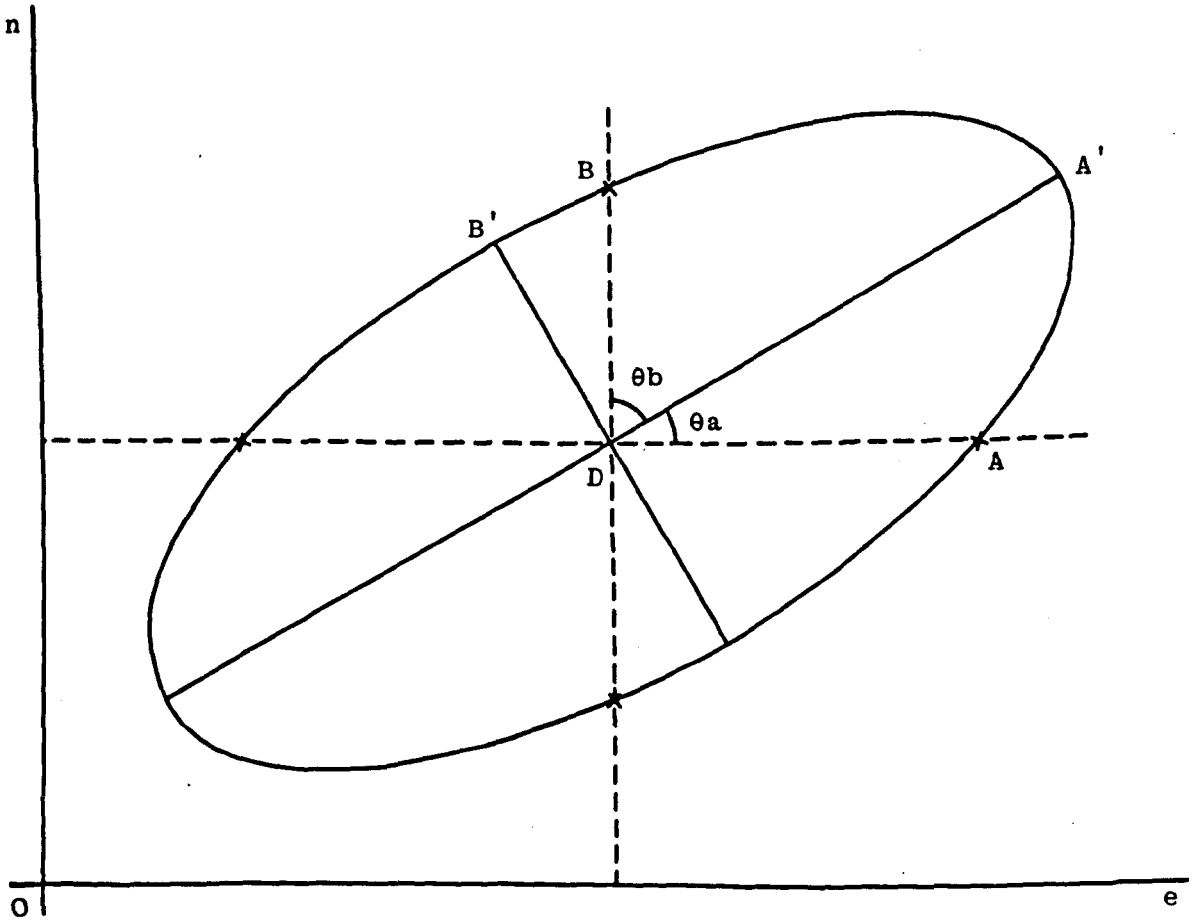


FIGURE 6.1 THE STANDARD ERROR ELLIPSE

(After Lefever, 1926, p92)

where  $s_e$  and  $s_n$  are the standard errors of estimate for the  $Y_{ei}$  and  $Y_{ni}$  equations. Expressed as a two dimensional projection from this three dimensional surface,  $s_e$  and  $s_n$  are thus the points on the e and n axes intersected by the isoprobability ellipse representing one standard deviation of the errors around  $D(Y_{ei}, Y_{ni})$ . In Figure 6.1, the line DA is therefore of length  $s_e$  and DB equals  $s_n$ . We may therefore summarise the nature of the distribution of error about D in terms of the length of the semi major axis  $DA' = s_e'$ , the length of the semi minor axis  $DB' = s_n'$ , their respective angles of inclination  $\theta_a$  and  $\theta_b$ , and the index of eccentricity:

$$c = \frac{s_e'}{s_n'} \quad \dots (6.14)$$

(Yuill, 1971, p.35)

Following Lefever it may be shown that:

$$s_e' = \sqrt{\frac{\cos^2 \theta_a \sum_{i=1}^m e_i^2 + 2 \sin \theta_a \cos \theta_a \sum_{i=1}^m e_i n_i + \sin^2 \theta_a \sum_{i=1}^m n_i^2}{m - 2}} \quad \dots (6.15)$$

$$s_n' = \sqrt{\frac{\sin^2 \theta_a \sum_{i=1}^m e_i^2 + 2 \sin \theta_a \cos \theta_a \sum_{i=1}^m e_i n_i + \cos^2 \theta_a \sum_{i=1}^m n_i^2}{m - 2}} \quad \dots (6.16)$$

where  $e_i$  is the value of residual i from  $Y_{ei}$ ,  $n_i$  is the value of residual i from  $Y_{ni}$ , and m is the number of observations.

Lefever has also shown that:

$$\tan \theta = \frac{-(\sum e_i^2 - \sum n_i^2) \pm \sqrt{(\sum e_i^2 - \sum n_i^2)^2 + 4(\sum e_i n_i)^2}}{2 \sum e_i n_i} \quad \dots (6.17) \text{ (Lefever, 1926, pp.90-91)}$$

The bivariate distribution of the error about any predicted destination

$D(Y_{ei}, Y_{ni})$  using Model 1 may thus be summarised as follows:

Angle of inclination of ellipse  $\theta_a = -83.5310^\circ$ ,  $\theta_b = 6.4690^\circ$

Length of semi-major axis:  $S_e' = 71.8245 \text{ km}$

Length of semi-minor axis:  $S_n' = 38.9256$  km

Index of eccentricity of ellipse:  $c = 1.8452$ .

The angle of inclination may be standardised to grid north ( $90^\circ - \theta$ ) giving  $\theta_a = 173.5310^\circ$ ,  $\theta_b = 83.5310^\circ$ .

The great disadvantage of Models 1 to 3 is, of course, that they are only applicable to those old people who mention the social contacts necessary to calculate predicted destination. Model 1, for example, was thus applicable to only 51.6% of all respondents. However, as we argued earlier, the locations of friends and relatives may be regarded as proxies for factors contributing to a person's mental images of particular places other than those stemming from social contact per se. In order to overcome the problem of partial coverage the following model was applied:

#### Model 4

$$Y_{ei} = a_e + b_{e1} X_{r_{ei1}} + b_{e2} X_{r_{ei2}} + b_{e3} X_{r_{ei3}} + b_{e4} X_{f_{ei1}} + b_{e5} X_{f_{ei2}} + b_{e6} X_{f_{ei3}} + u_{ei} \dots (6.18)$$

$$Y_{ni} = a_n + b_{n1} X_{r_{ni1}} + b_{n2} X_{r_{ni2}} + b_{n3} X_{r_{ni3}} + b_{n4} X_{f_{ni1}} + b_{n5} X_{f_{ni2}} + b_{n6} X_{f_{ni3}} + u_{ni} \dots (6.19)$$

The regression coefficients  $b_{*j}$  were then calculated using the technique of pair-wise deletion of missing data (Nie et al, 1975, p.353). Using this approach, a missing value for a particular variable causes the individual data record concerned to be eliminated from calculations involving that variable only.

Weighted values of  $Y_{*i}$  were then calculated using the general formula:

$$Y_{*i}' = \frac{k}{kn} \left( \sum_{j=1}^k b_{*j} X_{*ij} \right) \dots (6.20)$$

where  $Y_{*i}'$  is the weighted predictor,  $k$  is the number of independent variables in the regression equation and  $kn$  is the number of non-missing independent variables. There are certain drawbacks to this approach, particularly in that neither the

TABLE 6.15

## Model 4

Fitted Equation: $Y_{ei} = 47.9569 + 0.1754Xr_{ei1} + 0.2228Xr_{ei2} + 0.0348Xr_{ei3} + 0.0519Xf_{ei1} + 0.1108Xf_{ei2} + 0.1748Xf_{ei3}$			
R 0.8000	$R^2$ 0.6399	Std. error of est. 37.9918	
F53.6064	df6/181(nominal)	$\alpha < .001$	
Durbin-Watson D	2.1096	( $\alpha > .05$ )	*
Fitted Equation: $Y_{ni} = 58.5604 + 0.0216Xr_{ni1} + 0.2226Xr_{ni2} + 0.0998Xr_{ni3} + 0.1531Xf_{ni1} + 0.0619Xf_{ni2} + 0.2326Xf_{ni3}$			
R 0.7979	$R^2$ 0.6366	Std. error of est. 66.0211	
F52.8456	df6/181(nominal)	$\alpha < .001$	
Durbin-Watson D	2.1391	( $\alpha > .05$ )	

NE - Reliable estimates of standard error of  $b_{*j}$  not calculable

\* Visual inspection of residuals  $u_{ei}$  against  $Y_{ei}$  revealed some evidence of negative linear relationship.

Bivariate standard error of estimate:

Angle of inclination of ellipse:  $\theta_a = -82.6841^\circ$ ,  $\theta_b = +7.3159^\circ$

Length of semi-major axis:  $s_e' = 66.3901\text{km}$

Length of semi-minor axis:  $s_n' = 39.8345\text{km}$

Index of eccentricity of ellipse:  $c = 1.6667$

standard errors of the  $b_{*j}$  coefficients, nor their associated F ratios, may be calculated. This problem is not crucial, however, in the current situation, as the equations are being used purely for predictive purposes.

The results of this analysis are shown in Table 6.15, the high  $R^2$  values of 0.6399 and 0.6366 being achieved for  $Y_{ei}$  and  $Y_{ni}$  respectively.<sup>1</sup>

It is noteworthy that, whilst the beta values suggest that the locations of relatives are marginally more closely linked with distance and direction of the retirement move than are the locations of friends, the computed value of  $b_{n1}$  in equation (6.19) is extremely small. Moreover, in both equations (6.18) and (6.19), the beta weights  $b_{*6}$  applying to the location of the third friend are considerably larger than those for the first and second friends. These differences are, however, probably little more than a reflection of the biases introduced into the equation by the use of weighted predictors. Given the limited objectives in mind when equations (6.18) and (6.19) were estimated, the fact that the beta coefficients are all positive, and that the values of  $R^2$  are high, may be taken as evidence that Model 4 is a reasonably effective general estimator of migration distance and direction.

#### The regression models - further discussion and conclusions

The comparatively high predictive power and positive coefficients of the regression models amply demonstrates the importance of the maintenance of sectoral relationships with regard to points of social contact, rather than simple considerations of distance alone. This result could, of course, be heavily influenced by the irregularities of population distribution peculiar to any single spatial system, however. To illustrate this problem, consider an imaginary urban system consisting of five coastal towns located on the eastern limit

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<sup>1</sup> It should be noted that the plot of residuals against predicted  $Y_{ei}$  revealed some evidence of a linear negative relationship. For  $Y_{ni}$  the  $ei$  distribution was skew and somewhat leptokurtic.

of the system, five coastal towns located on the west, a large city (A) in the centre of the system and another (B) located between the central city and the east coast towns. Let us further assume that the remainder of the system is thinly but quite evenly populated, and that substantial numbers of migrants from the central city move to both the east and the west coast towns. All other things being equal, an analysis of the type applied above would tend to confirm the hypothesis of sectoral movement in relation to points of social contact if the data were gathered in the east coast towns, because of the considerable opportunities for contact afforded by city B. A survey based on movement to the west coast towns, however, would be more likely to lead to a rejection of the positive sectoral hypothesis, a negative sectoral relationship being shown instead. As most of the elderly migrants in the present study originated from the West Yorkshire conurbation and North Humberside, with only comparatively thinly populated areas between them and their destinations, this type of spatial bias effect on the results of the fitted model was considered to be fairly unimportant. Had a great number of migrants come from, say, Greater Manchester, Merseyside or the West or East Midlands, then serious consideration would have had to have been given to the influence of spatial bias.

It may therefore be concluded that information on the location of migrants' relatives and/or friends could provide a promising basis for the prediction of community migration flows amongst the elderly. Certainly, the type of analysis applied in this section potentially allows a more adequate representation of individual behaviour than more traditional models based on 'macro' variables such as employment, public expenditure per capita, or even assessments of environmental quality. In particular, it is likely to approximate to the effects of geographical variation in a given individual's information on migration opportunities much more closely than can the generalised 'gravity' type model, with its assumption of common direction and distance of movement probabilities for all members of a given community.

## General Conclusions - Social Determinants of Migration

Taken overall, the results of the survey support the contention that, whilst the nature of the individual's social network might not be particularly important as a direct 'cause' of migration, it is an important consideration in the study of his actual destination. Certainly there was no evidence to show that elderly inter-urban migrants had more tenuous social networks at the place of origin than had respondents in the two local samples. Neither was there support for the hypothesis that inter-urban migrants were likely to be more remote from non local centres of 'high quality' social contact (thus encouraging an 'adjustment' move towards them) than were the local movers and non movers. In fact the local samples were located much greater distances on average from non local points of social contact.

The accessibility of an important part of the migrants' social networks, on the other hand, was in general maintained at least at the level existing prior to the move. Thus two thirds of the inter urban migrants had had at least one friend or relative living in the destination town at the time of moving. Also, there was no evidence of an overall shift away from non local centres of social contact, suggesting that some form of 'threshold of acceptable isolation' from valued friends and relatives might tend to operate. This threshold would, of course, be subject to considerable variation depending partly upon the individual's means of overcoming distance. Possession of a car is an obvious factor, but so too is a person's state of health and level of income - actual and anticipated. A migrant who moved bearing in mind the general effect that his action would have on distance to social contacts, and hence on visit frequency and cost of travel, might be expected to show marked directional bias in his move, simply in order to keep the spatial configuration of his previous social relationships stable. Although by no means conclusive, the application of a general regression model of movement in 'socio-Euclidean' space lent substantial support to this sectoral hypothesis.

## CHAPTER 7

### THE EMPIRICAL STUDY : REVIEW, CONCLUSIONS AND PROSPECTS FOR A GENERAL THEORY OF MIGRATION

Review: the migration behaviour of elderly people

In the introduction to Chapter 2 the phenomenon of 'retirement migration' was presented in the wider context of migration decisions in general. It was maintained that owing to its overall impact on the life of the individual and the fact that the conscious exercise of choice is normally involved, the decision to migrate is likely to be made in a rational manner, at least when seen from the subjective viewpoint of the decision maker himself. When approached in this way, it was thought that fairly effective generalisations could be made concerning the causes of migration. An individual's residential location was argued to be a prime means of providing him with the goods and services which he requires to carry out the activities of daily life. Subject to certain constraints, the attributes of location are 'consumed' throughout his period of residence, their quantities varying as his needs and circumstances change. The individual's degree of satisfaction with his location at a given time - his 'place utility' (Wolpert, 1965, p.161) - will largely be determined by how far he sees it can meet his needs, whether actual or anticipated. Any discrepancy which exists between these needs and what a location is actually seen to afford may result in a state of stress. (Wolpert, 1966, p.93). Migration is just one amongst many courses of action which may be taken in order to alleviate this stress.

It was then argued that a study of personal characteristics was crucial to an understanding of both the pattern of activities which an individual expects to be able to pursue in any given location, and also of the factors constraining his ability to achieve these expectations. Migration was seen to be as much a product of these characteristics and activities as of the nature of the place of residence. The study of 'retirement migration' was therefore taken to require consideration of the personal characteristics and the general behaviour of the elderly.



Two sets of factors, each influencing the behaviour patterns of old people, were discussed. The first of these relates to the general pressures of change in modern urban society which have led to a broadening of its geographical horizons. The area in which the individual resides is no longer necessarily synonymous with a discrete 'habitat' as delineated by the set of bonds which exist between him and a set of geographically distributed physical facilities and foci of social interaction. This is particularly the case with regard to centres of social activity, for the location of many of these may change without always implying a shift in the rest of the network of personal connections. Wide variations in the extent to which this is true are likely to exist between individuals, however, according to class, culture, personality, education, income and degree of physical mobility.

The second set of factors is more specifically related to the elderly and together may be taken to comprise the 'ageing process'. The impact of three main aspects of ageing was examined, these being:

- i) Biological Ageing
- ii) Economic Ageing
- iii) Social Ageing

The adjustment strategies used by the elderly in order to cope with the varying effects of these processes were discussed, the conclusion being that neither of the two principal theories of adjustment - the 'activity' and 'disengagement' theories - satisfactorily explain all the phenomena associated with successful ageing. It was argued that the salient features of ageing are not part of an autonomous process, but are the results of the interaction of the characteristics and circumstances of the individual old person with processes and expectations imposed from without by society in general.

## Objectives of the Empirical Study

The empirical study was concerned primarily with relating some of the fundamental characteristics of the life of old people to the decision to migrate. The main areas for further investigation were defined as follows:

- i) The function of retirement and bereavement as sources of locational stress.
- ii) The relationships between previous geographical mobility (and hence looser ties of place, greater experience of migration and its problems) and retirement migration. Special attention was to be paid to the effects of social class differences.
- iii) The importance of the residential environment to migration. As the individual old person becomes increasingly home centred through the effects of retirement and through the decrease in mobility and activity levels, he is likely to become more sensitive to the inadequacies of the place of residence.
- iv) The relationship between the destination of the elderly migrant and the distribution of social support in the form of friends and relatives.
- v) The relationship between migration and previous contact with the place of eventual destination.

The study was carried out in five towns on the Yorkshire coast, a questionnaire survey being applied to a sample of 194 inter-urban migrants, 51 local movers and 49 non-migrants.

## Principal Research Findings

### 1. Migrant Characteristics:

1.1) On the whole, the demographic and socio-economic characteristics of the inter-urban migrants conformed broadly to patterns in other studies. Unlike Karn's (1971) Bexhill and Clacton samples, however, marriage was not a particularly strong distinguishing feature.

1.2) Although the proportion of inter-urban migrants in Social Classes I and II was much higher than among the two local samples (as expected), there appeared to be surprisingly few variations in the proportion of higher social class migrants between the study towns.

1.3) The inter-urban migrants had not experienced a longer average period of full-time education than those in the local samples.

1.4) The expected difference between the employment status of the inter-urban migrants and the local samples at the time of survey, was more than offset by the fact that over 17% of the former had only retired after the 'retirement' move had been made. Pre-retirement migration was therefore a significant phenomenon.

1.5) The low incidence of measured physical disability amongst the inter-urban migrants suggested that failing health was not likely to be a major consideration in most of the moves. This was further emphasised by the fact that almost 60% of the inter-urban migrants had moved before reaching the age of 65 and also that under 18% actually stated that they had felt obliged to move because of health reasons. The high disability scores of local movers compared with non-migrants suggested that rather more local moves may have been prompted, at least in part, by health considerations; however, the number of local movers who actually stated that they had been obliged to move because of their health was not significantly higher than in the case of the inter-urban migrants.

### 2. Previous migration experience and prior contact with the place of destination.

2.1) It was clear that information based on direct experience of the destination was likely to have been of great significance to the majority of

elderly inter-urban migrants. Less than 14% had never visited or lived in their present town before the age of 50 and less than 20% said that they neither knew it well nor knew anyone already living there when they first moved. On the other hand, 50% claimed an intimate knowledge of the town and knew at least one person living there.

2.2) There was also evidence, however, that the migrant's mental image of the destination still contained a strong emotional component. For example, in the case of migrants who had previously been residents of the destination town childhood associations were very common. The great preponderance of past holiday connections with the town amongst other migrants also suggested that feelings about the place were likely to have been coloured by the 'halo' effects of 'good times' past.

2.3) The impact of previous mobility was not so clear cut:

2.3.1) The degree of 'local orientation' was found to be high amongst both local samples compared with inter-urban migrants. Moreover, local movers were much more likely to have lived elsewhere before the age of 50 than non-movers.

2.3.2) Ignoring distance of move, all three migrant types showed very similar frequencies of movement from childhood to middle age. No substantial class differences were found either, suggesting that any variations in the degree of "awareness of migration opportunities" between the classes may principally be explained by the distance of previous moves.

3. The impact of retirement and widowhood:

3.1) A quite uniformly high proportion of positive attitudes towards retirement were found irrespective of migrant type or social class.

3.2) Both retirement and bereavement appear to have brought a very rapid migration response amongst the inter-urban sample. In particular, the

lateness or non existence of serious pre-retirement planning for a large number of respondents makes the proportion of moves within one year following retirement (40%) appear very high. (45% had made no migration plan before retirement at all and 15% had planned less than one year beforehand).

3.3) Social class was found to have little or no relationship to variation in the behaviour of inter-urban migrants, although there was a very weakly supported suggestion that respondents in Classes I and II were more likely to move shortly after bereavement than those in Classes III to V.

3.4) Attitude towards retirement was noticeably associated with pre-retirement planning behaviour. Those with negative attitudes were more heavily represented amongst respondents who had not engaged seriously in pre-retirement migration planning.

#### 4. Migration distance:

4.1) Following the discussion on the likely implications for migration behaviour of the broadening geographical horizons of modern society, it was expected that old people in Social Classes I and II would move further afield than those in Classes III to V. This was not confirmed by the survey evidence.

4.2) The hypothesis that 'older' old people would move further than 'younger' old people (because of increased dependency in advanced old age and a known tendency for the elderly who migrate in order to be with relatives to move greater distances than those moving to obtain better surroundings) was also not substantiated.

#### 5. Reasons for moving:

5.1) 'Push' factors appeared to have predominated in the decision to move:

5.1.1) Over 57% of inter-urban migrants and 78% of local movers moved primarily for 'push' reasons.

5.1.2) Nearly one third of all inter-urban migrants felt that they had been 'obliged' to move, well over half of

these for health reasons. Local movers were somewhat more likely (though not significantly so,  $\alpha .104$ ) to express a feeling of obligation to move (43%).

- 5.1.3) When the main 'voluntary' reason given for moving was isolated, less than 40% of inter-urban migrants mentioned push factors compared with 60% of local movers.
- 5.1.4) A push factor mentioned as the main 'voluntary' reason for the move tended to be associated with a pull factor as second reason, and vice versa.

It was concluded that two stage decision strategies of the Brown and Moore (1970) type are likely to predominate over those comprising a single stage. Single stage decisions are likely to be more commonly used by inter-urban migrants than by local movers. There is some circumstantial evidence to suggest that even this type of decision very frequently involves a consideration of push as well as pull factors in order to overcome locational inertia. The high frequency of push factors appears to indicate that the retirement migrants in general are more likely to move in response to a shift in needs stemming from a change in their everyday pattern of activities, than because of the liberating effects of retirement on opportunities for 'spatial consumption'.

5.2) The reasons given for moving by both inter-urban and local migrants tended to correspond closely with aspects of the three ageing processes, for example:

5.2.1) Nearly 28% of all inter-urban migrants said they had been influenced by a desire to join family or friends.

5.2.2) Health reasons were mentioned by just over 17% of inter-urban migrants and 23% of local movers.

5.3) Local movers were, however, much more likely to mention factors connected with housing (75% of main 'voluntary' reasons) than inter-urban migrants (11%), while the latter were correspondingly more likely to mention

factors connected with the social and physical environment.

5.4) Over two thirds of non migrants did not wish to move at all, mainly for reasons implying social attachment and familiarity with the area.

5.5) Social class differences amongst the inter-urban sample accounted for little of the variation in type of main 'voluntary' reason for the move.

5.6) Those moving to the two larger towns (Scarborough and Bridlington) were, however, more likely to mention 'pull' main voluntary reasons (67%) than migrants to the three smaller towns (50%).

## 6. Analysis of 'irritant' scores:

An 'irritant' in this context was defined as a factor contributing towards dissatisfaction with a place of residence but which may not, on its own, be sufficient to stimulate migration.

6.1) The results appeared to confirm the reliability of the respondents' overt reasons for moving, although a formal test of whether migrants mentioning pull factors as the main voluntary reason tended also to have a high rating on the corresponding categories of the 'irritant' list was inconclusive.

6.2) Variation in the irritant scores of inter-urban migrants could be attributed to neither social class nor town size (with the single exception of class in the case of the residential score).

6.3) Highly significant variations were found to exist between the irritant scores of the different migrant types for both Residential and Physical Environment categories. Non movers, in particular, showed surprisingly high scores on Residential irritants.

The general conclusion was that, while the behaviour of inter-urban compared with local migrants strongly reflected their subjective experience of environment, personality differences may still have a marked influence on non migrant versus migrant behaviour.

7. The search for a new home - information channels used:

7.1) Over 60% of inter-urban migrants had found their homes through an informal primary information source: 30% had relied on information from friends and relatives, and nearly 25% from walking or riding around the area.

7.2) Local migrants were equally reliant on information via social contact, but almost as many (29%) quoted the local authority as the main source. Less than 16% had used estate agents or newspapers.

7.3) Social class appeared to have had little influence on migrants' general information sampling strategies.

8. Criteria for selecting a new home:

This section concentrated on 'specifications' rather than 'attractions'.

8.1) On the whole, all three migrant types showed similar rankings of attribute categories. However, the two local samples attached much greater importance to familiarity of place than did the inter-urban migrants. It was apparent that the latter were more willing to accept a high level of uncertainty and also a potentially lower level of support at the destination from family and friends.

8.2) The inter-urban migrants had much higher 'actual' housing and neighbourhood circumstance scores than had the local samples.

8.3) Social class accounted for no significant variation in the preference scores. Whilst it was strongly connected with the ability of the migrant to obtain the desired attributes of a new home, it did not appear to influence revealed general tastes as measured here.

8.4) Migrants to the three smaller towns appeared to have exchanged 'better' housing conditions for lower levels of other attributes compared with migrants to the larger towns.

8.5) Although three-quarters of the inter-urban sample thought it either 'important' or 'very important' to live by the sea, only just over a half of the local samples thought so. Over 80% of both inter-urban and local



samples thought it 'important' or 'very important' to live within easy reach of the countryside.

9. Social determinants of migration - social networks at the time of the move:

9.1) Inter-urban migrants with children were less likely to have had them living in their previous town than were the local samples. The same was true with regard to other relatives, although the difference was not statistically significant ( $\alpha .097$ ).

9.2) Migrants in Social Classes I and II were less likely to have either children or other relatives in their previous towns than were those in Classes III to V. (Again, however, the difference was not significant with regard to other relatives,  $\alpha .060$ ).

9.3) There were no significant differences between the proportions of male and female migrants reporting no relatives living in the previous town.

9.4) The inter-urban migrants quite frequently had had prior social connections with their eventual destination. Two thirds mentioned at least one friend or relative in this context, over a half being relatives. Only 10% had children living there, however.

9.5) No support was lent to the hypothesis that professional and managerial workers were more likely to move to places where potential social support was less forthcoming than were those of lower status. Neither did the former appear more likely to emphasise the presence of friends nor the latter the presence of relatives.

9.6) Important variations in the nature of prior contact were found with regard to marital status:

9.6.1) Single people were much more likely to have moved to a town where their only contacts were with friends (50%) than were those who were married (27%).

9.6.2) Similarly, the widowed were more likely to move to where their only prior contacts were with their children (19%) than were the married (5%).

9.6.3) However, those who were married were not significantly more likely to have been socially 'self-sufficient' in the sense of having no prior social contacts at the destination than had other migrants.

9.7) There was a marked positive relationship between having friends or relatives in the destination town and joining the local branch of at least one club, political group or other formal organisation. This result, which emphasised the dichotomy between the socially active elderly and the socially 'dis-engaged', ran counter to the hypothesis that migrants with no friends or relatives living at the destination tend to compensate by joining formal organisations.

9.8) The hypothesis that inter-urban migrants were more likely than 'local' respondents to be remote from relatives at the time of the move (and thus more likely to be drawn away from their previous town) was not supported. In fact the opposite proved to be the case.

9.9) Differences in social class composition contributed very little to total variation in distance to relatives before the move.

9.10) Friends of the 'local' respondents were found to live nearer at hand than those of the inter-urban migrants, but social class was found to explain much more of the variation.

9.11) Inter-urban migrants were not significantly more likely to report fewer high quality social contacts than the local correspondents.

9.12) In the case of the inter-urban migrants, there was no measured interaction in the relationship between visit frequency and distance to relatives on the one hand, and social class and distance to relatives on the other. ( $\alpha .999$ ). However, the analysis of variance revealed a strong interaction effect when distance to friends was studied ( $\alpha .028$ ).

It was concluded that there appeared to be nothing in the quality or structural arrangement of the inter-urban migrants' social networks which was likely to have tied them less strongly to their previous location than the local respondents.

10. The effect of the inter-urban move on distance to relatives and friends:

10.1) The migrants were not, in general, significantly further from 'non local' relatives after the move than they had been beforehand.

10.2) However, respondents in Social Classes I and II were found to have moved away from their most frequently seen child, while those in Classes III to V moved nearer.

10.3) Taking into account all children mentioned (including those at the place of origin), migrants in both social categories were significantly more isolated from their offspring after the move than they were before it.

10.4) Respondents in Social Classes III to V were not found to be more likely to have moved away from the mean location of best friends than those in Classes I and II.

11. Points of Social Contact as predictors of migration:

11.1) The comparatively high  $R^2$  values displayed by the fitted regression models, particularly Model 4 ( $R^2 \approx 0.64$  for both the  $Y_{ei}$  and  $Y_{ni}$  equations), suggested that information on the location of migrants' relatives and/or friends could provide a promising basis for the prediction of community migration flows amongst the elderly. Compared with the mean migration distance of 100.61 km (standard error 6.32km) however, the standard error of estimate values of the equations were high. For example, the length of the semi major axis of the standard error ellipse of Model 4 was 66.39 km and the semi minor axis 39.83 km.

11.2) The  $R^2$  values and uniformly positive beta coefficients of the models amply demonstrate the importance of the maintenance of sectoral relationships with points of social contact, rather than the simple, unidimensional considerations of distance alone.

Conclusions: the implications for the development of a theory of migration

The empirical study has provided a considerable amount of evidence which is suggestive of strong underlying regularities in the behaviour of elderly migrants. The links between the social, biological and economic ageing processes on the one hand, and migration as one form of adjustment to these changes on the other, were a consistent element throughout the results. Abrupt and far reaching alterations of the individual's personal circumstances, such as retirement and bereavement, appeared frequently to have precipitated almost equally sudden decisions to move. Other, more gradually imposed changes typical of later life were also commonly reflected in the migrant's reasons for moving. The tendency with increasing age towards greater personal dependency and contraction (or at least consolidation) of social networks is a notable example of this. Many inter-urban migrants moved, at least in part, to be nearer relatives or friends, whilst the results of the analysis of migrants' social contacts revealed a strong positive statistical association between the distance and direction of the retirement move and the spatial disposition of the individual's social network. In general, the implication seems to be that migration in old age is more frequently a reaction to environmental stress, generated by a shift in needs, than simply the result of a wider range of potential places to live suddenly becoming available on retirement. This is borne out in the reasons given for moving: almost 80% of the local movers and almost 60% of the inter-urban migrants moved primarily because of 'push' factors.

The migrants also displayed a great deal of what might be regarded as 'objective' rationality in their behaviour, in the sense that the actual course of action taken appeared to be logically consistent with the reasons given for moving, even to an outside observer. To take an obvious example, local movers were very much more likely to cite factors connected with housing as their main reason for moving than were inter-urban migrants. The latter, however, were much more likely to emphasise aspects of the general social and physical environment. Migrants to the three 'small' towns of Filey, Hornsea and Withernsea appeared to

have exchanged 'better' housing conditions for lower levels of other locational attributes compared with migrants to Scarborough or Bridlington. Also, responses to the checklist of 'irritant' features connected with the place of origin corresponded closely with the primary reasons given for moving. Finally, the inter-urban move appeared to be based quite substantially upon prior experience of the eventual destination and hence, it may be assumed, the decision was likely to have been made on a fairly informed view of the inevitable risks involved. The local and non migrants also displayed a fair degree of 'rationality' in their behaviour. An example was the finding that old people who had not undertaken an inter-urban move were, in general, characterised by more limited past experience of long distance migration than were the inter-urban migrants.

In other respects, however, migration behaviour appeared to be less obviously connected with individual circumstances and overt personal attributes. For example, the performance of social class as an 'explanatory' variable with regard to behaviour fluctuated widely. Also, subjective experience of residential environment as measured in the study was, in general, found to be closely connected with the behaviour of local and inter-urban migrants, but not so consistently with that of the non migrants. Unknown 'personality' differences were thus assumed to have a predominant influence on non migrant versus migrant behaviour. Similarly, the local and non migrants were found to have a lower toleration of uncertainty and a higher valuation of social support at a given destination than were the inter-urban migrants. Although these traits were obviously connected with the two local samples' relative lack of previous inter-urban migration experience (and hence show consistency with their actual behaviour), it is not possible even to speculate on cause and effect.

Retirement migration has been presented here as basically differing only in detail from other types of migration decision. It is maintained that only by viewing the residential movement of old people through a more general theoretical framework can we reach a greater understanding of this phenomenon. How may the overall conclusions drawn from the present study act as a guide to building such a theory?

Essentially there are three main points. First of all, it is clear that a large proportion of reasons given for migration in retirement closely reflect the nature of common changes in the lifestyle and circumstances of the elderly. In other words, a 'life cycle' type of approach appears to be of considerable potential value in very broadly describing the interaction between the subjective needs of the individual and the ability of his current and other residential environments to meet those needs. Secondly, once the decision to move has been made, there appears to be a fairly clear - and hence potentially predictable - relationship between environmental stress, overt reasons for moving and type of move eventually undertaken. Finally, the decision whether or not to move appears to be particularly strongly influenced by 'personality' variables as well as simply by environmental stress or material, social or health constraints. The fact that local and non movers seemed less willing than inter-urban migrants to face the risks and uncertainties involved in moving away from their present community leads us to the obvious suggestion that their subjective expectation of reward for undertaking such a move is relatively low. The implication is clear; in order to understand the actions of the individual migrant, we need to measure his personal assessment of the probability of improving the salient features of his residential environment to a level which exceeds, firstly, the comparable qualities afforded by his present location and, secondly, the dis-utilities involved in actually undertaking a move.

#### A basis for theoretical speculation

The remainder of this dissertation is devoted to the presentation of a theoretical view of the migration decision which incorporates the three simple observations outlined above. The approach adopted was developed from two basic premises:

- (i) 'Retirement' migration is not a unique phenomenon but may be regarded as a variation of other types of migration (for example, employment, marriage or housing-led migration), with which it has much in common.

(ii) Migration itself is not a unique class of phenomena but simply a type of (in most cases) 'intendedly rational' behaviour,<sup>1</sup> having much in common with other types of intendedly rational behaviour (such as in purchasing a refrigerator, patronising a particular supermarket or visiting one's grandmother).

These premises may be expressed more formally as what might be termed the 'Axiom of Universal Behaviour':

Given the set of all intendedly rational behavioural acts,  $R$ , then the set of behavioural rules  $B$  which apply to a given act  $x$ , applies equally to all other acts  $x'$ , where  $x, (x'.....) \in R$ .

The definition of  $B$  is the objective of the two following chapters.

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<sup>1</sup> That is, when the person concerned makes a conscious decision to engage in the given act.

PART TWO

THE DECISION TO MIGRATE :

A THEORETICAL APPROACH



## BEHAVIOURAL FOUNDATIONS FOR A THEORY OF MIGRATION

## Models of Man - the Migrant as Consumer

The empirical study of retirement migration began by introducing the concept of the migrant's 'intended rationality.' It was maintained that the exercise of conscious choice, together with the complexity and importance of the decision to migrate, suggested that this decision is generally likely to be fairly rational, at least when seen from the subjective point of view of the person involved. A parallel was then drawn between the activities of an individual located at a particular place and that of a 'consumer.' The act of migration was seen as one of a number of possible strategies which may be used to increase the level of satisfaction derived from these acts of consumption. In other words, the approach used implied a heavy, if rather informal, dependence upon some of the fundamental concepts of consumer economics.

It is clear that, if we are to use this simple conceptualisation of the migrant as a basis for building a theoretical model of his behaviour, we must do two things. The first is to define what we mean by our central concept of 'rationality', for that which the individual considers to be rational behaviour rarely conforms with the 'objective' view of rationality prescribed by economists. The second is to determine how far this definition allows us more formally to apply existing economic theory to describe and explain the migrant's decision making process. This will indicate the breadth of the analysis required to construct a workable model.

We will begin with the simple proposition that a migrant moves in order to increase the level of satisfaction (or to decrease the level of dissatisfaction) which is gained from the residential environment. We are not at this stage interested in whether satisfaction is derived from the intrinsic qualities of the destination or in whether the act of migration itself lends it new, if ephemeral, qualities such as sheer novelty, the opportunity to exercise skills such as those of building and decorating, and so on. (The term 'satisfaction' itself will be regarded for

the moment as a 'primitive' - or undefinable - term (Harvey, 1969a, p.88), although it is obviously related to the achievement of pre-determined objectives.) To the extent that it is through the act of migration that the individual avails himself of increased satisfaction arising from the qualities of the new location, migration may be looked upon as a form of consumption. Capital, income, time and effort are expended in return for certain goods and services provided by place to produce a given level of satisfaction, or what Wolpert called 'place utility.' (Wolpert, 1965, p.161).

However, in orthodox consumer behaviour, according to the economist, the consumer is said to maximise the satisfaction (utility) which he gains from choosing an alternative. Thus, if item  $x$  is chosen from a set of alternatives  $C$ , then for all  $x'$  in  $C$ ,  $x$  is regarded by the consumer as being at least as good as  $x'$ . (Green, 1971, p.24). The economist's model of man thus assumes simply that the individual will be consistent in his choice amongst alternatives, that he always selects the item which he feels will afford him the maximum satisfaction. To that extent, and to that extent only, the consumer is assumed to be entirely rational. The fact that the theoretical economist 'objectively' defines the bounds of  $C$ , the consumption set, and the quantity of satisfaction afforded by  $x$  and each  $x'$  means that he is simply making secondary assumptions about what consumers think, firstly, in order to avoid the problem of measuring what really goes on in their minds and, secondly, to give the nature of the problem a degree of stability which it would certainly lack if purely psychologically defined variables were used. There is, in fact, nothing in the theory of the consumer to prevent us from explaining away all the apparent irrationalities and inconsistencies of individual behaviour. For example, if A prefers  $x$  and B prefers  $y$  in order to meet the same objective, this may simply mean that A and B's total knowledge of the qualities of the alternatives differ, that their priorities concerning the objective or the qualities required in order to meet the objective differ or, perhaps, that they are also meeting other, more covert, objectives. If A prefers  $x$  one minute and  $y$  the next, it may be argued that he has learnt something

which has changed this view of the relative utilities of the two items or, perhaps, his objective has changed and with it the appropriate utility values!

The axiom of rational choice is thus, of itself, a fairly innocuous concept, for any theory of behaviour must necessarily assume that preferences will be consistent if only to avoid the 'theory' dissolving into a set of contradictory propositions. (See Lipsey, 1971, pp.171-172). On the other hand, we are left with an extremely weak rule which states in effect that the individual knows what he likes and will choose it whenever possible. In strict theoretical terms, it is not 'economic-man' who is at fault as a model of reality, but simply what economists have made of him.<sup>1</sup> The true prototype 'economic man' is too feeble an individual to disagree with anyone's view! The problem is, therefore, one of building into the orthodox view of rationality a set of behavioural postulates strong enough to permit the prediction of behaviour within acceptable limits, and yet which do not assume the infallible rationality of the optimum decision maker of prescriptive economics.

Thus we argue in broad terms for studying the migration decision within the realm of general consumer behaviour. The course of our lives and the nature of our social environment are all deeply influenced by the choices which we and others are constantly making, and there is nothing intrinsically 'unique' about the decision to move house. Migration is but one (partial) solution to a problem which faces us every day - that of wringing from our surroundings the services, goods and the social and aesthetic rewards which our ever changing needs and aspirations require. This chapter is thus an attempt to present a credible and verifiable picture of the decision maker which may then, in Chapter 9, be built into the more formal framework of a normative theory of choice.<sup>2</sup>

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<sup>1</sup> See especially Katona (1951, pp.5,6,40-112); Simon (1957, pp.196-204, Ch.14); Simon & Stedry (1969).

<sup>2</sup> Lipsey (1971, pp.4-6) would consider the term 'positive theory' to be more appropriate (i.e. what is, was or will be) in this case, 'normative' being reserved for prescriptive statements (i.e. what ought to be). If that is so, then much of positive theory in micro-economics is, in fact, prescriptive, for it describes the way in which many theorists think that people ought to behave even if in fact they do not! (See Simon & Stedry, 1969, p.272, for some examples of this point of view).

In presenting the migration decision as a special case of a more general phenomenon, it will be necessary to examine a number of disciplinary fields which are largely alien to the experience of the geographer. A substantial preamble to the main theory is therefore necessary to ensure that the reader is not left in the unfortunate position of having to accept crucial arguments on trust, not because of their intrinsic difficulty, but simply because the concepts involved have not been explained. On the other hand, building up a progressive sequence of concepts to provide an adequate foundation for the main theory may confuse the reader if no clue is provided as to the general direction of the argument. This section is therefore intended to provide a brief overall view of the way in which the discussion which follows leads to the general model to be presented in Chapter 9.

We begin by briefly introducing the fundamental concepts to be used in the behavioural model - the Image and the Plan - followed by a brief examination of the interaction between Image, Plan and behaviour. Lewin's field theory is then discussed as a didactic model of a complete behavioural system; this is used to illustrate the dynamic relationships which exist between the elements of such a system and to provide a bench-mark for developing a model based on the concepts of Image and Plan. The next section looks at the Image as defined empirically in attitude theory. The classic tri-dimensional view of 'attitude' is rejected in favour of a more recent approach which separates the cognitive (belief) and behavioural (intention to act) components from 'attitude' which then becomes synonymous with 'affect' or 'utility'. Image is then redefined in terms of belief and affect, and the dynamics of belief systems are discussed in depth. Following from this, attitudes are depicted as 'affective beliefs'. We next look at the qualities of the Plan in equal detail, the concept being presented as an Image of some desired state, a term in fact which is largely synonymous with 'motive'. 'Rationality' is then redefined as the conscious and deliberate pursuit of goals that are consistent with the individual's own Image of his well-being. The implicit motivation of 'economic man' is then discussed together with the

opposing arguments concerning the 'irrational' and the 'boundedly rational' consumer; the latter, however, are not found to violate our view of rationality, Simon's 'satisficing' concept actually providing the framework for a general decision-making Plan. The basic determinants of motivation are then discussed, man being depicted as an active goal-seeking creature, followed by an examination of the concept of a hierarchy of motives and Plans. Particular importance is attached to the hierarchical context in which behaviour takes place. Finally the notion of a Plan hierarchy is expressed in the operational concepts of the 'Plan supervisor' and the 'Behavioural Context' matrix.

Chapter 9 is concerned with the presentation of an operational model of behaviour based on the preceding description of Image and Plan. Motivation, satisfaction (utility) and Behavioural intention are defined operationally and the concept of subjectively expected utility is introduced. This is followed by the mathematical expression of utility, aspiration level and the decision rule. The main requirements for building a model of choice are discussed, followed by a critical examination of Fishbein's Behavioural Intention model as an embodiment of some of the preceding arguments. Two general models of choice are then presented: the first is a purely descriptive model which integrates the main processes and concepts discussed up to that point, whilst the second uses the structural relationships of the descriptive model to link the mathematically defined subsystems in the form of a linear causal model. Finally, an approach to simulating the 'normative' environment in which the decision maker operates is presented, using an extension of some fairly recent developments of the economic theory of demand.

#### Image and Plan - the building blocks of behaviour

Our degree of understanding of almost any aspect of human behaviour must, of necessity, be dependent upon external observation of the individual. This being so, it follows that the most elegant approach to the development of a theory concerning that behaviour would, in principle, reflect this observational limitation

and confine itself to the description and prediction only of overt interaction between man and his environment. The pursuit of this objective in the field of consumer economics is realised above all in Samuelson's Revealed Preference Theory which, despite its title, makes no assumptions about preferences. (Samuelson, 1953). Instead, it is based upon a strong statement of the axiom of rational choice plus the further assumption that the consumer will make a choice given a set of alternatives. We are, however, again faced with the problem that no explicit allowance is made for human fallibility.

Whilst the economist is chiefly concerned with the impact of human actions on an economic system, the psychologist's attention is ultimately focused on the behaviour of the human organism itself, including its apparent inconsistencies. It is to the psychologist that we must turn, therefore, for most of the fundamental concepts necessary for an understanding of decision making behaviour.

The closest parallel in psychology to the underlying philosophy of Samuelson's approach to consumer behaviour may be found in the outlook of the 'behaviourist' school. Underlying the work of experimenters such as E.L.Thorndike, C.L.Hull and, rather more recently, B.F.Skinner, is a body of theory (explicit or implicit) 'that emphasises objective, publicly observable events (usually called stimuli and responses), rather than private consciousness, as the subject matter of scientific psychology.' (Miller, 1966, p.371). However, it has long been recognised that the simple cause and effect models of man propounded by the 'stimulus-response' theorists have important limitations when applied to the more complex areas of behaviour, particularly those involving reasoning. (Davis, 1973, pp. 58-9). There is a compelling appeal in a model of a more intelligent organism than 'stimulus-response' man, for there is no doubting the importance of our subjective view of the world in considering the ways in which we behave towards it. No analysis of conditioned response can adequately describe the thoughts, skills and emotions which dictate the result of even quite simple day-to-day tasks, let alone those involved in writing poetry, or even in moving house.

To geographers, perhaps the best known statement of the behavioural significance of our private versions of 'reality' is K.E. Boulding's essay, 'The Image'. Boulding defines the Image simply as the sum of our subjective knowledge, that is, what we believe to be true; it contains values as well as facts, both of which are organised by whatever concepts the individual has been able to master. (Boulding, 1956, p.6). Thus, when the geographer studies people's 'mental maps' of an area, he is really studying a part of the much wider structure of the Image, or what Tolman has termed a 'cognitive' map'. (Tolman, 1948). The close relationship of the Image to the geographer's mental maps, and the field of 'environmental perception' generally, is brought out clearly by Gould and White:

...modern geographical studies of environmental perception look at the ways in which people form images of other places and how these images influence many decisions - including the one to move. (Gould and White, 1974, p.17).

However, whilst noting the obvious attractions of a concept such as the Image intervening between elements of stimulus-response theory, Miller, Galanter and Pribram point out that the arguments of the cognitive theorists left the individual more in the role of a spectator than of a participant in life. (Miller et al., 1960, p.2). Following the arguments of E.R. Guthrie (1935, p.172), they point out that Tolman, in his concern with what goes on in the laboratory rat's mind, neglects to predict what the rat will actually do.

It is so transparently clear to them [the cognitive theorists] that if a hungry rat knows where to find food - if he has a cognitive map with the food box located on it - he will go there and eat. (Miller et al., 1960, p.9).

Miller and his associates argue that, in order to bridge the gap between cognition and action, the organism requires what they term a 'Plan' in order to exploit the Image.<sup>1</sup> For example, a typical instance of planning occurs when 'you imagine what your day is going to be and you make plans to cope with it'. (Ibid., p.6).

How does a Plan influence behaviour? One of the problems with much psychological experiment is that the experimenter usually describes behaviour at a

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<sup>1</sup> As an aid to clarity, Miller's practice of assigning capitals to the words 'Image' and 'Plan' will be followed throughout this text.

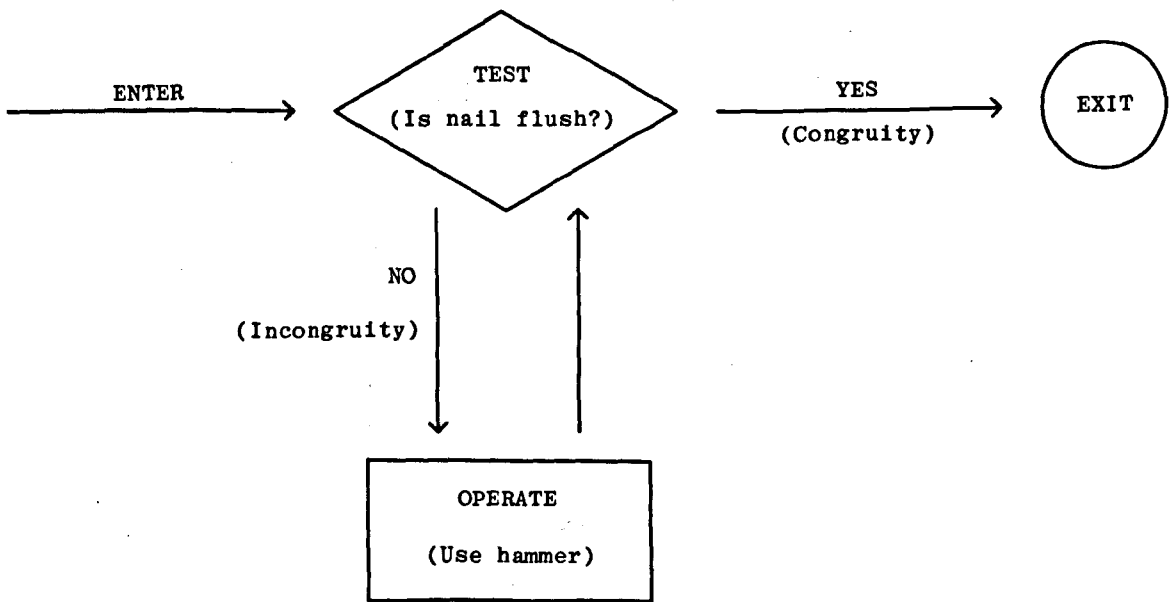


FIGURE 8.1 A SIMPLE TOTE UNIT (PLAN) FOR HAMMERING A NAIL

(After Miller et al; 1960, p26)



single level in a hierarchy of potential actions, ranging from a muscular twitch on the one hand to a goal directed action which may take place over a considerable period of time on the other. Thus the implications of observation at one level can only be inferred at other levels on the basis of some theory about behaviour. (Ibid., pp.13-14). It would be an obvious nonsense to endeavour to describe the actions which a visit to one's grandmother would entail purely in terms of muscular reflex twitches! Theories of behaviour in the wider sense have tended to be intuitive and difficult to test as a result. A Plan, however, is actually defined as 'any hierarchical process in the organism that can control the order in which a sequence of operations is to be performed'. (Ibid., p.16). The relationship of the control mechanism with behaviour at one level can thus be linked conceptually to control and behaviour at other levels in the hierarchy.

The postulated basic 'behaviour unit' on which the hierarchy of Plans operates is a servo-mechanism<sup>1</sup> which Miller et al. refer to as a TOTE, an acronym for Test Operate Test Exit. (Ibid., p.25). The Test phase of an operation consists essentially of an examination of sensory data in order to detect any incongruity between the actual (perceived) and the desired state of affairs. If any incongruity is detected (Fig. 8.1), action is taken (Operate phase) and the Test is made again, the cycle continuing until the desired state of affairs is reached (incongruity disappears) and we Exit from the activity. More complex plans may be thought of as hierarchies of TOTE units. If, for example, we are already committed to a decision to cook a meal, the decision to cook that meal would serve as the superordinate Plan (the Test being something along the lines of either 'Am I hungry?' or 'Do I expect to be hungry soon?' or 'Will I be

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<sup>1</sup> Annett (1969, p.16) defines a servo-mechanism as a machine which is controlled by the consequences of its own behaviour, its main components being a source of power, a transducer, for example an electric motor (which is activated by the power source), a sensor which measures the level of output of the machine and a feedback loop from the sensor to, for example, the power source which carries output information which can be used to vary the power input.

expected by others to prepare a meal?'). The recipe for the meal would then represent a second-order plan, beginning with a list of TOTE units testing for the presence of the necessary ingredients. Any failures amongst these tests (we've run out of beans) would then initiate a lower-order Plan involving a trip to the corner shop, and so forth. Moreover, any one operation at any of these Plan levels, will also involve the execution of many sub Plans; for example, the simple task of reaching out until the store cupboard doorhandle is grasped can be represented as a low level Plan involving a test for positive sensory feed-back from the fingers and eyes ('Am I touching the handle?'). The 'high level' Plans, for example preparing a meal, may be regarded as the behavioural strategy and the 'low level' units, such as opening the door, comprise the tactical element. (Miller et al., p.17). The process of Planning can thus be thought of as the construction of a list of tests to perform in order to achieve a desired outcome (an Image). The nature of that Image will often, of course, directly provide the conditions for which we must test, and Miller et al. point out that the test conditions could be said to be an Image of the desired outcome, for components of Plan and Image possess considerable overlap. (Ibid., p.38).

The final basic concept Miller et al. use in their theory is that of Plan execution, a process which is analogous to the execution of a computer program. An organism is said to be executing a particular Plan when that Plan is controlling the sequence of operations that the organism is carrying out. It is worth noting that Plans probably exist for the collection or transference of information as well as for guiding overt action, and that a relatively rapid alternation between Plans may also be possible. (Ibid., p.17). We shall return to the concept of Plan execution at a later stage in our argument.

The simple notion that behaviour may be described in terms of cybernetic theory is certainly very persuasive. Annett has shown that the effects of the two 'motivational' components of stimulus-response theory, that is incentive and reinforcement, which have always been difficult to reconcile with the inform-

ation component, can be subsumed within a general information feedback approach. (Annett, 1969, pp.105-59). In fact, 'motivation' may be regarded as active feedback. 'There would seem to be no difference in principle between a servo "hunting" for a specified set of goal conditions and an animal in search of food or indeed any organism indulging in "goal-directed" activity.' (Ibid., p.160). Adopting this approach, Thorndike's reinforcement principle (The 'Law of Effect') itself can be regarded as an hypothesis that the organism learns only on the basis of a very simple test which states 'if good, increase probability of preceding response, if bad, decrease probability of preceding response.' (Annett 1969, p.165; Thorndike, 1966, p.184).

We will now look in greater detail at the nature and function, first, of the Image and, secondly, of the Plan. Particular attention will be paid to the problem of finding operational representation of these concepts.

## The nature of the Image

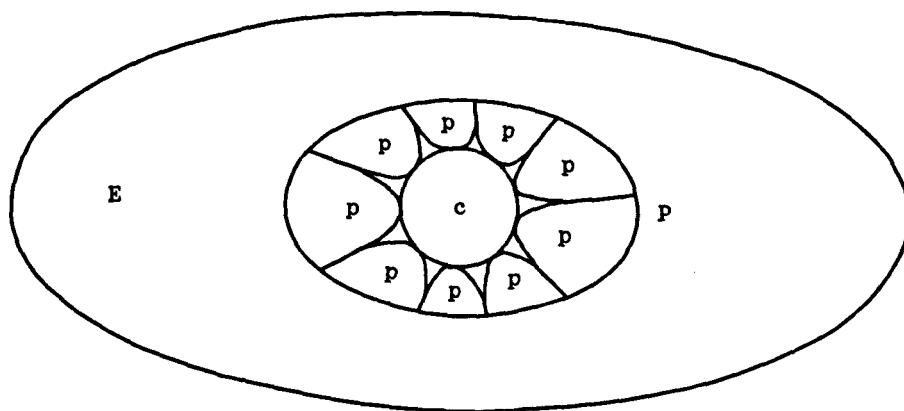
### Introduction

As we have seen, the Image represents our subjective view of reality, the sum of our knowledge or beliefs about objects and processes in that personal world and the evaluative tags which we give to many of these beliefs. The Image provides us with the raw 'facts' with which we negotiate, and attempt to comprehend, the events of the present and the uncertainties of the future; hence the appropriateness of Tolman's term 'cognitive map'. In addition, our stored evaluation of these facts carries the germ of our subsequent behaviour towards that part of the real world which happens to be the focus of our attention at any particular moment. Our feelings of like and dislike (the 'utility' and 'disutility' of the economist and the positive and negative 'affect' of the psychologist, provide us with the fundamental data from which we may construct both the strategic objectives ('ends') of our behavioural Plans (by defining their desirability relative to other possible objectives) and fre-

quently the tactical objectives ('means') of which the Plans themselves are comprised. In circumstances where decision is required, therefore, our beliefs help us first to interpret the situation, then to define alternative courses of appropriate action together with some sort of prediction of their likely outcome; whilst our more emotional evaluation of the situation will help us to choose from this set of alternative actions according to how we evaluate each predicted outcome. For example, were we to be confronted by an enraged bull whilst we were walking through a large meadow, our beliefs about the likely consequences of maintaining our current behaviour and our rather negative feelings for those consequences would prescribe both our primary objective (to escape injury) and the set of appropriate responses aimed at achieving that objective. In all likelihood, the stress caused by this particular event would summon to mind a one item set of alternatives - that of flight! However, if we were a little more collected, we might also consider the possibility of hurling a rock at the animal in order to divert its attention, decide that both the penalties and the likelihood of missing would be too great and then take flight as the most appealing alternative.

The concept of Image, so eloquently described by Boulding, is, of course, merely an allegoric explanation of something which we feel intuitively to intervene somewhere between a stimulus being received by the organism and the consequent response being made. We have seen that Tolman, for example, managed to fill the conceptual vacuum between stimulus and response only by inferring the laboratory rat's cognitive organisation from its behaviour. (Miller et al., 1960, p.9). How, therefore, may we best structure this allegory so that it performs in ways which not only appear to be consonant with reality, but which is capable of being tested empirically?

In order to do this, a dual approach will be adopted. The first part will be concerned with an entirely abstract model of the Image as a complete and functioning system - Lewin's Field Theory. This will be used to illustrate the overall scope and complexity of the Image, and also to indicate the kind of relationships which might exist between its component parts in order to result in the kind of behaviour which may be observed in the individual. The second



Key: E    psychological environment  
P    person  
p    peripheral cells  
c    central cells

FIGURE 8.2    LEWIN'S 'LIFESPACE'

(After Hall & Lindzey, 1972)

part will be concerned with a more limited perspective of the Image, but one which has proved to be more suited to empirical measurement - the concept of 'attitude'. With the aid of Lewin's model a comparatively recent, one dimensional view of 'attitude' will then be discussed and presented as a more satisfactory alternative to the commonly accepted tri-dimensional model. The related concepts of 'belief' and 'affect' are then explored in depth and presented as the main, measurable components of the Image.

#### Lewin's Field Theory : A didactic model of IMAGE

We have already noted that Wolpert defined his concept of 'action space', or subjective environment, as 'the set of place utilities which the individual perceives and to which he responds' (Wolpert, 1965, p.169; Herbst, 1961a, p.76). In so doing, he acknowledged the similarity of this idea to Kurt Lewin's notion of 'life space', the totality of potential phenomena which are capable of determining the behaviour of an individual. (Lewin, 1951, pp.239-40; Hall and Lindzey, 1972, p.69). In other words, the life space represents the whole of psychological reality comprising both the psychological environment and the individual who 'moves' within that environment. Our concept of Image is obviously a major component of such a world; thus, an individual's beliefs, or cognitive structure, comprise the psychological environment, whilst his emotions concerning those beliefs may be said to provide part of the dynamic element of the system. The structural, as opposed to the dynamic, components of Lewin's theory in effect supply the stage-set within which the action of life takes place. The principal parts of this structure are illustrated in Fig. 8.2, basically consisting of a 'life space' (L) consisting of a 'person' (P) surrounded by a 'psychological environment' (E). The person is differentiated into a 'perceptual-motor region' (P-M) (effectively the executive and monitoring components which provide the 'interface' between the organism and its psychological environment) and an 'inner personal' region. The latter, incidentally, is further sub-divided into

a group of 'peripheral cells' (p) and 'central cells' (c), although this need not concern us here. The psychological environment is also differentiated into regions, each region representing a set of psychological 'facts', which may be tangible or intangible, directly observable or inferred from the observable. In the theory, any thing is a fact whether sensed or inferred.

An 'event' on the other hand, is the result of the interaction of several facts. (A chair and a person are each facts, but a person seating himself on a chair is an event.) Two regions are said to be connected when a fact in one region is in communication with a fact in another region. (Hall and Lindzey, 1972, p.71).

This brings us to an important feature of Lewin's system: the boundaries which separate regions of the person and of the environment possess the property of permeability, transactions between regions being determined by the strength and plasticity of the boundaries and the number of regions intervening. Degree of permeability also influences the relationship between the life space and the 'physical' world outside. (Lewin's 'foreign hull'; Lewin, 1936, pp.73-75), for the physical world cannot communicate directly with the individual nor vice versa. A fact must exist in the psychological environment before it can influence, or be influenced by the person. Finally, regions of the environment are said to be connected when the person can perform what Lewin calls a 'locomotion' between them. (Lewin, 1936, pp.49-50, 216). This does not necessarily entail a physical movement through space;

... in fact, most of the locomotions that are of interest to the psychologist involve very little physical movement. There are social locomotions such as joining a club, vocational locomotions such as being promoted, intellectual locomotions such as solving a problem, and many other types of locomotions. (Hall and Lindzey, 1972, p.75).

The spatial analogy used by Lewin may appear to be an unfortunate one when we are interested in the effects of spatial information and behaviour, as in the study of migration, for it can be a little difficult to separate the 'true' effects of space from those of the analogue model. It is, however, important to realise that Lewin's presentation of his model of our psychological world in spatial terms is deliberate, as it facilitates manipulation of the elements of

this world using the concepts of topology, a branch of mathematics which is concerned with geometric relationships in n-dimensions. The essential point is, therefore, that 'regions' and 'facts' (sets and elements) in our life-space display a complex of interrelationships which exist and vary over many different dimensions such as time, space, social situation, function performed by a fact in a given behavioural context (for example a vase as a receptacle for flowers or as an object of aesthetic quality or as a status-giving antique), and so on. The significance of this concept has been eloquently summed up by R.H. Atkin:

The sense we have of the quality of our lives, the richness or barrenness, the complexities of our mutual dependencies, the opportunities for thought or action, the rewards or punishments which might come our way, all these intangibles are our intuitively apprehended sense of mathematical relations which exist between us and others, between us and physical things - and surely these relations can well include relations between (well-defined) sets of relations. (Atkin, 1974, pp.26-27).

In Lewin's system, we noted that facts in one cognitive region may influence facts in other regions, with varying degrees of facility depending on the nature of their boundaries and the number of intervening regions. If we portray inter-regional connections as binary relationships in a matrix of  $m^n$  elements (m being the number of regions and n the number of contextual dimensions), the attributes of regional boundaries may be represented by what Atkin terms an 'obstruction vector' (Ibid., pp.41-42), whilst the effects of intervening regions across any k dimensions<sup>1</sup> may be calculated by raising the connectivity matrix  $m^k$  to successively higher powers (Haggett and Chorley, 1969, pp.38-40).

It follows obviously from this that the greater the number of low-order (that is, direct or nearly direct) connections that any region possesses, the greater the impact of change in that region on the rest of the life-space. In other words, some beliefs about our world are likely to provide the basis for several other beliefs, the effects of change in the nature of a more 'central' (highly connected) belief rippling out to secondary beliefs - a phenomenon which we have all observed for ourselves. For example, a shift in a person's beliefs about the degree of liberality of the government of a particular country may affect his secondary beliefs concerning the characteristics of one of its indi-

<sup>1</sup> Where k = any integer from 2 to n.



vidual citizens, or the desirability of its commercial products.

The remaining part of field theory which is relevant to our concept of Image is the idea of 'valence', the evaluative component of what Lewin calls 'vector psychology', the dynamic side of the theory. Lewin's principal dynamic concepts are those of energy, tension, need valence and force or vector and, although we are only concerned here with valence, a rudimentary picture is required of how the system functions in order to understand this concept.

Lewin proceeds from the assumption that the individual is a complex energy system; psychical energy is released when the psychic system (that is, the individual) attempts to regain equilibrium after it has been disturbed by an increase in tensions in one of its constituent parts. (This disequilibrium may be induced either by internal change or by external stimulation). Release of energy ceases when tension throughout the system becomes equalised again and the total system then comes to rest. (Hall and Lindzey, 1972, p.77). In terms of the servo-mechanism analogy, Lewin has reduced the basic test or 'transformation rule' (Annett, 1969, p.17), applied to the current state of his system to that of, 'Is tension distributed equitably?' We are, in fact, dealing with a fairly sophisticated homeostatic mechanism.

An increase of tension in an inner-region of the person is the result of the arousal of a 'need'. This is a motivational concept which can be equated with the notion of a Plan used in the preceding section, although as Hall and Lindzey point out Lewin does not discuss its nature systematically. (Hall and Lindzey, 1972, p.79).

Needs have the character of 'organizing' behaviour. One can distinguish a hierarchy of needs. One need or a combination of several needs may set up derived needs (quasi-needs) equivalent to specific intentions. (Lewin, 1951, p.273).

The concepts of 'valence' and 'force' are used by Lewin to avoid the simplistic assumption that energy flowing from an inner-personal region into the perceptual-motor regions would directly result in behaviour, that is 'locomotion' in Lewin's terms. Instead, need is linked with certain attributes

of the environment which then determine the kind of locomotion likely to occur. Briefly, a valence is the value, positive or negative, which a region in the psychological environment has for a person. Valence may thus be categorised as 'like' or 'dislike', attraction or repulsion. Needs are closely related to the valences assigned to objects or activities. For example, an increase in the intensity of need may lead to an increase in the positive valence of certain activities and to an increase in negative valence of certain other activities. Alternatively,

As a result of the increase in positive valence which accompanies the state of hunger..., areas of activities which are negative or on a zero level when the need is satiated acquire a positive valence. The hungrier person is usually satisfied with poorer food. (Lewin, 1951, pp.273-4).

To return again to the Plan analogy, valence will depend partly on a learned reaction to the nature and associations of the object in question, and partly on the Plan being executed, and tests thus being applied, by the individual.

The final component of Lewin's dynamics of personality is the 'force' or 'vector', which has the properties of direction, strength and point of application. However, although a force is co-ordinated with a need, it should not be confused with tension; for while a force exists in the psychological environment, tension is found in the inner-personal system. (Hall and Lindzey, 1972, p.81). In a sense, we may view the person in a state of inner tension aroused by a need, and an object defined by that need in the psychological environment with its accompanying valence, as two poles of electric potential. The electromotive force, which is proportional in strength to the difference of potential between the person and the object, may then be said to represent Lewin's concept of force. A locomotion (or flow of electric current in our analogy) occurs whenever a force, or forces, of sufficient strength act upon a person, the direction of locomotion being the resultant of all the forces.

Lewin's Field Theory in general, and his notion of psychological environment in particular, gives us a valuable holistic view of the Image and its

potential contribution to the understanding of behaviour. As a structural concept, it displays a many dimensional and highly inter-connected nature that we feel intuitively to belong to the world of beliefs and ideas. It is what Atkin in a more general topological context has termed the 'structural backcloth' against which daily life is played (Atkin, 1974, p.120), but, at the same time, it is an environment which is totally centred upon the individual. As a dynamic concept, Lewin's theory emphasises the inter-dependence of the constituent parts of the Image, a dependence on the influence of the state of the total psychological 'field' on any one part of that field. It also shows valence, whether we call it liking, affect or utility, to be an important dynamic attribute of Image, for it interacts subtly with our needs, or Plans, to provide the 'potential' which is required to stimulate behaviour. However, although Lewin's psychological environment gives us a view of the overall quality of the Image, it is basically only a conceptual framework on which to hang hypotheses concerning why people act in the way they do, how the Image, and so on, influences behaviour. Much of Lewin's Theory cannot therefore be tested, for it can be made to fit almost any situation. (On the other hand, Lewin's own interpretation of parts of this framework is of course always open to question.) In the strict realm of the Theory, an ice-cream has a positive valence for a child because it is observed that a child likes ice-cream! The mechanism which generated the valence in the first place thus lies outside the strict realm of the Theory. As Lewin himself said,

... to understand or to predict behaviour, the person and his environment have to be considered as one constellation of inter-dependent factors. We call the totality of these factors the life space (LSp) of that individual, and write  $B = F(P, E) = F(LSp)$ . The life space, therefore, includes both the person and his psychological environment. The task of explaining behaviour then becomes identical with (1) finding a scientific representation of the life space (LSp) and (2) determining the function (F) which links the behaviour to the life space. This function (F) is what one usually calls a law. (Lewin, 1951, pp.239-240).

It is to these ends that we will now devote our efforts, although perhaps the term 'law' is a little pretentious in the current context. (See Harvey, 1969a, pp.105-6). Only by finding a generally valid model of behaviour,

particularly with regard to the act of choice, can we begin to understand the specific act of migration at the level of the individual decision maker. The first stage in this process will be to show how the familiar concepts of 'attitude' and 'belief' may themselves be used as functional models of Image or 'lifespace'. This approach has two particular advantages. The first is the very fact that the basic concepts are familiar - they are related to the rather crude heuristic models of behaviour which have long been applied in many of the social sciences (though often implicitly) when the researcher is faced with the problem of actually investigating the reasons for that behaviour. Secondly, an extensive, and sophisticated, repertoire of measurement techniques has been developed specifically for use in connection with these concepts.

#### Image and Attitude

The entire field of cognitive psychology is, basically, concerned with the problem of trying to understand the thought processes which underlie behaviour, the work of Tolman and Lewin representing but a small part of a vast body of research and theory. In fact, the very term 'cognitive' is defined by Miller as 'Pertaining to the various psychological processes involved in knowing.' (Miller, 1966, p.371). Despite this, however, the most popular concept used in the 'explanation' of the link between Image and observed behaviour in complex social environments is that of 'attitude', a central component in the field of social psychology. As Allport has commented, much of this popularity lies in the eclectic nature of the concept, for it is not the property of any one school of thought. (Allport, 1968, pp.59-60). Furthermore, the concept of attitude has avoided commitment in the historic (and still unresolved) controversy concerning the relative influence of heredity and environment, by tolerating the combination of instinct and habit in virtually any proportion. It also does not suffer from limitations of scale of application, for it is equally valid in the study of social groups as with individuals. Tuck has commented on the exist-

ence of at least 500 different operational definitions of attitude, a fact which amply illustrates the elasticity of the term. There seems to be general agreement, however, that attitudes

.... are in some sense a predisposition to behave (in the most part learned), and that they have something to do with an evaluative dimension (that is with whether the person who holds the attitude is 'for' or 'against' the attitude object). (Tuck, 1976, pp.63-4).

Many definitions have, in the past, gone much further than this, and there has often been an implicit assumption that there is a simple, causal relationship between the attitude towards the object of attention and specific behaviour towards that object, irrespective of situation. (Thomas, 1971, p.9).

Unfortunately, this supposed direct relationship has not been particularly successful in predicting behaviour for, as Doob has argued, the attitude possessed by two people may be more or less identical in formal content as measured by an attitude scale, but its role in determining actual behaviour will depend on a learned response, and this will vary according to situation and from individual to individual. (Doob, 1971, pp.45-46). Fishbein has pointed out that some influential workers in the field, notably Allport, regarded the unidimensional view of attitude then in common use<sup>1</sup> as a major contributing factor to the lack of success in predicting behaviour. (Fishbein, 1971, p.53; Allport, 1935, p.832). Allport interpreted the effect of what Doob later explained in terms of differences in learned response as indicating a qualitative difference in the nature of attitude itself, thereby reasoning that this extra dimension could not be allowed for in a simple bipolar scale measuring affect. (Ibid., p.820). Allport's hypothesis was not, however, articulated by an appropriate measuring technique, and it was not until Doob's article appeared (in 1947) that it was possible to define the components of a multidimensional view of attitude in a way that aided measurement. (For example, see Chein, 1948). Fishbein has emphasised that this was in fact a misinterpretation of Doob's view that it was perfectly reasonable for two people with the same attitude to behave differently. (Fishbein, 1971, p.55).

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<sup>1</sup> For example, Thurstone in 1931 defined attitude as simply '... the affect for or against a psychological object.' (Thurstone 1971, p.21).

The multicomponent definition of attitude, however, lingers on in standard texts (for example, Lana and Rosnow, 1972, p.259) and is useful to the present discussion as it clearly illustrates the closeness of the attitude concept to our view of the Image, a consideration of crucial importance to our model of the migration decision. Typically, an attitude is regarded as comprising three main elements (Triandis, 1971, p.3):

- i) A cognitive component; that is, the idea (whether we term it a concept or a belief) which categorises the 'objects' of our perceptions and establishes their relationships with other 'objects'. In the Lewinian world, we have noted that the objects are 'facts' and the conceptual categories which contain those facts are the 'regions' of the psychological environment; the process of categorisation is depicted by Lewin as an increase in the 'differentiation' of the environment. (Lewin, 1936, p.183). Operationally, a belief may be regarded as a person's location on a probability scale linking an object and an attribute of that category of objects. (Fishbein and Ajzen, 1975, pp.12, 53).
- ii) An affective component; Triandis defines this as the emotion which charges the idea, in other words our feelings of like and dislike with regard to the category in which we have placed the object. (Triandis, 1971, p.3). We have already shown this to be the counterpart of Lewin's notion of valence, and it may be measured as a person's location on a dimension of evaluation or utility. (Fishbein and Ajzen, 1975, pp.11-12, 53).
- iii) A behavioural (or 'conative') component; simply this may be regarded as a predisposition, or intention, to act, the equivalent of 'force' in Lewin's theory. Fishbein and Ajzen note that 'behavioural intention', as they refer to it, may again be measured by an individual's location on a dimension of

probability, but the connection here is between the person and 'some action with respect to the object'.

(Fishbein and Ajzen, 1975, pp.12-13, 53).

In terms of our earlier argument it is plain that the so-called affective and cognitive components in this view of attitude are also the main components of our view of the Image. The notion of behavioural intention cannot really claim such affiliation, however, as it must by definition belong to the 'operate' phase of the TOTE cycle, and is, accordingly, part of what we have termed a Plan. It is here that we see the fundamental weakness of the tridimensional concept of attitude when it is applied to the problem of predicting behaviour. In using the concept, not only are we concerned with an anticipated response to a future contingency, we are also dealing with that action as though it were removed from its symbiotic relationship with the 'test' stage of the Plan. The behaviour in question is thus almost literally rudderless for, as we have seen, the test, or desired state, is only derived from the Image in a motivational situation which has itself been determined by a higher order test in the Plan hierarchy. The less central the attitude in question is to the individual's Image (that is, the lower its degree of connectivity with other cognitive elements), and the more general the behavioural context to which the investigator tries to relate it, the more tenuous the relationship between attitude and subsequent behaviour is likely to be. (See in this context Katz and Gurin, 1969, pp.371-2; also Jackman, 1976, p.650.).

'Real' situations which confront the individual during daily life vary in the number of competing stimuli which they reveal, and in the normative social pressures which the individual feels to be constraining his scope for action at the time. These competing stimuli will be comprised of the antecedents and the expected consequences of the current situation as they relate to the behavioural Plan being executed, as well as of attributes of the immediate situation per se.

While an individual's attitude toward an object is usually measured in isolation in a behaviour context, the attitude-object is enmeshed in an array of competing stimuli that also activate established beliefs, feelings and action orientations in the individual. (Jackman, 1976, p.649).

Analysis of the tridimensional attitude hypothesis within the framework of Lewin's theory confirms this logical flaw. In order to precipitate behaviour ('locomotion') Lewin's system requires the generation of a 'force' (behavioural intention). This is, in turn, the product of the difference in potential between a 'valence' (affect) assigned to a 'region' in the psychological environment (cognition) and a state of 'tension' within the person which has been aroused by a 'need'. The elements of tension and need, in other words 'motivation', are omitted completely from this concept of attitude.

Despite these problems, the concepts of attitude theory are too useful to be rejected out of hand and we shall see later how the hard-headed, but rather restrictive empirical approach of Martin Fishbein and his associates may be interpreted in the light of these arguments to give us not only a much clearer understanding of certain aspects of human behaviour, but also the foundations for a model of choice in general, and of the migration decision in particular. Before this is possible, however, it is necessary to look in a little more detail at the constituent parts of the Image - beliefs and affect - and the Plan.

#### The dynamics of beliefs

What is the likely function of our beliefs as opposed to our feelings of affect towards the object of those beliefs? To quote Vinacke, a belief (or 'concept', as he terms it)

... may be regarded as a kind of selective system in the mental organisation of a person which links previous experience and current states with stimulus objects. Concepts are organised systems which have important structural relations with each other and which have dynamic functions in determining the ongoing course of thought. For convenience, they may be said to select and regulate the effects of external stimuli, in contrast to the systems which select and regulate responses. The latter may be called 'attitudes'.... (Vinacke, 1952, p.100).

and, like Vinacke, we shall return to these later. It is worthy of note, however, that here it is implied that 'attitude' is an essentially simpler concept than the multidimensional approach that we have reviewed.



Amongst the properties of beliefs, Vinacke maintains that they are not direct sensory information but 'something resulting from the elaboration, combination, etc., thereof'. (Ibid., pp.100-1). A corollary of this property is, therefore, that beliefs are derived from previous experience. Triandis has outlined a series of four stages which children pass through during development of their conceptual systems. (Triandis, 1971, pp.112-13). This sequence leads to the formation of separate clusters of information which provide the framework for generalizations about objects and events. This is then maintained and constantly modified during adult life. Lewin also noted that the growth of the child's psychological environment involves an increase in its differentiation and, to some extent, of the degree of integration of its parts, as well as a quantitative increase in its size. (Lewin, 1936, p.182).

We have been very much concerned so far with the information processing functions of the mind, and there seems to be a great deal of evidence to show that the categorisation of incoming information greatly simplifies this task. Miller has assembled a persuasive variety of experimental results to show that the human brain, on average, is only capable of handling between about 5 and 9 separate 'bits' of information at any one time with any degree of 'accuracy'. (Miller, 1956, pp.81-97; see also Shepard 1967, pp.263-7). By grouping the vast number of incoming stimuli into categories of apparently similar events, the individual may simplify his reactions to these events. It will thus, frequently, be possible to make subsequent decisions without excessive mental effort, whilst still taking advantage of previous experience in dealing with members of that category. This is not to say, of course, that our categorised beliefs are accurate, and Lana and Rosnow do well to warn us that 'the differences we act on - which form the basis of our groupings - are sometimes more imaginary than real'. (Lana and Rosnow, 1972, p.294).

How are our beliefs related to our experience of the environment? The main link between our environment and the Image is represented by what is familiarly termed the process of perception. Perception may be loosely defined as

'what the individual "sees" within a perceptual field - his mental impression of a stimulus object'. (Robertson, 1970, p.14). That is, it is part of the process of becoming aware of the occurrence of some stimulus. Miller restricts this awareness to dependence on a sensory process. (Miller, 1966, p.375). In our model, the perceptual process simply conveys structured experience to the Image and, potentially, has the power to alter the Image in some way. 'The meaning of the message is the change which it produces in the Image.' (Boulding, 1956, p.7). Not only is the perceptual process selective, but also the vast bulk of information that is transmitted has no impact on the Image. Usually this is either because the information has no significance for the individual, or because his 'channel capacity' is temporarily overloaded and he is forced to restrict his range of attention. As Robertson has pointed out, perception represents a compromise between what the person is physically able to see, is 'set' to see (in the sense that an association is set up between the present stimulus, or series of stimuli, and past experience of some stimulus), and apparently wants to see, or avoid seeing. (Robertson, 1970, p.16).

Harvey has drawn geographers' attention to the importance of the information link between perception and Image as discussed by Charles Morris in his Theory of Signs. (Harvey, 1969b, p.52; Morris, 1964, 1971). Morris distinguishes between two types of information, or 'signs', these being signals and symbols. 'A symbol is a sign produced by its interpreter which acts as a substitute for some other sign with which it is synonymous; all signs not symbols are signals.' (Morris, 1971, p.100). In other words, whilst a signal is 'pure' sensory data, a symbol consists of substitute information which involves the input of a considerable amount of additional information retrieved from the individual's belief system. Morris notes that the advantage of such symbols is that they not only supplement environmental information, but that they also occur in the absence of such information in order to guide behaviour. (Ibid). Harvey has emphasised the great relevance of these concepts in examining migration behaviour. (Harvey, 1969b, pp.57-58). For example, he asks how far a particular decision to migrate to Devon is made with respect to signals that emanate from Devon or to the symbol

'Devon', and notes that symbols are often more important than signals in determining the sign process. Harvey goes on to speculate whether the tendency for people to react favourably to their home area and then to comment favourably upon certain other areas further away can be explained by the mixing of a local signal effect with a more general, largely symbolic, effect. (Ibid., p.59; for examples see Gould and White, 1974, pp.81-92).

Fishbein and Ajzen similarly distinguish between signal and symbol effects, but from a more Image centred viewpoint, in their classification of beliefs into descriptive and inferential types.<sup>1</sup> (Fishbein and Ajzen, 1975, pp.135-43). For the former type, the little experimental information available suggests that they tend to be formed on the basis of direct observation and are reasonably accurate representations of reality as a result. Moreover, there is little evidence that personal factors (such as other beliefs, desires, attitudes, personality characteristics) have any systematic effect on their formation. Inferential beliefs, however, go beyond directly observable events and are frequently based on prior descriptive beliefs, as in an inference that 'Joe is jolly' based on the prior observation that Joe is also fat. In fact, these two types of belief represent the poles of a continuum rather than a strict dichotomy, as the recognition of most apparently directly observed attributes of an object are based on prior learning. Even apart from its linguistic significance, the concept of 'fatness' has been acquired in the past. Fishbein and Ajzen point out that the distinction between descriptive and inferential beliefs is in many ways analogous to the distinction between the acquisition of new information and its subsequent use, or processing. (Ibid., p.213).

How does the individual use his existing beliefs to interpret incoming environmental information and how, in turn, does he revise these beliefs, in

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<sup>1</sup> Fishbein and Ajzen also present a third category of belief, similar to the descriptive type but dependent on secondary information sources (that is, symbol, rather than signal derived). (Ibid., p.133). To the extent that interpretation of symbolic information generally involves a considerable inferential component, so-called 'informational beliefs' are tautological in nature and somewhat confusing in the context of the current argument.

order to cope with any further evidence introduced by this information? These are vital questions with which our model of man as a decision maker in general, and as a migrant in particular, must deal.

There appear to be two main aspects of the process of handling environmental information:

i) The process, mentioned earlier, of clustering perceived objects or events in order to reduce the information handling load. Frequently we form fairly clear mental analogues of the 'typical' member of a given category which, if weighted with value judgements, we commonly refer to as a 'stereotype'. (See Allport, 1954, pp.191-192).

ii) The use of information about attributes of the object or category (or stereotype) to infer either the existence of other associated attributes, or the likely future behaviour or state of the object.

Neither of these two aspects is particularly distinct from the other, inferential reasoning being required to classify an object just as the attributes of the category may be used to make inferences about the object.

Kelley has presented a model of man as a naive scientific observer in his work on 'attribution' processes (that is, the ways in which inferences are made about the causes of observed events or about the stable characteristics of a person or object). (Kelley, 1967, p.197). Four criteria are proposed which the individual may use in ascertaining that an inference reflects the inherent properties of the 'object' of attention and not his own characteristics, or some peculiar interaction within the object. These are:

- i) Distinctiveness: the phenomenon is attributed to the object if it occurs only when the object is present.
- ii) Consistency over time: each time the object is present the same phenomenon should be repeated.

- iii) Consistency over modality: the phenomenon must be consistent even though the individual mode of interaction with the object varies.
- iv) Consensus: attributes are experienced in the same way by all observers.

Uncertainty will, of course, increase the greater the number of alternative explanations which may be valid. (The 'Principle of Multiple Plausible Causes'; see Fishbein and Ajzen, 1975, p.188).

To the degree [that] a person's attributions fulfill these criteria, he feels confident that he has a true picture of the external world. He makes judgements quickly and with subjective confidence, and he takes action with speed and vigor. When his attributions do not satisfy ... [particular] criteria, he ... [may be] uncertain in his views and hesitant in action. (Kelley, 1967, p.197).

Subjective uncertainty is, of course, one of the major reasons for the rejection of the classical economists' model of man. An individual with complete knowledge of the consequences of choice cannot suffer from feelings of uncertainty. If we accept Kelley's attribution hypothesis as being reasonable, we now have the theoretical (in addition to the commonsense) need to build into our model the individual's own feelings of doubt as to the validity of his perceptions and beliefs about a given object or event. Having got this far, the crucial question is how consistent is the decision maker's appreciation of uncertainty - does it follow any identifiable rules? In addition, how able are we to handle perceived uncertainty in order to reach a decision concerning a stimulus? In other words, we need to know how efficient we are as 'intuitive statisticians'.

A vast body of work has been generated on optimal statistical decision-making since the publication of J. von Neumann and O. Morgenstern's 'The theory of games and economic behavior' in 1944.<sup>1</sup> Typically a game consists of two, or sometimes more, players each of which is attempting to achieve a simple objective. Frequently, one player is taken to represent 'nature'<sup>2</sup> and the objective generally pursued by the other players is either to minimise the maximum expected

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<sup>1</sup> For a more up to date exposition see H. Raiffa (1968), and as a more readable introduction, see J.D. Williams (1966).

<sup>2</sup> This has certain technical as well as conceptual advantages, see Williams, 1966, p.15).

loss resulting from the game (the so-called 'minimax' principle), or to maximise their expected minimum gain (the 'maximin' principle). These concepts have been used in a number of geographical studies of human decision-making in specific environments, of which perhaps Gould's study of farmers' crop decisions in central Africa is the best known. (Gould, 1965).

Having used the minimax loss principle as an assumed objective on the part of his farmers, Gould concluded that his model provided a prescriptive, rather than a representational model of decisions. (Ibid., p.158). In particular, Gould's results seem to indicate that the ability of the farmers either to anticipate states of nature or to diagnose nature's subsequent play on the strength of its 'opening moves' was poor. Gould noted that the farmers' struggle to detect order in the environment had led many to presume the existence of cycles in nature's strategies, although these were in fact misinterpretations of effectively random events. (Ibid., pp.158-9). A development of this approach is to incorporate a Bayesian<sup>1</sup>, or subjectivist, element in the model of the decision-maker, which enables him to revise initial highly subjective beliefs and expectations (prior probabilities) progressively as he receives more information on nature's strategy (posterior probabilities). Thus 'Bayesian Man' chooses the alternative from a given set of alternatives which, say, maximises expected value according to the likelihood of, and preference for, each outcome. The only strong requirement for rationality is that choice must be consistent with the decision-maker's probability estimates and preference functions (Hayter, 1975, p.94). Hayter, who used a Bayesian approach in the analysis of farmers' crop decisions in Alberta, has pointed out that, although this framework is broadly representative of what he terms the 'perception-decision' problem, in its details it is not a descriptive theory of actual behaviour. (Ibid., p.95). Instead, he maintains that the approach provides a prescriptive model which recognises explicitly the cognitive limitations under which an individual has to act in a real situation.

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<sup>1</sup> See Curry (1966, pp.134-8).

In spite of its inherent weaknesses, the Bayesian analogy is an important one in the context of our present discussion of the dynamics of belief formation and modification, if only in that it reflects the notion that we tend to have pre-existing expectations about the qualities of objects and the consequences of situations. We then tend to modify these beliefs in the light of subsequent experience, the modification frequently having varying repercussions for a large number of associated beliefs, a phenomenon again reflected in the Bayesian approach. (See Fishbein and Ajzen, 1975, pp.391-396). It is therefore necessary to examine the problem in a little more detail.

Statistical theory quantifies uncertainty by the use of the concept of probability - a number between zero and one which, in the present context, represents the extent to which our idealised person believes a statement to be true. Bayes' theorem is a trivial consequence of the 'additivity rule' which states that the sum of the probabilities for two mutually exclusive events must equal the probability that either of the events will occur (Edwards, 1968, p.19). That is, the additivity rule states that  $0 \leq p(A) \leq p(S) = 1$ ,

and that

$$p(A \cup B) = p(A) + p(B) - p(A \cap B) \quad \dots \quad (8.1)$$

where S is the universal event and p(A) and p(B) are the probabilities of any two events,  $A \cup B$  is the event that A or B is true (set union) and  $A \cap B$  is the event that A and B are true (set intersection). If A and B are mutually exclusive, then  $A \cap B$  will be empty and

$$p(A \cup B) = p(A) + p(B)$$

Of course, if  $p(A \cap B) \neq 0$  after event B has occurred (we will call it the 'predictor' event), the original (prior) probability of A, p(A), no longer represents the true likelihood of A's occurrence (posterior probability). The conditional probability of event A given an occurrence of B, p(A/B), may then be expressed as

$$p(A/B) = \frac{p(A \cap B)}{p(B)} \quad \dots \quad (8.2)$$

and  $p(A \cap B) = p(B)p(A/B) \quad \dots \quad (8.3)$

Similarly  $p(B \cap A) = p(A)p(B/A) \quad \dots \quad (8.4)$

Noting that  $p(A \cap B) = p(B \cap A)$  and substituting (8.4) into (8.2) we get

$$p(A/B) = \frac{p(A)p(B/A)}{p(B)} \quad \dots \quad (8.5)$$

which is known as Bayes' theorem.

Suppose a person (let us say he is an asthmatic) has the feeling that, without ever having visited it before, town V has a given likelihood of being a very pleasant place in which to live (we will call this hypothesis HA, and its likelihood  $p(HA)$ ). The converse of HA - that the town is a very unpleasant place in which to live - we will call HZ and its likelihood  $p(HZ)$ . For the sake of greater realism, we may also give the person a level of expectation,  $p(HM)$ , that V is rather nondescript, being neither particularly pleasant nor unpleasant, so that  $p(HA) + p(HZ) + p(HM) = p(S) = 1$ .

From his previous experience of living in industrial towns, the person has the conviction that pleasant towns in this region generally have a fairly small likelihood of possessing air-polluting heavy industries (B); this probability we call  $p(B/HA)$  and the general probability of unpleasant towns having heavy industry  $p(B/HZ)$ . Finally, our asthma sufferer may also have some initial degree of expectation that V might possess heavy industry,  $p(B)$ . According to Bayes' Theorem (Equation 8.5), the later discovery by the person that V does indeed possess heavy industry would cause him to revise his view of V's probability of being a nice place to live (that is,  $p(HA/B)$ ) in the following way:

$$p(HA/B) = \frac{p(HA)p(B/HA)}{p(B)} \quad \dots \quad (8.6)$$

and

$$p(HZ/B) = \frac{p(HZ)p(B/HZ)}{p(B)} \quad \dots \quad (8.7)$$

The revised (posterior) odds in favour of HA over HZ, may be obtained by dividing equation (8.6) by (8.7) to give

$$\frac{p(HA/B)}{p(HZ/B)} = \frac{p(B/HA)}{p(B/HZ)} \cdot \frac{p(HA)}{p(HZ)}$$

$$\text{or } \Omega_1 = LR \cdot \Omega_0 \quad \dots \quad (8.8)$$



where  $\Omega_1$  is the posterior odds in favour of HA over HZ,  $\Omega_0$  is the prior odds and LR is known as the Likelihood Ratio (Edwards, 1968, p.20).

This process obviously places some severe demands on our intuitive statistician, even though the requirement that probabilities sum to unity can be relaxed in practice (equation 8.8). (See also Wonnacott and Wonnacott, 1972, pp.370-371; Edwards, 1968, pp.19-20). How well does he fare under these circumstances?

Surprisingly enough, a large number of studies have shown that Bayes' Theorem is a reasonably good descriptive model of human information processing. (For reviews see Fishbein and Ajzen, 1975, pp.184-88; and Peterson and Beach, 1967). In particular, it has been shown in studies of 'consistency' (essentially the satisfaction of the 'additivity principle') that the use of subjective probability assumptions lead to a much improved prediction of subsequent behaviour. (Peterson and Beach, 1967, p.37). It has also been found, for example by Brickman, that experimental subjects appear to control the amount of information required ('sample size') in a rational manner. (Brickman, 1972, pp.116, 119). Thus, individuals expressing high initial levels of uncertainty (large 'sampling variance')<sup>1</sup> were found to need more data and, although this finding was not fully confirmed, those receiving information which went against their initial expectations were also found to increase sample size.

Brickman's study emphasises the explanatory power of the Bayesian approach. He demonstrates how apparently irrational reactions to information conflicting with existing beliefs, resulting in, for example, the apparent rejection of that information, may in fact be quite rational revisions of those beliefs. (Ibid., p.114). Thus a potential migrant with a low opinion of a given town derived solely from second-hand sources of information (a pure symbol effect), might appear reluctant to accept the full impact of evidence gained with his own eyes on a subsequent visit. According to Festinger's 'cognitive dissonance' theory the discrepant information stemming from the visit will invoke a state of tension

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<sup>1</sup> Eg. as in the '50/50' binomial case.

within the individual. (Festinger, 1957, pp.123-37). This unpleasant effect will be reduced by the person tending (initially at least) to seek information which supports his previous position. In Bayesian terms, however, the relatively low posterior estimate of the desirability of the town would simply reflect the person's low prior estimate.

However, despite the fact that the Bayesian model of a rational person (whose inferences are basically unaffected by desires or social pressures) appears to perform quite well in the description of actual inference processes, there are some notable and consistent deviations from the normative model. Whilst research has revealed that the maintenance and modification of beliefs is an orderly process with change being generally proportional to the predictions of Bayes' Theorem, the adjustment is usually insufficient in amount.

A convenient first approximation to the data would say that it takes anywhere from two to five observations to do one observation's worth of work in inducing a subject to change his opinions. (Edwards, 1968, p.18).

This phenomenon has been variously attributed to 'misaggregation' of the data, misperception of the diagnostic impact of each item of information, or the effects of experimental design. Misaggregation may be defined as the situation where the person perceives each datum accurately and is fully aware of its individual meaning, but is unable to combine correctly its diagnostic meaning with the meaning of other data when revising his opinions. Misperceptions of diagnostic impact may be said to occur when, for example, the odds of one event over another are incorrectly assessed. Brickman however noted that, although his experimental subjects tended to raise probabilities of the correct outcome somewhat more slowly than the normative theory would prescribe, individuals receiving information which conflicted greatly with their prior beliefs followed the Bayesian model much more closely than subjects receiving expected outcomes. (Brickman, 1972, pp.117-18).

Kahneman and Tversky have gone much further in their criticism, presenting evidence which questions our most basic abilities as intuitive statisticians, whether classical or Bayesian. Whilst they acknowledge the important role that subjective probabilities play in our lives, they point out that our frequently mediocre performance is hardly surprising 'because many of the laws of chance are neither intuitively apparent, nor easy to apply' (Kahneman and Tversky, 1972, pp.430-31). On the other hand, observed deviations of subjective from objective probability seem to be stable and difficult to eliminate. 'Apparently, people replace the laws of chance by heuristics, which sometimes yield reasonable estimates and quite often do not'. (Ibid., p.431).

Much of Kahneman and Tversky's doubt with regard to the adequacy of the normative approach is based on the inability of their experimental subjects to cope with the effects of increasing sample size on the reliability of the estimates which they were making. There are, however, a number of important flaws in their approach which should be borne in mind when evaluating these criticisms. For example, the experiments were confined to a situation where all the information (prior and posterior) was presented at the same time rather than in sequence. (Ibid., pp.447-49). The situation was thus rather artificial, particularly as there was no opportunity for learning to take place. Secondly, all the experiments described were in the form of written 'problems' given to the subjects to solve. These problems were, for the most part, rather formal and their content far removed from everyday concern or experience as in, for example, a question regarding the relative numbers of boys and girls born in hospitals of different sizes. (Ibid., p.443). Man as an intuitive statistician does not necessarily have the abilities of a formally trained professional statistician! Moreover, the term 'intuitive' here need not necessarily imply 'instinctive'; many of our skills in assessing probability are surely acquired through learning - the one factor that Kahneman and Tversky's experimental design effectively rule out.

Nevertheless, their suggested heuristic alternatives to the 'normative' model must be taken seriously. The first is the 'representativeness' heuristic:

a person using this rule would evaluate the probability of an uncertain event by the degree to which it is similar in its essential properties to some model of its 'parent population' (category), and by the degree to which it reflects the 'salient features of the process by which it is generated.' (Ibid., p.431). The second alternative is termed the 'availability' heuristic: the probability of an event is judged by the ease with which relevant instances are recalled or imagined. (Ibid., p.451). In other words, the number of relevant instances that come easily to mind may be major clues that we use in estimating probability or frequency (for example, as in assessing the probability of a hot, dry summer). It seems reasonable to assume that something like the availability heuristic would tend to be used when events are more naturally thought of in terms of specific occurrences, whilst the representativeness heuristic is more likely to be used when events are characterised by their general properties. (For example, an individual may reason that a seaside resort is very likely to afford the type of facilities that he will require during retirement because it can offer a wide range of recreation facilities, pleasant climate, suitable housing and the company of other retired people). When the specific instances of an event as well as its generic features are considered, both heuristics are likely to be used; an example of this would be 'I shall take my holidays by the Mediterranean in July because of the generally warm climate, and because I have rarely known it to rain there during that month!'

Some support for the representativeness heuristic is given by Reed who reports the results of four experiments which attempt to determine how people make classifications when categories are defined by visual examples and not by logical rules. (Reed, 1972). The performance of a probability model<sup>1</sup> was compared with four 'distance' based heuristic models. The predominant strategy was found to

<sup>1</sup> An example of this type of model, ascribed to L R Beach, is presented by Reed as a 'Cue Validity Model'. (Reed, 1973, p.168).

Let  $x_1 = (x_{11}, x_{12}, \dots, x_{1j}, \dots, x_{1n})$  be a pattern in which  $x_{1j}$  stands for a particular value of the  $j$ th cue, (or diagnostic feature of the pattern). The validity of a particular cue of value  $(x_{1j})$  with respect to a given category  $K$  will be the conditional probability of  $K$  given an occurrence of  $x_{1j}$ , i.e.  $p(K/x_{1j})$ . The average cue validity for each category is then calculated and the pattern is assigned to the category having the highest expected value. The cue validity  $V(K)$  is thus given as

$$V(K) = \sum_{j=1}^n \frac{p(K/x_{1j})}{n} \dots \quad (8.9)$$

involve first the construction of a prototype representing each category, followed by the 'distance' of novel patterns from each prototype, emphasising those 'salient features' which were felt best to discriminate between any two categories.

The prototype of a category was taken to represent its central tendency, being defined as that pattern which has for each component  $x_j$  the mean value of the  $j^{\text{th}}$  component of all other patterns in that category. The rule which is assumed to apply is that if the average distance<sup>1</sup> of the component of  $X_i$  from the prototype ( $K'_1$ ) representing category  $K_1 \leq$  average distance of  $X_i$  from the prototype ( $K'_2$ ) of  $K_2$ ,  $X_i$  is placed in  $K_1$ . (Reed, 1972, pp.386-88).

It is clear that Reed regards distance models as an alternative to, rather than a replacement for, probability models whose relative success he is prepared to acknowledge. (Reed, 1973, p.173). In particular, he points out that despite the success of distance models, their usefulness is currently directly limited by

<sup>1</sup> 'Distance' is here defined by the so-called 'city-block' metric - the sum of coordinate differences between two points. (Reed, 1972, p.385; see also Downs, 1970, pp.100-1, on non Euclidean scaling methods).

Thus:

$$d(X_i, K'_1) = \frac{\sum_{j=1}^n \left( \sum_{m=1}^t w_m^r |x_{ijm} - K'_{1m}|^r \right)^{1/r}}{n} \dots (8.10)$$

Where:  $d(X_i, K'_1)$  is the distance between the  $i^{\text{th}}$  pattern  $X_i$  and the  $1^{\text{th}}$  category prototype  $K'_1$ ;

$$X_i = \sum_{j=1}^n \frac{x_{ij}}{n}$$

$n$  is the number of attributes (stimuli) of  $X_i$ ;  $x_{ijm}$  is the projection of stimulus  $x_{ij}$  on axis  $m$

( $m=1, \dots, t$ ; for  $t$  dimensions);

$K'_{1m}$  is the projection of prototype  $K'_1$  on  $m$ ;

$r = 1$ , the Minkowski metric for the city block model;

$w_m$  is an empirically determined weight.

For the Euclidean model  $r = 2$ , a form which Reed (1972, p.390) found to give less satisfactory predictions in certain situations than when  $r = 1$ . However, he also notes that the Euclidean model might be more fruitful in that the scaling solution so derived can be rotated in relation to the physical axes to achieve a better fit of predicted to observed values. (Ibid., p.401).

the extent to which patterns can be represented in terms of independent features. Thus there is no obvious way of extending the distance model to cover the case where the availability heuristic might be used. It is interesting to note that the availability heuristic essentially describes the same phenomenon as does Thorndike's Law of Effect which may be expressed after a fashion in Bayesian terms.<sup>1</sup> (Thorndike, 1966, p.184). Additional empirically determined variables could be inserted after each value of the Likelihood Ratio  $LR_i$  has been calculated to allow for the effects of 'forgetting', or increasing difficulty of retrieval. (See Miller and Campbell, 1959, on the 'recency' and 'primacy' effects in forgetting.).

Alternatively, a linear, stationary time series model might be used. (See Montgomery and Johnson, 1976, pp.192-197). This would model the subjective probability  $P'$  of the occurrence of an event  $x$  at time  $t$  as the weighted sum of exposures to similar events in previous time periods. Thus, for any given individual,

$$P'(x_{it}) = a + \left( \sum_{j=1}^m \beta_j x_i(t-j) \right) + u_{it} \quad \dots \quad (8.12)$$

where  $P'(x_{it})$  is the person's subjective estimate of the likelihood of an occurrence of  $x_i$  during time period  $t$ ;  
 $x_i$  is the level of exposure to a given type of event  $i$  experienced by the individual

<sup>1</sup> The final posterior odds, given  $n$  items of conditionally independent information are

$$\Omega_n = \prod_{i=1}^n w_i LR_i w_o \Omega_o \quad \dots \quad (8.11)$$

where  $\Omega_n$  is final posterior odds,

$LR$  is the Likelihood Ratio,

$\Omega_o$  is the prior odds.

$w_o w_i$  are the weights of a time decay function, applied to  $\Omega_o$  and each estimate of  $LR_i$  respectively.

$m$  is the total span of an arbitrarily selected series of contiguous time periods ( $t - 1, t - 2, \dots, t - m$ ) where  $m$  is, of course, not greater than the current lifespan of the individual;

$a$  and  $\beta_j$  are regression constants, and  $u_{it}$  is the error term.

Data on actual levels of exposure to an event would obviously be extremely difficult to collect, especially for long time series. However, classification and subsequent analysis of individuals grouped into appropriate demographic and socio-economic categories would facilitate the use of objectively defined past values of  $x_i$  (for example, derived from unemployment data as an indicator of local economic buoyancy, meteorological records - a factor contributing directly to the tourist's image of a place - and so on). Even so, the number of practical applications is likely to be small owing to the general unavailability of any suitable time-series data and to the computational problems involved even when its relevance can be shown. Nevertheless, despite these limitations, this could prove to be a fruitful avenue for further research, particularly in cases where the availability and representativeness heuristics are likely to be used jointly and the success of the exercise is less dependent on the quality of time-series data used.

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It has been argued in this section that the vast majority of beliefs are dependent to varying degrees on both previous experience and their relationships with other beliefs. Their function is seen as one of organising and interpreting incoming sensory data, partly in order to reduce the information processing load and partly to permit adaptive behaviour based on past experience. Most of our beliefs are therefore undergoing constant revision as we experience feedback on our success in inferring the nature and likely future behaviour of phenomena. It was shown earlier that 'attitudes', when defined as predispositions to act, were likely to be fairly meaningless if measured outside a specific behavioural context, or Plan, save for the most central (that is, the most highly inter-connected) 'attitudes'. We may now see that these 'attitudes' insofar as they

are dependent on beliefs, are also likely to be unstable over time. We must therefore be capable of allowing for, and predicting, this change in our model of decision-making man, even if we can do no more initially than structure our model so that the dynamic aspects of belief may eventually be incorporated. It was subsequently shown how Bayesian models have been applied to this problem, although with varying degrees of success. Even when subjective probabilities are used, persistent and fairly predictable deviations from the 'normative' model occur, particularly with regard to the high degree of conservatism shown when individuals are modifying existing beliefs in the light of new information. Two alternative heuristic models were then discussed and these were articulated mathematically. Despite their conceptual reasonableness, however, it is clear that the formulations proposed may only be regarded as alternatives to, and not complete substitutes for, the Bayesian models, both on the grounds of information availability and of the latter's greater generality. It is essential that we attempt more than one approach in designing this vital part of our overall model.

### The Dynamics of Affect

Affect, the second major component of the Image, may be defined as the sum of our beliefs about the propensity of an object, process or situation, to reward us with feelings of pleasure or dislike. As the concept of valance, the equivalent of affect in Lewin's system, illustrates, affect is a variable quantity and it may be depicted as a point on a bipolar scale which ranges from extreme liking at the positive pole, through complete indifference at the centre of the scale, to extreme dislike at the negative pole. The degree to which we like something will obviously be highly correlated with our combined beliefs about its attributes, although our evaluation of single attributes taken in isolation may be uncorrelated, or even negatively correlated, with our overall evaluation. (Fishbein, 1971, p.58). According to this view, it is not necessary to invoke complex theories of consistency or 'balance' in our evaluations of the constituent attributes of an object or situation in order to explain our



general feelings about the whole.<sup>1</sup>

As with our factual beliefs, our evaluations of stimuli tend either to be the product of previous direct experience, or are the results of an inferential process which links our beliefs about the stimuli to other, associated beliefs about which we do have evaluative experience. It would certainly be very tedious if we had to evaluate our feelings towards, say, each alsatian dog we met instead of inferring our probable dislike (or like) for an individual dog in advance; amongst other things, our stereotyped view of the alsatian will enable us to predict the outcome of an encounter which, if necessary, can then be avoided.

The general nature of our evaluations tends to be conditioned socially and, outside certain limits, a person who does not possess them is unlikely to behave in a manner that is acceptable to other members of a given society. (Miller, 1966, p.292). Thus, although our evaluation of a stimulus may be purely the result of an instinctive reaction,<sup>2</sup> it has been argued that people generally evaluate their feelings by comparing themselves with others around them. These others (the 'reference group') provide a yardstick by which we measure our own emotions (Schachter, 1959, Chapter 8), although other research has shown that we also seem more prone to like those whose beliefs are similar to our own! (Byrne, 1969). Variations between an individual's value systems tend to correspond with his different social functions, for each will bring him into contact with different sets of people occupying other social positions. (Miller, 1966, p.292). Each different 'audience' will expect values and behaviour exhibited by the individual to remain within prescribed limits appropriate to the function being performed, the sum of these expectations being the social 'role' of the individual. (Frankenberg, 1966, pp.16-17). We may, therefore, expect to find considerable differences in the way a person applies his evaluations of certain things and situations according to the specific social context. Our behavioural Plans are

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<sup>1</sup> The classic proponents of the consistency approach are Heider (1958), Osgood and Tannenbaum (1955), Festinger (1957); see also Insko and Schopler (1971) for a more recent view, and Aronson (1973) for a general criticism.

<sup>2</sup> For example, pain, certain types of sensory pleasure (see Young, 1966, p.197; Olds and Milner, 1954) and perhaps some of the basic emotions of love and fear.

also related to our social roles (which, in a sense, are also high level Plans), and we may also expect our evaluations of things to vary according to how those things fit in with our current Plans. In other words affect is likely to vary according to the motivational situation, even though it tends to be relatively stable over time for any given situation. (Rokeach, 1972, p.205).

#### A redefinition of Attitude

Despite this close relationship between the liking we feel towards an object and our beliefs and Plans, or behavioural intentions, concerning the object, and in spite of the work of the 'multicomponent' theorists such as Chein and Allport, it is remarkable that most of the standard techniques used to measure 'attitude'<sup>1</sup> basically attempt to measure only one thing. Each measurement scale is, in fact, concerned with how favourable or unfavourable a respondent is towards the object in question, and this it represents as a single score. It is clear, therefore, that when it comes to practicalities, most of our concern with attitude is simply with measures of affect. On purely pragmatic grounds, therefore, Fishbein has suggested that we return to the original, uni-dimensional view of attitude noted above (page 181), and study beliefs and behavioural intentions in their own right as independent phenomena which may be related to behaviour. (Fishbein, 1971, p.57).

Following Fishbein we, therefore, return to Thurstone's view of attitude as simply the amount of affect for (utility) or against (disutility) a psychological object. (Ibid., p.55).

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<sup>1</sup> The most well known methods are those of Thurstone (1931), Likert (1932), Guttman (1944), Osgood, Suci and Tannenbaum (1957) and Kruskal (1964). For reviews see A.L. Edwards (1957) and Fishbein and Ajzen (1975, pp.53-106).

## The nature of the Plan

### Plans and Motives

It was pointed out earlier (page 169) that the Image is an essentially passive concept and that a further factor (the Plan) is required in order to exploit the Image and link it with an individual's eventual behaviour, the phenomenon requiring explanation or prediction. Thus, when we have formed a clear Image of a desired outcome, the essential differences between this goal and the current situation may then be arranged as the elements of a prototype Plan, for they provide the conditions for which we must test. In fact, it has been suggested that these conditions are an Image of the desired state. (Miller et al., 1960, p.38). In man, the translation from Image to a detailed Plan is frequently a simple verbal trick, for we are aided by our capacity for assigning and manipulating linguistic symbols which represent TOTE units. (Miller, 1966, p.298). In this way we construct verbal plans which we may remember and use to guide our subsequent actions.

Adapting Alderson's view, we may therefore define human behaviour as the goal-directed (that is, Planned, motivated) attempt of the individual to satisfy his 'needs' as experienced in the field as perceived. (Alderson, 1971, p.147). Furthermore, these goals and the Plans by which it is hoped they will be attained will generally be capable of verbal expression (given a sufficient degree of willingness on the part of the respondent), even though it is possible that the 'true' needs from which they stem may often be wholly, or partly, obscured in the subconscious mind of the individual. Bearing in mind the technical definition of rationality presented earlier in this chapter (page 164), rational behaviour may now be broadly defined as the conscious and deliberate pursuit of goals that are consistent with the individual's own Image of his well-being. To this extent it is conceptually possible to elicit from the individual what he sees as his main reasons for his behaviour, at least if he is asked at the precise time at which the decision to act was made. If people appear to be misleading or vague about why they have undertaken a particular course of action, it is likely

to be because they have since forgotten the real reason or consciously perceive some penalty involved in imparting the information.

We have also argued (page 165) that the strict theoretical interpretation of economic rationality suffers more from too wide a range of possible interpretation than from its presentation of over-strong assumptions about the nature of rationality. The latter have, instead, tended to be introduced more as a matter of convenience by economists seeking to make consumer theory applicable to real situations by reducing its inherent vagueness. As Alderson has noted, the trouble is that the 'inherent standards of rationality in a field of consumer use may be quite different from imputed standards of rationality existing in the mind of the outsider'. (Alderson, 1971, p.142). The prime motive of economic man, that of utility maximisation, therefore requires further definition if it is to contribute usefully to an explanatory model of the migrant's decision process for, as Willis has said, according to consumer theory the 'migrant is said to maximise utility and utility is defined as that which the migrant attempts to maximise' (Willis, 1974, p.67). Unfortunately, it is of small help to refer to the origins of the concept in the philosophy of Bentham<sup>1</sup> and, later, of James Mill who held that the goal of human action is to maximise pleasure and minimise pain, and that every object or action may be considered from the point of view of pleasure - or pain - giving properties ('utility' and 'disutility' respectively). This simple hedonism is easily translated into a theory of choice, but provides us with scant explanation of the phenomenon.

The concept of economic man as articulated by both classical and modern economics has been subjected to much criticism over the last 25 years or so. Katona, for example, has emphasised the probable importance of habitual behaviour on the part of the decision-maker, that is, of behaviour which is almost entirely dependent on a previous decision using prior information. (Katona, 1951, pp.67-68). The decision-maker has experienced nothing in the situation confronting him to prompt him into searching for and then evaluating new infor-

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<sup>1</sup> Bentham conceived the idea of guiding conduct by a 'felicific calculus', meaning that action should only be taken if the pleasure it brings is not outweighed by any pain it causes. (Lancaster, 1973, p.114).

mation. This implies that what might be regarded as evidence of 'irrationality', prompted by unpredictable emotions, may in fact be the exercise of a rational Plan to reduce the information processing load. However, actions that occur rarely are by definition non-routine, and it is very much more likely in these circumstances that a genuine decision is made. (Katona, 1951, p.67). Most of the 'big' decisions, such as migration, house and car purchase, may therefore be expected to be of this type.<sup>1</sup> Paradoxically, much of classical economic consumer theory implies habitual behaviour by virtue of its inability to allow for the effects of introducing new commodities into the consumer's consumption set and, hence, for a corresponding adjustment of 'tastes'. (Howard, 1974, p.18).

Simple statements about maximising some 'objectively' defined criterion can rarely reflect the complexity of the decision process. Katona has maintained that it is fairly unusual to find a single motive for an action; instead, most behaviour is characterised by the influence of many motives, some reinforcing one another and some in mutual conflict. (Katona, 1951, p.71). In addition an individual's motives need not be self-centred, for sometimes he places the welfare of the group above his own. The most extensive criticism, however, has been focused on the sheer inability of the individual to maximise utility even when his motives are clear-cut. For example, in presenting his principle of 'bounded rationality' Simon has argued that,

The capacity of the human mind for formulating and solving complex problems is very small compared with the size of the problems whose solution is required for objectively rational behaviour in the real world - or even for a reasonable approximation to such objective rationality. (Simon, 1957, p.198).

Instead, the 'intended rationality' of the decision maker requires him to construct a simplified model of the 'real' situation in order to deal with it.

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<sup>1</sup> Howard has described three levels of purchasing decision behaviour, each involving a different degree of information search and processing. (Howard, 1974, pp.13-17). These levels in order of increasing information processing are: (i) 'Routinised Response Behaviour'; (ii) 'Limited Problem Solving', for example as when a consumer is confronted with a new brand in a familiar product class; (iii) 'Extensive Problem Solving', the consumer is in a complete state of disequilibrium, the whole decision process is reviewed and information search is intense.

(Ibid., p.199). In other words, Simon is simply saying the real world is apprehended through the Image, the individual's personal psychological environment. However, Simon still insists on taking a viewpoint which really lies outside the psyche of the decision maker in that the latter is presented as merely looking for a 'good' alternative rather than the 'best' alternative. This enables Simon to present a model of choice which dispenses entirely with a utility scale. (Ibid., pp.241-260).

Harvey has criticised this 'satisficing' concept on the grounds that it is both theoretically ambiguous and negative, being designed principally to explain the shortcomings of economic theory. (Harvey, 1967b, pp.43-44). He argues that it is either necessary to interpret satisficing behaviour as some form of optimising behaviour or some less theoretically barren alternative must be found which 'allows some control over the analysis of non-optimising behaviour'. (Ibid., p.45). Certainly, when the satisficing model is presented as a form of subjective optimisation, the basic concept provides a very convincing description of how the Image and Plan are related to decision making behaviour:

- i) The individual initiates a Plan involving the examination of available alternatives and compares them with an Image of the desired state. If a subset of alternatives is perceived as 'satisfactory' (that is, generally corresponding with the desired outcome) he selects what he sees as the 'best' one of them.
- ii) If none of the alternatives is perceived as satisfactory, he may initiate a search which may terminate after a satisfactory item has been found, or he may then continue to look for an even better option for a time.

Taking an optimising view of Simon's model, the desired state will reflect what the decision maker sees as the best that he can possibly manage within specified constraints, say, of time, cost and effort. This Image may be termed the 'aspiration level' which, while it might be much lower than the

'ideal' level, is usually somewhat higher than the general achievement level. (Katona, 1951, p.91). If a search fails to produce a satisfactory alternative, the aspiration level will decline, so that some alternative, or alternatives, will be satisfactory and one will be selected. The hypothetical decision making Plan adopted by the individual thus involves the application of a set of heuristic procedures designed to reduce the computational load whilst, subjectively, maximising the probability that the chosen subset of alternatives will yield the 'best' alternative of all. The heuristics may involve the application of simple binary criteria, such as the presence or absence of a fourth bedroom when selecting a house. Selection of the final consumption subset may also involve the imposition of threshold quantities below which the members of a subset are rejected, for example, an approximate minimum size of garden might be applied. The final choice is then made by maximising subjective utility amongst the attributes of the remaining subset of alternatives. These attributes may, or may not, correspond to attributes used earlier in the construction of the final consumption subset.

Having specified the very general form which the decision making Plan might take, is it possible to make any valid generalisations about the Image based goals, or motives, which dictate the nature of the tests performed at each level in the TOTE hierarchy? What in fact are the determinants of satisfaction and utility?

Apart from personality based psychoanalytic theory, with its emphasis on the subconscious, it is possible to distinguish two main streams of thought in the study of motivation. One is the 'Drive x Habit' theory developed in the stimulus-response tradition,<sup>1</sup> whilst the other is the 'Expectancy x Value' theory associated with the work of cognitive psychologists such as Tolman and Lewin and decision theorists such as Edwards<sup>2</sup>. (Cohen, 1972, p.52). The difficulty with both of these views is that the 'energising' variables, respectively drive strength and value, are determined empirically and are not articulated within

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<sup>1</sup> For a brief and critical review see Brown (1966).

<sup>2</sup> See for example, Tolman (1955), Lewin et al., (1944), and Edwards (1965).

the theory. In fact, the Expectancy x Value concept owes as much for its development to the fields of statistics and mathematical economics as it does to psychology. (See Edwards, 1967a, pp.28-55; Edwards 1967b). In addition, both concepts when taken alone tend to imply that man is subject to a homeostatic control process, so that once his 'needs' are met all goal directed activity ceases. As Cohen points out, man actually behaves as an active, goal-seeking creature, having the potential for intellectual development (Cohen, 1972, p.55); certainly the concept of a purely responding organism is inconsistent with what have been observed as autonomous processes and continuous activity in the central nervous system.

For example, Hebb has presented evidence that in the higher animals there tends to be an optimum level of arousal, or innate potential to respond, stimulated by the psychological environment. (Hebb, 1966, pp.70-74). Up to a certain point excitement and frustration have a positive motivating value, and moderate risk-taking attracts rather than repels the decision maker. Some attempts have been made to relate the positive, as well as negative, aspects of sensory and emotional stimulation to people's evaluation of different physical environments. (For example, see Sonnenfeld, 1967; Wohlwill and Kohn, 1976). Wohlwill argues that we all tend to adjust to the general level of stimulation provided by our current environment, and that either positive or negative deviations from this adaption level will be evaluated positively within a certain range; beyond these boundaries, stimuli are experienced as unpleasant. (Wohlwill, 1966, pp.34-35). Naturally, considerable differences in sensitivity to over and under-stimulation exist between individuals and Sonnenfeld has argued for a concept of geographical environmental personality that is every bit as cogent as the notion of social personality. (Sonnenfeld, 1969, p.137).

In addition to these biological considerations, there are very clear social limits to the amount of inactivity we can sustain:

... even at its simplest, human life boils at a temperature several degrees hotter than absolute lethargy. Trouble begins when we get mixed up with other people, all of whom take as much pleasure in laziness as we do. We have to compete with



them for food and drink, we find they have already appropriated all the desirable clothing and shelter, and they insist that our wastes be deposited far from their places of repose too. Moreover, they usually have strong opinions about proper ways to deal with these problems. What is dangerous, and requires real daring, is to be lazier than your neighbours think you should be. (Miller, 1966, p.268).

Maslow has presented a synthesis of our basic needs, both physiological and psycho-sociological, which can be viewed as a simple model of motivation. (Maslow, 1943, pp.372-383). The argument is that there is a general hierarchy of needs consisting of:

- i) Physiological needs: food, water, sex and shelter;
- ii) Safety needs: security and protection;
- iii) Love needs: affection and belonging (family, friends, general social group);
- iv) Esteem needs: self respect and social prestige;
- v) 'Self-actualisation' need: internally determined desire for self-fulfilment.

According to Maslow the lower level needs must be met before the higher level needs become significant. (Ibid., p.370). Needs which are fulfilled are not active motivators thus, generally speaking, most people in Western society may be said to be operating on the higher level, socially based, needs. This hierarchy may be said to form a general, high level Plan within which we pursue our more mundane day to day objectives. The need level to which we refer in a given social context will tend to influence the way in which we react to that situation, and may be said to contribute in no small part to what others see as personality.

There is, however, a certain amount of evidence to suggest that even our apparently fulfilled needs often subtly manifest themselves in our behaviour. Apart from the obvious fact that, in order to maintain ourselves at any given need level, a considerable amount of time and effort must still be spent in maintaining a subjectively adequate degree of satisfaction at the lower levels, even our more sophisticated goals and Plans may contain echoes of, for example, our basic physiological requirements. The physiological need to maintain a

certain level of arousal through mild risk taking, curiosity and frustration, may be seen as an important adaptation to the primeval need to explore and exploit our environment so that the basic means of subsistence may be obtained. Control over our environment also requires the exercise of skill as well as awareness of its potential, and it is possible that the satisfaction we derive from increasing our competence in virtually any activity may have its roots in the instinct for survival (White, 1959, pp.323-28), as well as in the social acclaim the display of skill may bring. Moreover, Appleton has recently argued that even our aesthetic appreciation of the physical environment may involve an instinctive appraisal of its potential for affording security, (the 'refuge') and its potential for exploration and exploitation (the 'prospect'). (Appleton, 1975, pp.69-73).

What matters is not the actual potential of the environment to furnish the necessities for survival, but its apparent potential as apprehended immediately rather than calculated rationally. In a sense we see the objects which comprise our environment as symbols suggesting by association properties which are not necessarily inherent in the objects themselves. (Ibid., p.69).

This, apparently, is a well attested phenomenon in animal behaviour, and may have an important influence on our preferences in entirely man-made, as well as more natural, landscapes. (Ibid., pp.172-173). The aesthetic excitement we experience from a powerful, perhaps exposed and hazardous 'prospect' dominant landscape thus may appeal to our inborn need for sensory stimulation, whilst a pastoral, 'refuge' dominant landscape appeals to our need for security and survival.

However, as we noted in our discussion of affective processes, the way in which these basic values are expressed as motivated behaviour are mediated both by the cultural environment in which they were learnt and by the current social context - a function of role and of the audience the role is played to. In using a motivational classification such as that of Maslow, it is therefore very difficult to distinguish between the effects of primary (physiological) drives and socially mediated, acquired drives.<sup>1</sup> Moreover, just as our Plans are

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<sup>1</sup> This problem was in fact recognised by Maslow (albeit tacitly) in a brief discussion of 'multiple motivations'. (Maslow, 1943, p.390).

hierarchically organised, so are the motives, or goals, which they are designed to achieve.

We can illustrate the problems involved with the study of motives contained in a low level Plan by asking a hypothetical student, 'Why are you reading a book in the library?'

Student: 'To prepare for a seminar' (Motive 1)

Questioner: 'Why?'

Student: 'To get a good exam. result' (Motive 2)

Questioner: 'Why?'

Student: 'To get a job as a geography lecturer or regional planner.' (Motive 3)

Questioner: 'Why?'

Student: 'Because I believe it would lead to a position of great respect and influence in the community.' (Motive 4)

Questioner: '.....!' (With apologies to Welford, 1967, p.168).

If we were only interested in the 'low level' task of reading the book, we would be unlikely to find motives 3 and 4 of very great practical use in explaining the student's behaviour. Moreover, once the student has passed his examination, he may display a very negative attitude towards the book and avoid reading it, yet motives 3 and 4 may still hold. The lesson is clear: if we are to understand why people will choose one thing as opposed to another, then we must study the most appropriate behavioural Plan being pursued by the decision maker. A broad classification of underlying motives may provide useful contextual information on the sort of very high level Plan he might be working to, but if we are to understand the more mundane aspects of overt behaviour, then this information is not enough. The study of everyday behaviour requires the study of everyday goals and Plans.

## A classification of Plans

What generalisations can we make about 'low level' Plans? One possible approach is to classify them according to the activities which they control. Although, our waking hours are filled with many, quite diverse activities, a significant proportion of these are routine, and we tend to know in advance the broad sequence of general Plans which we will execute during the day. That is to say, we maintain a repertoire of recurrent Plans which we revise and execute periodically; for example, Plans for getting up and getting ready to leave for work. Non recurrent Plans will then tend to be fitted into the framework of routine Plans, mutual adjustments to the scheduling of execution of the various Plans will then take place according to some system of priorities, or evaluation of drive strength. (In Lewin's field model this would involve the assessment of the magnitude of 'force', the product of 'need' and valence). We may thus be said to operate some sort of Plan which is responsible for the arrangement in time of our more overt behavioural Plans; this function is analogous to the program supervisor which controls the allocation of internal resources amongst operational programs in a large computer. In reality, this supervisory Plan is likely to consist of an amalgam of comparatively high level Plans, whose own execution and intrinsic goals may to some extent conflict. However, the notion of a general supervisor is a useful surrogate for the joint controlling effects of several high level Plans.

The Plan supervisor is also responsible for the joint running of subordinate Plans in order to increase what might be called the 'behavioural throughput' of the individual for the same general expenditure of time and effort that would be involved in a simple sequential execution of each Plan. Thus he might interrupt the routine Plan of 'going to work' in order to implement part of another Plan which involves the purchase of some urgently needed household item. Some parts of a Plan may be relatively inflexible, whilst others may be executed in a number of different sequences (Miller et al., 1960, p.96); for example, the sequence of actions involved in the Plan for going to work is, for many people,

much less flexible than many Plans implemented whilst at the place of work. Here some actions may be performed more or less simultaneously whilst others, outside the tyranny of a production line, may be carried out in many different orders.

Certain Plans may be implemented over very considerable periods of time. Development of a career, achieving home ownership, saving for retirement, for instance, all involve actions spread over many years; even the preparation for a foreign touring holiday will involve varying inputs of time spread over several weeks. The Plans with the most immediate effect on our behaviour and on our Image of our lifestyle, however, tend to be those which we implement over much shorter periods. The success or failure of our long term Plans is very often judged in the light of how they affect the day to day quality of life. The infrequent, long term Plan invoked in moving house is possibly much more commonly the result of an evaluation of the regularly consumed aspects of location, than it is of the implementation of some grand scheme based on a dogmatic Image of lifestyle. The principle of feedback ensures that control passes upwards in the TOTE hierarchy, as well as down. In short, it seems likely that the general nature and pattern of our Plans, as they affect overt behaviour, may be represented by the ways in which we allocate our time between activities during the day, that is, by our individual time budgets.

For the members of a given population, it is possible to observe certain regularities in the timing of many of their various activities and also in the proportion of total time spent on them, whether the period taken for the cross-section consists of a day, a week or even a month. Social convention, and ever increasing economic specialisation and scale of production, require most people to travel to work or to leisure, to eat, sleep, visit friends, go shopping and watch television at generally similar times of the day or week. As we very often know to our cost, this fact has important implications for urban planning.<sup>1</sup>

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<sup>1</sup> For example, see Chapin, F.S. (1965, Ch.6); and Tomlinson, et al., (1973, pp.236-41).

The overall division of time will obviously vary between different categories of people, thus the retired on average spend more time on leisure activities and less time at work than will younger adults, members of households containing children will tend to spend more time on domestic activities than childless households and so on.

People's obvious personal circumstances and attributes clearly have an important bearing on their Plans and time budgets. Time available, income, athletic prowess, and health all form considerable constraints on a person's ability to indulge in climbing in the Himalayas, even before we take into account his personal preferences and group norms. Time is a particularly important commodity, for it is very difficult to cram more than a certain number of hours implementing any Plan into a day! Becker has also shown how the effects of a change in income (particularly earned) might be expected to alter people's valuation of time. (Becker, 1965, pp.502-5). As earnings rise, so the range of opportunities for disposing of it will also expand. 'Non productive' time thus becomes more expensive in terms of the commodities (whether material or non material) which the household must forego. The result is thus a substitution from time-consuming, or what Becker calls 'earnings intensive', commodities and activities, into 'goods intensive' activities. Changes in earnings may thus cause a much more complex shift in our Plans than the simple relaxation of the constraining effects of income would suggest.

We have already noted (page 201) that the social roles played by an individual have a considerable bearing on his evaluative processes. In much the same way they also form the context for his behavioural Plans and the separate activities which they involve. Indeed, one definition of role goes so far as describing it as a 'positionally prescribed set of behaviours'. (Simon and Stedry, 1969, p.300). This is perhaps going rather too far however, as it over restricts the individual's ability to choose his course of action. On the other hand, the role and role-set certainly provide him with an important frame of

reference in his decision making,<sup>1</sup> and it is significant that Simon and Stedry redefine roles as '... a social prescription of some, but not all, of the premises that enter into an individual's choices of behaviours'. (Ibid., p.300). It is worth noting that they also go on to state that, in addition to role premises, there are premises about the state of the environment based directly on perception, premises representing beliefs and knowledge and idiosyncratic premises that characterise the personality. Thus, in the same way that we argued that Plans may be classified by the general activities they involve, so the activities may be themselves classified by the role context in which they are carried out.

Southall has presented the following simple classification of roles which he suggests may be used as a cross-cultural yardstick (Southall, 1959, pp.22-23):

- i) Kinship and ethnic;
- ii) Economic: that is, concerned with the allocation of goods and services;
- iii) Political: concerned with the allocation of power;
- iv) Ritual or religious: covers social as well as religious ritual;
- v) Recreational: this Southall finds difficult to define, but claims that it represents the 'expressive needs of the person in society'.

Many of the activities which we perform will be contained entirely within one of these categories of role. For example, a machine operator's activities during the working day will fall mainly within the economic role category. However, if we look at the act of going to work itself, the machine operator also may be influenced by his role as breadwinner - the activity involves more

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<sup>1</sup> Role-set may be defined as a role held by the individual together with the roles played to him by his 'audience'. 'Examples are father and wife, son, daughter, mother-in-law, or teacher and school governor, pupil, headmaster, parent'. (Frankenberg, 1966, p.17). Each member of the role-set will have somewhat different, sometimes conflicting, expectations of the incumbent of the role. (Ibid., p.240).

TABLE 8.1

## Behavioural Context matrix

General Activity Type* (excluding sleep)	General Role type	Kinship & Ethnic	Economic	Political	Ritual or Religious	Recreational
	Specific Role Level P activity	Father..	Employee..	Union Member...	Football Supporter..	Holiday Maker.....
Maintenance**	Eating ⋮	1.... ⋮	0.... ⋮	0.... ⋮	1.... ⋮	1.... ⋮
Work	Lathe operating ⋮	0.... ⋮	1.... ⋮	1.... ⋮	0.... ⋮	0.... ⋮
Socialising	Drinking with friends ⋮	0.... ⋮	0.... ⋮	0.... ⋮	1.... ⋮	1.... ⋮
Leisure	Swimming ⋮	1.... ⋮	0.... ⋮	0.... ⋮	0.... ⋮	1.... ⋮
Buying goods and services	Friday night' food shopping ⋮ n	1.... ⋮	0.... ⋮	0.... ⋮	0.... ⋮	1.... ⋮

where 1 indicates a possible relationship and 0 indicates no relationship

\* Modified from Cullen and Godson (1975), p.19.

\*\* "Maintenance" activities include eating meals, domestic chores and personal care, etc.



than one type of role. Even so, it might frequently be possible to substitute a more exact specification of a role (for example, 'father') for a given class of activity (such as visiting relatives) when analysing behaviour.

Table 8.1 illustrates the possible relationships between an individual's roles and his activities as a  $m \times n$  binary incidence matrix, where  $m$  is the total number of operative roles, and  $n$  is the total number of activities at a general Plan level  $p$ . Each cell in this 'Behavioural Context' matrix will broadly define the behavioural Plan being pursued by the decision maker, and the externally applied norms and sources of social influence to which he will be exposed.<sup>1</sup> It would be expected that the individual would display a definite pattern of variation in his attitude towards any given stimulus depending on his current location in the matrix. The Behavioural Context matrix may also have the important property of being extendable to the dimensions of time and place. The very notion of a time budget implies that the sequence and duration of activities, and hence manifest roles, of the individual may be predicted to

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<sup>1</sup> Kelman has described three mutually interacting processes of social influence on behaviour (Kelman, 1961, pp.62-71):

- i) Compliance; the individual accepts influence from some other person or group in the hope of gaining a favourable reaction from them. Compliance will tend to occur if the other person is seen to exercise control over the sources of reward. Compliance is normally an important factor in overt behaviour only when it may be observed by the influencing agent.
- ii) Identification; the individual adopts attitudes and behaviour derived from another person or group in order to establish or maintain a satisfying, 'self-defining' relationship with someone. In other words, he identifies either directly with the person he is with, or with the role relationship which he maintains with this other person, for example, the doctor-patient relationship. This type of influence is only effective when the individual is playing a relevant role, but does not depend on the observability of behaviour by the source of influence.
- iii) Internalisation; influence is accepted if the information itself is congruent with the individual's own value system (with compliance and identification this may not always be the case). Reward here is seen as the intrinsic worth of the induced behaviour. Important factors are the degree to which the source is perceived as competent and trustworthy. It is likely that behaviour involving compliance or identification will be particularly sensitive to changes in the role or activity context.

some extent by the clock and the calendar. (See Cullen and Godson, 1975, p.30); also Tomlinson et al., 1973, pp.241 et seq.) Our activities are also each confined to a range of locational contexts which may be described in terms both of continuous space and discrete space. The classic distance decay function may of course be used to describe the probabilistic pattern of travel behaviour for each activity. It is determined by, for example, the individual's general image of the utility of opportunities to perform the activity as distributed in space, as opposed to the disutility incurred through his anticipated expenditure of time, money and effort and the increase in uncertainty created by a decline in information signal strength. The latter four elements, together with the person's perceived social norms, will also provide the ultimate constraints on his behaviour in continuous space. Within the general 'activity surface' described by the continuous space function are the separate particles of space where the activity concerned may actually be carried out. These discrete particles will either be polygonal sites with closed boundaries or, in the case of travel activity, a channel. Constraints and preferences applying here will be related to the person's view of the ability of the site to provide the facilities which the activity requires, and the general constraints and utilities applicable in the continuous space model. Each part of discrete space will also tend to provide a different audience for an individual engaged in the given activity and so, to this extent, specific location may be said to help determine the role and role set of that individual.

It is clear, therefore, that time and space (particularly discrete space) are closely related to both activities and roles. As a result, both may be used as substitutes for activities and roles in the two dimensional case of the behavioural matrix, or one or both elements may be used to complement activities and roles by expanding the Behavioural Context matrix to three or four dimensions.

Referring to the full four dimensional form of the matrix, the Plan supervisor  $B_p$ , operating at Plan level  $p$ , may thus be characterised as a sequence of behavioural contexts, each of which may overlap to some extent with its neighbours. Each context may, for example, be signified by the term  $BC^J$  ilse, where

the superscript J denotes the set of possible (that is, non zero) roles to which the individual may refer during the pursuit of an activity i at geographical location l, starting at time s and ending at time e. (The term  $BC_{ise}^{JL}$  may be taken as a single element of an individual's conventional time budget, L being the set of possible geographical locations given, i, s and e). Given a recurring 'real time' sequence vector  $T = (t_1, t_2, \dots, t_r, \dots, t_q)$ ,  $t_r$  is the  $r^{th}$  point in the time period; for example, the hour of the day. Activity i and Behavioural Context  $BC_{ise}^J$  will then be 'live' when  $s \leq t_r \leq e$ .

### Conclusion

It is clear that the two concepts of Image and Plan have considerable potential as descriptive models of the antecedents of human behaviour. In addition, it has been shown that the 'affective' and 'cognitive' components of the common, if misleading, multidimensional view of 'attitude' together provide an effective operational representation of the Image. We are therefore in a position to benefit from the sophisticated technology of measurement developed over many years for the concept of 'attitude' whilst, at the same time, providing a more sound theoretical basis for making these measurements. The purpose of the following chapter is to demonstrate how these concepts may be used as the basis of an operational model of behaviour. The phenomenon of migration will then be presented as a special case of the general model.

A GENERAL THEORY OF BEHAVIOUR

Satisfaction, Utility and Expectation : The Determinants of Choice

In the introduction to the concept of the Plan (page 172) it was noted that the concept of motivation may be regarded as active feedback. Motivation is not something which has to be added to a TOTE unit in order to activate it, for no single part of the system alone can provide 'motivation', even though each part is indispensable.

The mere existence of a feedback loop does not guarantee goal-directed activity until some value for target output has been specified and an 'error signal' can be generated which can then be fed back to control the power supply. (Annett, 1969, p.120).

In Lewin's field model we saw (page 177) that the individual is motivated to redistribute an excess of inner 'tension' which has been aroused by a 'need'. A 'force' or drive, then manifests itself with regard to the 'valence' of some object in the psychological environment and 'locomotion' (behaviour) ensues. If we take a Plan centred view of motivation, however, the system is driven not by the potential existing between poles of tension and valence, but by the perceived discrepancy between the current state and the Image of some desired state - the aspiration level. Satisfaction, or utility, will thus be expected to increase inversely with the magnitude of this discrepancy. The anticipated contribution of an object, or situation, towards the furthering of some Plan will therefore very largely determine our evaluation of it. This Plan may be an actual intention or it may be simply a general feeling, or attitude, concerning the object's likely usefulness in the sort of Plans we might in the future undertake. If we have already formed an intention with regard to an object, it seems probable that our evaluation of that object will be much more closely related to our subsequent behaviour than if no such intention yet exists. A specific intention, of course, implies that it is part of an uncompleted Plan

whose execution has already begun. (Miller et al., 1960, p.61). It therefore follows that, the more precisely we can simulate the situation in which a Plan will be formed, the greater the degree of correspondence we may expect between the individual's evaluation of an object and his subsequent behaviour towards it.

An individual's subjective utility of an object or situation may now be defined as a function of the Plan being executed, his degree of expectation, or belief, that the attributes of the object or situation will be connected with particular consequences of implementing the Plan and, finally, his evaluation of those consequences. The general nature of the Plan under execution will, in turn, reflect the Behavioural Context in which action is taking place.

### Models of Utility

In terms of formal probability theory, the average worth of the outcomes of a 'risky' situation may be calculated simply by summing the outcomes after they have been multiplied by their corresponding probabilities of occurrence. This average outcome is known as the Expected Value of the set of outcomes  $X_i$ , and may be written as

$$E(X_i) = \sum_{j=1}^m P_{ij} x_j \quad \dots \quad (9.1)$$

(Fraser, 1958, pp.91-92)

where  $p_{ij}$  is the probability of an outcome worth  $x_j$  occurring in  $X_i$  such that the sum of the set of probabilities ( $p_1, p_2, \dots, p_n$ ) = 0. Our subjectively rational decision maker, however, can only assess the worth of a situation on the basis of the subjective values, or utilities, which he attaches to the outcomes and his belief that any one of these results will be obtained. Defined in these terms, our evaluation of any object or situation, contains an element of uncertainty; any action which we take on the basis of this estimate will produce consequences which we cannot anticipate with complete confidence. Indeed, even a hypothetical case where total certainty is felt may be represented by a one item set of alternatives with a probability, or relative belief strength, of 1.0. Instances of this are likely to be rare, however, except perhaps when the 'decision maker' is

applying a rigid rule derived habitually from an earlier decision, or is closely following an externally imposed Image of the psychological environment; for example, he may be the holder of fundamentalist political or religious beliefs.

This type of risk-taking model has been popularised by Edwards through the concept of Subjectively Expected Utility (SEU), which, following the technical definition of rationality described earlier (page 164), the individual is said to maximise. (Edwards, 1955, 1967b). Somewhat modifying Edward's notation, this concept may be expressed as:

$$SEU (X_i) = \sum_{j=1}^m p'_{ij} u(x_j) \quad \dots \quad (9.2)$$

(Edwards, 1965, p.466).

where  $p'_{ij}$  is the subjective probability of outcome  $j$

in  $X_i$ ,  $u(x_j)$  is the individual's subjective valuation of the (objectively defined) outcome value  $x_{ij}$ . The set  $X_i$  may be an object or situation and  $x_{ij}$  may be regarded as an attribute of  $X_i$  or an outcome of choosing  $X_i$ . As equation (8.8) implied, the condition that subjective probabilities must sum to unity may be relaxed in practice whilst still retaining the relative SEU values between alternatives. (See also Edwards, 1965, pp.478-82). But how justified is the assumption of summation over  $p'_{ij}$  and  $u(x_j)$ ?

Use of the SEU model involves making the assumption that the size of the set of individual attributes or outcomes is the same for all alternatives. In other words, when comparing our beliefs about the satisfaction giving properties of two alternatives, be they locations or lollipops, we compare them on the same set of evaluative dimensions, or criteria. This is a plausible assumption when we are comparing two very similar items. But if our Image of one alternative displays a greater number of positively valued attributes than a second alternative, use of the model assumes that, ceteris paribus, the first alternative will have an enhanced probability of being assigned the greater SEU. Thus, when an additional desirable attribute is discovered in one of two otherwise identical houses, the house with the extra feature will then be chosen. This seems fair enough,

until we examine evidence gathered from other types of situation. Lana and Rosnow for example, report an experiment where people were asked to categorise clusters of individuals by social status according to their personal earnings. (Lana and Rosnow, 1972, p.294). Social status was found to be assigned, not surprisingly, by using the average and not the total value of income. Of course it could be argued that per capita and not individual income was regarded as a valid diagnostic attribute of the clusters, and that a summation rule could still be implied. Nevertheless, it is possible that averaging might characterize some situations.<sup>1</sup> (Rosnow and Arms, 1968, p.363).

Fortunately, this problem need not restrict the validity of the SEU model, for it can be shown that, if  $p'_{ij}$  and  $u(x_j)$  vary, then there can be no systematic relationship between the number of beliefs  $p'_{ij}$  and attitude (SEU). (Fishbein and Ajzen, 1975, p.232). For example, irrespective of whether a summation or an averaging model is used, the addition of new beliefs may raise SEU, lower it or leave it unaffected, depending on the effects of new information on prior beliefs. (Ibid., pp.231-32). Fishbein, in practice, avoids the problem altogether by considering only the individual's 'salient' beliefs (that is, those which a respondent treats as being the most relevant); this permits control over the numbers of beliefs considered as well as keeping the data combination problem more within the scope of the human brain. (Fishbein and Ajzen, 1975, pp.218-19, 233). As we have already noted, there is considerable evidence that the brain can generally handle only between 5 and 9 'bits' of information simultaneously, and there is considerable empirical evidence that it is roughly the first seven elicited beliefs which are really effective in forming attitude. (Miller, 1956, pp.81-97; Tuck, 1976, p.88; Thomas and Tuck, 1975, pp.173-9; see also Kaplan and Fishbein, 1969, pp.71-2, for a defence of the saliency approach).

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<sup>1</sup> Typical examples of contradictory experimental results are those of Fishbein and Hunter (1964) supporting summation on the one hand, and those of Bettman et al. (1975) supporting averaging on the other.

A second problem with the SEU model is what is known as 'variance preference'. If the decision-maker displays a marked attraction or aversion to the degree of uncertainty variance in the situation facing him, then the assumption that  $p'_{ij}$  and  $u(x_j)$  in equation (9.2) are independent cannot hold and we are left with the not inconsiderable problem of discovering their law of combination. (See Edwards, 1965, p.485). This phenomenon is most familiar in the case of gambling behaviour, the act of gambling itself having its own degree of utility for the individual. When the punter is faced with a choice between the certainty of a quantity of money  $\bar{w}$  if he does not bet, and an uncertain 'prospect' or set of outcomes if he does, the

bet is said to be favourable, fair or unfavourable if the expected money value of the uncertain prospect is greater than, equal to or less than  $\bar{w}$  —. A consumer is said to display risk-aversion if he rejects a fair bet and to display risk-preference if he accepts a fair bet.

(Green, 1971, p.227).

Certainly such a view conforms with Hebb's contention that at low levels of stimulation an increase in perceived risk may be rewarding, whereas at high levels it is a decrease which rewards. (Hebb, 1966, p.75). But are the effects of variance preference an important consideration in the study of more mundane decisions, where the element of risk taking is less ritualised?

One obvious example of this type of behaviour may be found in the setting of aspiration levels discussed earlier (page 206). Lewin et al. argued that the positive valence of future success in achieving a given level of results is inversely related to the probability (ease) of attaining that level (Lewin et al., 1944, p.360). Similarly, the negative valence of future failure at the given level will be positively related to the probability of success. The choice of the aspiration level when the individual sets his goals will then be determined by that which displays the greatest positive difference between the valences of success and failure. (Ibid., p.362). Adapting and re-expressing Lewin's view:



$$u(A_q) = \frac{k_1' u'(A_q)}{p(A_q)} \quad \dots \quad (9.3)$$

$$u(Z_q) = \frac{k_2' u'(Z_q)}{p(Z_q)} \quad \dots \quad (9.4)$$

where  $u'(A_q)$  and  $u'(Z_q)$  respectively represent initial utilities (valences) of the mutually exclusive states of success and failure at level  $q$ ;

$u(A_q)$  and  $u(Z_q)$  are the revised utilities of success and failure;

$p(A_q)$  and  $p(Z_q)$  are the subjective probabilities of success and failure;

$k_1'$  and  $k_2'$  are constants of proportionality.

Atkinson has presented a model of aspiration level which, while it is strongly influenced by the mechanistic tradition of Stimulus-Response theory, may be considered to be an elaboration of the Lewin et al. approach. (Atkinson, 1957). This model has since been extended and is concisely summarised by Feather (1971, pp.247-48). According to Atkinson, Resultant Tendency (his equivalent of SEU) may be expressed as:

$$\text{Resultant Tendency} = (Ms.Ps.Is) + (Mf.Pf.If)$$

where  $Ms$ ,  $Mf$  are respectively the achievement motive and the motive to avoid failure;

$Ps$ ,  $Pf$ , are the subjective probabilities of success and failure;

$Is$ , is the incentive value (that is, reward) of success and is defined as  $(1-Ps)$ ;

$If$ , is the incentive value (that is, punishment) of failure, defined as  $-Ps$ .

(Atkinson's notation).

Thus the model differs from the Lewin et al. theory in that the utilities (valences) of success and failure are disaggregated into motives and incentive values. Unfortunately, our Plan centred definition of motivation specifically excludes the possibility that it can be regarded as an independent entity in the TOTE cycle (page 219), rendering  $Ms$  and  $Mf$  completely redundant. On the other

hand, if they are considered to be analogous to separately expressed utilities for 'gambling', then the model becomes more consonant with the present approach. This solution also avoids the necessity of blandly categorising Ms and Mf as dispositions of 'personality'.

Heckhausen and Weiner have noted that Ms and Mf in Atkinson's model may be interpreted in terms of the way in which people attribute a cause to an effect. (Heckhausen and Weiner (1974, pp.61-62). It has been demonstrated that individuals high in need for achievement in a given situation tend to regard themselves as having considerable ability, whilst those with a low level of motivation, or a fear of failure, consider themselves as having little ability. Moreover, persons in the high motivation group more frequently ascribe success to ability and failure to lack of sufficient effort, whilst those of lesser motivation display no clear attributional preferences for success. (Weiner, 1974, pp.17-18). This suggests that, in terms of Bayes' theorem, those with high values of Ms possess high prior odds in favour of possession of high ability (and hence of success),  $p(HA)$ , over low ability (and hence failure),  $p(HZ)$ . Given an event B which, say, signifies the achievement of a certain target level of performance, the odds will be revised in favour of HA according to equation (8.3). That is:

$$\Omega_1 = LR. \Omega_0$$

The causal beliefs of those with low values of Ms and/or high values of Mf may be analysed in the same way when B signifies the failure to reach a target level. The positive relationship between Ms and  $p(HA)$ , and between Mf and  $p(HA)$ , again implies that the 'motivational' state variables may be largely redundant and that the Lewin et al model is the more elegant approach. Equations (9.3) and (9.4) may thus be restated as:

$$u(A_q) = \frac{k_1' u'(A_q)}{p(A_q/B)} \quad \dots \quad (9.5)$$

$$u(Z_q) = \frac{k_2' u'(Z_q)}{p(Z_q/B)} \quad \dots \quad (9.6)$$

where  $p(A_q/B)$ ,  $p(Z_q/B)$  are the posterior estimates of success and failure respectively given event B. The decision maker's task of choosing the alternative with the greatest difference between the opposing revised utilities of success and failure may be expressed as:

$$AL(x_j) = x_{jq}$$

$$\text{when Max } (U) = u(Ax_{jq}) + u(Zx_{jq}) \quad \dots \quad (9.7)$$

U being the resultant utility of attribute  $x_j$ , and  $AL(x_j)$  is the aspiration level attached to  $x_j$ , and  $u(Ax_{jq})$ ,  $u(Zx_{jq})$  are respectively the revised utilities of success and failure to attain  $x_j$  at level q.

It is possible to incorporate the concept of risk preference, as expressed through aspiration level, directly into the SEU model by including the subjective utility attached to the converse out-turn of each attribute  $x_i$  of each alternative  $X_j$ . That is,

$$SEU(X_i) = \sum_{j=1}^m p'_{ij} \cdot Us(x_{jq}) + (1-p'_{ij}) \cdot Uf(x_{jq}) \quad \dots \quad (9.8)$$

where  $p'_{ij}$  is the subjective probability of achieving a certain utility outcome  $Us$  from attribute  $x_{ij}$  at level q in  $X_i$ .

$Us(x_{jq}) = u(A_q)$  in equation (9.5), that is, the subjective utility of success in achieving  $x_{jq}$  in alternative  $X_i$ ;  $Uf(x_{jq}) = u(Z_q)$  in equation (9.7), that is, the subjective utility of failure.

If additivity (see page 191) is not assumed, then  $p'_{ij}$  and  $(1-p'_{ij})$  may respectively be replaced by separately estimated values  $ps_{ij}$  and  $pf_{ij}$ , the subjectively probabilities of success and failure.

However, bearing in mind the earlier discussion (page 206), on the likely role of aspiration level in the decision making process, the implications of the technical definition of rationality (page 164), plus the fact that equation (9.8) would at least double our SEU maximiser's already heavy computational load, this formulation is unlikely to represent the decision process realistically, even

though it might adequately represent the outcome of the decision process. The optimising view of Simon's model presented above (on page 206) suggests instead that the decision maker attempts to maximise SEU, subject to each alternative satisfying a given aspiration level. Our decision process may accordingly be represented by two stages consisting of:

- i) Setting the aspiration level  $AL(X)$  for the perceived universe set of alternatives  $S = (X_1, X_2, \dots, X_i, \dots, X_n)$ , then partitioning  $S$  into a subset of acceptable alternatives, the probable values of which are at least as good as  $AL(X)$ , and the remainder into a set of rejected alternatives.
- ii) Selecting the alternative offering maximum SEU from the set of acceptable alternatives.

That is:

$$\begin{aligned} \text{Maximise } SEU(X_i) &= p_i \cdot u(X_i) \\ \text{subject to } X_i &\geq AL(X) \quad ^1 \end{aligned}$$

This may now be expanded to the case where the objects of choice  $X_i$  are each items with several attributes. Each  $X_i$  can therefore be described in terms of its set of  $m$  salient attributes  $(x_{i1}, x_{i2}, \dots, x_{ij}, \dots, x_{im})$ , whilst the universe set  $S$  consisting of  $n$  alternative objects (or commodity bundles) may be defined as  $(X_1, X_2, \dots, X_n)$ . The consumption set  $C$  may now be defined as that set of objects  $X_i$  each of whose attributes  $x_{ij}$  exceed the aspiration level for each attribute type  $x_j$ .<sup>2</sup> Following equations (9.2) and (9.7) the alter-

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<sup>1</sup> For simplicity it is assumed throughout this section that  $X$  is a 'normal' good. In other words that the utility of  $X$  increases when its 'magnitude' increases. (See Green, 1971, p.64). The more general case would be when  $u(X_i) \geq u(AL(X))$ .

<sup>2</sup> The consumption set is typically defined as consisting of all alternatives which permit the consumer to survive. (Green, 1971, p.33). The set of alternatives exceeding the aspiration level is a close analogy to this, however, aspiration level in a sense acting like an adjustable physiological survival limit.

native eventually chosen from the set of all (subjectively) possible alternatives S, will be selected according to the following rule:

$$\text{Maximise SEU } (X_i) = \sum_{j=1}^m p'_{ij} \cdot u(x_{jq}) \quad \dots \quad (9.9)$$

where  $X_i \in C$ , subject to each  $x_{ij} \geq AL(x_j)$ ,  $x_{ij} = x_{jq}$ ,

and where C is a subset of S. (That is,  $C \subset S$ ).

$AL(x_j)$  is defined as in equation (9.7).

The filtering stage, represented by the application of aspiration level thresholds, need not necessarily involve the same criterion attributes used to select the most preferred object at the SEU maximisation stage. For example, Rossi has argued that explaining the process of choosing a house requires the study of three types of information (Rossi, 1955, p.152). Each household is seen to make its choice with a certain set of 'specifications' in mind, using certain sources of information to obtain knowledge about available housing opportunities, and choosing a particular alternative because of its 'attractions'. Specifications are important features used as a set of criteria, or an Image, against which alternatives can initially be judged in order to partition the subjective universe set into acceptable versus unacceptable subsets; in other words, choice seems likely to be determined largely by aspiration level. Attractions, according to Rossi, are features used to determine choice within the acceptable subset C and may be comparable to the attributes considered at the second stage in our decision model. Rossi found that by the time the decision maker arrives at the point of choosing a particular house, the remaining alternatives have generally been found to meet the major requirements of the household. (Ibid., 163-64). As a result, features such as the outside appearance of the dwelling may now be a much more prominent determinant of choice than, say, its internal space standards, an attribute which Rossi found to play a vital role as far as specifications were concerned. The final choice between alternatives might often be made on a comparison of quite trivial attributes.

## Modelling the Decision Rule

The two stage process we have described loosely represents what has been termed as 'phased' decision model in that two or more different types of decision rule are used sequentially in order to arrive at a final choice. (Dawes, 1964, p.108; Green and Wind, 1973, p.43). The first stage might generally conform to what Green and Wind refer to as a 'noncompensatory' rule, in that comparisons tend to be made on an attribute by attribute basis, thereby preventing the presence of a high value level of one variable from being able to compensate for so low a value of another that the aspiration level is not met. (Ibid., p.39).

The second stage we have suggested implies conformity to a 'compensatory' rule, in that the SEU model is able to offset low values of some attributes with high values of others. In this way a single utility value may be attached to each multidimensional profile. Unfortunately, little research information on how people differentiate between and apply decision strategies is yet available, and much of the evidence which does exist tends to be contradictory. (Wright and Barbour, 1975, p.255; although see Wright, 1975, pp.65-66). Certainly, multi-attribute decision models are exceptionally difficult to put to the test owing to the fact that their rules of data combination tend not to be uniquely identifiable from observation, as we saw in the case of the adding versus averaging approach to the SEU model. (Fishbein and Ajzen, 1975, pp.231-232; see also Wilkie and Pessemier, 1973, p.439).

In practice, we are likely to find that considerable departures from a two stage 'noncompensatory-compensatory' decision making scheme will occur, depending on the complexity of the initial set of alternatives, the time and skill available to the decision maker, the extent to which multiple criteria are seen to be relevant to choice rather than single criteria, and so on. The general use of a non-compensatory rule may not, for example, preclude an item which falls below aspiration level on some counts from being retained in the final consumption set, C, on the strength of its very high score on other attributes. Thus the 'conjunc-

tive' decision rule, which states that an object will only be considered to be 'acceptable' if each of its salient attributes is at least as good as the criterion set of attributes defined by the aspiration levels,<sup>1</sup> is replaced by a 'disjunctive' rule,<sup>2</sup> (Green and Wind, 1973, pp.40-41). An example of this in a migration context would be to include a location in the final consumption set either if it lay within a certain distance of a school, or close to a railway station. The latter would enable an individual to travel to work by train whilst freeing his car for his wife to drive their children to school.

In situations where the attributes of all possible alternatives bar one fall below the appropriate aspiration levels, then the consumption set C will consist of only that item and the final choice will be determined without passing to the second stage of this process. In its strict sense, Simon's satisficing concept (Simon, 1957, pp.241-260) may be seen as a special case of this strategy where C, as determined by the individuals' initial state of knowledge, is empty (that is, no known alternatives are 'good enough'). The decision maker then proceeds to search for other alternatives, adding each sequentially to his perceived universe set S, until one exceeds his aspirations levels. If the search terminates immediately then the decision maker has displayed true satisficing behaviour. If, however, he continues on his search and gathers more satisfactory alternatives, or if more than one is discovered at the same time, then the individual will choose the best known alternative from C, maximising SEU. According to this approach, even the 'irrational' satisficer is a subjectively rational optimiser with a single element consumption set C, membership of which is constrained by aspiration level and the perceived costs (time, effort and money) of continued search. If search

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<sup>1</sup> The conjunctive rule may be more formally stated as follows: Given a set of aspiration levels  $AL(X)$  for a specified class of objects X, such that  $AL(X) = (AL(x_1), AL(x_2), \dots, AL(x_j), \dots, AL(x_m))$ , then the object  $X_i$  is included in the final consumption set C if, and only if, the value of each attribute  $(x_{ij}) \geq AL(x_j)$  for each  $j(j = 1, 2, \dots, m)$ .

<sup>2</sup> The disjunctive rule may be stated as:  
 $x_i \in C$  iff  $x_{ij} \geq AL(x_j)$  for some  $j (j = 1, 2, \dots, m)$ .

is terminated completely before an adequate alternative is found, even perhaps after some downward adjustment of aspiration level  $AL(X)$  has been made, then the decision maker is likely either to choose the best of the 'bad' alternatives (and, by definition set  $AL(X)$  at that level), or he will choose to do nothing. In the former case it seems reasonable that he will apply on SEU type model.

When people are faced with simple problems of choice then it is possible that an SEU type of compensatory model might be employed directly. The notion of an aspiration level could still apply however as a datum line from which the deviations of objects in the 'real' world are measured;  $u(x_{ij})$  could then be expressed as a function of the absolute difference between the magnitude of  $x_{ij}$  and  $AL(x_j)$ , that is  $u(x_{ij}) = f\left[\left|x_{ij} - AL(x_j)\right|\right]$ , in the case where  $AL(x_j)$  is an 'ideal point'. In the case where the condition of 'non-saturation' applies, in other words where the decision maker prefers more of an attribute rather than less beyond a certain point (Green, 1971, p.33),  $AL(x_j)$  will again act as a threshold quantity and  $u(x_{ij}) = f(x_{ij} - AL(x_j))$ .

Other situations may be characterised by the decision maker having a complete or partial priority ordering among the desired attributes of a class of objects. If this is the case, then a 'lexicographic' decision model<sup>1</sup> may be capable of representing the essence of the actual decision process. (Green and Wind, 1973, p.42). This scheme is a non-compensatory rule, and it is distinguished by the fact that information processing proceeds sequentially. Alternatives are first ranked in accordance with the most important attribute and, if all alternatives can be ordered on this basis with no tied values, the remaining attributes are not considered. If any tied values are found, then the evaluation

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<sup>1</sup> The lexicographic rule may be stated as:

Given a set of alternatives  $S = (X_1, X_2, \dots, X_i, \dots, X_n)$  and a set of ranked characteristics such that  $x_j$  is the characteristic of rank  $j$ , and  $X_i = (x_{i1}, x_{i2}, \dots, x_{ij}, \dots, x_{im})$ , then choose  $X_i$  iff any  $x_{ij} > x_{i'j}$  in  $X_{i'}$  and all  $x_{ij} \geq x_{i'j}$ , where  $j \geq j'$ , and  $X_{i'}$  signifies the remaining alternatives in  $S$ .



of the alternatives concerned proceeds sequentially until all members of the set of alternatives are ranked. A variation of this model has been tested by Montgomery with regard to a study of supermarket stock purchaser decisions.

(Montgomery, 1972, pp.13-17, 21). The analysis assumes that each buyer applied a threshold level to each attribute of the products concerned in a hierarchical fashion until the remaining sample sizes become very small or reduced to a single item. Montgomery found that this model, which he terms 'gatekeeping' analysis, provided a correct prediction rate of over 90%, although it should be noted that the decisions of only three buyers were studied! This type of model of course reflects a situation where a completely nested hierarchy of TOTE units are in operation.

\* \* \* \*

Despite the considerable variety of possible decision strategies, the essence of the two stage decision process outlined earlier (pages 206-7 ) remains unchanged. The individual will tend to enter the decision making process with some Image, or aspiration level, concerning the desired outcome. This Image will then be used to form the test stage (decision rule) of a TOTE unit, or series of TOTE units. These in turn comprise a Plan, the goal of which is the achievement of the state depicted in the Image. The set of all known possible alternatives, S, in the psychological environment will together generally present far too large a range of relevant attributes for the decision maker to choose the 'best' alternative on the grounds of an holistic assessment of its SEU; although, in limited choice situations, this possibly might occur. (See Wright, 1975, p.66). The initial, probably non-compensatory, decision rule will therefore be applied in order to rule out alternatives which do not correspond with what the decision maker sees as the principal general standards set by his aspiration level. This process will sometimes on its own produce a unique solution, but otherwise the best of the 'acceptable' alternatives will be chosen through the use of a compensatory method of overall evaluation.

If no alternative can be found which satisfies the main features of the Image, then the nearest 'unsatisfactory' alternative to the aspiration level will

be chosen, or else the aspiration level will be adjusted down a little and the search will continue. To the extent that aspiration level, as its name suggests, will tend to be set somewhat above the general achievement level, this revision of Plans in order to deal with failure to achieve goals must be quite a common phenomenon. However, the aspiration level certainly need not represent an 'ideal point', and it seems likely that major criteria used in the initial sorting stages of a decision are on the whole quite realistically defined.

### Building a Model of choice

The argument so far suggests that there are two main sets of factors to be considered when an attempt is being made to model behaviour:

- i) The situation to which the individual directly responds when making his choice. (In view of the warm weather, do I go to the beach today or do I stay at home to write my thesis?).
- ii) The general context within which that choice is made, in other words the controlling, superordinate Plans. (I wish to complete the thesis before the deadline date and please my supervisor, on the other hand I wish to retain my sanity and remain on speaking terms with my family).

The immediate action is thus linked to an underlying set of objectives via an inferential process which suggests a set of likely outcomes from a given act of choice. My decision will be made, in fact, not simply on my comparative evaluation of the concepts of 'beach' and 'thesis', but on the hypothesised outcomes of pursuing the course of behaviour involving these concepts, and how likely I feel the outcomes to be. In other words, choice and subsequent behaviour is much more likely to be related to the individual's attitude towards, or utility of, the alternative courses of action with which he is faced, than to his attitude towards the objects which are instrumental to those courses of action. The strong liking which Gould and White found that Bristol school leavers have for the Lake District does not necessarily mean that they are any more likely to migrate there than to

the West Yorkshire conurbation, an area with a very low score on their collective mental map. (Gould and White, 1974, pp.70-72). Indeed the act of moving permanently to the Lake District might even receive a very low preference score owing, for example, to its paucity of job opportunities, both in terms of quantity, quality and variety. The problems of starting a career are obviously going to feature in the behavioural Plans of many school leavers.

As we have seen, the processes underlying human behaviour are tremendously complex, even in the highly conceptualised terms which have been used so far. The highly interconnected components of the psychological environment imply a chain of mutual causality whose dynamic nature cannot accurately be represented by simple models of the phenomena most obviously antecedent to behaviour. Yet it is necessary to try, for it is only by working back from what apparently is directly connected with an act that we can ever hope to penetrate part of the vast complex of the Image and the Plans which it spawns.

#### Fishbein's Behavioural Intention Model

One of the more successful attempts to build a model capable of predicting behaviour, albeit in a limited way, is that of Fishbein (1971). Developed from an earlier theory by Dulany which was concerned with verbal conditioning and concept attainment (Dulany, 1968, pp.349-52), the most recent form of Fishbein's model may be expressed as:

$$B \approx BI = (Aact) W_1 + (SN) W_2 \quad \dots \quad (9.10)$$

where B is the eventual behaviour; BI is the intention to perform behaviour B; Aact is the attitude towards performing B (that is, 'attitude to the act'); SN is the subjective norm; and  $W_1$  and  $W_2$  are empirically determined weights.<sup>1</sup> (Dulany, 1968, pp.349-52; Fishbein and Ajzen, 1975, p.301).

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<sup>1</sup> The model is generally used operationally as a linear multiple regression equation,  $W_1$  and  $W_2$  being the beta values.

In a way directly analogous to the notion that behaviour can only be interpreted through the medium of a Plan in execution, Fishbein is saying that overt behaviour is mediated through the 'behavioural intention', BI, which is in turn a function of the person's attitude towards performing the behaviour in a given situation, together with the norms governing that particular behaviour in that situation. (Fishbein, 1971, p.75). A norm in the present sense does not simply imply a range of permissible behaviour, but an expectation that a specific course of action will be followed attributed to a given source of social influence with whom some role-relationship is maintained. In particular, Fishbein stresses the importance of how specifically the behavioural situation is defined in applying the model. (Fishbein, 1971, p.75). The further it is possible to get towards defining a specific act in a specific situation (social or locational) at a specific time, and the closer in time to the event that the measurement is taken, the higher correlation between BI and B. An elicited attitude concerning the act of 'going to the beach at 9 o'clock this morning', will obviously have a much closer connection with actual behaviour around 9 a.m. today than will a general evaluation of 'the beach' or, even, of 'going to the beach'. In effect, Fishbein's concept of behavioural intention is concerned with the execution, whether real or simulated, of a precisely described Plan.

Equation (9.10) may be broken down in the following way:

$$A_{act_i} = \sum_{j=1}^m b_{ij} e_j \quad \dots \quad (9.11)$$

where  $b_{ij}$  is the degree of belief that performing behaviour  $B_i$  leads to consequence or outcome  $j$ ;  $e_j$  is the individual's evaluation of, or affect for,  $j$ ; and  $m$  is the number of salient beliefs about performing  $B_i$ . (Fishbein and Ajzen, 1975, p.301). This is, of course, a restatement of the SEU model (equation 9.2).

An alternative frequently used in empirical work may be defined as:

$$A_{act_i} = \sum_{j=1}^m E_{act_{ij}} \quad \dots \quad (9.12)$$

where  $E_{act_{ij}}$  is evaluative dimension  $j$  of act  $i$  generally measured on a semantic

differential type (bi-polar) scale (for example, good-bad, punishing-rewarding). (See for example Ajzen and Fishbein, 1971, pp.256-7; Wilson et al, 1975, p.40).

The normative component of equation (9.10), which is intended to deal with the influence of the social environment on behaviour, may be expressed as:

$$SN_i = \sum_{k=1}^{r'} NB_{ik} \cdot MC_k \quad \dots \quad (9.13)$$

where  $NB_{ik}$  is the normative belief that reference group or individual  $k$  thinks he should or should not perform behaviour  $B_i$ ;  $MC_k$  is the motivation or degree of willingness to comply with referent  $k$ ; and  $r'$  is the number of relevant referents. (Fishbein and Ajzen, 1975, p.302). In an earlier paper, Ajzen and Fishbein noted that  $NB_{ik}$  may originate from a whole sequence of inference processes, and proposed that an individual's normative beliefs are partly a function of the inferred attitude of certain persons' or groups' towards the behaviour in question. (Ajzen and Fishbein, 1972, p.2). Thus:

$$NB_{ik} \approx f(Aact_{ik}) = f\left(\sum_{k=1}^r bo_{ijk} eo_{jk}\right) \quad \dots \quad (9.14)$$

$Aact_{ik}$  being the perceived attitude of reference group  $k$  to behaviour  $B_i$ ;  $bo_{ijk}$  and  $eo_{jk}$  respectively being the perception of referent  $k$ 's subjective probabilities and evaluations of outcome  $j$  of behaviour  $B_i$ . In its fully expanded form, equation (9.10) may now be expressed as:

$$B \approx BI_i = \left(\sum_{j=1}^m b_{ij} e_j\right) w_1 + \left(\sum_{k=1}^{r'} NB_{ik} \cdot MC_k\right) w_2 \quad \dots \quad (9.15)$$

$$\text{where } NB_{ik} \approx f\left(\sum_{j=1}^m bo_{ijk} eo_{jk}\right),$$

and  $B$  is some measure of eventual behaviour.

Fishbein's model thus makes the following assumptions in addition to those already described:

Assumption i) As with the SEU model, each expectancy and value statement  $b_j$ ,  $e_j$  and  $NB_k$ ,  $MC_k$  is cognitively multiplied.

Assumption ii) The fact that each expectancy and value product is summed assumes a Minkowski metric  $(r) = 1$ , i.e. a linear system (see equation (8.10)). Thus equation (9.11), for example, may be expressed as:

$$Aact_i = \left[ \sum_{j=1}^m |b_{ij}e_j|^r \right]^{1/r} \quad \text{where } r = 1$$

This means that the marginal utility of outcome  $j$  remains constant for all levels of  $b_j$ . Setting  $r < 1$  will imply diminishing marginal utility, whilst  $r > 1$  gives larger values of  $b_j$  proportionately more influence on  $Aact_i$ . (Wilkie and Pessemier, 1973, p.437).

Assumption iii) Each belief statement is assumed to be equally salient (that is, equally important as a determinant of attitude). Attempts have been made to incorporate 'importance' or 'relevance' weights in the estimation of  $Aact$ , the argument being that beliefs that are elicited by an individual should yield considerably more accurate predictions than would a common set of beliefs given to all individuals. (For example, see Hackman and Anderson, 1968, pp.56-57). Kaplan and Fishbein, however, conclude from their own experimental results that estimates of attitude based on a standard set of salient beliefs are at least as good as those obtained from the idiosyncratic beliefs of individuals. (Kaplan and Fishbein, 1969, p.71; see also Hackman and Anderson, 1968, p.62; Thomas and Tuck, 1975, p.185). Even so, the evidence is by no means conclusive; studies in the field of consumer research, for example, have demonstrated that the predictive power of the model increases when the set of general salient beliefs is replaced by a set for each of several sub-groups in the population. (Ryan and Donfield, 1975, p.122). In view of the fact that members of different sub-groups tend to pursue generally different activity patterns, and hence regimes of Plans, it would seem prudent to assume that

marked variations in belief salience do occur. Many of the experiments which have been based on Fishbein's approach, have used comparatively homogenous subject populations such as students. (For example, Ajzen and Fishbein, 1971; Thomas and Tuck; 1975). It is quite likely that students' modal salient beliefs about the outcomes, say, of moving to the Peak District, may be quite different from those of the elderly; the latter are much less likely to express an attitude based on beliefs about opportunities to participate in vigorous outdoor pursuits than are the former, whilst the problems of physical isolation might well loom larger in the overall attitude of the old than of the young.

Assumption iv) The final major assumption is that  $b_{ij}e_j$  and  $NB_{ik}MC_k$  are cognitively added, implying that they are also sufficiently different to ensure a high degree of independence. In view of the complexities involved in the process of social influence it is difficult to offer any general hypothesis about the relationship between attitude and normative beliefs. Certainly the process of Internalisation, and, to a lesser extent, that of Identification (Kelman, 1961, pp.63-66), would suggest the possibility of a strong, if variable, relationship. There is considerable evidence that people often evaluate their 'feelings' about an object or situation by comparing themselves with other people. (For example, see Wrightsman, 1960, p.221). The fact that many things such as beer and Beethoven are often only enjoyed after a 'taste' has been acquired, suggests the presence of a degree of social influence during the acquisition stage. Similarly, it has been shown that people's feelings about others are influenced by how closely their beliefs and values match up to their own, an important criterion for accepting influence

when internalisation is the predominant process. (Byrne, 1969, pp.67-84; see also Lana and Rosnow, 1972, p.302). Bearing in mind the fact that the parameters of the model are generally estimated via linear multiple regression, it is surprising that this problem has not received more attention than it actually has. One reason for this might have been the overriding concern of those applying the model with the problems of predicting behaviour, rather than with investigating the components of the equation. Certainly, a high level of inter-correlation, or collinearity, between the 'independent' variables need not detract from the predictive power of the model (Wonnacott and Wonnacott, 1972, p.295), so long as the relationship between attitude and norms is stable - itself a dangerous assumption when considering the variable nature of social influence processes. However, the structural relationship existing between each of the two variables and behavioural intention cannot be determined with any confidence where strong collinearity exists, owing to the consequent instability of the beta values in the equation. Ryan and Bonfield quote some unpublished research which reveals correlations between attitude and subjective norms which are higher than the correlation of either on behavioural intention. (Ryan and Bonfield, 1975, p.130). The results of Wilson et al. also suggest a high degree of collinearity (  $r$  averaging 0.575), although they claim that an inspection of the scattergrams of errors on predictor variables suggested only minor problems of heteroscedasticity and nonlinear errors. (Wilson et al., 1975, p.42). The application of the technique of double-



cross validation<sup>1</sup>, however, revealed a high degree of model stability. (Wilson et al, 1975, p.43).

The question of collinearity is particularly significant to the study of behavioural intentions as there is empirical evidence to suggest that the relative importance of attitude (Aact) versus subjective norms (SN) varies according to the behavioural situation. (Ryan and Donfield, 1975, p.130). Thus a particular migrant's choice of housing type and neighbourhood might be primarily influenced by SN since he takes them as expressing his social status. The locations of 'suitable' houses relative to urban facilities, on the other hand, might be evaluated on the basis of attitude per se; that is, for their utilitarian value. Steps may of course be taken to reduce the scale of the problem by, for example, careful experimental design aimed at manipulating the two elements independently, by adopting standard mathematical procedures to isolate the effects of collinearity (see Johnston, 1972, pp.159-168), or by reconsidering the whole issue of whether Aact and SN should be measured independently in the first place. However, the likelihood of an appreciable degree of measurement error in most applications of attitude scales may disguise the presence of collinearity by reducing the standard errors of the beta weights, thus rendering the problem even more intractable. (See Poole and O'Farrell, 1971, p.155). It is clear that this is an important research frontier in the application of this type of behavioural model. Certainly it deserves far more attention in the research literature than it has so far gained.

The performance of the model has been reasonably encouraging in general studies of social psychology where the principal objects of concern are 'important' attitudes; that is, those which are central to the individual's Image such as political and religious beliefs. For example, Ajzen and Fishbein report multiple correlations (R<sub>c</sub>) of more than 0.8 between the model and BI in three out of four experiments involving important risk-taking decisions, (for example, about undergoing an operation or making a financial investment). (Ajzen and Fishbein,

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<sup>1</sup> For a description of this technique, see Guilford (1954, p.406).

1972, p.5). Similarly, an unpublished paper by Keenan reported on R value of 0.73 from a study of WRAC recruits' intentions to remain in the Army. (Keenan, 1976; cited in Tuck, 1976, p.99). Moreover, a correlation (r) of 0.86 was reported between BI and actual behaviour (B), by the same study. High multiple correlations have also been reported in studies of more trivial behaviour, for example, Ajzen and Fishbein found R values of between 0.688 and 0.891 in a study of attitudes and intentions with regard to engaging in various leisure activities. (Ajzen and Fishbein, 1971, p.267). Studies of consumers' purchasing behaviour, however, have tended to yield much less impressive results, Ryan and Bonfield noting in a review of such studies that the average value of R for the relationship between the model and BI was 0.60, whilst the average r between BI and B was only 0.44. (Ryan and Bonfield, 1975, p.125). The low value of the latter may partly be explained by defects of experimental design, but it is also possible that the model may assume a more complex decision process than is actually used in 'unimportant' decisions. This problem is of course less likely to be of concern when studying such a major event as migration.

#### A Descriptive Model of Choice

From the foregoing discussion, it seems possible that human behaviour under conditions of volitional control may be represented by a general descriptive model.

In a way analogous to Lewin's subdivision of the individual into an inner-personal region and a perceptual-motor region (which communicates between the former and the surrounding psychological environment), (Lewin, 1936, p.180), the process of choice may be subdivided into an essentially passive Image 'area', and a Plan 'area' which translates the Image into palpable actions with regard to objects and situations within the psychological environment. The central component of the Image may conveniently be regarded as the Belief and Value (B-V) System, which comprises a complex of interlinked beliefs about phenomena and feelings of utility (affect) towards the precise object of those beliefs and thus, in-

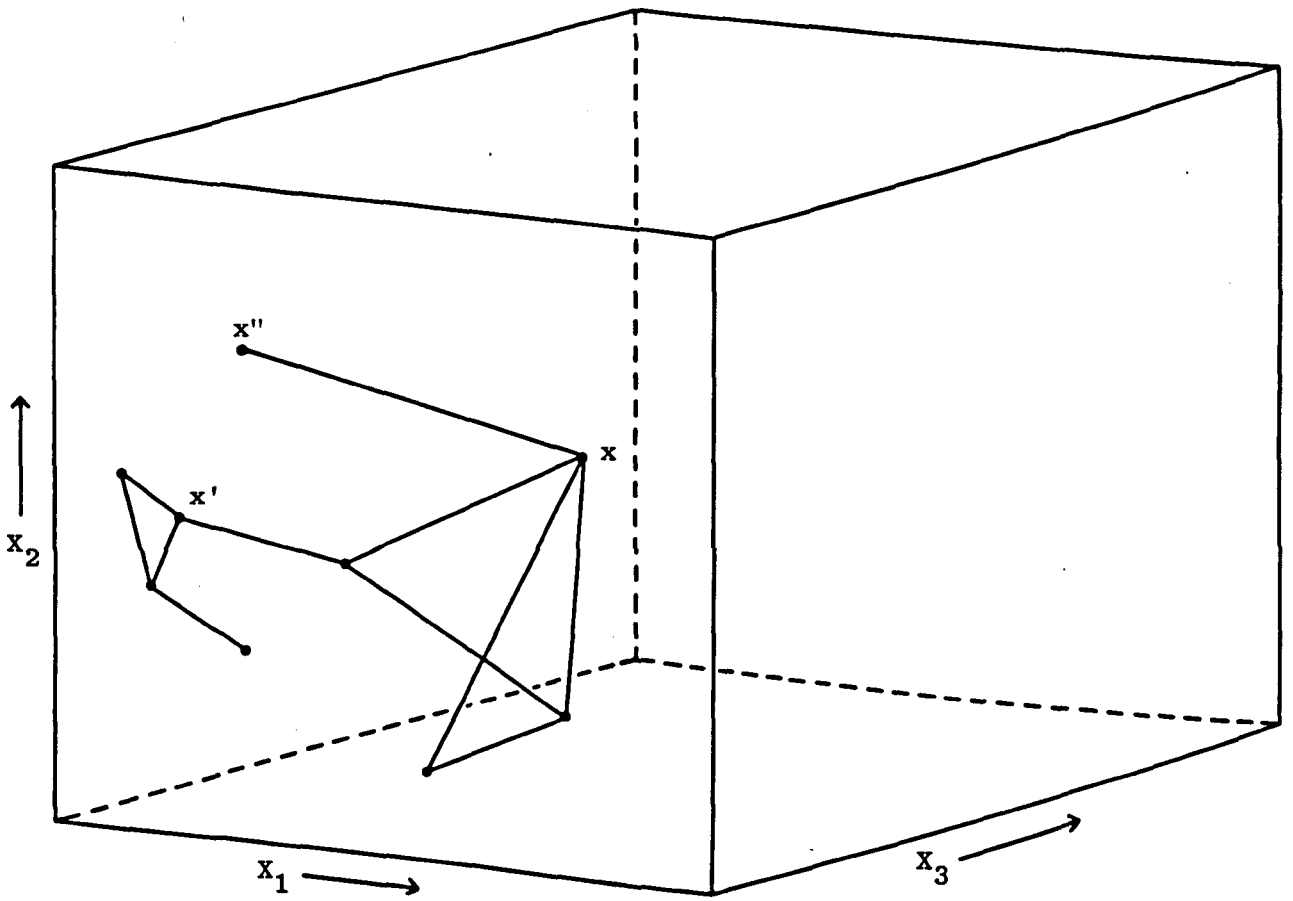


FIGURE 9.1 HYPOTHETICAL 3-DIMENSIONAL IMAGE (B - V SYSTEM)

directly, towards the total phenomena themselves. Each dimension within the B-V system may be said to represent a different general phenomenon, the equivalent of Lewin's 'region' within the life-space; any particular type of motivational or behavioural situation (Plan) is likely to set up different patterns of inferential interconnections between individual elements (beliefs) comprising the Image of those phenomena. The phenomena themselves might be physical objects, or entirely abstract concepts, or some combination of the two. The topological relationships existing between a set of beliefs which are activated by a given situation will then serve to determine the individuals' general response to that situation.

For example, consider a rather simple individual whose total Image system consists of only three concepts:  $X_1$ , the notion of living in a seaside resort;  $X_2$ , a specific seaside resort, Blackpool;  $X_3$ , Manchester. In other words, the individual possesses a three-dimensional Belief and Value system, each dimension of which consists of a set of beliefs and values which may in turn be extended into separate dimensions for  $b_{ij}$  and  $u(x_j)$ ; thus  $X_1 = (b_{11} u(x_1), b_{12} u(x_2), \dots, b_{1m} u(x_m))$  and so on. This is illustrated by Fig. 9.1. The points on the plane formed by  $X_1$  and  $X_2$  are the set of particular beliefs activated by a specific behavioural situation or Plan (for example, the act of going to live in a seaside resort), as mapped on both  $X_1$  and  $X_2$ . The linkages between these points represent the inferential paths by which the individual adjusts his overall view of the consequences of the situation as described in equations (8.5) and (8.8). Thus, information on the gregariousness of the inhabitants of Scarborough,  $x$ , is going to have a direct effect on both  $x'$ , beliefs about the general 'friendliness' of the inhabitants as neighbours, and on  $x''$ , beliefs about the vitality of the more formal aspects of social life such as entertainments, societies, clubs, etc. Change in the level of information on  $x$  derived through  $X_2$  is also likely to have an impact on  $x$  as mapped on  $X_1$ , the concept of living in a seaside resort. Information on  $x''$ , however, can only affect  $x'$  through  $x$ . Finally, all relevant belief points in Fig. 9.1 are mapped on a single plane as  $X_3$ , the concept 'Manchester', has not been activated by the behavioural situation.

As learning progresses, so the pattern of potential linkages between sets of beliefs evolves, some new connections being created whilst some old ones are deleted. In general, however, the interconnections between beliefs might be expected to become more complex, both in terms of the numbers of belief nodes and linkages specified, and in terms of dimensions included. As experience increases it might be expected that the individual will:

- i) become more apparently 'conservative' as the impact of information on any one part of the system becomes more 'diluted' by the effects of many intervening beliefs;
- ii) he will tend to resort to more 'sub-optimal' methods of revising his beliefs in order to cope with increasing complexity (equations 8.9 to 8.12).

Let us now assume that the Image is continually subjected to a barrage of information received from the external environment and also from within the Belief and Value system itself. Apart from 'noise' or, to the individual, meaningless or insignificant information, two major types of stimulus may be distinguished within the information input:

W, the set of potentially want creating phenomena, where

$$W = (w_1, w_2, \dots, w_i, \dots, w_n);$$

S, the set of want satisfying phenomena, where

$$S = (x_1, x_2, \dots, x_j, \dots, x_n);$$

W may also be subdivided into the subset of externally generated stimuli, WE, which are imposed upon the individual's consciousness from the external environment, and internally generated stimuli, WI. The latter are derived either directly from the central Belief-Value system (equivalent to needs (ii) to (v) in Maslow's hierarchy - page 209 above), or from a physiological need such as hunger or desire for sensory stimulation which is then mediated by B-V. For present purposes, all types of S may be said to originate externally, although in reality this might not always be so. In the decision making scheme which

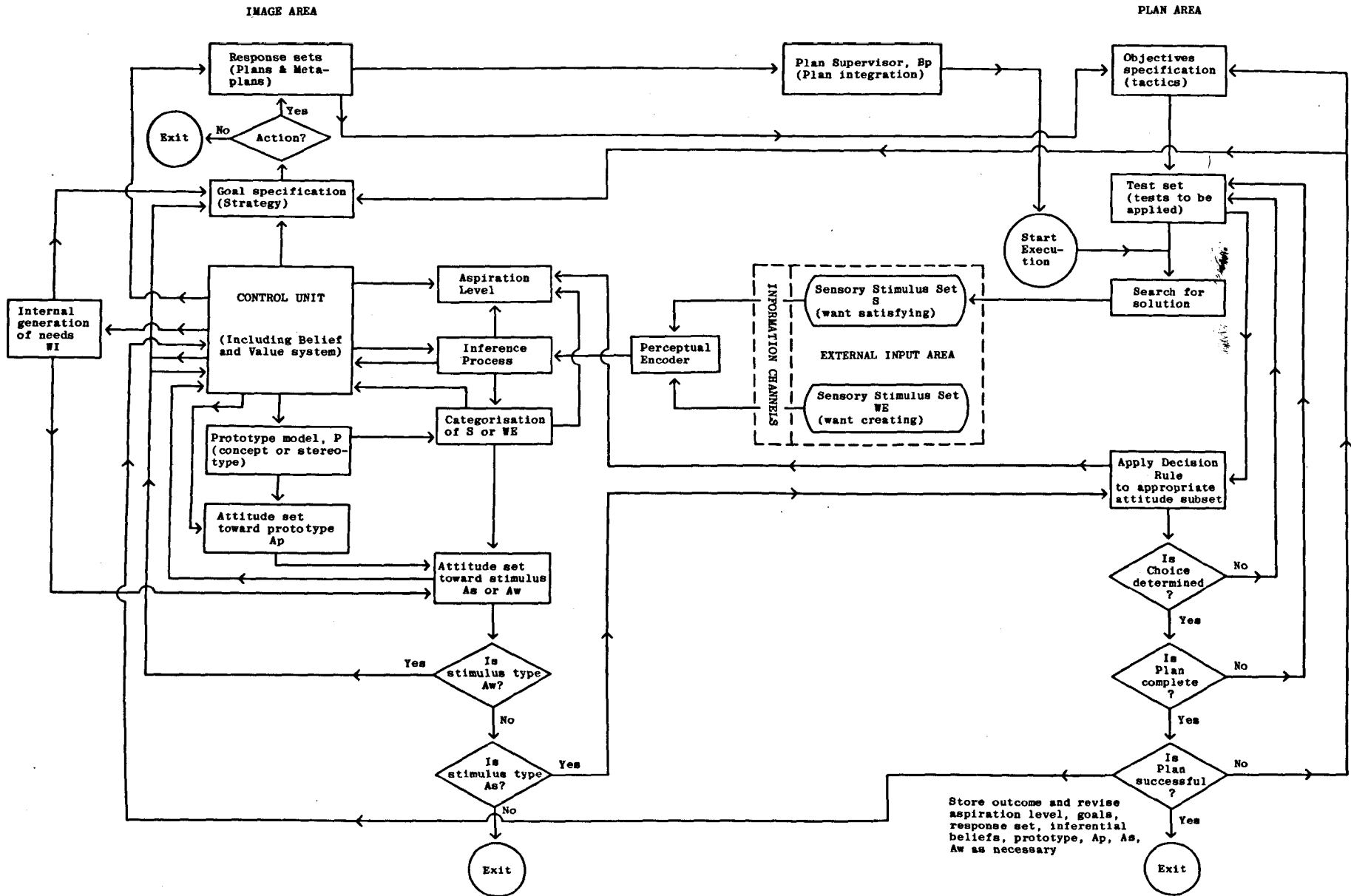


FIGURE 9.2

A DESCRIPTIVE MODEL OF BEHAVIOUR

follows, WI and WE are categorised simply as W when they are essentially treated alike by the individual.

The decision process may now be summarised in the nine steps which follow (see Fig. 9.2):

#### Stage One:

If the presence of a sensory stimulus  $w_i'$ , where  $w_i' \in WE$ , is registered by the individual's perceptual apparatus, the perceptual signal will be referred to the B-V System where the observed Image of  $w_i'$  and its attributes (descriptive beliefs) is 'filled out' via an inferential process based on prior experience. This will possibly result in a ripple of adjustments to the relevant connected elements of B-V. The decision maker may make:

- i) direct inferences about the nature of the attributes of the stimulus (analogous to equations 8.5, 8.8, 8.11 or 8.12), or he may
- ii) compare them with some overall pre-existing set of concepts, or prototype, in order to categorise the stimulus (equations 8.9 and 8.10).

This process may involve several iterative steps consisting of (i) and/or (ii) in varying sequences.

#### Stage Two:

A vector set of attitudes,  $A_w$ , towards the categorised stimulus is derived either directly from the inference process or from the stored evaluation  $A_p$  (the stereotype) of the prototype (equation 9.11).  $A_w$  and  $A_p$  possess a potential conative or behavioural dimension in that attitude is likely to vary according to beliefs about the stimulus' nature as relevant to different behavioural contexts. A single element of  $A_w$  or  $A_p$  will thus relate to one type of behavioural situation. If the stimulus  $w_i' \in WI$ , it is presumed to be input directly to this stage as it will already have been categorised.

### Stage Three:

Aw is then stored in B-V, accompanied by a further ripple of adjustments to inter-connected beliefs. B-V then refers the stimulus to, or newly formulates, a hierarchical set of overall goals - the behavioural strategy - and the decision is made whether or not to initiate action bearing in mind the inferred effect of the stimulus on the accomplishment of these goals. The strategy will include social objectives (expressed as general norms and the specific expectations of others) as well as those more directly affecting personal well-being.

### Stage Four:

If action is to be taken, the overall goals and Aw are then referred to the stored set of previously learnt plans and metaplans;<sup>1</sup> a reformulated Plan is then initiated and the constituent objectives (tactics) are specified which apply to the limited domain of the Plan. From these specific objectives, a set of fairly precise tests is devised. These tests are based upon the aspiration level AL and will be applied at each TOTE sub-stage of Plan execution.<sup>2</sup> The Plan is now ready for execution. In the meantime, control has been passed to the Plan Supervisor, Bp (see pages 212-13 above), which will transmit the signal necessary to initiate the Plan and control its activity vis a vis other Plans being executed. (Stages Three and Four are represented in part by the Behavioural Context matrix C (pages 216-18), and the concept of BI in equation (9.10); AL is represented by (9.7).

### Stage Five:

At the appropriate time the Plan is started and a search begins for a course of action which will meet the objectives of the Plan. The initial pool of potential alternatives are members of stimulus set S. It is necessary to note that the choice of 'when' is as much a part of the decision process as 'how' or 'what';

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<sup>1</sup> Metaplans are sets of rules (Plans) for generating other Plans. (Miller et al., 1960, p.169).

<sup>2</sup> In terms of the general TOTE hierarchy, the set of strategic goals within which the Plan is framed refer to superordinate Plans, whilst the tests refer to subordinate Plans.



in addition, the act of choice might well be made well in advance of the overt behaviour which implements the result of a decision. For example, a potential migrant might well think through the set of alternative courses of action open to him months before he visibly does anything about making the move. To that extent the decision maker is still executing a Plan, even if its continuation and completion will then be deferred for some time.

#### Stages Six and Seven:

These respectively entail repetition of Stages One and Two, only with members of S being evaluated instead of W, giving As. There is also some feedback to the aspiration level depending on the outcome of the search which may in turn cause some adjustment in the battery of tests to be applied.

#### Stage Eight:

An appropriate decision rule, derived from the battery of tests, is applied in order to prescribe, and then to select from, the consumption set CcS (this involves application of compensatory rules - equations (9.9), (9.10), (9.15), non-compensatory rules or a phased decision rule). If an unambiguous preference for a single alternative is not possible, a feedback signal to the test set occurs, the test is adjusted or changed if necessary, and the process recommences from the search stage (for example, by re-examining members of C using a new rule or by resuming sampling directly from S, possibly under a new value of  $AL(x)$ ). If the Plan is completed, then an overall evaluation of the outcome is made with feedback to the initial set of objectives and, if necessary, their subsequent adjustment. In extreme cases of failure there may be referral back to the response set or even goal specification stages. If the Plan is successful it will be 'terminated'; in other words, control will be passed back to the supervisor and the execution of another Plan will commence.

Stage Nine:

The outcome of the Plan is then stored in B-V and aspiration level, goals, response set, inferential beliefs, prototype, Ap, As, Aw revised as necessary through a general inference process (equations (8.5), (8.8)).

#### A Normative Model of Choice

Haggett and Chorley have distinguished between descriptive models of the type discussed above which are essentially concerned with a stylistic representation of 'reality', and normative models which are operational statements of what might be expected to occur under certain stated conditions. (Haggett and Chorley, 1969b, p.25). Our descriptive model suggests the presence of a fairly clear chain of cause and effect, the essential stages of which may be characterised by a series of mathematical models. Many of these equations already have respectable pedigrees of empirical research and progressive development, as we have seen. Unfortunately, the hypothetical relationships between them, as outlined by the descriptive model, are not so readily presented in mathematical form. On the other hand, the explanatory power offered by a normative approach is obviously a very desirable objective, especially as it would facilitate the empirical testing of the postulated causal sequence and permit the separate manipulation of different parts of the system. It is therefore necessary to design a normative model which both reflects our current state of ignorance about the functional relationships between elements and stages in the model (that is, about the rules of transformation linking cause and effect), whilst permitting the more precise representation and testing of the structural relationships (how the parts fit into the whole) which we have hypothesised.

We must also be careful not to confuse causality with prediction for, in order to relate the findings of previous studies to individual aspects of our scheme, it is necessary to understand the patterns of mutual interdependence which exist within the model system. (Blalock, 1964, p.10). Fishbein's model is

capable of encouragingly accurate predictions of behaviour, albeit in very precisely specified and tightly controlled experimental, and quasi experimental, situations. But it does not help us to relate, for example, the general study of geographical Image through the medium of 'mental maps' to that behaviour. Ideally other valid research in the field should be used to facilitate the critical examination of any model of behaviour. Fishbein's approach implicitly rejects too much in the way of contributory research by concentrating almost exclusively on the immediate antecedents of behavioural intention, BI. On the other hand, it is equally desirable that we do not lose the predictive properties of the behavioural intention model.

A solution to this problem is suggested by the recent work of Ryan and Bonfield in reformulating the Fishbein equation as a causal sequence model. (Ryan and Bonfield, 1975, pp.131-32). Noting that Dulany's original conception of the normative component of the model bears a strong resemblance to Kelman's notion of Compliance, Ryan and Bonfield redefine SN in equation (9.10) as social compliance, SC. (Dulany, 1968; Kelman, 1961, p.62). Seen in this light,  $\sum_k NB_{ik} MC_k$  in equation (9.13) then becomes an antecedent of  $SN_i$  rather than its direct equivalent. Similarly, Kelman's concept of Identification is also held to be expressed through SC in much the same way that  $\sum_j b_{ij} e_j$  relates to  $Aact_i$  (equation (9.11)), whilst Internalisation is directly manifested in Aact. As we noted earlier (page 238) the normative and attitudinal variables would be expected to be associated if Internalisation or, to a somewhat lesser extent, Identification were a source of influence. Moreover, it is unlikely that a certain degree of Internalisation would ever be completely absent except in extreme cases of forced compliance, a situation specifically excluded by our precondition of volitional control (above, page 241). The essence of this argument is used by Ryan and Bonfield to postulate two separate, but not entirely independent, causal chains leading to the formation of a behavioural intention, BI. With somewhat less conviction they also argue that the formative processes involved in the attitudinal and normative components are independent, implying that  $\sum_j b_{ij} e_j$  and  $\sum_k NB_{ik} MC_k$  should be modelled as though primarily independent.

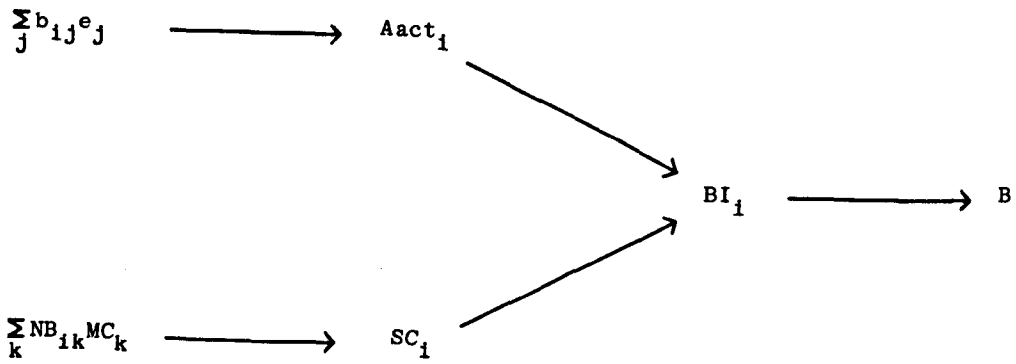


FIGURE 9.3a THE RYAN & BONFIELD CAUSAL MODEL

(After Ryan and Bonfield, 1975, p132)

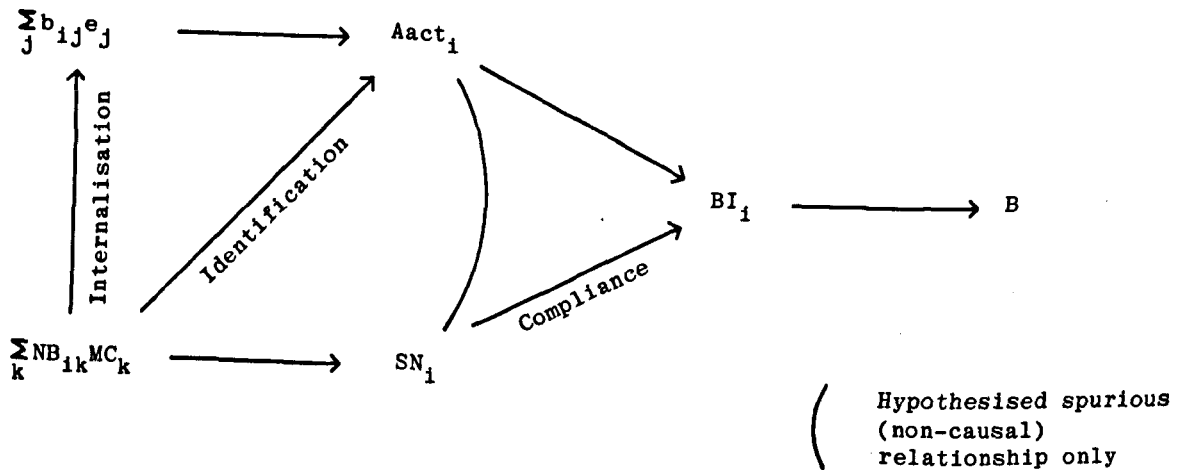


FIGURE 9.3b A REFORMULATION OF THE RYAN & BONFIELD CAUSAL MODEL

Ryan and Bonfield suggested that their model (illustrated in Fig.9.3a) could be articulated through the technique of path analysis. (Duncan, 1966; see also Blalock, 1964, chs. 2 and 3; Blalock, 1969, Ch. 3; Kim and Kohout, 1970, pp.383-397). If this is so, then the tentative two-way relationship between Aact and SC in the diagram must be respecified, as path analysis can only be applied to what are known as 'recursive' systems; that is, two-way causation is specifically excluded. (Blalock, 1964, p.54). This is not to say that a reciprocal effect could not be modelled between the two variables using path analysis, but it would be necessary to introduce the additional complication of time lags into the equation and then treat  $SC_t$  and  $Aact_t$  at time  $t$  as totally separate variables from their 'lagged' versions,  $SC_{t+1}$ ,  $Aact_{t+1}$  at time  $t + 1$ . (Blalock, 1969, p.83). Moreover, Ryan and Bonfield's illustration of their causal model does not really express their arguments about social influence processes, as it seems likely that the effects of Identification and Internalisation on the attitudinal components will be more causally dependent on  $\sum_k NB_{ik} MC_k$  than on  $SC_i$ , whilst the process of Compliance is likely to have little effect on attitude. (Kelman, 1961, p.62). Fig. 9.3b shows a restructured Ryan, Bonfield model incorporating uni-directional, partial causal links between norms and attitudes, the strength of which might be expected to vary with the relative importance of Identification and Internalisation processes in any decision making situation. The curved, two-way link in the diagram between  $Aact_i$  and  $SN_i^1$  symbolises the hypothesis that there is no direct relationship between them which cannot be explained in terms of  $\sum_k NB_{ik} MC_k$ .

Having respecified Fishbein's model as a recursive system, is it possible to represent the essential features of our descriptive model of the decision process in the same way? In order to simplify the analytical problem, let us assume that a want creating stimulus  $w_i$  has already been registered by the Image system and that an overall controlling Plan has been selected (Stages One to Four). In the case of migration this Plan perhaps would be something along the

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<sup>1</sup> The form  $SN_i$  is retained in this analysis.

lines of, 'Find the "best" alternative location to the current place of residence and decide whether to move', that is whether the 'best' alternative is 'better' than the current one. The universe set of possible want satisfying stimuli  $S = (X_1, X_2, \dots, X_i, \dots, X_n)$  has been defined by the Plan and comprises all locations either already contained within the Image (B-V system) of the decision maker, or which exist within his search 'radius' and are thus potential members of the psychological environment. We are also not concerned for the present as to whether the individual will choose from his currently apprehended subset of alternatives ( $BV \cap S$ ) or whether he will initiate a search of the remaining members of  $S$  ( $S - (BV \cap S)$ ) in order to expand his actual set of alternatives. The symbol  $S$  will therefore be taken to represent the set of all known alternatives at the time that the act of choice occurs.

Referring back to the earlier discussion on the quality of the information contained within the Image (page 186), we distinguished between signal and symbol effects acting upon the decision maker's overall view of the members of  $S$ . Operationally, we define signals as incoming 'real' information such that the effects of each bit of information about any item  $X_i$  in  $S$ , when mediated by an inferential process, potentially contributes towards the final Image of  $X_i$ . Symbols, on the other hand, we define as largely pre-existing, evaluative and holistic Images (stereotypes) which tend to be invoked on receipt of information about  $X_i$  and which, in general, are assumed to apply in their totality to  $X_i$ ; that is unless, perhaps, there is direct evidence to the contrary on any single observed characteristic  $x_{ij}$  in  $X_i$ . The nature of observed  $x_{ij}$  may alter components of the stereotype by means of an inferential process but, in general, information about  $X_i$  tends to be too low to serve as anything more than a criterion for categorising it under a single stereotype. Signal and symbol effects thus do not represent a clear dichotomy but simply poles in a continuum closely analogous to Fishbein and Ajzen's differentiation between descriptive and inferential beliefs. (Fishbein and Ajzen, 1975, pp.135-43). A 'pure' signal effect is thus derived almost entirely from incoming information from the external environment and requires only that Image based information sufficient to evaluate the stimulus, whereas a 'pure' symbol effect is derived entirely from the Image and requires only sufficient

information from the external world to invoke the stereotype.

In our model we may represent predominantly signal based Images by the type of inferential process modelled by equations (8.5) and 8.8), whilst largely symbol based Images may be described by the representativeness heuristic modelled by equation (8.10). In certain cases involving long stored, largely signal based information which has been subjected to processes of decay over a period of time and which, intuitively, is also likely to have a strong stereotype component, the final Image may be depicted by the availability heuristic modelled by equations (8.11) and (8.12).

These ideas may be represented more formally in the following way:

1) Signal Effect

Given a real world stimulus object  $X_i \in S$ , where  $X_i$  is comprised of a set of 'objectively' definable (and hence directly measurable) attributes ( $x_{i1}, x_{i2}, \dots, x_{ij}, \dots, x_{im}$ ), and for all  $X_i$  there exists a set of prior acquired beliefs  $B = (b_{i1}, b_{i2}, \dots, b_{ij}, \dots, b_{im})$ , then, following equation (8.5), the strength of each posterior inferential belief  $Ib_{ij}$  may be defined as:

$$\begin{aligned} Ib_{ij} &= \sum_{j'} w_{j'} f_0(p(b_{ij}/x_{j'})) \\ &= \sum_{j'} w_{j'} f_1((pb_{ij})p(x_{j'}/b_{ij})) \quad \dots \quad (9.16) \end{aligned}$$

where  $w_{j'}$  is an empirically determined weight and  $f$  is an appropriate function.

In the case where  $b_{ij}$  may be expressed in terms of the odds of one event  $HA_j$  occurring over another,  $HZ_j$ ,  $Ib_{ij}$  may be defined in terms of equation (8.8) to give:

$$\begin{aligned} Ib_{ij} &= \sum_{j'} w_{j'} f_2(\Omega_{1j'}) = \sum_{j'} w_{j'} f_2\left(\frac{p(HA/x_{j'})}{p(HZ/x_{j'})}\right) \\ &= \sum_{j'} w_{j'} f_2(LR_{j'}, \Omega_{0j'}) \quad \dots \quad (9.17) \end{aligned}$$

In cases involving beliefs with regard to the frequency of occurrence of a phenomenon  $x_j$ , where the availability heuristic is likely to be used, the equivalent of  $Ib_{ij}$  in terms of equation (8.12) may be expressed as:

$$I'_{ij} = \sum_{t=1}^q w_t f_3(x'_{j(q-t)}) \quad \dots \quad (9.18)$$

where  $x_j$  is the level of exposure to attribute  $j$  of a class of events  $X_i$  experienced by the individual,  $q$  is the total span of an arbitrarily selected time period, and  $w_t$  is a time decay weight applying to events occurring during time  $t$ .

The equivalent of equation (9.17) in terms of the availability heuristic would then be:

$$I'_{ij} = \Omega_{qj} = \prod_{t=1}^q w_t f_4(LR_{jt}) w_0 f_5(\Omega_{0j}) \quad \dots \quad (9.19)$$

where  $\Omega_{qj}$  is the final posterior subjective odds of  $j$  occurring after  $q$  time periods,  $\Omega_{0j}$  is the original prior odds,  $LR_{jt}$  is the Likelihood Ratio applying to  $j$  at time  $t$ , and  $w_t$  and  $w_0$  are empirically determined time decay weights.

If the evaluation of each quality  $j$  for all members of  $S$  is symbolised as  $e_j$  then, following equation (9.11), the individual's overall attitude  $AsX_i$  to the stimulus object  $X_i$  may be expressed as:

$$AsX_i = \sum_j w_1 f_6(I'_{ij} e_j) \quad \dots \quad (9.20)$$

where  $w_1$  is an empirically determined weight, and where  $I'_{ij}$  may be substituted for  $I_{ij}$  when appropriate.

ii) Symbol Effect:

Given  $X_i \in S$  where  $X_i = (x_{i1}, x_{i2}, \dots, x_{ij}, \dots, x_{im})$ , and a set of prototypes (or pre-existing holistic Images)  $Ps = (K'_1, K'_2, \dots, K'_1, \dots, K'_n)$  representing categories  $(K_1, K_2, \dots, K_1, \dots, K_n)$ ,  $X_i$  is placed in  $K_1$  when the mean perceptual distance between the  $i^{\text{th}}$  item  $X_i$  and  $K'_1$  is at its minimum. Thus, in terms of equation (8.10), and assuming a Minkowski metric ( $r = 1$ ), we have:

$$X_i \in K_1 \quad \text{if, and only if,}$$

$$d(X_i, K'_1) \leq d(X_i, K'_1)$$

$$\text{and } d(X_i, K'_1) = \frac{\sum_{j=1}^{m'} \sum_{k=1}^t w_k |x_{ijk} - K'_{1k}|}{m'} \quad \dots \quad (9.21)$$



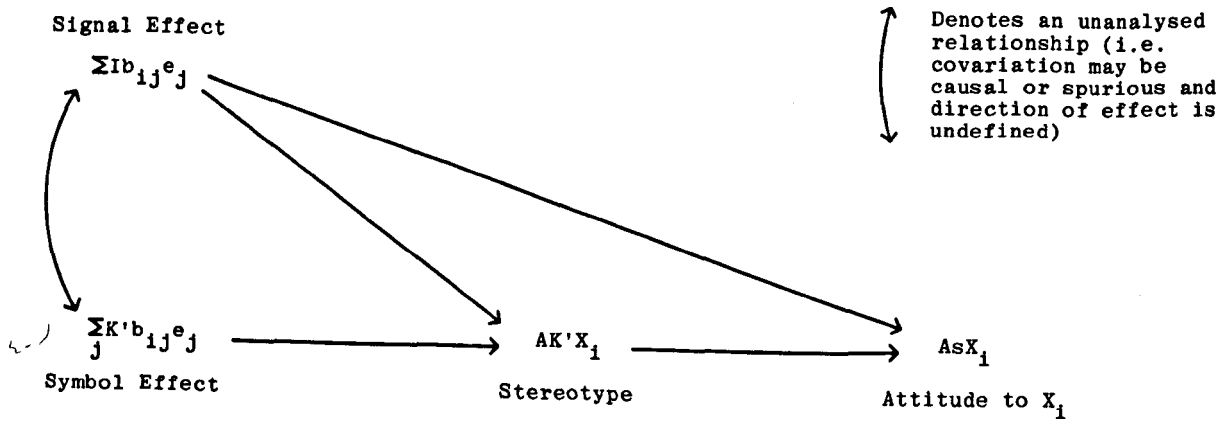


FIGURE 9.4 CAUSAL PATH RELATIONSHIPS BETWEEN SIGNAL AND SYMBOL EFFECTS AND ATTITUDE TOWARDS STIMULUS OBJECT

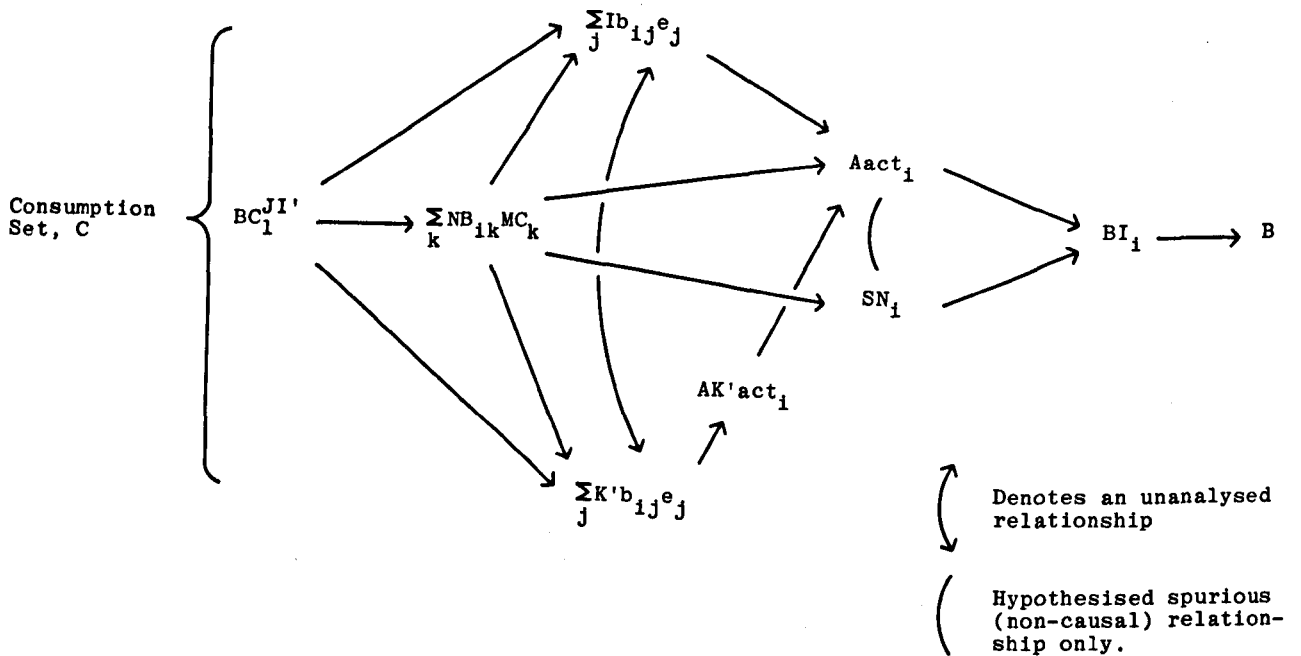


FIGURE 9.5 BEHAVIOURAL INTENTION AS A FUNCTION OF SIGNAL AND SYMBOL EFFECTS AND BEHAVIOURAL CONTEXT

where  $l \neq l'$ ,  $d(X_l, K'_{l'})$  is the distance between the  $l^{\text{th}}$  stimulus object  $X_l$  and the  $l'^{\text{th}}$  category prototype  $K'_{l'}$ ;  $m'$  is the number of observable attributes of  $X_l$ ;  $x_{ljk}$  is the projection of stimulus  $x_{lj}$  on axis  $k$  ( $k=1,2, \dots, t$  for  $t$  dimensions);  $K'_{lk}$  is the projection of prototype  $K'_{l'}$  on  $k$ , and  $w_k$  is an empirically determined weight.

Each prototype  $K'_{l'}$  will be characterised by a series of  $m$  beliefs about the assumed properties of  $K'_{l'}$ , ( $K'b_{l'1}, K'b_{l'2}, \dots, K'b_{l'j}, \dots, K'b_{l'm}$ ), the individual's evaluation of each attribute type  $j$  being  $e_j$ . The stereotype of  $X_l$ , that is the attitude to the corresponding prototype  $K'_{l'}$ , may be defined as:

$$AK'X_l = \sum_j w_2 f(K'b_{l'j} e_j) \quad \dots \quad (9.22)$$

$AK'X_l$  being the stereotype of  $X_l$  and  $w_2$  is an empirical weight.

iii) The mixed signal/symbol effect.

In reality,  $AsX_l$ , the decision maker's overall attitude towards  $X_l$ , is likely to be comprised of a mixture of signal and symbol effects; thus we may define:

$$AsX_l = \left( \sum_j w_3 f_j(Ib_{lj} e_j) \right) + w_4 f(AK'X_l) \quad \dots \quad (9.23)$$

where, as before,  $Ib_{lj}$  may be substituted for  $Ib_{lj}$  in appropriate cases. The likely chain of causal relationship is illustrated in Fig. 9.4 as a path model, each linkage combination being representable as a multiple regression equation.

This may be regarded as the overall attitude towards  $X_l$  either in a specific behavioural situation as presented by Fishbein in his concept of the 'attitude towards an object', or it may be viewed as a general attitude, irrespective of the behavioural situation, in the sense of a traditional measure of attitude. (Fishbein, 1963, p.233). In other words, it may be taken to represent the total attitude set ( $As$ ) in relation to the stimulus as defined in Stage Six of the descriptive model. For example, if  $X_l$  is a geographical location,  $AsX_l$  may be taken to represent a 'spot-height' value on a migrant's mental map.

## The Prediction of Behavioural Intention

The basic causal model illustrated by Fig. 9.4 may now be incorporated into the revised Ryan, Bonfield causal model of behavioural intention, BI (Fig. 9.3b).

Consider the simple case where the decision maker is able to apply a compensatory (SEU) decision rule directly to the complete set of perceived alternatives  $S$ , and hence  $S$  is equivalent to  $C$ , the consumption set. Although we are aiming for complete generality, let us again suppose that we are concerned with a potential migrant's choice between alternative destinations  $X_1 \subset S$ . The migrant's intention with regard to the act of migration to location  $X_1$ , which we will call  $BI_1$  may then be expressed as a function of his attitude towards the act,  $A_{act_1}$ , and his subjective norms with regard to that act,  $SN_1$  (equation 9.10), given an overall set of superordinate Plans. These Plans will be approximated by some subset of the Behavioural Context matrix. The consequences of migration will normally have quite dramatic effects on the whole structure of the individual's Behavioural Context matrix, for it implies some change in the locational settings in which his activities are carried out and, therefore, a change in members of corresponding role-sets, and even in the nature of his roles and role-sets themselves. Even in the situation where the move is a matter of street-blocks away, activities and roles involving contact with immediate neighbours are obviously going to be affected. A more radical change of address may even have a marked effect on many of the activities themselves, as the migrant becomes exposed to a new set of locational opportunities and experiences different social expectations and pressures. For convenience, we will define the subset of the matrix likely to experience what the migrant sees as the greatest potential impact of migration in terms of the subset  $I'$  of activities, available at each location  $l$ , giving  $BC^{JI'}_1$ , although it could also be defined on the subset of active roles  $J$  or of locations  $L$ . (The time related subscripts  $s$  and  $e$  (see page 218) will be ignored in this presentation). The set of salient beliefs held by the potential migrant on the consequences of the act of migration might then be expected to relate to those aspects of  $BC^{JI'}_1$  which he evaluates most highly, whether it is opportunity for certain types of

employment, the length of journey to work, or the close proximity of granny! If this is so, then  $BC^{JI'}_1$  should be antecedent to both  $Ib_{ij}e_j$  and  $AK'X_1$  in equation (9.23).

The configuration of  $BC^{JI'}_1$  is also likely to affect the migrant's view of subjective norms to which he is subjected when making his choice of destination. Here the relationship is likely to be more complex as pressures may be applied by role audiences irrespective of whether their own roles with regard to the migrant are directly affected by the move. The migrant, for example, might only be contemplating a local move not involving a change in place of work. However, he might feel the impact of social constraints applied by his colleagues as to the range of neighbourhood or housing types which they expect him to choose. Nevertheless, a significant proportion of the constituents of  $NB_{ik}$  (normative beliefs ascribed to referent  $k$  with respect to choosing  $i$ ) in equation (9.13) are likely to be determined by the nature of  $BC^{JI'}_1$ .

By substituting  $Aact_1$  for  $AsX_1$  in the causal diagram of attitude (Fig. 9.4), we may now integrate the concepts of Behavioural Context and the signal and symbol effects on attitude as a causal sequence as shown in Fig. 9.5. Operationally, each element of  $BC^{JI'}_1$  may be approximated to by a series of dummy (binary) variables, the path analysis proceeding as an analysis of covariance; alternatively, each matrix cell in  $BC^{JI'}_1$  may have an individual set of path equations estimated for it. The set of salient beliefs comprising  $Ib_{ij}$  and  $K'b_{ij}$  may either be measured directly from the elicited response of the migrant, or it could be predicted indirectly through the probability of a belief  $b_{ij}$  being included in the salient set, given the presence of a matrix element  $BC^J_{11}$  in the set  $BC^{JI'}_1$ .

The simple model illustrated by Fig. 9.5 may be expanded to cover the situation where an aspiration level  $AL(x_j')$  with regard to observable properties  $(x_j')$  of the set alternative stimulus objects  $S$ , is applied in order to derive a smaller set of 'acceptable' alternatives  $C$ . As we have seen (page 231),  $AL(x_j')$  is largely expressed through a noncompensatory decision rule which then filters out unsuitable alternatives. For example, given a set of observable cues  $x_j'(j=1,2,\dots,m')$  to which an aspiration level  $AL(x_j')$  is attached and the use of a conjunctive decision

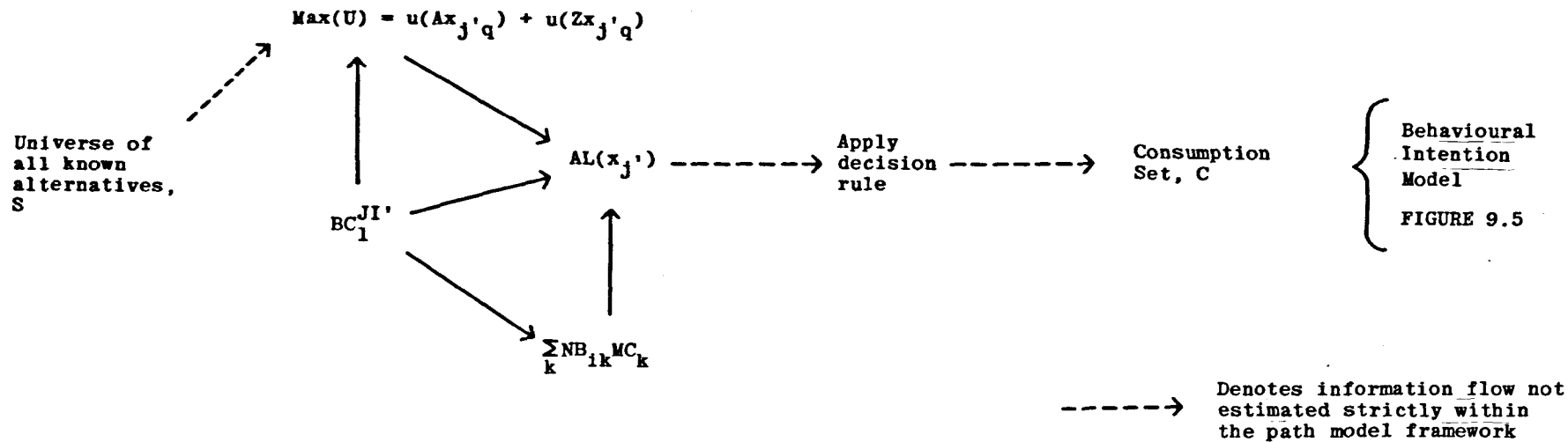


FIGURE 9.6 CAUSAL PATH RELATIONSHIPS BETWEEN ASPIRATION LEVEL AND THE CONSUMPTION SET, C

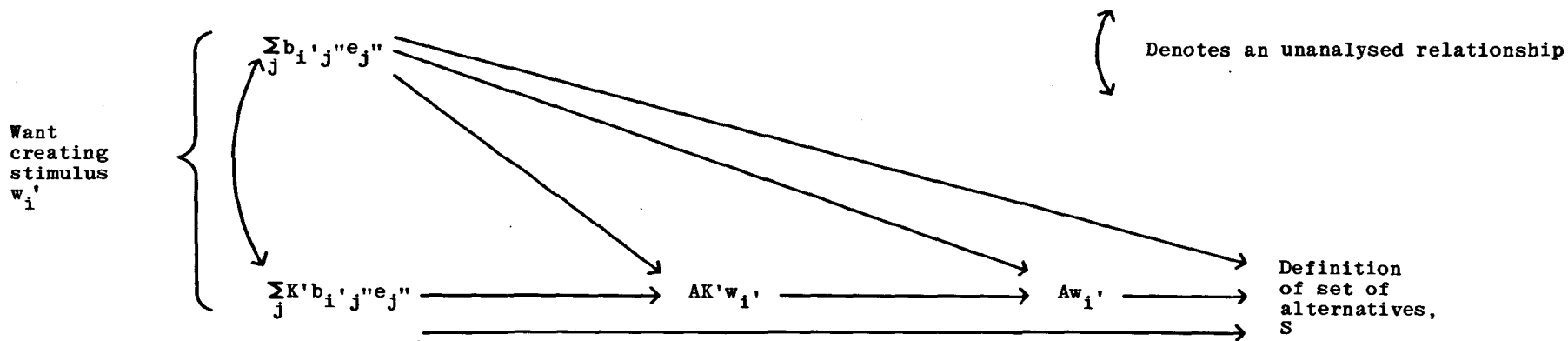


FIGURE 9.7 RELATIONSHIP BETWEEN THE WANT CREATING STIMULUS AND DEFINITION OF A WANT SATISFYING SET OF ALTERNATIVES

rule (where each  $x_j'$  is a 'normal good'), the set C and therefore beliefs  $Ib_{ij}$ ,  $K'b_{ij}$  inferred from the members of C will be determined by the extent to which all  $x_{ij}'$  in each  $X_i \geq AL(x_j')$ .  $AL(x_j')$  itself will be determined by equation (9.7).<sup>1</sup> The probability of any  $x_j'$  in  $X_i$  being used to form a selection criterion through  $AL(x_j')$  and also the critical value  $q$  in equation (9.7), will be influenced to a considerable degree by both  $BC^{JI'}_1$  and  $\sum NB_{ik} MC_k$ ,<sup>2</sup> which might be used as proxy indications of  $AL(x_j')$ . This relationship is represented in Fig. 9.6. Alternatively,  $AL(x_j')$  may be measured directly from the respondent whilst still, perhaps, basing the probability of inclusion of any  $x_j'$  within the criterion set from an estimate of  $BC^{JI'}_1$ .

#### The full model

The basic path model depicted in Fig. 9.4 may also be used as a basis for determining the composition of the universe set of alternatives S. Thus, given a want generating stimulus  $w_i'$ , the decision maker's response towards that stimulus (and hence the definition of the set S) will depend upon his overall evaluation  $Aw_i'$ , and the nature of his beliefs about  $w_i'$ . (Fig. 9.7). The nature of  $w_i'$  will again be determined to a large extent by the individual's current position  $BC^J_{ilse}$  in the Behavioural Context matrix. In the case of a migration decision, the general stimulus will be comprised of a whole set of individual stimuli indicating comparative dissatisfaction<sup>3</sup> (and thus possibly involving levels of aspiration) with the current location in terms of another subset of the Behavioural

<sup>1</sup> Equation (9.7) states:  $AL(x_j') = x_j' q$

$$\text{when Max } (U) = u(Ax_{j,q}) + u(Zx_{j,q})$$

where  $u(Ax_{j,q})$  and  $u(Zx_{j,q})$  are the utilities of success and of failure respectively to attain  $x_j'$  at level  $q$ .

<sup>2</sup> Alternatively,  $NB_{j,q}$ , the normative belief concerning referent  $k$  with regard to the choice of  $x_j'$  at level  $q$ , could be used instead of  $NB_{ik}$ .

<sup>3</sup> This is likely to involve the notion of an aspiration level with regard to  $w_i'$ , although this is not included in Fig. 9.7.

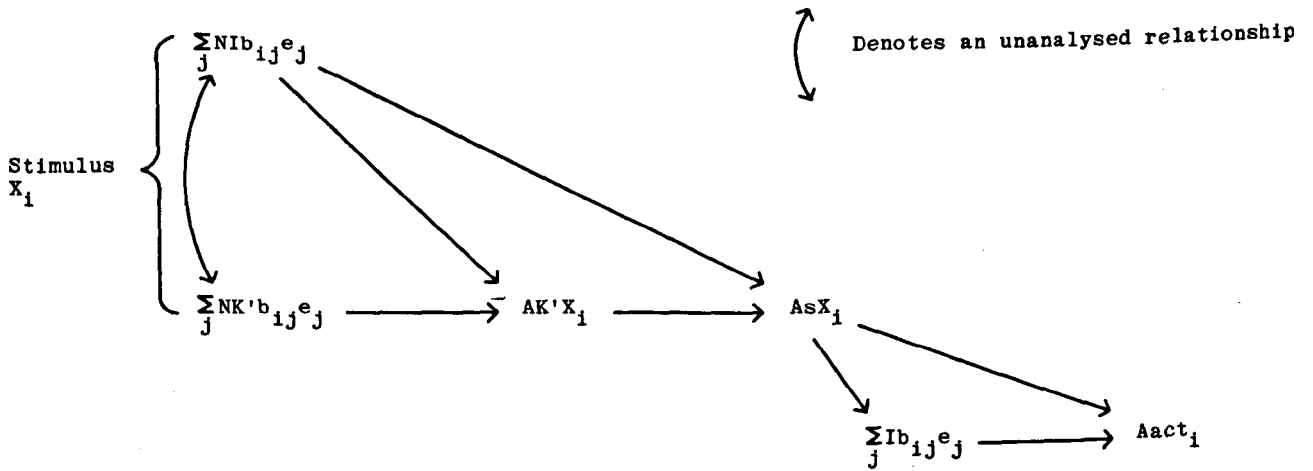


FIGURE 9.8 RELATIONSHIP BETWEEN THE BEHAVIOURALLY NON SPECIFIC ATTITUDE TOWARDS A STIMULUS OBJECT  $X_i$  AND ATTITUDE WITH REGARD TO A SPECIFIC ACT INVOLVING  $X_i$  ( $Aact_i$ )

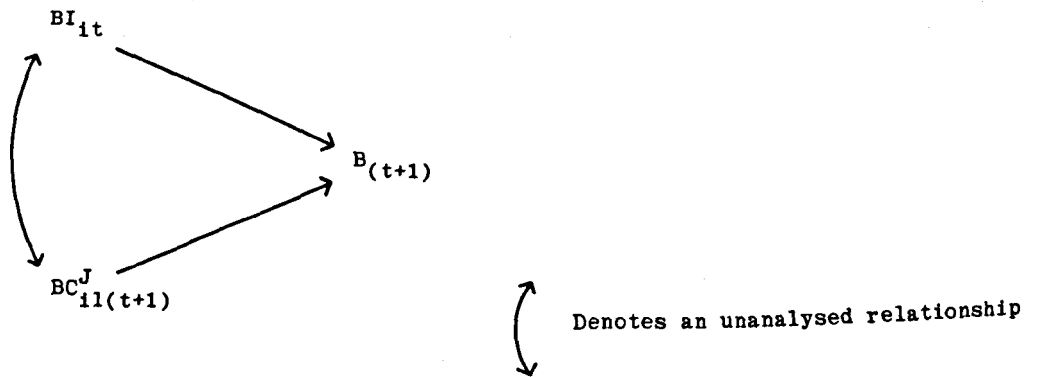


FIGURE 9.9 RELATIONSHIP BETWEEN BEHAVIOURAL INTENTION AT TIME  $t$  AND ACTUAL BEHAVIOUR AT  $t + 1$

Context matrix  $BC_{1}^{JI''}$ . Normally  $BC_{1}^{JI''}$  would be expected to be wholly contained within  $BC_{1}^{JI'}$ .

The general (that is, behaviourally non specific) attitude towards an object or concept may also be incorporated into the general model, taking the form of  $AsX_i$  in Fig. 9.4. The salient belief sets  $NIb_{ij}$  and  $NK'b_{ij}$  (that is, non specific  $Ib_{ij}$  and  $K'b_{ij}$ , ( $j=1, 2, \dots, m$ )) will not correspond exactly to those invoked in a specific behavioural situation in which the attitude object  $X_i$  plays some instrumental role. Nevertheless,  $AsX_i$  should display some degree of correlation with both  $\sum Ib_{ij}e_j$  and  $K'b_{ij}e_j$  as measured in the context of a specific act, the value of the multiple coefficient of determination  $R^2$  increasing with the centrality of  $AsX_i$  within the individual's belief and value system (B-V). This relationship is shown in Fig. 9.8. As we noted earlier (page 253),  $AsX_i$  when measured in this general sense may be equated with traditional measures of attitude or, in the case of a potential migrant, the generalised mental map.

The final component of the general model is a respecification of the relationship between behavioural intention,  $BI_i$  and actual behaviour, B. We have seen that an essential part of Fishbein's thesis is the close proximity in time necessary between measures of BI and B in order to achieve adequate prediction of the latter. This is because of the effects of changes in the controlling Plan, of information levels about the alternatives, and the effects of other intervening Plans. We might therefore expect that behaviour  $B_{(t+1)}$  at time  $t + 1$  would be, in part, a function of behavioural intention  $BI_{it}$  at time  $t$  and the individual's location in the Behavioural Context matrix  $BC_{il(t+1)}^J$  at  $t+1$ . (Fig. 9.9).

Figures 9.5 to 9.9 may now be combined to form the general model of behaviour illustrated in Fig. 9.10.



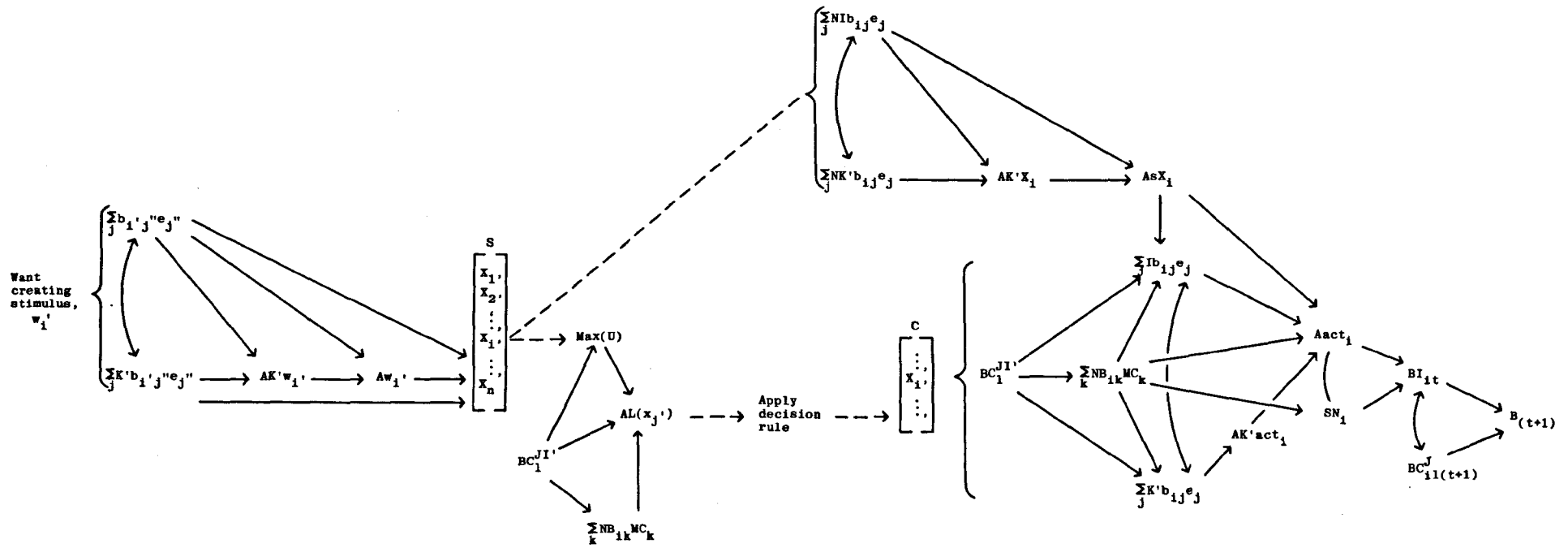


FIGURE 9.10

A GENERAL MODEL OF BEHAVIOUR

- Denotes an unanalysed relationship
- Hypothesised spurious (non causal) relationship only
- Denotes information flow not estimated strictly within the path model framework

A general model of behaviour:

List of symbols used in Figure 9.10

i) Relationship between the want creating stimulus and the definition of a want satisfying set of alternatives:

- $w_i'$  : the want creating stimulus
- $b_i'j''$  : salient belief that  $w_i'$  will lead to outcome  $j''$ .
- $e_j''$  : evaluation of outcome  $j''$ .
- $K'b_i'j''$  : belief that the prototype of  $w_i'$  will lead to  $j''$ .
- $AK'w_i'$  : the stereotype of  $w_i'$ .
- $Aw_i'$  : attitude towards  $w_i'$
- $S$  : the set of known potential want satisfying alternatives.

ii) The definition of the aspiration level and the consumption set.

- $X_i$  : the  $i^{\text{th}}$  potential want satisfying stimulus, normally an activity.
- $\text{Max}(u)$  : maximum utility level as defined in equation 9.7.
- $AL(x_j')$  : Aspiration level with regard to the  $j'$ 'th attribute or outcome associated with all  $X_i$ .
- $BC_1^{JI'}$  : the Behavioural Context at location 1.
- $NB_{ik}$  : the normative belief that referent  $k$  would, or would not, approve the choice of  $X$ . (Alternatively,  $NB_{j',q}$ , the normative belief concerning referent  $k$  with regard to the choice of  $x_j'$  at level  $q$  could be used.)
- $MC_k$  : the motivation to comply with  $k$
- $C$  : the consumption set.

iii) The relationship between the behaviourally non specific attitude towards a stimulus  $X_i$ , and attitude with regard to a specific act involving  $X_i$ .

$NIb_{ij}$  : behaviourally non specific belief concerning the  $j^{th}$  outcome of the  $i^{th}$  stimulus  $X_i$ , where  $X_i$  in this instance may be an activity, a concept or a physical object.

$NK'b_{ij}$  : behaviourally non specific belief that the prototype of  $X_i$  will lead to outcome  $j$ .

$AK'X_i$  : behaviourally non specific stereotype with respect to the prototype of  $X_i$ .

$AsX_i$  : behaviourally non specific attitude with respect to  $X_i$ .

iv) Behavioural Intention as a function of signal and symbol effects and Behavioural Context.

$X_i$  : the  $i^{th}$  activity, where  $X_i \in C$ .

$BC_{1}^{JI'}$  : the Behavioural Context at location 1.

$NB_{ik}$  : the normative belief that referent  $k$  would, or would not, approve the choice of  $X_i$ , the  $i^{th}$  activity.

$MC_k$  : the motivation to comply with  $k$ .

$Ib_{ij}$  : the posterior inferential belief that performing activity  $X_i$  leads to consequence or outcome  $j$ .

$K'b_{ij}$  : the belief that activity  $X_i$  will lead to  $j$ .

$AK'act_i$  : the stereotype of activity  $X_i$  (given  $BC_{1}^{JI'}$ ).

$Aact_i$  : attitude towards activity  $X_i$ .

$SN_i$  : the subjective norm with regard to  $X_i$ .

$BI_{it}$  : Behavioural Intention with respect to the  $i^{th}$  activity  $X_i$  (at time  $t$ ).

$BC_{1l(t+1)}^J$  : the Behavioural Context of the  $i^{th}$  activity at location 1 at time  $t + 1$ .

$B(t+1)$  : a measure of actual behaviour at the end of a specified time period  $t + 1$ .

## Simulating the Psychological Environment

On page 179, we noted Lewin's contention that the task of explaining behaviour is identical with finding a scientific representation of the life space (LSp) and determining the function or law (F), which links behaviour to the life space. (Lewin, 1951, pp.239-240). That is, behaviour,  $B = F(LSp) = F(P,E)$ , where P is the person and E is the psychological environment. Although the model of choice which followed goes some way towards meeting this objective, we have been very much concerned with how the person reacts in relation to a given state of the psychological environment. Given a set of empirical relationships between B, P and E we are still not completely able to explain or predict the behavioural consequences of a change in E not stemming from the belief and value system of the decision maker himself. It is particularly important that a model of E should be able to simulate the effects of additions to, or deletions from, the perceived set of alternatives as learning or the 'filtering' of known candidates progresses.

To achieve this, we turn to some relatively recent developments in the economic theory of consumer behaviour which, unlike the traditional theory of demand, assert that utility is derived from the properties or characteristics which goods possess rather than from the goods themselves. (Lancaster, 1966a, p.133; Baumol, 1967, p.674).

The classical economic approach to consumer behaviour has always presented grave difficulties when it has been applied to situations where choice is exercised between essentially similar types of 'goods', the act of migration being a good example of this. (See Willis, 1974, p.67). The degree of similarity between alternative locations is a basic feature of the migration problem, yet it is in this very type of situation that classical theory is at its weakest, for it cannot formally accommodate the concepts of substitution and complementarity of goods which must be introduced from outside the theory's strict domain. It is also unable to predict the consequences of the introduction of a new commodity to the consumption set or, in terms of our current problem, of a newly perceived location. For, by expanding from a goods space (G-space) of dimension  $n$  to one of  $n+1$ , it is

necessary to replace the old utility function by a completely new one which allows for different levels of interaction between each commodity in the set. (Lancaster, 1966b, p.20). Lancaster, however, avoids these problems by asserting that goods are used as inputs, either singly or in combination, to an activity in order to produce the characteristics which are the source of the consumer's utility. Because new characteristics are invented far less frequently than new goods (new combinations of old characteristics), the new theoretical environment of the consumer defined in characteristics space (C-space) attains a degree of stability totally foreign to that portrayed by the tradition of Marshallian economics.

The full form of Lancaster's model of consumer behaviour in a 'free market', with a linear budget constraint may be expressed as:

$$\begin{aligned}
 & \text{Maximise } U(x) \\
 & \text{subject to } pX \leq I \\
 & \text{with } x = By \\
 & \quad X = Ay \\
 & \quad X, y, x \geq 0 \quad (\text{Lancaster, 1966a, p.136})
 \end{aligned}$$

That is, the consumer maximises an ordinal preference function for characteristics  $U(x)$ , where  $x$  is a vector of characteristics ( $x = 1, \dots, m'$ ), subject to the budget constraint  $pX \leq I$ , where  $p$  is a vector of prices for each of these goods and  $I$  is the income. For a given level  $y_k$  of a consumption activity  $k$  ( $k=1, \dots, m$ ) we derive the activity vector  $y$  which may then be transformed into the goods vector  $X$  ( $X=1, \dots, n$ ) using the  $n \times m$  transformation matrix  $A$ . Similarly,  $y$  may be transformed into the characteristics vector,  $x$ , through the  $m' \times m$  matrix  $B$ . (Ibid, pp.135-36).

The connections between this approach and the concept of the behavioural context matrix are obvious and extremely promising. Unfortunately, Lancaster finds this form difficult analytically and, in his monograph 'Consumer Demand: a new approach' he virtually abandons it altogether. (Lancaster, 1966a, p.136; Lancaster, 1971, pp.21-22, 47-48). Instead he simplifies the model by supposing that goods and activities correspond exactly (that is,  $n=m$ ). Goods,  $X$ , may now be directly transformed into characteristics,  $x$ , through the relation  $x=BX$ , where  $B$  is an  $m' \times n$

matrix which transforms the  $n$  goods into  $m'$  characteristics.  $B$  is referred to as the 'consumption technology' of the economy, which is assumed to be 'objective' in the sense that it is the same for all consumers. If more than one element in each column of  $B$  is non zero then it depicts the case where several characteristics are produced by one good, whereas several goods combining to produce one characteristic are represented when more than one element in each row of  $B$  is nonzero. (Ratchford, 1975, p.66).

The relationship  $x = BX$  may of course be represented in diagrammatic form as follows:

$$\begin{bmatrix} x_1 \\ x_2 \\ \vdots \\ \vdots \\ \vdots \\ x_{m'} \end{bmatrix} = \begin{bmatrix} B_{11} & B_{12} & \dots & \dots & B_{1n} \\ B_{21} & B_{22} & \dots & \dots & B_{2n} \\ \vdots & \vdots & & & \vdots \\ \vdots & \vdots & & & \vdots \\ \vdots & \vdots & & & \vdots \\ B_{m'1} & B_{m'2} & \dots & \dots & B_{m'n} \end{bmatrix} \begin{bmatrix} X_1 \\ X_2 \\ \vdots \\ \vdots \\ \vdots \\ X_n \end{bmatrix}$$

The scale of the problem of analysing these relationships may be reduced to more manageable proportions through the partitioning of the  $B$  matrix into 'natural' or 'intrinsic' goods groups when:

- i) no good in the goods subset possesses any characteristic not in the characteristics subset;
- ii) no characteristic in the characteristics subset is possessed by any good not in the goods subset. (Lancaster, 1971, p.126).

These conditions may in fact be relaxed somewhat in practice so long as the overlap between subsets is small. (Ibid., pp.132-39). Thus  $B$  may be partitioned as, for example,

$$B = \begin{bmatrix} C_1 & 0 \\ 0 & C_2 \end{bmatrix}$$

where  $C_1, C_2$  represent 'sub technologies' for two groups which satisfy the above conditions. The two conditions also imply that there are no substitution effects between members of the technically unrelated sets of goods  $C_1$  and  $C_2$  except where

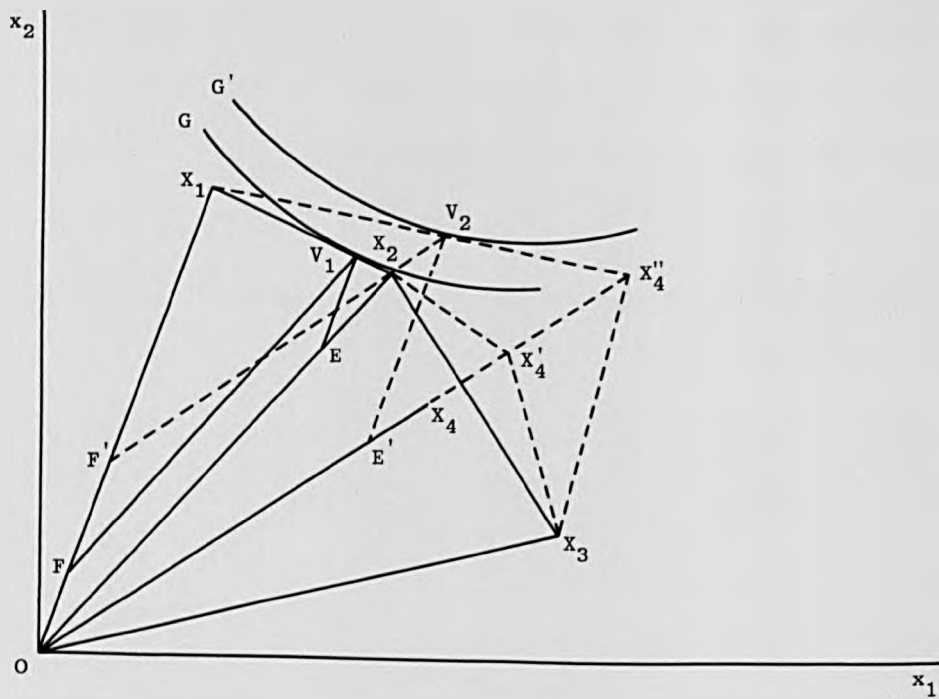


FIGURE 9.11

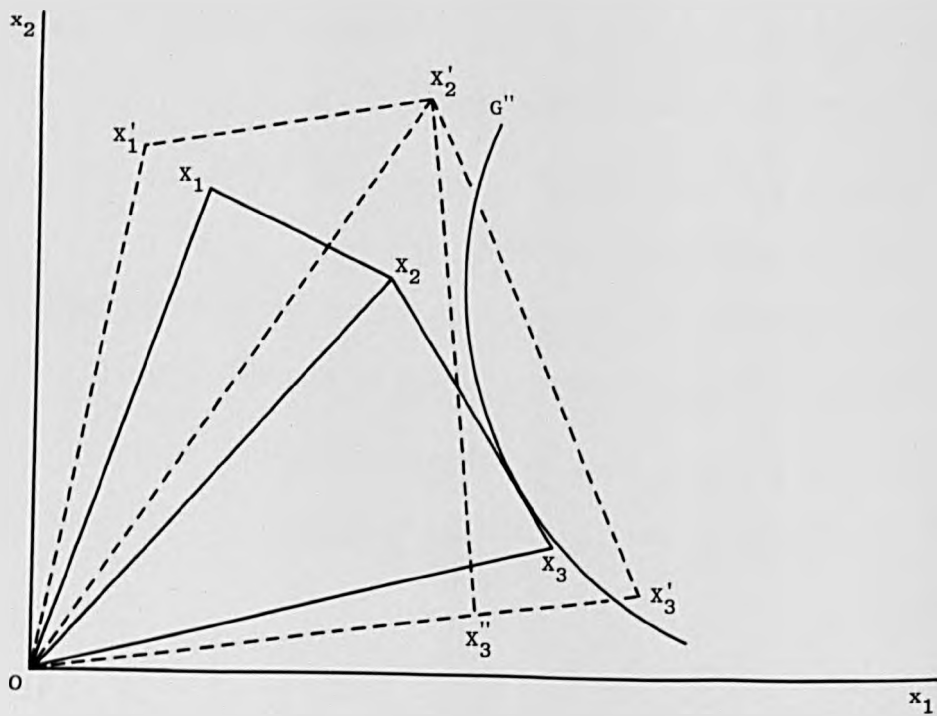


FIGURE 9.12

there is substitution between the characteristics themselves. (Lancaster, 1971, p.127). These subsets of goods may be taken as being analogous to the concept of the consumption set.

The basic elements of Lancaster's approach may be represented diagrammatically by a simple two attribute case (Fig. 9-11). Suppose an individual is aware of three objects  $X_1$ ,  $X_2$  and  $X_3$  in his consumption set  $C_1$ , each of which possesses different quantities of the same two salient characteristics  $x_1$  and  $x_2$ . For the moment we will assume that each object is highly divisible, thus making the consumption of any combination of them possible. As the consumption of any object in the model is subject to the budget constraint  $pX \leq I$ , where  $I$  could be the total money or time allocation to activities involving  $C_1$ , we may express each object as a vector defined on  $x_1$  and  $x_2$  in terms of quantity of characteristics gained per unit of  $I$  spent. The line joining  $X_1$ ,  $X_2$  and  $X_3$  will then form an 'efficiency frontier' if those points are capable of giving the maximum combinations of characteristics that can be obtained for a given expenditure. This frontier, whose members may be defined in a multi-attribute case through the application of linear programming techniques (Lancaster, 1971, p.37), therefore represents all possible points which the individual may actually choose given his own 'private' preference function. Thus in the case of a consumer with indifference curves of type G, his private choice  $V_1$  will lie where the efficiency frontier becomes tangential to the curve - in this case between  $X_1$  and  $X_2$ . He will then consume  $F_0$  units of  $X_1$  and  $E_0$  units of  $X_2$  in order to attain the  $X_1$ ,  $X_2$  combination specified by  $V_1$ .

Now suppose that the consumer's Image of  $C_1$  expands to include a fourth alternative  $X_4$  as a result, say, of a search. Unfortunately,  $X_4$  lies behind the efficiency frontier and therefore is completely dominated by all combinations of  $X_2$  and  $X_3$ . If the new alternative is located at  $X'_4$ , then the efficiency frontier will lie on  $X_1$ ,  $X_2$ ,  $X'_4$ ,  $X_3$ , but an individual with indifference curves of type G will choose  $V_1$ . However, if the new object lies at  $X''_4$ , then  $X_2$  will no longer lie on the efficiency frontier and will disappear as a potential choice. A person with indifference curves of type G will then choose combination  $V_2$  consisting of  $E'_0$  units of  $X''_4$  and  $F'_0$  units of  $X_1$ .



The potential usefulness of this approach in the case of migration may be seen from the example given in Fig. (9.12). Suppose an individual located at town X perceives it to offer a range of 'services'  $X_1, X_2, X_3$  (for example shopping centres), whose attributes may be defined in terms of characteristics  $x_1$  and  $x_2$ , say cheapness and quality. If the existence of an alternative town X' comes to the individual's notice with a similar range of shopping facilities  $X'_1, X'_2$  and  $X'_3$  giving higher values of  $x_1$  and  $x_2$ , then the efficiency frontier offered by X' offers a totally superior set of services and it will, ceteris paribus, be preferred to X. On the other hand, if instead of  $X'_3$  we have  $X''_3$  and an individual with an indifference map  $G''$ , then town X will be preferred to X'.

Obviously a real location will consist of many such groups of services, particularly pertaining to 'situation' rather than 'site' related characteristics. There is therefore likely to be an enormous variety of different potential classifications and hence utility functions depending on the scale of disaggregation of the services 'bundles' used. Apps in a study of housing demand in Reading partially solves the problem by adopting the utility tree concept. (Apps, 1973, pp.622-23; Strotz, 1957, 1959). This assumes that a household's income allocation decisions may be represented by a hierarchical model in which expenditure (however defined) is first divided into major commodity groups, or branches, such as food, housing, transport. Each of these primary groups is then divided into subgroups which may also, perhaps, be further subdivided. Thus Apps divides housing services into space, location and internal services subgroups, and then respectively into, for example, i) floor area, plot area; ii) accessibility to schools, employment; iii) house structure type, etc. The main difficulty with this approach lies in the fact that, for theoretical convenience, it is assumed that commodities which potentially are mutual substitutes are found in the same group, whereas independent commodities are found in different groups. In other words, it is assumed that at least the condition of 'weak separability'<sup>1</sup> applies, an assumption which it can be

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<sup>1</sup> A group of commodities is said to be weakly separable if the marginal rate of substitution between any two commodities in the group is independent of the quantity of any commodity outside the group. (Green, 1971, p.153). This is not to say that the groups themselves are independent of one another, and it is to be expected that cross-elasticities of demand will apply in the normal way for the group as a whole.

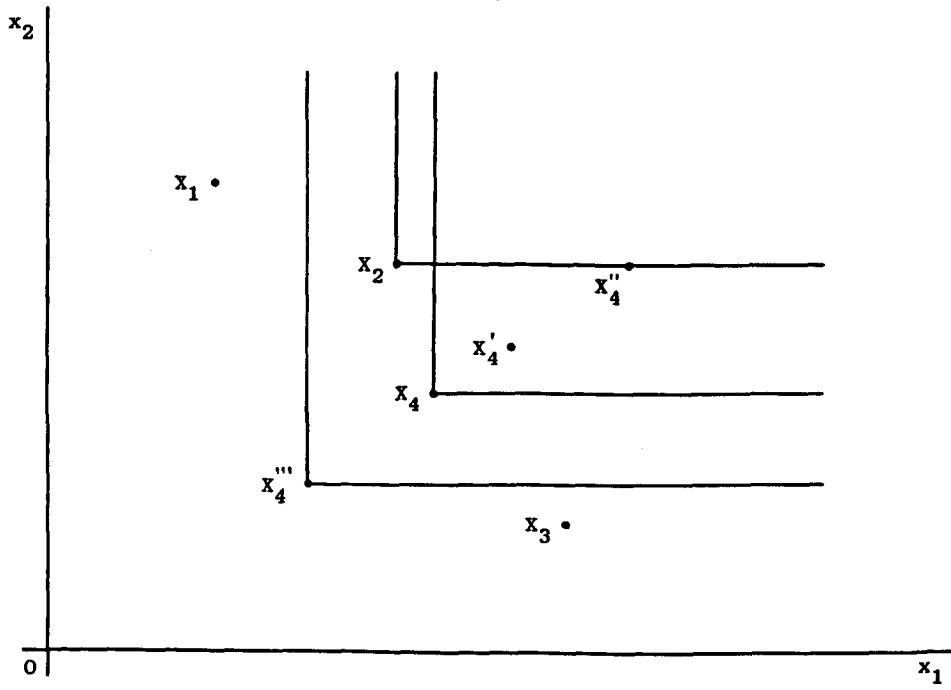


FIGURE 9.13

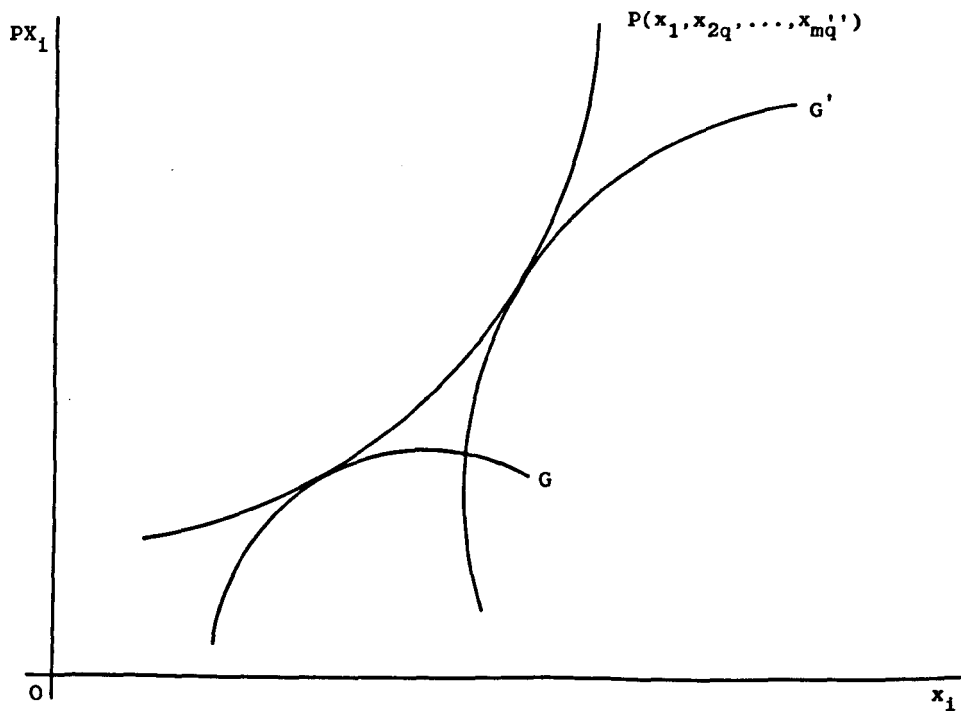


FIGURE 9.14

(After Rosen, 1974, p39)

difficult not to violate as disaggregation increases. Referring to the lowest level in Apps' hierarchy, for example, it is quite possible to think of instances where the availability of large house plots in suburban areas might be substituted directly for the short journey to work offered by an inner city location.

The model of the environment that we have presented so far assumes that the goods or services consumed by the decision maker are infinitely divisible, it being possible to consume the services, say, of shopping centres  $X_1$  and  $X_2$  in any combination. This assumption is, of course, impossible when it comes to the problem of choice amongst large, indivisible 'durable' goods such as houses or motor cars. In the context of migration we may note that, whilst the levels of many services offered by a given urban area to any part of that area may be treated as divisible goods varying continuously over space (situational characteristics), the attributes of location which relate to the fixed characteristics of the site<sup>1</sup> come in discrete 'bundles'. Moreover, the choice made between alternative urban areas would also be considerably simplified if they were regarded as nondivisible bundles of attributes, rather than as non-divisible bundles of divisible services yielding attributes. It might also be said that this represents more closely the decision process of the consumer in that his beliefs with regard to an alternative are more likely to be summarised as a discrete bundle of characteristics. However, as we are concerned in this section principally with the properties of the environment as summarised by the efficiency frontier and the prevailing consumption technology, the behaviour of the individual within that environment need not be affected by this objective, as we shall see later.

In order to illustrate the problem of dealing with objects as discrete points in characteristics space, Fig. 9.13 shows the goods vectors of Fig. 9.11 redrawn as indivisible commodities. Unlike the earlier case, we can no longer regard  $X_4$  as inefficient as no line of joint consumption now connects  $X_3$  and  $X_2$ . Point  $X''_4$ , however, is certainly inefficient as  $X_2$  has more of both characteristics. If  $X''_4$  is introduced into the consumption set, then  $X_2$  becomes marginally inefficient and, in the case where  $x_1$  and  $x_2$  are both 'normal'<sup>2</sup> characteristics,  $X_3$  must now

<sup>1</sup> Brown and Moore have pointed out that 'place utility' may be regarded as a combination of site utility and situation utility.

<sup>2</sup> See above, page 227.

strictly be regarded as inefficient.<sup>1</sup>

It is clear that Lancaster's analytical framework is much weaker both as a predictive and as a descriptive tool in the case of discrete commodities. A solution to this problem has since been proposed by Rosen, and summarised by Ratchford, which has important implications for the so-called 'hedonic' approach to demand equation estimation<sup>2</sup> and, as we shall see, for Fishbein type models of behavioural intention. (Rosen, 1974; Ratchford, 1975, pp.71-74). Beginning with the condition of the indivisibility of alternatives, Rosen makes the simplifying assumption that a sufficiently large number of differentiated alternatives are available (a 'spectrum of products') so that choice among various combinations of characteristics  $x_j$  is continuous for all practical purposes. (Rosen, 1974, pp.36-37). Although this assumption is not particularly realistic, its practical implications in the present context are probably not adversely affected. In addition, the enormous potential variety of combinations of characteristics of location available to migrants must surely approximate to a continuous spectrum.

Rosen's model may be stated as:

$$\text{Maximise } U(x_1, x_2, \dots, x_j, \dots, x_m, y)$$

$$\text{Subject to } P(x_1, \dots, x_m) + y = I$$

where  $x_j$  is the  $j^{\text{th}}$  characteristic of the group of goods to be consumed,  $y$  is all other goods consumed, and  $I$  is income. (Rosen, 1974, p.38). Unlike the classical model, expressing the budget constraint in this non linear form shows the marginal utilities of characteristics as proportional to their marginal, rather than their total, prices. (Ratchford, 1975, p.72). This model implies the existence of an efficiency frontier defining the combinations of characteristics available at any

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<sup>1</sup> This applies equally to  $X_3$  in Fig. 9.11.

<sup>2</sup> For examples of this approach in a field closely related to that of migration - that of housing - see Apps (1973, pp.630-31), Wilkinson and Archer (1976). Basically the hedonic approach consists of fitting regression models to cross sections of commodities of the form:

$$PX_i = f(x_{i1}, x_{i2}, \dots, x_{ij}, \dots, x_{im}) \quad \dots (9.24)$$

where  $PX_i$  is the price of the  $i^{\text{th}}$  good, and  $x_{ij}$  is the level of the  $j^{\text{th}}$  characteristic in  $X_i$ .

given expenditure exactly as in Lancaster's model. However, 'price' must be represented as an independent dimension as the efficiency frontier cannot be expressed in terms of characteristics per unit cost as in the Lancaster model. Rosen's indifference surfaces are defined in terms of the amount a consumer under a given total income constraint is willing to pay for a given set of characteristics at a given utility index, thus emphasising the relationship between total consumption of characteristics and their cost. (Ibid).

These concepts are illustrated in Fig. 9.14, which shows the efficiency frontier  $P(x_1, x_{2q}, \dots, x_{mq})$  as a slice from an  $m'$  dimensional surface projected on to the plane formed by price  $PX_1$  and quantity of  $x_1$  ( $PX_1, x_1$ ) for a given set of values  $q, q'$  of the  $m' - 1$  other characteristics. Thus the efficiency frontier defines the amounts the consumer is willing to pay (and the quantities of other goods  $y$  foregone) for alternative amounts of  $x_1$  at a constant utility level  $U_q$ . Given that  $x_{2q}, \dots, x_{mq}$  are simultaneously the optimum values of  $x_2, \dots, x_m$ , utility is maximised when the indifference curve for price is tangential to the frontier. In Fig. 9.14 a consumer with value function  $G'$  will therefore choose an alternative with more  $x_1$  than will a consumer with value function  $G$ . (Rosen, 1974, p.39). Interpreting the efficiency frontier function  $P(x_1, x_2, \dots, x_m)$  as equivalent to the typical 'hedonic' function of equation (9.24), it is clear that the Rosen model adds a convincing theoretical dimension to the estimation of demand equations.

The concepts of the consumption technology and the efficiency frontier are, potentially, powerful tools for describing the nature of the 'real' world's input to the psychological environment. The notion of an efficiency frontier is particularly useful in that it may be used as a normative device against which we may measure the more idiosyncratic aspects of individual and group behaviour. It is only by estimating what we think should happen when, say, the individual decision maker learns of the existence of a new alternative solution to a current problem of choice, that we can make useful generalisations about what he does eventually choose. If an act of choice is not 'efficient' when defined largely in the consumer's own terms, then this says much about his individual attitudes as opposed

to those of his 'parent group' in the population. It may also indicate where our model is deficient in covering the factors influencing choice, particularly with regard to the set of salient beliefs about the impending behavioural act. It is, however, not a particularly straightforward task to translate the 'objective' and deterministic Lancaster and Rosen models into a form which is compatible with the subjective, and constraint free, parameters of the 'Behavioural Intention' approach.

The first problem is the fact that we are no longer dealing with bundles of observable physical, or at least directly measurable, characteristics. Instead we are concerned with a complex mixture of beliefs about a situation involving potential behaviour with regard to those observable bundles. The beliefs in question are likely to be based both on direct information (signals) about the bundle, and are thus likely to be related to observable attributes, and also on some learned stereotyped view (symbol effect) about the bundle as a whole. The solution would seem to be to replace objective characteristics space (C-space) with a salient belief space (S-space). The decision maker's indifference surface would then be composed of contours of equal subjective utility  $e_j$  plotted for different combinations and levels of salient belief strength  $b_j$ . The consumption technology (B matrix) would therefore transform the set of all alternatives in the set  $S = (X_1, X_2, \dots, X_n)$  directly into the salient belief set

$b = (b_1, b_2, \dots, b_j, \dots, b_m)$ . That is,  $b = BS$ . The effect of the subjective norms component  $SN_i = \sum_{k=1}^r NB_{ik} MC_k$  in equation (9.13) could either be entered into S-space separately as a series of belief dimensions, or the value of  $SN_i$  could be used to adjust the base line of the  $e_j$  scale. The regression weights  $w_1$  and  $w_2$  in equation (9.15) would be treated as scalars affecting the elements of  $Aact_i$  and  $SN_i$ .

A more sophisticated approach would be to replace the B matrix with two separate transformation matrices, one dealing with a transformation of objectively defined C-space to S-space in the case of inferential beliefs  $Ib_{ij}$ , whilst the other would directly transform each alternative  $X_i$  into S-space where beliefs about a prototype  $K'b_{ij}$  were concerned. Even if the enormous technical problems

of calibrating the two matrices were to be overcome, however, this dual approach of modelling both signal and symbol effects would add tremendously to the complexities of the analysis, especially as separate B matrices might have to be estimated for more than one subset  $BC_1^{JI}$  of the Behavioural Context matrix.

Even greater problems are posed by the translation of the efficiency frontier concept into the behavioural model. An efficiency frontier defined on some general measure of costs is a useful concept when dealing with site characteristics and certain situational services provided from within a single urban area, relative to their availability and quality in other parts of that area. Thus the desirable characteristics of a house, its neighbourhood, and its situation relative to employment, high status residential areas, schools, shops, parks, etc. may be offset against house price, and other financial costs and time penalties involved in consuming the desired services, as constrained by the consumer's time and money budgets. General cost penalties are not, however, always particularly relevant to a choice between alternative urban areas or to certain 'personal' aspects of the services offered within any given urban area, as these are either not reflected in any measurable variable which may be applied to the whole community, or the characteristics involved do not have any measurable costs attached to them. For example, the accessibility costs of a particular location relative to frequently visited friends, or the employment opportunities foregone by living in one town as opposed to another, are personal costs. These cannot be reflected in price and other generally measurable costs of locations on the general efficiency frontier, for their effects over all individual decisions will tend towards randomness. Moreover, a decision to move to, say, Scarborough as opposed to Bournemouth might be made without any consideration of the 'costs' involved, except perhaps for the amounts of utility foregone. Even if we could measure it, it seems highly unlikely that utility may be defined as a finite resource which may be included in our 'budget' constraints!

The answer to these problems would seem to lie in the relationship between 'market price' and utility. Even though we cannot define 'price' directly, we may assume that any commodity  $X_i$  has a theoretical 'price' defined on its total

utility  $UX_i$  which would represent its 'real' price should there be a true market for  $X_i$ .

Thus we have:

$$P'X_i = f(UX_i) = f'(x_{i1}, x_{i2}, \dots, x_{ij}, \dots, x_{im}) \quad \dots \quad (9.25)$$

where  $P'X_i$  is the theoretical price of commodity  $X_i$ ,  $UX_i$  is the total utility of  $X_i$ ,  $x_{ij}$  is the  $j^{\text{th}}$  characteristic of  $X_i$  and  $f$  and  $f'$  are functions. Although we have no means of ascertaining  $f$  and hence  $P'X_i$ , it is possible to estimate  $UX_i$  from each individual's attitude towards the salient characteristics of  $X_i$ . In other words, we may use population sub-category values of  $BI_i$  and the components of  $Aact_i$  as the means of measuring the efficiency frontier of that sub-category. This provides us with a datum against which we may measure individual behaviour (that is, as residuals from regression). In addition, it will also permit the estimation of the relative attractiveness of newly perceived alternatives and their probability of inclusion in the final consumption sets of any category of decision maker. Given  $m$  salient beliefs about a particular act (for example, of migrating to town  $X_i$ ) the efficiency frontier of any category of decision maker<sup>1</sup> may be estimated as a regression equation of the form:

$$BI_i = a + \sum_{j=1}^m \beta_j b_{ij} + \beta_{(m+1)} SN_i + u_i \quad \dots \quad (9.26)$$

where  $BI_i$  is behavioural intention towards act  $i$ ;  $b_{ij}$  is the  $j^{\text{th}}$  salient belief with regard to  $i$ ;  $SN_i$  is a measure of subjective norms;  $a, \beta$  are regression constants and  $u_i$  is the error term. In order to estimate each  $b_{ij}$  for any now member of the consumption set from its 'objective', and hence measurable, attributes  $x_{ij}$  ( $j = 1, 2, \dots, m'$ ), we must of course define the relation  $b_i = B'_i x$ , where  $B'_i$  is an  $m \times m'$  matrix which transforms the vector  $x$  of  $m'$  attributes into the vector  $b_i$  of  $m$  beliefs about act  $i$  involving  $x$ .

Finally, it should be noted that equation (9.26) implies the condition of 'homogenous separability', which requires that successive indifference curves in a group are 'homothetic with respect to the origin'. (Green, 1971, p.141). In other words, we are simply saying that a straight line from the origin must cut all indifference curves at points of equal slope.

<sup>1</sup>These may either be entered as dummy variables into equation (9.26) or may be treated as conditional variables, a separate equation being estimated for each category.



## Migration - a special case of the general model

Although much of the illustrative material used involves situations associated with migration, the preceding discussion is intended to be taken as a general theory of decision making behaviour under volitional control. Any model of the migration decision based on this theory should now be viewed as a special case of the more general model. The key concepts in the theory are those of the controlling hierarchy of behavioural Plans as they relate to the Image, or general psychological environment of the individual, and Behavioural Intention and Behavioural Context which operationalise the concept of the Plan hierarchy.

The Image may be taken to correspond broadly with what Brown and Moore have termed the 'awareness space' of the household, the latter being regarded as the basic decision making unit in the case of migration. (Brown and Moore, 1970, pp.1,8). The concept of the Behavioural Context, however, has no direct equivalent in the Geographic literature on spatial behaviour. This is largely due to the great importance which the current approach places on the intersection of activity and social role sets as they influence the individual's view of both the usefulness of some 'object' in furthering a given set of Plans, and of the sources of social influence to which they feel themselves exposed. In terms of the content of the Behavioural Context as it relates to activity and geographical location alone, it may be compared to Brown and Moore's 'activity space' which they define as information gained through direct contact (as, for example, on the journey to work). (Ibid., p.8). The closest approximation to the Behavioural Context, however, appears to be Whitelaw's notion of 'individual movement space.' (Whitelaw, 1972). This relates activity types to scale and frequency of movement, whilst allowing further differentiation on the basis of socio-economic characteristics and measures of relative accessibility. Just as the current approach specifies a hierarchy of Plans controlling behaviour which should therefore be only explained in terms of these Plans, so Whitelaw suggests that:

... there exists a hierarchy of spaces within which decisions about different activities having different frequencies take place. It is clear that at least a certain amount of the confusion arising from the results of the economic location and social choice hypotheses has resulted from a failure to specify which activities and spaces are being considered. (Ibid., p.104)<sup>1</sup>

Considering the whole field of behavioural (as opposed to normative) studies of spatial phenomena in general, very few attempts have so far been made to understand the connections between Image, attitude and behaviour.<sup>2</sup> Most of the work which has been done has been concerned more with the very existence of these linkages, rather than with how the decision making system as a whole reacts to the behaviour of its parts. Lloyd presents a model, for example, which consists only of a description of the basic structural relationships between various 'black box' processes such as a 'value system', 'decision making criteria', 'subjective environment stored as cognitive constructs' and 'preferences'. (Lloyd, 1976, pp.241-42). Although the simple structural approach provides us with useful research paradigms,<sup>3</sup> it is difficult to see how it really substantiates Downs' brave contention that the behavioural approach replaces the black box concept of man by a 'white box', that is, by an artificial system whose output is comparable with man's observed behaviour. (Downs, 1970, p.67; Harvey, 1969a, p.473). For one thing, these models have no real output!

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<sup>1</sup> Whitelaw (Ibid., p.101), following the argument of Moriarty (1970), distinguishes between the 'economic competition' and the 'social choice' hypotheses in spatial behaviour. The former is characterised by the deterministic land rent model, in which considerations such as accessibility to the central business district and the relationship between place of residence and place of employment are considered prime determinants of residential choice. (See for example the approach of Alonso, 1960, and Wingo, 1961. The social choice hypothesis, on the other hand, gives more consideration to the behavioural limitations of 'intendedly rational' man operating under conditions of imperfect knowledge in the tradition of Wolpert's original work. (Wolpert, 1964, 1965, 1966).

<sup>2</sup> Notable exceptions are the work of Burnett (1973) Demko (1974) and Lloyd (1976).

<sup>3</sup> Lloyd's model makes a particularly valuable contribution towards defining the conceptual relationship between objective environment, the individual and aggregate behaviour.

A result of this dearth of adequate models is that much valuable research into the geographical components of the Image cannot be used directly in the study of actual behaviour. To quote Cadwallader:

One of the weaknesses of research on environmental perception... lies in the fact that an individual's perception of the environment has never been explicitly related to his subsequent behaviour within that environment, although it is always assumed that such a relationship does exist. Until it can be shown that an individual's behaviour in space is closely related to his perception of the environment, the 'behavioural environment' cannot take its place as a cornerstone of a general theory of spatial behaviour.

(Cadwallader, 1975, p.340).

This is unfortunate to say the least, particularly if we bear in mind the huge research effort which has been devoted over the past few years to the field of 'environmental perception' and 'cognitive mapping'.<sup>1</sup>

To make matters worse, the general model suggests that the concepts of the 'mental map' and 'space preference surfaces' (for example, Gould and White, 1974) are analogous to the notion of a general attitude measured entirely independently of any specific behavioural situation. Thus, despite the fact that it is easy to accommodate general attitudes within the overall model, it is plain that the mental maps presented in most studies are not among the direct antecedents of behaviour (variable  $AsX_1$  in Fig. 9.10).

It has already been noted, (above, p.233) for example, that the strong liking which Bristol school leavers have been found to have for the Lake District (Gould and White, 1974, pp.70-72) does not necessarily mean that they are any more likely to migrate there than to other less apparently favoured areas. The act of migration itself is more likely to be influenced by factors apart from aesthetic attraction, such as the likely availability of employment. We can only conclude that very many students of geographical Image have been measuring the wrong thing, at least as far as the linking of Image and subsequent behaviour is concerned.

How do we apply our model of behaviour to the case of the migration process per se? A very full account of the sequence and nature of the decisions involved

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<sup>1</sup> For example see the monumental collection of work in Downs and Stea (1973a).

in migration within a given urban area has been presented by Brown and Moore (1970). This provides an ideal Plan framework within which the present model may operate, each stage in the decision process representing a new iteration of the behavioural model. We shall, however, depart from Brown and Moore's scheme in order to present an alternative decision strategy.

The physical and social environment provide the household with certain levels of satisfaction - the degree of achievement of behavioural Plans - which are produced by the performance of a range of activities. Each of these activities and the Plan context in which they are carried out is symbolised by the corresponding cells  $BC_{ilse}^J$  of the Behavioural Context matrix. The behavioural environment of the household provides a continuous stream of stimuli, some of which represent feedback from the household's previous behaviour whilst others are imposed entirely from the outside world. Certain of these stimuli may be perceived as disturbing, or threatening to disturb, the successful implementation of one or more Plans. Dissatisfaction increases with the magnitude of the perceived discrepancy between the current state and the Image of some desired state, defined as the aspiration level, AL (above, page 219). Brown and Moore (1970, p.2) term these disrupting stimuli 'stresses', whilst the level of dissatisfaction is regarded as a state of stress.<sup>1</sup> (Brown and Moore, 1970, p.2; Wolpert, 1966, p.93). Each household may be expected to have different thresholds of tolerance to stress which, when exceeded, will be adjusted to by one of three responses:

- 1) The household adjusts its needs by changing the aspiration level.

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<sup>1</sup> Clark and Cadwallader (1973, p.34) have applied a useful operational definition of stress to a study of households in Santa Monica; stress is defined as a function of the difference between the ease with which the household feels it can find satisfaction at another location, and its present level of satisfaction with each attribute of its current location. Size and facilities of the dwelling were found to be most highly correlated with a desire to move, whilst distance from work was found to be the least related. This reflects Rossi's findings (Rossi, 1955, p.82), although it should be noted that both studies effectively excluded long distance (inter-urban) job related moves.

- 2) Restructuring the environment; for example dealing with a financial crisis by the wife in the household going to work, by enlarging the house to accommodate an aged relative, by patronising a different shopping centre to escape congestion.
- 3) Relocating the household either in part or as a whole.

Brown and Moore conceptualise the migration decision itself essentially as a two stage Plan consisting of:

- i) the decision whether or not to seek a new residence;
- ii) the relocation decision, that is the choice of destination or, in the case of a decision to stay, some other form of adaptive behaviour.

We will call this two stage sequence Strategy A.

This may be contrasted with an alternative Strategy, B, which is seen as a single stage Plan where the decision to move is made either roughly at the same time as an alternative location is apprehended, or afterwards. B may therefore be conceptualised as a consideration of the perceived benefits and disbenefits associated with living in one of two or more alternative locations, one of which is always the current location. It is quite possible that a common way in which these comparisons are made is through a series of paired choices, one alternative being the current location which is used as a datum point. Alternatively, a comparison of the potential new locations may be made, the most favourable of which may then be compared with the current location. In both Strategies A and B, an occasional further stage can be envisaged. This would involve comparison of newly perceived alternative locations with a potential destination which is already preferred to the current location, that is, when a decision to move has been made but the move itself has not yet been accomplished.

It is likely that, owing to the combinatorial problems involved in choosing from a large number of alternatives, even a series of simple pairwise comparisons between destinations, or between each destination and an aspiration level, is unlikely to encompass a total of more than, say, three or four alternatives at

any one time. It is possible that, if migration is entirely voluntary, the norm is for only one alternative to be considered, the array of possible destinations being presented sequentially over a varying, and sometimes considerable, period of time.

Which of these strategies is the more likely? On the whole, use of Strategy A may be characterised by a perceived need to accomplish something which is totally impossible or very difficult to achieve in the current location. Strategy A is thus likely to be associated with situations where the 'push' factors - the perceived disbenefits of current location - predominate. In many respects, A may be regarded as a single act of consumption where a decision is made to acquire a generalised set of benefits associated with the notion of moving, and where the decision of where to move is of secondary importance, chronologically at least. Strategy B, on the other hand, may typify situations where the household, continuously sampling and consuming certain attributes of its current location, is somehow made aware of a generally superior set of attributes available in an attainable alternative location. Strategy B is thus likely to typify migration decisions where 'pull' factors - the attraction of a specific alternative location - predominate.

In either case, knowledge of the alternatives may sometimes ante date any serious consideration by the migrant of their desirability, for their perceived superiority may only become established as a result of a change in needs with which the current location was not chosen to cope. If the current location slips below the aspiration level, then A will be used. On the other hand, if it still remains above the aspiration level, then B will be the preferred strategy.

In reality, these two basic strategies may be depicted as the two extremes of a continuum where the size of 'push' and 'pull' factors changes progressively. Pure strategies of type A must be rare, save in times of acute social or natural calamity; whilst it seems probable that, without some measure of dissatisfaction with current location, the adoption of B alone would only infrequently surmount the usual inertial factors associated with the act of migration. A common situ-

ation perhaps is one where, although the antecedent factors associated with Strategy B might be present, the appearance of a 'better' alternative raises the aspiration level thus increasing dissatisfaction with the current location. It is noteworthy that the empirical study of retirement migrants provided considerable support for the assertion that these mixed decision strategies are the rule rather than the exception (see above, page 88).

Other elements of Brown and Moore's general scheme may be introduced into the overall decision strategy adopted by the migrant household, largely irrespective of whether the behavioural Plan controlling the migration process is of type A or type B. (Brown and Moore, 1970). The extent to which each factor applies will, however, vary according to which strategy is adopted. Thus we might expect the influence of time on search behaviour to be a more important consideration in the case of Strategy A than with B; this is also likely to be true with regard to decisions about which information channels should be used.<sup>1</sup> Each of these minor decisions, of course, may be represented by a fresh iteration of the general decision model suitably framed in the context of the appropriate subordinate Plan. For example,  $BI_{iq}$  during one of these iterations might be definable as 'Behavioural Intention with respect to using information channel i at intensity level q.'

It will be recalled that, in order to simplify the presentation of the general model, the concept of Aspiration Level  $AL(x)$  was applied to the case where attribute x was a 'normal' good (above, page 233 ). Brown and Moore use the concept of an 'aspiration region' containing the acceptable alternatives in order to cover the case where x affords declining amounts of satisfaction as its magnitude increases (that is, negative marginal utility) beyond a certain, 'ideal' point. (Ibid., p.5). The upper bound of the aspiration region,  $AL'(x)$ , will then be fixed at the level where the corresponding utility of x equals the utility of

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<sup>1</sup> Brown and Moore suggest that the choice of information channels and the choice of intensity with which each is sampled are dependent upon: (i) the subjective probability of success in finding a suitable alternative by utilizing the channel at a given intensity; (ii) the perceived effort involved; (iii) the amount of time remaining. (Ibid., p.9).

the lower bound. That is,  $uAL'(x) = uAL(x)$  and thus, for example, the conjunctive decision rule may be restated as:

$$X_i \in C \text{ iff } ux_{ij} \geq uAL(x_j) \text{ for all } j(j=1,2,\dots,m')$$

where  $X_i$  is the  $i^{\text{th}}$  alternative location,  $C$  is the consumption set or 'aspiration region', and  $ux_{ij}$  and  $uAL(x_j)$  are respectively the utilities of the  $j^{\text{th}}$  attribute of  $X_i$  and of the aspiration level associated with that class of attributes.

In both inter- and intra-urban migration decisions the question arises of in which areas should the household search in order to have what it sees as a 'good chance' of finding a suitable dwelling. Wolpert maintains that search behaviour may be regarded as a process of sampling from the 'action space' of the individual (Wolpert, 1970, p.302), a concept analogous to the 'life space' of Lewin's Field Theory. This may be defined as the universe of time and space within which the person potentially may 'locomote' (see above, page 174 ). The geographical expression of this sample from the life space - the 'search space' (Brown and Moore, 1970, p.8) - may then be taken as first defining the broad sub-regions or cities towards which the search will be directed (in the case of inter-urban migration), and then subsequently defining the sub-areas within those cities, or sub-regions, from which a choice of dwelling will eventually be made. The migrant household may thus be characterised as following a hierarchical decision making Plan, each stage of which discriminates between subsets of alternatives, at a given hierarchical level  $q$ , on the basis of the most strongly diagnostic, salient attributes of those subsets. Desirable features which are believed by the household to partition the universal set of locational alternatives,  $S$ , into the largest possible subset of unacceptable alternatives and the smallest possible subset of acceptable alternatives, will tend to be evaluated first. More ubiquitous features will then be used to partition  $S$  at a much lower level in the decision hierarchy.

For example, suppose a migrant possesses a set of aspiration levels applying to a corresponding set of desired characteristics. We will simplify the situation by further supposing that the aspiration levels are simple binary criteria: 'those



cases with the characteristic' as opposed to 'those without.' The following factors determine our imaginary migrant's choice:

- i) he is a skilled metal worker and wishes to apply this skill in his job;
- ii) he requires a wage of at least £5,000 per annum to support what he sees as a minimum acceptable standard of living; he has three children and requires
- iii) a three or more bedroomed house with convenient access to a school. Among his recreations is
- iv) a fairly keen interest in rock-climbing, although family responsibilities have tended to curb this activity in recent years.

In terms of their total utility to the migrant these factors may perhaps be ranked in the order (iii), (ii), (i), (iv). It is quite possible, however, that sequential decision making might be applied in quite the reverse order. The relatively 'unimportant' consideration represented by (iv) might turn out to determine which geographical 'region' the migrant will choose because he may believe that all regions may be able to afford him attributes (i), (ii) and (iii) somewhere within their boundaries; the spatial scale at which the highest level diagnostic feature applies will then determine the field of 'search' covered by the next stage in the decision process, in this case the region. At the second stage, the migrant might feel that any urban area within the region can meet his requirements for (ii) and (iii), but that only a handful of industrial cities can provide (i). Factor (ii) will then be used to partition the subset of opportunities in cities offering the right type of job. Finally, factor (iii) will be sought out in the chosen city offering (i) and (ii).

Obviously, the search procedure will usually be much more complex in that more attributes will be considered. Several different decision rules might also be applied to various phases of the process. For example, alternatives in the aspiration region,  $C_q$  defined at each decision level  $q$  might then have a compensatory (SEU type) rule applied in order to reduce the dimensions of the search set

to intellectually and physically manageable proportions for the next stage in the search. The migrant might thus decide that Sheffield offers the best range of potential employment before he even searches for any job yielding over £5,000; he is almost certain to have chosen a specific job before the ubiquitous, if very important, housing feature (iii) is searched for. More complex decisions are also likely to involve 'trade offs' between features, implying a disjunctive rule for defining  $C_q$ . All thought of features (i) and (iv) might be forgotten when an unexpected opportunity of earning £8,000 a year in London presents itself!

Conclusion: The model as a complex behaviour system

Herbst has distinguished between simple behaviour systems<sup>1</sup> and complex systems. (Herbst, 1961a, p.72). A simple system is one in which all components contribute to the output of the system, whereas a complex system is characterised by the existence of a quasi external sub-unit which carries out some of the coordination and control functions necessary for the system to operate. Coordination and control thus become partly external to the activities represented in the system. In the current model, the generation of Plans to cope with needs identified by the system is handled by a central control unit which incorporates the Belief and Value system (Fig. 9.2). This central unit co-ordinates the form of the Plan (goals and tactical objectives) with the form and function of other Plans being carried out by the individual but which lie outside that particular activity which is of direct interest to us. Responsibility for the execution of the Plan is then passed to the Plan Supervisor which integrates the timing of the activity in question with the execution of the extrinsic Plans. On Herbst's definition we are therefore dealing with a complex system.

What advantages has the complex behaviour system over the simple system of Lewin and its further development by Herbst? (Lewin, 1936; Herbst, 1961a, 1961b).

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<sup>1</sup> Herbst (Ibid., p.71) defines a system as being a 'set of activity elements which are interdependent with respect to their functioning' and which operate as a boundary maintaining unit.

Firstly, these simple systems are forced to conceptualise the nature of elusive phenomena such as 'tension' (motivation) purely in terms of the functioning of the rest of the system in order to ensure its completeness. In the complex system, however, these can be handled in effect as 'external' inputs to the system; motivation is a product of a TOTE unit which forms part of an 'externally' produced Plan hierarchy (above, page 219). Secondly, the very completeness and consequent degree of integration of the simple system tends to make modifications to its structure in the light of subsequent empirical evidence somewhat difficult. The current system is built on a modular basis with well defined causal connections between its component sub-systems, thus rendering alteration a comparatively straightforward matter. Thirdly, the more open structure of the present model has facilitated its integration with several different fields of behavioural research. It therefore stands to gain from future research on, for example, attitudes and attribution processes, whereas translating any such developments into the highly conceptualised language of the Lewin and Herbst models will often prove to be impossible. Finally, as the present model is already based on several well established fields of empirical research, it stands to profit from an enormous amount of work which has been concentrated on the development of sophisticated measurement techniques, particularly in the case of attitude theory. To quite a large extent, the Lewin and Herbst models require the application of their own specialised measurement technology (for example, see Herbst 1961b, pp.199-206); this factor alone has impeded their general acceptance as anything more than useful descriptive tools.

## GENERAL CONCLUSIONS AND PROSPECTS FOR FUTURE RESEARCH

## Review

The principal objective of this study has been to explore the factors which influence the migration decisions of the elderly. To achieve this, the research strategy comprised two lines of approach. The first involved the development and testing of a set of broad hypotheses concerning the nature of the 'retirement' migration decision, the focus of the work being a sample of old people in five towns on the Yorkshire coast. The second comprised a general theoretical approach to the investigation of all behaviour under conditions of volitional control. 'Retirement' migration may thus be regarded as a special case of a more general category of event, all migration behaviour, whilst the latter may itself be regarded as a subset of the universe of all types of 'intendedly rational' behaviour. The two main sections will be reviewed in turn.

The study of elderly migrants per se began with the argument that an understanding of their behaviour could not be gained without a full consideration of their personal characteristics. Migration was seen to be as much a product of these characteristics, and the broad behavioural patterns which they imply, as of the place of residence. Two sets of factors influencing migration were discussed. The first was connected with the general pressures of change in modern society which have tended to lead to a broadening of the geographical horizons of its individual members. The second was more specifically related to the elderly, being concerned with the impact of the 'ageing process' upon individual behaviour. Five main topic areas for empirical investigation were then defined, these being essentially concerned with the apparent impact of age related social, economic and biological processes on the decision to move, the effects of previous geographical mobility and the importance of earlier contact with the place of eventual destination. The empirical study was based on a questionnaire survey applied to a sample of 294 elderly long distance migrants, local movers and non migrants in the towns of Scarborough, Filey, Bridlington, Hornsea and Withernsea.

The detailed findings of this work have already been summarised in Chapter 7. However, in addition to these, three overall conclusions were reached which, it was argued, had important implications for the development of a more general model of the migration decision:

i) It was found that a large proportion of reasons given for migration in retirement closely reflect features of the biological, social and economic ageing processes experienced by the decision maker. In other words, the concept of the 'life cycle' appeared to be of considerable potential value in very broadly describing the interaction between the subjective needs of the individual and the ability of the residential environment to meet those needs.

ii) The decision whether or not to move appeared to be influenced considerably by 'personality' variables as well as simply by environmental stress or material, social or health constraints. The evidence suggested that, in general, the local and non migrants' subjective expectation of 'reward' for undertaking a move away from their community was much lower than that of the inter-urban migrants. It was therefore argued that, in order to understand the actions of the individual migrant, we need to measure his personal assessment of the probability of increasing his general level of well-being by undertaking a move.

iii) In contrast, once the decision to move had been made, the survey results demonstrated the existence of a strong degree of subjective rationality in the elderly migrant's decision making process. Reasons given for moving tended to be very closely related to the migrants' stated actual circumstances and likely needs at the time of the move. Even if an 'objective' view of rationality is taken, it is clear that first hand information was very heavily drawn upon and that the emotional elements of the 'retirement ideal' were not as all pervasive as other studies and popular belief seem to indicate.

With the addition of two simple assumptions, expressed formally as the 'Axiom of Universal Behaviour', the preceding observations were then used as a basis for theoretical speculation. The first assumption was that 'retirement' migration is not a unique phenomenon but may be regarded as a variation of other types of migration. Secondly, migration itself is not a unique class of phenomena but is, in general, a type of 'intendedly rational' behaviour, having much in common with other types of intendedly rational behaviour.

The theory of behaviour has been summarised in detail in the introduction to Chapter 8 and, therefore, will only be very briefly outlined here. It was constructed by developing a series of parallel themes which span the fields of consumer economics, cognitive psychology, attitude theory and mathematical decision theory. These themes were then drawn together, firstly in the form of a descriptive model of a behavioural system, and secondly by means of a general mathematical model which uses the causal structure postulated in the descriptive system. Finally, an approach to the simulation of the structure of the psychological environment was outlined using some relatively recent developments in the theory of consumer demand.

The examination of the migration decision as a special case of the general model began with a critical review of behavioural research in geography. Two main deficiencies of most previous work are apparent. The first is that where explicit behavioural models have been considered at all, attention has principally been focused on simple structural models which are concerned more with the existence of linkages between subsystems than with exploring their function and output. The second deficiency is that most empirical research has concentrated on the concepts of the 'mental map' and 'space preference surface' which, it was shown, are the equivalent of general attitudes measured independently of any specific behavioural situation. For this reason it was argued that they are not among the direct antecedents of behaviour. Brown and Moore's model of the migration decision was then reformulated as a Plan framework and an alternative, single stage decision strategy (Strategy B) was presented as an alternative to their two-stage process (Strategy A).

(Brown and Moore, 1970). Whilst the latter was thought to characterise decisions with a strong 'push' element, B was suggested as the more common strategy in situations where 'pull' factors predominate. An information search strategy based on the 'level of diagnosticity' of each item in the set of desirable attributes of location was then described. It was maintained that this model explains the phenomenon whereby search and choice amongst a set of alternatives often concentrates on seemingly trivial characteristics. Moreover the concept avoids the measurement problems inherent in marginal utility theory.

#### Some broad conclusions

Simultaneous consideration of both the results of the empirical study and of the general theory of behaviour highlights a number of specific points regarding the latter. The most important of these is, perhaps, the simple observation that, even when used as a purely descriptive model, the theory greatly enhances the explanatory power of the empirical study. Moreover it has been demonstrated that the migration decision is not so unique an event in the life of an individual that it should be treated as qualitatively different from other types of subjectively rational behaviour however trivial. This has far reaching implications for providing a unified theoretical framework for the study of geographical manifestations of human behaviour other than migration. It may, for example, be applied to individual travel behaviour, the choice of leisure, shopping and other consumption activities, as an important consideration in innovation diffusion, and even in the decisions of collective organisations such as industrial firms and government departments.<sup>1</sup>

Secondly, it has already been noted that the marked variation in reaction to environmental stress found to exist between all three migrant types are likely to indicate major differences in their subjective probabilities of 'reward and punishment' for undertaking a change in location, and also in their utilities of success

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<sup>1</sup> As long as the decision is characterised by consensus rather than by conflict. Decisions in conflict situations would have to be examined from the point of view of the individual opposing factions within the organisation.

and failure. This could be taken to imply that different causal attribution processes may characterise the Image formation and decision making of the three kinds of migrant. The results also indicate that major differences in salient belief sets may exist between the migrant types (that is, what the migrant regards as outcomes of his behaviour worthy of inclusion in his decision process). The manifestation of these differences seem to be especially significant between the 'movers' and the 'stayers', and it is here that culturally and economically induced variations in behaviour (as exemplified by social class) may have their greatest impact.

The third point is that, although it is potentially very useful as a means of categorising, and simulating the effects of, behavioural Plans, the concept of a Behavioural Context matrix is likely to require a considerable amount of research into the social role sets and the activity patterns (classified in the empirical study by means of the 'life cycle' approach) of individuals before it may be used in rigorous studies of decision making. The use of social class categories alone as simple proxies for the matrix is not generally likely to be very successful, as the inventory of results in Chapter 7 amply demonstrates. In fact, once the decision to move had actually been made, the social classes showed similarities in their behaviour as frequently as they showed important differences.

Finally, many of the migrants showed a very rapid adjustment to stress stemming from retirement and bereavement. If less serious stressors are accommodated as rapidly (whether the accommodation strategy results in migration or not) then the direct measurement of cause and effect may be a practical possibility.

#### Links with other fields of geographical research

Whilst the potential contribution of the general model to the study of spatial behaviour has received heavy emphasis throughout the two preceding chapters, it is important to note five areas of current research in geography and regional science which should, in turn, make a particularly valuable contribution towards the development and testing of the model. These may be summarised very briefly as follows:



i) The direct application of Fishbein's approach to the study of spatial behaviour. Thomas has described the results of some early applications of Fishbein's model to the study of transport mode choice amongst shoppers in the vicinity of the Brentwood regional shopping centre, north London. (Thomas, 1976). Thomas argues that, despite a trend in transport research towards the study of individual behaviour in an attempt to explain (as opposed solely to predict) choice of travel mode, no one has succeeded in either developing or adapting a theory of attitude which would permit generalisation across different behavioural situations. (Ibid., p.793). Fishbein's theory offers a simple model of cognitive structure which, it is maintained, could provide the basis for such generalisations.

The objectives of Thomas' work were two-fold: the first was to test the performance of the model as a means of predicting behavioural intention and eventual behaviour (see equation 9.10); the second was to examine the content and stability of the belief systems affecting choice (equation 9.11). The results of the attempt to predict intention and overt behaviour were encouraging. Multiple correlation coefficient values of  $R = 0.768$  for 'using the bus' and  $R = 0.725$  for 'not using the bus' were found to exist between the predictor variables and intentions. The respective values of  $R$  when predicting overt behaviour were 0.734 and 0.720. (Ibid., p.802). However, total explained variance in the relationship between the content of attitude and behavioural intention appeared to be low in comparison with other studies of consumer behaviour (maximum  $r^2 = 0.277$ ). Thomas interpreted this to be due, possibly, to the routine (and thus habitual) nature of much travel behaviour, although it should be noted that her results also appeared to be influenced considerably by the operation of powerful social norms (see equation 9.13). (Ibid., p.803). It is interesting to note that a follow up study conducted during a period of minor alterations to bus service conditions (both beneficial and detrimental) revealed predictable changes in belief structure. This serves to demonstrate the sensitivity of the method as well as its power.

ii) Studies of the information content of Image. One of the most important recent developments in behavioural geography is the 'cognitive spatial' theory of Webber, Symanski and Root (1975). From a set of simple axioms governing the relationship between individual movement in space, together with access to secondary information channels, and the amount of information which is acquired by that individual about given locations, Webber and his associates demonstrate how models may be constructed which link the amount of individual uncertainty about the attributes of place with the probability of interactions with each place. (Ibid., pp.108-9). This approach could provide a very powerful normative measure of likely belief strength both at the individual and at a more aggregated level. It is also possible that the equations in our general model dealing with Signal and Symbol effects in determining individual belief strength (equations 9.16 to 9.19) could be replaced by Webber's equivalent information theory model. This states that the amount of information which an individual has regarding the class membership of a place, equals the numerical difference between the maximum uncertainty and the actual uncertainty about that class membership. (Ibid., p.102). Webber also distinguishes between 'episodic' memory (an individual's memory about events directly happening to him), and 'semantic' memory which is based on information from communications sources, the argument being that the cognitive relationship between information from direct sources and that from secondary sources is at present unclear. (Ibid.; also see Tulving, 1972, pp.382-85).

iii) The role of Symbol effect in our Image of places. The relationship between places and their widely held stereotypes have received some attention in the Geographic literature. Downs and Stea maintain that there are two aspects of this type of categorisation process; the first consists of 'denotative and connotative' shorthand ways of coping with the spatial environment (for example, conventional stereotypes such as the Southerner's view

of the 'North Country Town'<sup>1</sup>), whilst the second comprises symbols dealing with 'geographic entities which owe their cogency and importance to their mere existence.' (Downs and Stea, 1973b, pp.19-20). Examples of the latter have been considered by Stea in his concept of the 'invisible landscape' and its relationship to locational preferences. (Stea, 1967, pp.27-28). Stea uses the term 'invisible' because the symbolic features it represents - be it Piccadilly Circus as a symbol of London's seething vitality, or the fells of the Lake District - are often not generally available to, or simply not used by, many of those residents to whom the symbol is a cherished and integral part of their Image of the place. This notion of invisible landscape is also possibly connected in some way with an innate response to the physical environment, for example as discussed by Appleton in his theory of landscape aesthetics. (Appleton, 1975, p.70; see above, page 210 ).

iv) Models of the 'efficiency frontier' of the cognitive environment.

Despite an almost overwhelming extensive literature concerned with 'objective' applications of the 'hedonic' approach towards the measurement of demand for housing and other locational services (for example see Apps, 1973; Wilkinson and Archer, 1976; Leven and Mark, 1977), comparatively little work has yet been done in fields allied to migration which study the subjectively defined equivalents of the traditional econometric models. The work of Peterson, however, is a notable exception with its application of a weighted additive utility model to measured preferences for various factors in the visual appearance of residential environments. (Peterson, 1967). It is to be hoped that the translation of Rosen's interpretation of the hedonic approach into the notion of a 'theoretical price' for a bundle of attributes (above, page 270 ) will lend more methodological enthusiasm to the pursuit of what has hitherto appeared to be a purely empirical objective. (Rosen, 1974).

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<sup>1</sup> See Burgess (1974, p.171). In a study comparing the Images of Hull possessed by local residents with those of other respondents in England and Wales with no previous contact with the town, Burgess observes that stereotypes appear to be learned by word of mouth, books, television etc. These media 'create a vast cultural matrix in which images can develop and persist irrespective of the reality they are supposed to represent'. (Ibid., p.167).

v) Studies of the 'causal texture' of the behavioural environment.

Walmsley has criticised Herbst's model on the grounds that it excludes the examination of the dynamic properties of environmental change. (Walmsley, 1973, p.52; Herbst, 1961a, 1961b). Moreover, he notes that this failure is typical of much geographical research on behavioural problems as, for example, in the common assumption that perception can be treated as a subsuming variable for man-environment interaction. Human behaviour is conceived as being enacted within a perceived world rather than a normatively defined 'real' world. In the model which is the subject of this thesis, the point of contact between the perceived and real worlds is represented by means of the efficiency frontier defined on the concept of 'theoretical price' for a commodity. As the theoretical price is based on a community evaluation of the attributes of a commodity set, a normative basis for examining both individual and community sub-category behaviour is thus established. Walmsley, however, tackles the problem from the point of view of the interaction of different types of behavioural system (the organism) within different types of environment. A hierarchy of four different levels of interaction are identified as convenient reference points on a scale of complexity of 'environmental texture'. (Ibid., pp.53-55). As this complexity increases, so the behaviour of the organism must become more elaborate if its goals are to be achieved and its position maintained in the environment. It is clear that Walmsley's typology is closely linked with our earlier discussion of information processing behaviour (above, page 205), and could provide a means of generating normative Plans for search behaviour for different behavioural subcategories of the population, possibly through treating it as an extra dimension of the Behavioural Context matrix.

## An outline of requirements for future research

It is perhaps inevitable that the preceding investigation has raised many more questions than it has succeeded even in tentatively answering. Its main achievement may, in fact, have been in unfolding new vistas of ignorance in both Human Geography in particular and the Social Sciences in general. It is essential that a structured approach to the examination and application of the behavioural theory is adopted from the outset in order to hasten the exploration of this difficult, but potentially extremely fertile, academic terrain, and to avoid unnecessary duplication of effort in so doing (though it must be emphasised that this is not to abrogate responsibility for strict examination and replication of results). At least six main areas of work may be identified:

- i) The measurement of the individual elements within each equation subsystem (Equations 9.5 to 9.23). The main model has been designed with the use of standard attitude scaling methods in mind. (See for example, Fishbein and Ajzen, 1975, Chapter 3; Upshaw, 1968). Controlled laboratory experiments will, however, be necessary for further exploration of the antecedents of the terms in the main model as, for example, in the case of inferential and belief modification processes.
  - ii) Testing the causal links between elements of the subsystems (Fig. 9.3b to Fig. 9.9), and
  - iii) Testing the causal links between subsystems (Fig. 9.10).
- The most fruitful course may be to apply the modified Fishbein model (Fig. 9.3b) to the migration decision and then work progressively back through the full model. Particular attention will have to be paid to the implicit assumptions of the Fishbein model (see above, pages 236-40 ) in the early stages of this work.

- iv) The examination of the degree to which different formulations of the Behavioural Context matrix are associated with measures of Behavioural Intention. In particular, to what extent is it possible to extend the predictive power of the modified Fishbein model through the use of the matrix?
- v) An investigation of the relationship between states of the 'real world' (as conceptualised as an efficiency frontier defined on the theoretical prices of commodities in the consumption set) and the decision maker's Image of that world.
- vi) Investigations into the composition of the consumption set, and into the search procedures and decision rules which define it.

Clearly, these are not tasks which may most effectively be undertaken by the members of any single discipline. The theory does have the advantage, however, of providing a means of linking developments in several largely separate fields of research. Aspects of the model may thus be tested even in the absence of a formally co-ordinated programme of inter-disciplinary effort. The role of the Geographer should therefore be to apply and test these concepts in specific situations where the effects of behaviour have some spatial manifestation. In this way he will both improve his own level of understanding of spatial processes and more effectively predict their outcome, and also contribute towards the evaluation and development of behavioural theory in general. In short, he should become a producer in the field of fundamental behavioural research, and not merely a consumer of the theoretical fruits of other disciplines. Moreover, it is only by vastly increasing our understanding of human behaviour and the needs and wants which motivate it, that the recent movement towards a prescriptive approach to human geography (for example, by Harvey, 1973; and Smith, 1977) can avoid becoming little more than a form of well meaning paternalism.

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APPENDICES



APPENDIX 1

Phase One Sample Selection Algorithm

Sampling proceeded by selecting at random<sup>1</sup> a different point within each specified sample interval (for example within each group of ten individuals for an interval of one in ten) for each Electoral Register. Certain individuals were excluded from the series, however, and the interval counting procedure ignored these.

The selection algorithm to determine members of the Phase One survey population was as follows:

Step 1 Is the individual noted in the register as being a minor who reaches voting age (18) during the currency of the register?

If YES: delete.

If NO: continue.

Step 2 Is the individual male?

If YES: go to Step 3.

If No: go to Step 4.

Step 3 Is there a J against the name?

If YES: delete.

If NO: include in survey population.

Step 4 Is the woman individual an only woman in a household (defined as a group of people possessing the same surname and address) who is not eligible for jury service, whilst a male in that household is eligible (and therefore probably the 'head' of the household)?

If YES: delete - selected individual is probably the wife of the male individual.

If NO: continue.

Step 5 Is the individual a woman in a household comprised of  
i) more than one woman not liable for jury service and  
ii) a male who is liable for service?

If YES: include.

If NO: continue.

---

<sup>1</sup> Random numbers table from Fisher and Yates (1963).

Step 6 Is the individual a non J listed woman in a household where another woman who is J listed is present?

If YES: include.

If NO: continue.

Step 7 Is the individual in a household comprised only of women, none of whom is J listed?

If YES: include.

If NO: delete.

NB All individuals in colleges and hospitals (if identifiable) were automatically excluded.

If a married woman aged 60 years or over was still selected during Phase One for interview at Phase Two, then the interview was continued with her husband. In actual fact, only 3 such cases arose.

Demographic Model for estimating resident  
inter-urban migrants

The basis of the general form of the model given in equations (3.4) and (3.5) may be illustrated by taking the case of the 1966-70/71 period. The calculation for (3.4) proceeded in three main stages:

i) The probability,  $m^0$ , of a surviving individual migrating out of the area between 1961 and 1966 was calculated from 1966 Sample Census data (for 60/65 population).

ii) The 5 year survival rate  $S_i^5$  for each 1966 cohort  $i$  (where  $i = 55-59$  to  $70-74$ ) was calculated, where

$$S_i^5 = ms_i^5 \cdot pm_i + fs_i^5 \cdot pf_i \quad \dots \quad (A 2.1)$$

and  $ms_i^5$  is the male 5 year survival rate for cohort  $i$ ;

$fs_i^5$  is the female 5 year survival rate for cohort  $i$ ;

$pm_i$  is the proportion of cohort  $i$  males in the migrant stream;

$pf_i$  is the proportion of cohort  $i$  females in the migrant stream;

The general form of the survival rate  $n_x^{S^k}$  (the probability of surviving for  $k$  years) is calculated from

$$n_x^{S^k} = \frac{n_{x+k}^L}{n_x^L} \quad \dots \quad (A 2.2)$$

(Shryock and Siegel, 1973, p.9)

where  $L_x$  is the number of individuals living in the age interval;

$n$  is the number of years of age in the age group (generally

5 for abridged life tables);

$x$  is the age group

iii) The total number of in migrants 1966-70/71 was then determined by the simple balance equation:

$$\sum_{i=60}^{79} {}_5M_i^{I70} = (P^{70} - P^{66})_{mr} I_{60,79} + \sum_{i=55}^{74} P_i^{66} S_i^5 (1-m^0) \quad \dots \quad (A 2.3)$$

where  $\sum_{i=60}^{79} {}_5M_i^{I70}$  = total in migrants 1966-70/71 age 60-79 by 1970/1;

$mr^{I_{60,79}}$  = proportion of all in migrants who are aged 60-79;

$P_i^{70}, P_i^{66}$  = total population in 1970<sup>1</sup> and 1966 respectively:

$P_i^t$  = population in cohort  $i$  in year  $t$

With modifications (depending on the availability of data), equation (3.4) was applied to each quinquennium in the series, back to 1946 (see Figure 3.2):. Migrants arriving during the period 1961-1966 ( $\sum_{i=55}^{74} M_i^{I66}$ ) were taken directly from 1966 Sample Census based estimates (see page 48...).  $P_i^{56}$  data for the non Census year of 1956 was estimated by projecting back<sup>2</sup> from 1961, projecting forward from 1951 and taking the simple mean of the difference. The 1946 estimate of each  $P_i^{46}$  was found by back projection from 1951 and assuming that the ratio used to estimate  $P_i^{56}$  applied to the  $P_i^{51}$  cohort projected back to 1946.

The total number of 60-79 year olds who had moved into each town since the age of 50, had stayed and survived until 1971 and who were able to register at the October 1970 Electoral Registration ( $M_*^I$ ) may thus be defined as:

$$M_*^I = \sum_{i=60}^{79} M_i^{I70} + \sum_{i=55}^{74} M_i^{I66} S_{67}^5 (1-m^0) + \sum_{i=50}^{69} M_i^{I61} S_{65}^{10} (1-m^0)^2 + \sum_{i=50}^{64} M_i^{I56} S_{60}^{15} (1-m^0)^3 + \sum_{i=50}^{59} M_i^{I51} S_{57}^{20} (1-m^0) \dots \quad (A 2.4)$$

This may be generalised to equation (3.5)

---

1 NB  $P_i^{70}$  was taken rather than  $P_i^{71}$  because the registration date for the 1971 Electoral Register was in October 1970.

2 Reverse survival  $\frac{5P_i^{61}}{5S_i^5} \dots (A 2.4)$

(See Shryock and Siegel, 1973, p.452)

**APPENDIX 3**

**Phase One Questionnaire**

MIGRATION STUDY

PLEASE PUT A TICK IN THE APPROPRIATE BOXES

1 A) Have you lived (for a period of more than 3 months) in any town or village other than your present one:-

- i) During the past 5 years (from 1st January 1966)?      YES      NO
- ii) During the past 10 years (from 1st January 1961)?      YES      NO

Please do not count a period of absence away from your own home (for example, a stay in hospital, a lengthy visit to relatives, a long holiday) unless you had permanently vacated your own home.

1 B) Have you lived anywhere other than at your present address within your present town or village (for a period of more than 3 months):-

- i) During the past 5 years (from 1st January 1966)?      YES      NO
- ii) During the past 10 years (from 1st January 1961)?      YES      NO

Again, please do not count a period of absence unless you had permanently vacated your own home.

2) Please indicate which age group you are in by putting a tick in the appropriate box:-

- under 21       ;      21 and over, but under 60       ;      60 and over, but under 65       ;
- 65 and over, but under 70       ;      70 and over, but under 75       ;      75 and over, but under 80       ;
- 80 and over       ;

3a) If you are now of 60 years or over, could you please tell me whether you have lived for a period of more than 3 months in another town at any time since your 50th Birthday?

- YES      NO
- 

Again, please do not count a period of absence unless you had permanently vacated your own home.

3b) If you are now of 60 years or over, have you lived for a period of more than 3 months at another address in your present town since your 50th Birthday?

- YES      NO
- 

As above, please do not count a period of temporary absence.

Thank you for your kind cooperation in answering these questions, it is very much appreciated.

Please keep this questionnaire handy, I shall be returning shortly to collect it.

APPENDIX 4

Phase Two Questionnaire

M I G R A T I O N   S T U D Y

Please put a tick in the appropriate box throughout, except where otherwise stated.

1. How long have you lived at your present address?

- (i) less than 2 years  (i)
- (ii) 2 years or more but less than 5 years  (ii)
- (iii) 5 years or more but less than 10 years  (iii)
- (iv) 10 years or more but less than 15 years  (iv)
- (v) 15 years or more but less than 20 years  (v)
- (vi) 20 years or more  (vi)

2. In which town and county were you born?

Town .....

County .....

TICK HERE if outside Great Britain and Ireland

3. Excluding stays of under 3 months or wartime service, can you remember how many times you moved house

	NONE	1-2	3-5	over 5	
(i) before the age of 20	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(i)
(ii) between 20 and 34	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(ii)
(iii) between 35 and 49	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(iii)

4. Excluding stays of under 3 months or wartime service, did you ever live in this town before your 50th birthday?

YES

NO   
GO ON TO QUESTION 5a.

4b. Did you live in this town when you were:

- (i) under the age of 20
- (ii) between 20 and 34
- (iii) between 35 and 49

GO ON TO QUESTION 6

5a. Did you ever visit this town before the age of 50?

YES

NO

5b. Did you visit this town when you were

- (i) under the age of 20
- (ii) between 20 and 34
- (iii) between 35 and 49

5c. What would you say was the most frequent reason for visiting this town before you were 50?

- (i) Social (i.e. visiting relatives or friends)  (i)
  - (ii) Purely for holidays  (ii)
  - (iii) Business  (iii)
  - (iv) Wartime service  (iv)
  - (v) Other (specify)  (v)
- .....

5d. If not, how did you first come to consider visiting or living here?

- (i) Information from a friend, relative or acquaintance
  - (ii) Travel brochure, advertisement or travel agent etc.
  - (iii) You were just passing through the town
  - (iv) Business visit
  - (v) Social visit
  - (vi) Other (specify)
- .....



6. Are you:- (i) Single   
(ii) Married   
(iii) Divorced or separated

GO ON TO QUESTION 9a

- (iv) Widowed

IF WIDOWED MAN, GO ON TO QUESTION 8a  
IF WIDOWED WOMAN GO ON TO QUESTION 7a

7a. (IF WIDOWED WOMAN)

What was your husband's last full-time occupation (i.e. paid employment of over 30 hours per week)?

.....  
Could you briefly describe this?

7b. Did your husband live to retire from full-time employment?

YES

NO

GO ON TO QUESTION 9a.

7c. What was your address when he retired?

Street .....

Town .....

County .....

TICK HERE if outside Great Britain and Ireland

7d. When he retired, was your husband:

- (i) under 50 years   
(ii) between 50 and 59   
(iii) 60 years or over

7e. Did you move house between the time he retired and the time he died?

YES

NO

GO ON TO QUESTION 8a.

7f. About how soon after the time he retired did you next move house?

Give whole years (if less than 1 write 0)

8a. (FOR WIDOWED MEN AND WOMEN)

What was your address when your husband/wife died?

Street .....

Town .....

County .....

TICK HERE if outside Great Britain and Ireland

8b. About how soon after the time he/she died did you next move house?

Did not move

Did move

Give whole years (if less than 1 write 0)

8c. About how long ago did he/she die?

Give whole years

IF WIDOWED WOMAN GO ON TO QUESTION 10a  
IF WIDOWED MAN GO ON TO QUESTION 9a

9a. (For all groups EXCEPT widowed women)

What was your last full-time occupation (i.e. paid employment of more than 30 hours per week)

.....

Could you briefly describe this?

9b. Have you retired from full-time paid employment (i.e. work of more than 30 hours per week, excluding "seasonal" work)

YES

NO

GO ON TO QUESTION 11

9c. When you retired were you

(i) under 50 years

(ii) between 50 and 59

(iii) 60 years or over

9d. What was your address when you retired?

Street .....

Town .....

County .....

TICK HERE if outside Great Britain and Ireland

9e. Did you take up any part-time employment (i.e. paid employment of under 30 hours per week, or of a seasonal nature) at any time after retiring?

YES

NO

GO ON TO QUESTION 10a

9f. Was it before or after your first move during retirement?

(i) Did not move

(ii) Before 1st move

(iii) After 1st move

10a. (For all groups EXCEPT non-retired)

Did you originally plan to move when you (or your husband, if a widowed woman) retired?

YES

NO

GO ON TO QUESTION 10c

10b. About how long before you retired did you start thinking seriously about making this move?

Give whole years (if less than 1 year write 0)

10c. Did you move with retirement in mind before you or your husband retired?

YES

NO

GO ON TO QUESTION 10e

10d. About how long before you retired did you move?

Give whole years

10e. At the time you (or your husband) retired, did you possess a separate holiday home or other second home?

YES

NO

GO ON TO QUESTION 11a

10f. Did you sell up your previous principal home and move house to your second home at any time after you retired?

YES

NO

11a. What was your address on your 60th birthday?

Street .....

Town .....

County .....

TICK HERE if outside Great Britain and Ireland

11b. How long had you been living there by your 60th birthday?

Years, (if less than 1 write 0)

11c. How long did you live there after your 60th birthday?

Years, (if less than 1 write 0)

12a. Did you move house (for a period of more than 3 months) between your 50th and 60th birthdays?

YES

NO

GO ON TO QUESTION 13a

12b. Could you please give me the addresses at which you have lived (for more than 3 months) during this time?

Please start at your last move before your 60th birthday and work back in the correct order to your 50th birthday.

Previous address 1.

Street .....

Town .....

County .....

Number of whole years resident (if less than 1 year write 0)

TICK HERE if outside Great Britain and Ireland

Previous address 2.

Street .....

Town .....

County .....

Number of whole years resident (if less than 1 write 0)

TICK HERE if outside Great Britain and Ireland

Previous address 3.

Street .....

Town .....

County .....

Number of whole years resident (if less than 1 write 0)

TICK HERE if outside Great Britain and Ireland

If respondent moved more than 3 times in this period, record the last 3 moves only before the age of 60, and record here how many moves were made previous to age 60

13a. Have you moved house for a period of more than three months since your 60th birthday?

YES

NO

GO ON TO QUESTION 13b

GO ON TO QUESTION 14

13b. Could you please give me the addresses at which you have lived (for more than 3 months) during this time?

Please start with your last move and work back in the correct order from there to your 60th birthday.

Previous address 1.

Street .....  Number of whole years resident  
 Town .....  TICK HERE if outside Great Britain and Ireland  
 County .....

Previous address 2.

Street .....  Number of whole years resident  
 Town .....  TICK HERE if outside Great Britain and Ireland  
 County .....

Previous address 3.

Street .....  Number of whole years resident  
 Town .....  TICK HERE if outside Great Britain and Ireland  
 County .....

If the respondent has moved more than three times during this period, record the last three moves only, and record here how many moves were made since age 60

14. Were you obliged to move from your last address in your previous town because of:-

- |  |                          |       |
|--|--------------------------|-------|
| (i) Previous house went with job, therefore you had to move house when you retired or changed your job | <input type="checkbox"/> | (i)   |
| (ii) A job transfer or new job   | <input type="checkbox"/> | (ii)  |
| (iii) Demolition, end of lease or other involuntary end of tenancy                                     | <input type="checkbox"/> | (iii) |
| (iv) Threat of any of these  | <input type="checkbox"/> | (iv)  |
| (v) Health reasons   | <input type="checkbox"/> | (v)   |

15. Apart from any of these reasons, can you tell me in a few words what you feel were the two most important reasons for wanting to leave your previous town?

- (i)  
(ii)

16. When you moved from your last town did you move partly because you felt that:-

- (i) Your home was too big
- (ii) Your home was not modern enough
- (iii) You didn't have enough garden or garage space
- (iv) Your home was uneconomical
- (v) Your home did not offer enough privacy
- (vi) There were too many stairs
- (vii) Your home was rented or leased and you wanted to buy a home of your own
- (viii) You were not near enough to relatives or friends
- (ix) Your friends or relatives all seemed to be gradually moving away or dying
- (x) You felt lonely
- (xi) You felt that you did not belong socially in the area
- (xii) You were too far from shops or local entertainment facilities
- (xiii) So many new buildings had been put up in the town that you felt you did not really know it any more
- (xiv) You were too far from the countryside or sea
- (xv) The climate was too poor, or there was too much smoke or dust or too many fumes
- (xvi) The area was too hilly
- (xvii) Your neighbourhood surroundings were decaying, unsightly, neglected or depressing in other ways
- (xviii) Your area was too noisy or dangerous, or suffered from too much vibration from road, rail or air traffic
- (xix) The rates were too high
- (xx) You felt that local health or welfare services were inadequate
- (xxi) You felt that there was an inadequate choice of shops
- (xxii) Appropriate entertainment, sports or other leisure activities were lacking
- (xxiii) Public transport was inadequate or too expensive

17. How did you first come to know of your house when you originally moved to this town?

- (i) Estate agents in your previous town  (i)
- (ii) Estate agents in your present town  (ii)
- (iii) A newspaper  (iii)
- (iv) A friend, relative or acquaintance told you  (iv)
- (v) You noticed that the house was for sale when you were passing by  (v)
- (vi) Other (specify) .....  (vi)

Please complete this column first.

18a. Imagine that you are considering moving house to another town.

Do you think it is very important, important, or unimportant to:-

	V.IMP.	IMP.	UNIMP.		
(i) know the town well				18d. When you first came to this town did you know the town well? YES NO	
(ii) know others who have recently moved to the town					
(iii) have friends or relatives in the town					
18b. Do you think it is very important, important, or unimportant to be within easy reach of:-				18e. Do you think that your present home is within easy reach of:- (i) YES NO (ii) YES NO (iii) YES NO (iv) YES NO (v) YES NO (vi) YES NO (vii) YES NO (viii) YES NO (ix) YES NO (x) YES NO (xi) YES NO (xii) YES NO	
(i) many shops					
(ii) a park					
(iii) the sea					
(iv) the countryside					
(v) a bus route					
(vi) a golf course, bowling green football ground or other sports facility					
(vii) a place where, if necessary you could obtain employment					
(viii) a post office					
(ix) a doctor					
(x) a church					
(xi) a choice of social, political or hobby clubs etc.					
(xii) cinema, theatre or concert hall					
18c. Is it very important, important, or unimportant to have:-				18f. Do you at present have:- (i) YES NO (ii) YES NO (iii) YES NO (iv) YES NO (v) YES NO (vi) YES NO (vii) YES NO	
(i) a good view					
(ii) a bungalow or ground floor flat					
(iii) room for relations to stay in comfort					
(iv) a garden					
(v) a garage					
(vi) mainly retired people as neighbours					
(vii) flat surroundings					

19. Did you finish your full-time education:-

- (i) before the age of 15
- (ii) between 15 and 18
- (iii) age 19 or over

20. Including yourself, how many people live in your household?  
(i.e. share a common housekeeping and excluding unrelated paying guests)

Number

21. Could you tell me please whether you can perform the following everyday tasks either without difficulty, only with difficulty or not at all:-

	NO DIFF.	WITH DIFF.	NOT AT ALL
(i) Are you able to go out of doors unassisted?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(ii) Are you able to climb stairs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(iii) Are you able to get about the house?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(iv) Are you able to wash and bath without assistance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(v) Are you able to dress and put on shoes without assistance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(vi) Are you able to cut your own toenails?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

22a. When you moved to this town did you know anyone living here already?

YES

NO   
GO ON TO QUESTION 23

22b. Were they:-

- (i) Children, grandchildren etc.  (i)
- (ii) Relatives on your side of the family  (ii)
- (iii) Relatives on your wife's/husbands side  (iii)
- (iv) Friends  (iv)

TO THE INTERVIEWER: A "household group of relatives" is a group of relatives living at one postal address, (other than that of the respondent)

23) (i) How many households containing any of your children or grandchildren etc. (other than your own household) lived in your previous town at about the time you moved to this town?

Number of households

(ii) How many households of relations (other than your own household) on your side of the family lived in your previous town at about the time you moved to this town?

Number of households

(iii) How many were on your husband/wife's side of the family?

Number of households

24. Which household group of relatives, living outside your previous town, did you see most often at about the time you were going to move to this town? Include only those whom you saw at least once a year.

- (i) Were they children, grandchildren etc.  (i)
- (ii) Were they relatives on your side of the family  (ii)
- (iii) Were they relatives on your husband/wife's side of the family  (iii)
- (iv) In which town and county did they live

Town .....

County .....

- (v) Did you see them on average at least once a month  (v)
- (vi) At least three times a year  (vi)
- (vii) At least once a year  (vii)

Could you do the same for the household group which you saw the second and third most frequently at this time please?

	2nd	3rd	
(i)			(i)
(ii)			(ii)
(iii)			(iii)
(iv)	Town County	Town County	(iv)
(v)			(v)
(vi)			(vi)
(vii)			(vii)

25. Could you tell me the towns and counties in which your three best friends lived at about the time you were going to move from your previous town? And also about how often did you see them?

	TOWN & COUNTY	AT LEAST ONCE A MONTH	AT LEAST 3 TIMES A YEAR	AT LEAST ONCE A YEAR	GENERALLY AT INTERVALS GREATER THAN A YEAR
1.					
2.					
3.					

26a. In your previous town did you belong to the local branches of any clubs, political groups, associations, trades or professional organisations etc.

Number \*  \*(If none record 0)

b. Did you hold any official positions in any of these

How many\*

c. Are you a member of any such organisations in your present town?

How many\*

d. Do you at present hold any official positions in any of these?

How many\*

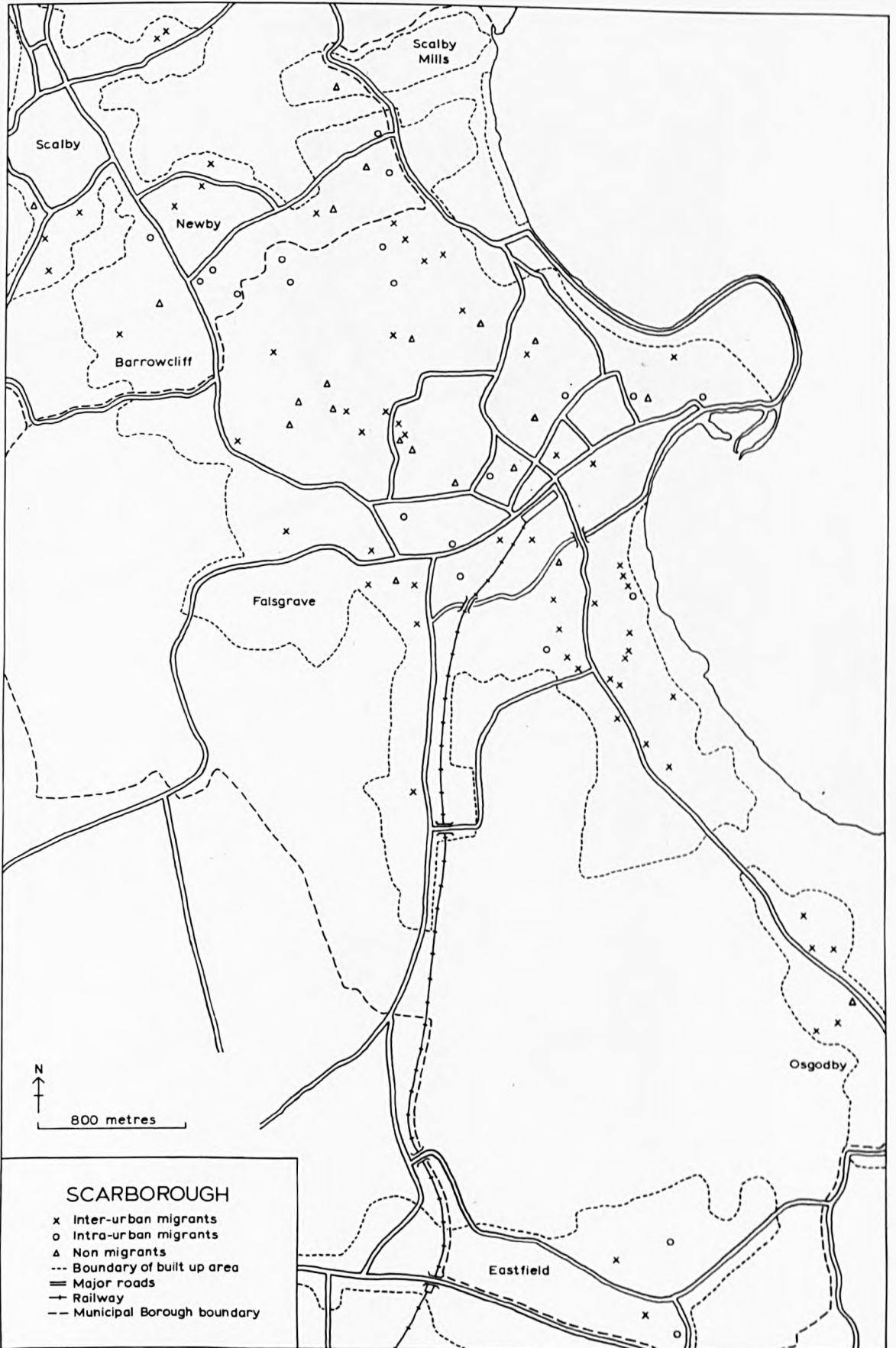
27. Do you regard retirement as:-

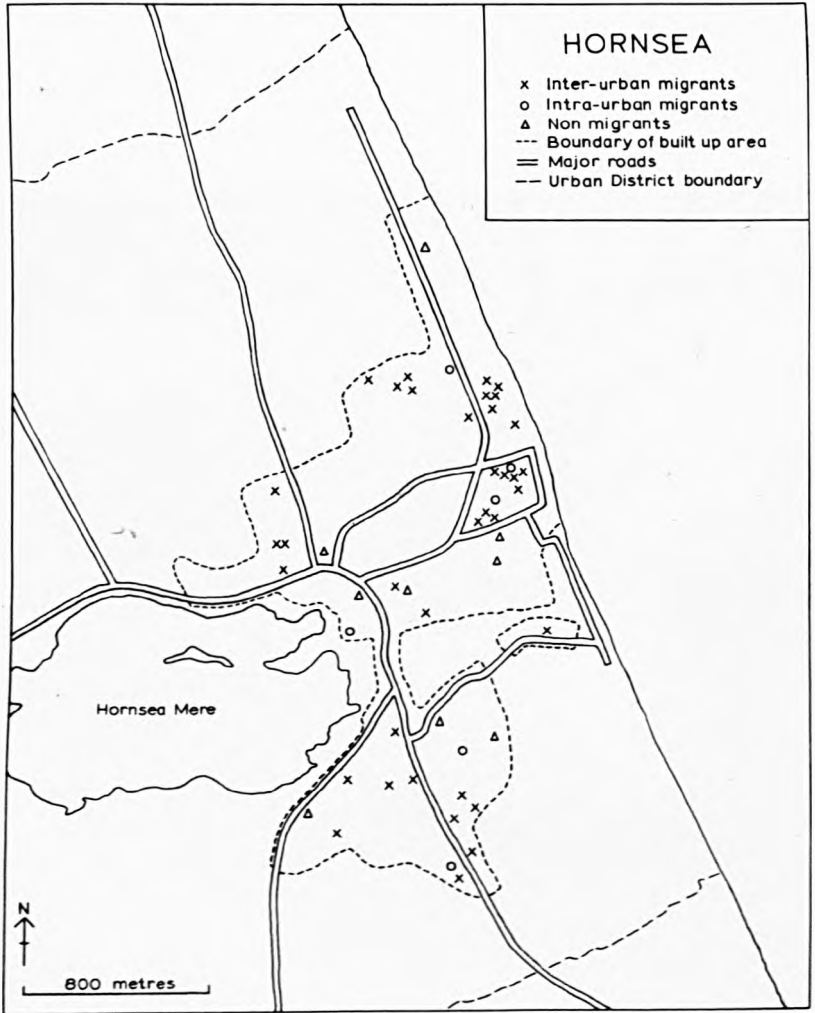
- (i) boring and frustrating
- (ii) a time to be enjoyed
- (iii) something to be accepted and put up with



APPENDIX 5

The study towns : maps showing location of  
Phase Two survey respondents





# BRIDLINGTON

- x Inter-urban migrants
- o Intra-urban migrants
- △ Non migrants
- - - Boundary of built up area
- == Major roads
- Railway

