Owner Occupier Search Behaviour in the Belfast Urban Area: An Investigation of Residential Search in a Segregated Housing Market

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ABSTRACT

Racial and ethnic residential segregation are persistent features of urban areas throughout the world. This study focuses on the search behaviour of owner occupier households in the Belfast Urban Area, an area segregated on the basis of religion. The study was initiated under the premise that household search behaviour was important in the context of a spatially segregated housing market, and is a research area that has been neglected at least as far as Belfast is concerned.

The overall aim of the research is to develop a better understanding of how owner occupied households made their housing choices against such a segregated background.

For many years, the literature has recognised the two-way relationship between mobility and urban form and, at the same time, it has acknowledged that residential decision making is inherently conservative in nature. The US evidence on racial search and mobility behaviour indicates that such behaviour is supportive of the existing patterns of separate living. This observation set up the basic proposition for this study; namely, Catholic searchers in the BUA will exhibit search behaviour similar to that of black households in comparably segregated urban areas in the United States.

The literature on racial differences in search suggests that black household search is less efficient and more costly that of whites. In particular, blacks are seen to search for longer than whites, during which time they view a similar number or fewer dwellings, but over a more restricted range of areas. In terms of information use, the evidence is that black households make extensive use of existing information channels. In particular, informal sources such as friends and relatives, which serve to reinforce the localized nature of search, and estate agents are important sources of information for minority searchers. The evidence is also clear that black households tend to end up in black areas.

Through bivariate, regression and path analysis, a series of hypotheses are examined within a conceptual model of search behaviour. The results are supportive of the basic proposition; Catholic household search is very similar to black household search in the United States.

Up to 30 possible correlates of search behaviour are examined within the model framework. Even after controlling for this wide range of factors, religion is seen to exert a strong and independent effect on search behaviour.

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God help me and Tommy Todd
for he's a Fenian and I'm a Prod

(Belfast Children's street rhyme)

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INTRODUCTION

1.1 Introduction

> *"Mans world is built from decisions. We might discuss whether choice is illusory. But in everyday life we do assume that it exists, that the consequences of decisions are a matter for concern, and that those who take them must be answerable for them" (Faludi, 1987, p. 1).*

> *"...outcomes in the housing market are the results or effects of individual decisions on where to search for housing and on a household's ultimate housing choices" (Clark, 1987, p. 12).*

Decision-making is a process whereby an individual or a group of individuals identifies a choice or judgement to be made, collects and evaluates information about various choice options, and chooses from amongst these alternatives. The study of decision making, often referred to as "Decision Research", is most typically associated with the discipline of psychology, although the theme of decision making has been taken up in a variety of other disciplines including economics, geography, political science, sociology, management science, education and public policy.

So, why is the investigation of decision making so appealing to such a wide diversity of researchers? Carroll and Johnson (1990) identify four basic reasons. First, the manner in which decisions are actually made is not obvious and decision makers themselves may not even understand their own decision behaviour. Second, even experienced and well trained decision makers can fail to made "good" decisions. Third, it is considered important to examine the manner in which information is collected, combined and used in the decision making process. Finally, they suggest that it may be useful to consider how decision making may be improved.

1.2 The Importance of Residential Decision Making

Decision research has traditionally been directed at understanding decision making in a particular context and/or predicting the outcome of such behaviour. So too for the research reported in this thesis. This study is concerned with understanding how residential decisions are made in a highly segregated urban housing market. It is legitimate to ask why this is important. Understanding how such choices are made is important for a number of reasons. Not only does housing serve a basic human need for shelter, but it also provides accessibility to schools, social services, recreation and employment opportunities; Housing confers significant social and cultural externalities on its consumers (Cater and Jones, 1989); For some groups in society,

housing provides a means of raising capital and as an investment in its own right (Bourne, 1981); A growing body of research evidence shows that the health and mental wellbeing are strongly related to the quality and condition of the housing stock (Burridge & Ormandy, 1993) and, more recently, research has demonstrated associations between segregation and health status (Smaje, 1995); Understanding the housing preferences of households and how these are realised or not, as the case may be, is important to effective urban planning.

Housing also lies at the centre of an emerging debate in urban sociology over the significance of tenure. A concern over dwelling tenure, and home ownership in particular, has stimulated a heated debate between Saunders' "consumption thesis" (e.g., Saunders, 1984; 1990) and those that stress a "structures of provision" approach (e.g., Ball, 1986; Barlow & Duncan, 1988; Harloe, 1984; Harloe & Martjens, 1984). In a sense, this debate reflects the age-old dichotomy between demand and supply; although different in emphasis, both perspectives stress the pivotal role of housing in the study of wider societal processes. Whilst of peripheral interest in the context of this study, the theoretical debate concerning the importance of tenure serves to reinforce the importance of understanding residential decision making in that tenure choice is, arguably, one of the most significant of all residential decisions.

Irrespective of the context, one might reasonably argue that these factors are relevant justifications for any study of residential decision making. However, the context for this particular study further underlines the importance of understanding how residential decisions are made. This study is set in the Belfast Urban Area (BUA), one of the most highly segregated urban housing markets in Europe, if not in the world (Keane, 1990). As will be demonstrated later in the thesis, residential segregation is not unique to Belfast; indeed, it is shown that racial and ethnic residential segregation are pervasive features of urban areas throughout the world. In Belfast, religious differences provide the principle axis of difference. Moreover, religious residential segregation within the city is particularly entrenched and bound up with the wider issue of the "Troubles", a polite euphemism for the sectarian conflict that has engulfed Northern Ireland for much of the past 25 years, the present peace process notwithstanding. Access to housing, issues of housing quality and equality, were at the core of the civil unrest in Northern Ireland and some commentators identify housing inequality as the issue that sparked the current "Troubles" (NIHE, 1991a; Singleton, 1993; 1995). Clearly, understanding residential decision making against such a background takes on a whole new dimension.

Although there is some evidence of residential mixing outside of the major urban centres in Northern Ireland (e.g., Poole, 1982), the most recent Census of Population confirms that the residential segregation of Catholics and Protestants is the norm rather than the exception. The only significant area of mixing in terms of housing occurs in the owner occupied sector. It is thus of extreme importance that researchers seek to understand how home owners and potential home owners make their residential decisions. As Clark has observed, "...the decision to choose a house and to relocate is made at the level of the individual household, but the consequences are felt at the level of the society." (Clark, 1987, p.12). Segregation is one such consequence and in the context of a spatially divided city, residential decision making is an important and worthy area of investigation.

There is a long history of scholarly research into segregation in Northern Ireland in general, and Belfast in particular. Much of this work has been done by Fred Boal and colleagues (e.g., Boal, 1969; 1970; 1977; 1982; 1987a; Boal & Murray, 1977; Boal & Orr, 1978; Boal *et al.*, 1976a; Poole & Boal, 1973). Perhaps reflecting the geographic origins of these scholars, most of this material has been outcome orientated, concentrating on the patterns of segregation *fait accompli*. Although there are exceptions (e.g., Boal *et al.*, 1976b; Keane, 1985) comparatively little effort has been made to understand household decision making processes that underlie the spatial patterns so assiduously documented. The central tenet of this study is that in order to understand the longevity of such patterns one must investigate how residential mobility decisions are made. As Munro (1987) notes, residential mobility has been examined as an example of decision making in an imperfect market and she concludes that the study of search and choice behaviour can help us to "...understand better the dynamics of the urban system as well as yielding general insight into decision-making processes in a complicated market" (p. 32).

Specifically, this study is concerned with the search behaviour of owner occupier households that recently purchased a dwelling in the owner occupied market of the BUA. Owner occupation is selected for three main reasons: First, although most dwellings in Northern Ireland are owner occupied, there have been no previous attempts to understand residential segregation within this sector of the housing market - many studies implicitly and erroneously assume that segregation is a public sector phenomena; Second, promoting the growth of owner occupation is the top priority of government housing policy in Northern Ireland and there is, therefore, a potential policy dimension in the selection of the owner occupied sector; Third, as noted above, the owner occupied sector is the only part of the housing market where significant

residential mixing occurs. In summary, therefore, this study is initiated under the premise that household search behaviour is important in the context of a spatially segregated housing market, and is a research area which has been neglected at least as far as Belfast is concerned. One possible hypothesis is that the persistence of residential segregation implies that its continuance is supported by contemporary residential mobility decisions, further suggesting that residential mobility occurs within fairly distinct ethnic enclosures. There are, however, two important issues that need to be considered. First, if it is true that residential mobility is enclosure orientated, then to what extent is search similarly focused? This raises an important question about choice versus constraint - in selecting segregated environments are households acting out their preferences, or is such behaviour a reflection of supply side constraints? Second, as we shall see later, there is a particularly active new build market in the Belfast Urban Area. Most new private housing is provided at green field suburban locations, that is, not within existing ethnic enclosures[1]. This raises the prospect that new private housing, appropriately sited, might have an integrating role to play in the Province's housing markets. New private housing might even serve as an "escape route" for households currently "trapped" in highly segregated housing environments?

The principal focus of this thesis is an empirical investigation of the processes which characterise the residential search and choice behaviour of households purchasing in the owner occupied sector. The basic proposition of this study is that Catholic residential search behaviour in the BUA mirrors the more restricted search behaviour of racial minorities in segregated settings in the United States. This possible link between private sector residential decision-making and residential segregation has been under-researched and, in response to Smith's (1992) recent call for a much greater emphasis on the private sector in the general field of race and housing studies, it is hoped that this study will make a contribution of some interest in this area.

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[1] In contrast, the great majority of new public sector housing in Belfast over the past 25 years has been provided on redevelopment or infill sites. By definition, such housing has been built almost invariably within existing ethnic enclosures, a point forcefully made by Keane (1985) and, more recently, by Melaugh (1994). There has also been a debate about the provision of new public sector housing on green field sites at the fringe of the Belfast Urban Area. For example, Singleton (1984) discusses the case of the "Roman Catholic" Poleglass estate in the south-west of the urban area. There are no such debates about new private sector green field developments. Here the issue is often one of amenity rather than ethnicity.

1.3 Thesis Structure

Following this introductory chapter, the thesis is organised into five broad parts. Part one, comprising two chapters, reviews the literature relevant to this study. As ethnic residential segregation provides the impetus and context for the study, it is considered important to review what is known about this phenomenon. In chapter two it is shown that Belfast is not unique and it is argued that residential segregation is a pervasive feature of urban areas throughout the world. The Belfast situation is discussed in some detail and a number of explanations for the persistence of segregation are outlined. The potential role of residential decision-making in creating and maintaining religious residential segregation is also considered. Residential search is the subject of the third chapter. It is argued that search is an inevitable consequence of the nature of the housing commodity and the functioning of urban housing markets. The theoretical origins search as a topic of study are traced and the main empirical research is outlined. Particular attention is paid to the evidence on search effort, spatial search behaviour, information acquisition and use, and racial differences in search behaviour.

Part three, comprising two chapters, provides the methodological backbone for the thesis. Chapter four asserts that a proper testing of the basic proposition of the thesis requires that the role of religion is placed within the context of a comprehensive, behavioural model of search. Such a model is set out in conceptual terms. A range of possible explanatory factors in addition to religion are considered and the formal hypotheses for investigation are established. The fifth chapter discusses the research design and data collection stage of the project. The research approach is constructed around a triangulated design which embraces three separate but inter-linked approaches: qualitative research on home buyers, secondary analysis of existing datasets, and a retrospective survey of recent buyers in the BUA. Each of the approaches is discussed in some detail together with the main analytical techniques that are employed.

Part four, comprising three chapters, represents the empirical core of the thesis. Chapter six presents the results of a detailed secondary analysis of the study area. The chapter begins by tracing the historical development of the study area and provides a comprehensive picture of contemporary Belfast as the essential context against which the empirical results can be evaluated. The chapter provides a detailed assessment of the extent of religious residential segregation based on the 1991 Census of Population and the composition of the current housing stock. Cluster analysis and hedonic regression techniques are used to test for the presence of potential submarkets or product group areas within the BUA. Chapter seven profiles

recent owner occupier movers in the BUA and their current housing circumstances. It also presents the results of a detailed analysis of intra urban mobility, pre-search aspirations and expectations, and active search behaviour. The primary focus of the chapter is on a bivariate analysis of search behaviour on the basis of religion, but also in terms of segregation. A number of specific correlates of search are also developed for use in chapter eight. Chapter eight is the penultimate chapter of the thesis. Its primary aim is to develop and test the behavioural model of search along the lines of the conceptual model outlined in chapter four. Separate regression models are estimated for five different indicators of search behaviour and the chapter ends with a path analysis of search in which these five variables are considered in conjunction with a wide range of explanatory variables.

The final part, comprising a single chapter, deals with the conclusions that may be drawn from the research. The chapter provides a summary of the key results, a review of the limitations of the study, and it indicates a number of possible future research directions.

Chapter 2
RACIAL AND ETHNIC RESIDENTIAL SEGREGATION

2.1 Introduction

By their very nature urban areas tend to be segregated. Housing is segregated in terms of its location, its physical attributes and the socio-economic and demographic characteristics of its occupants, including income and household size. A succession of factorial ecology studies have demonstrated that most cities in the developed world are differentiated on the basis of socio-economic status, demographic and ethnic factors (e.g., Berry & Horton, 1970; Davies, 1984; Doherty, 1978; Knox, 1987).

Such patterns appear as normal features of urban life and are the explicit concern of many of the theories of urban residential structure and intra-urban mobility. However, whilst segregation on the basis of non ethnic or racial factors is widespread it is not generally regarded as unacceptable. In contrast, racial and ethnic segregation is widely viewed as unacceptable and something to be eliminated. Robinson claims that the reason for this is that the spatial distribution of ethnic groups produces inequalities in access to services, employment, desirable housing and ultimately life chances (Robinson, 1987, p. 194). The undesirable nature of such segregation is particularly common in the US literature, where the concern is with the link between discrimination and segregation (e.g., Kain, 1987; Tobin, 1987a; Waquant & Wilson, 1993). The European literature, by contrast, is more concerned with the association between deprivation and segregation (Boal, 1994a; 1994b; Phillips & Karn, 1991). It would be incorrect, however, to suggest that segregation is always seen in negative terms. Thus, in a recent contribution, Peach (1995) points to a number of positive consequences of separate living.

2.2 The Pervasive Nature of Racial and Ethnic Residential Segregation

> *"Ethnic and racial segregation surfaces in all sectors of society, but is probably most visible in the spatial distribution of minorities in the urban areas throughout the world" (Waldorf, 1990, p.637).*

> *"Despite changes in the spatial pattern of segregation and spatial variations in the level of segregation, residential segregation along ethnic, racial and class lines continues to be an ingrained feature of urban areas across the globe..." (Leitner, 1992, p. 105).*

Racial and ethnic segregation is prevalent in urban areas throughout the world, as recent studies in the United States (Miller and Quigley, 1990), Canada (Anderson, 1988; 1991), Britain (Smith, 1989), Germany (Huff and Waldorf, 1988), the Netherlands (Blauw, 1991), South Africa

(Christopher, 1989), Australia (Forrest, 1988), and Sweden (Hårsman & Quigley, 1995) serve to illustrate. Given that ethnic and racial segregation has interested researchers for more than 50 years (Smith, 1989), it is not surprising that the research material is voluminous. In the context of this chapter, therefore, it is not possible to attempt anything other than a brief review. Nevertheless, an initial examination of the material suggests that important differences exist according to whether the studies were conducted in the United States or in Europe. The main differences relate to the nature and origin of the groups involved, the extent of segregation, the structure and operation of the housing markets in which segregation is found, and the explanations that may or may not exist. Nevertheless, in spite of these differences, segregation is a common and persistent feature of urban morphology both in the United States and in Europe.

2.2.1 The US Evidence

Given that the US is a nation of immigrants (Hartshorn, 1992), it is perhaps not surprising that there is a long history of racial and ethnic segregation in America. The origins of research directed at understanding patterns of segregation in the US can be traced to the work of the Chicago School of human ecology in general, and the writings of Robert Park in particular. Park's (1926) analysis was based on the precept that spatial location is the tangible counterpart of social location. Segregation, therefore, was the spatial expression of outsider status. Importantly, the Chicago ecologists regarded minority or outsider status, and hence segregation, as a transitional state between exclusion and assimilation with the charter group. This process of assimilation was supposed to occur in response to increases in the economic well being of the ethnic group with an associated breakdown in cultural and language barriers. It was argued that upward social mobility and the corresponding loss of minority status was accompanied by residential relocation and hence desegregation. Empirical studies have provided strong evidence in support of this process, with one important exception - the blacks. Thus, whilst a succession of studies have shown that white ethnic groups are well assimilated into US society (e.g., Duncan & Lieberson, 1959; Gans, 1962; Lieberson, 1963), racial minorities continue to be highly segregated.

Indeed, the patterns of black residential segregation in the United States appear to have remained remarkably stable over time with blacks over-represented in central areas and whites in suburban areas (Sorensen, Taeuber & Holingsworth, 1975; Taeuber and Taeuber, 1965;

Schnare, 1977; Farley *et al*, 1978; Gilmor & Doig, 1992). Following a review of the evidence, Tobin concluded that whilst

> *"Patterns of housing segregation in the 1980s differ from those of the 1950s and 1960s, but they are no less real...the vast majority of the nation's minorities, particularly blacks, remain locked in segregated neighborhoods" (Tobin, 1987b, p.8).*

In spite of recent evidence of slight reductions in segregation over the past 20 years (Goering, 1986), the consensus of opinion is that the change is modest and that segregation remains an enduring feature of urban areas in the USA in general and central city areas in particular. As one recent commentator has suggested "segregated housing spaces, black and white, may have become a permanent phenomena in American cities" (Hartshorn, 1992, p. 294). The extent of the phenomenon is made clear by Massey and Denton (1993). They report that among the 30 metropolitan districts in the US with the largest black populations, the average index of dissimilarity in 1990 for the North was 77.8, with a slightly lower figure of 66.5 for the South. This is a cause for concern, particularly in that the empirical evidence demonstrates a close association between black segregation, deprivation and disadvantage (Schill & Wachter, 1995). In terms of housing, for example, the general picture to emerge is that blacks tend to be less likely than whites to own their own homes, at any level of income, and when they have entered home ownership they have tended to pay a premium when compared with white households (Kain and Quigley, 1975; Strazheim, 1975).

Although the US evidence is overwhelmingly concerned with the segregation of blacks and whites, there has also been an important strand of research that has focused on the segregation of other groups, most especially the Hispanics. The evidence suggests that Hispanics are less segregated from whites than are blacks, although variations are apparent and there is some confusion over whether or not Hispanics are white or not (Hwang & Murdock. 1983). For example, using data from the 1970 Census of Population, Guest and Weed (1976) and Kantrowitz (1979) show that Puerto Rican segregation approaches that of the blacks whereas Chicano (Mexican Americans) segregation is significantly less (Lopez, 1981) and approaches that for white ethnic groups (Farley, 1987). In an update of Lopez's study, drawing on the 1980 Census, Hwang and Murdock (1982) showed that Anglo-Hispanic segregation had declined noticeably and were substantially below the measures of black-white segregation. Interestingly, however, evidence is now emerging to suggest that Chicanos are more segregated from blacks than from whites (Hwang & Murdock, 1983), a finding that leads Farley (1987,

p.106) to conclude that this is further "...testimony to the special pattern of racial isolation experienced by black Americans." Similar results are reported by Woolbright and Hartmann (1987) in terms of Asian-black and Hispanic-black segregation.

2.2.2 The European Evidence

European research studies on segregation, although less numerous than those in the United States, are arguably more diverse in nature. European studies have not concentrated as much on the black-white dichotomy that dominates US research. Rather, they have embraced a richness reflecting the disparate origins, both cultural and geographic, of the groups concerned. Two broad groups feature prominently in the European literature: the ex-colonial and the guest-worker[1].

Concentrations of ex-colonials are found in many European counties, particularly those with a strong colonial history such as the Netherlands, France and Britain. In the Netherlands, for example, there are urban clusters of Indonesians, Moluccans, and Surinamese-Antillians (Blauw, 1991; Musterd & Ostendorf, forthcoming). In France it has been estimated that, North Africans, primarily Algerians, Moroccans and Tunisians, make up half of the foreign population resident in the country (George, 1986). A similar picture emerges in Britain, where immigrants from the "New Commonwealth" countries have been the subject of sustained British research activity throughout the past three decades (e.g. Peach, 1968; Cater and Jones, 1979; Peach, *et al.*, 1988; Smith, 1989; Hill, 1992). Studies have shown that such groups are highly concentrated into particular urban areas (Peach, Winchester and Woods, 1975), into particular tenures (Phillips, 1986), and into particular types of property, usually those in worst condition (Brown, 1984). Because of the significance of the public rented sector in Britain, much of the British research effort has concentrated upon the allocation criteria and housing management practices that govern access of minority groups to public renting (Bell, 1988; Eade, 1989; Ginsberg, 1989; Habeebullah & Slater, 1990; Henderson & Karn, 1984; Peach *et al.* ,1975).

During the period of post-war reconstruction many European countries experienced rapid industrial growth coupled with a chronic labour shortage. In response to this problem, many employers recruited directly from abroad, a practice supported by the national

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1 In practice there is a third category - refugees who were given political asylum within the host country. Over the past two decades there have been significant numbers of refugees from Vietnam, Poland, Afghanistan, Iran, and more recently from many Eastern European countries and parts of the former Yugoslavia.

governments concerned. These immigrant workers came to Europe's major industrial cities mainly during the 1950s and 1960s and, although originally intended to return, many were later joined by their families and major ethnic concentrations emerged in the inner city areas across continental Europe (Huttman, 1991). In Germany, for example, the government signed labour supply agreements with several Southern European countries including Italy, Spain, Greece, and other countries including Turkey, Morocco and Yugoslavia. Although the so called ***Gastarbeiter***, or Guest Worker, population was supposed to be temporarily resident in Germany, by 1986 they made up more than 7 per cent of the population and displayed a distinctive concentration in inner cities and peripheral estates (Friedrichs and Alpheis, 1991), and more recent estimates suggest that the foreign population of the former West Germany had reached 20 million by the end of the 1980s (Jones & Wild, 1992). Germany was not alone in attracting immigrant workers. Knox (1987) reports significant numbers in France, Switzerland, Belgium and Sweden, and other authors have pointed to similar developments in the Netherlands (Blauw, 1991). In some cases, migrant workers were supplied with housing, particularly in Germany, whilst in other situations workers found their own housing in the run-down inner city areas of the major receiving cities. Sweden was one of the first European countries to place its migrant workforce into sub-urban public sector housing estates (Phillips & Karn, 1991). Irrespective of location, however, the housing conditions of immigrant workers were considerably below the standards of the host society. Moreover, such groups, were residentially segregated within the housing stock[2]. This broad pattern of ethnic residence has largely persisted into the present day as a result of a combination of factors including housing policy, economic re-structuring, and "more generally, the failure of so-called 'colour-blind' urban policy to address the ethnic dimension of social and economic disadvantage" (Smaje, 1995, p. 253).

The British situation is somewhat different. Migrant workers were not regarded as guests in the same way as in other European countries. From the earliest years, their status within Britain was conceived as permanent. Nevertheless, their living circumstances and the corresponding patterns of segregation were much the same as guest workers throughout Europe. Following a recent review of the British evidence, Smith (1992, p.15) writes:

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[2] Notwithstanding the general observation that ethnic minorities in European cities tend to be disadvantaged, there are exceptions such as the Jews and the Japanese (Glebe, 1986). Arend's (1991) study on segregation in Switzerland shows the relatively advantaged position of what he calls "privileged Westerners" (pp. 157-160).

"...there appears to be every evidence that migrant workers from the New Commonwealth and Pakistan, and later their families, were effectively restricted to some of the worst housing of the inner rings of the major cities - areas which were, by 1969, recognised as at the heart of Britain's housing problem."

A considerable portion of British research on residential segregation has focused on the Asian community. Robinson (1979) has drawn attention to the fact that Asians do not constitute a homogeneous group: individuals differ in respect of birth place, language, and religion. In his study of Blackburn, he investigated the extent to which these factors exerted an influence on intra-community clustering, and concluded that religion was the most important factor in explaining the pattern of segregation within the Asian community. For example, he writes:

"The social geography of the Asian community only begins to appear ordered when religion is considered...Without doubt...religion is the major axis of differentiation within the Blackburn Asian community" (Robinson, 1979, p.37).

However, the all pervasive nature of religion as an axis of differentiation has been challenged by Simms (1981) who failed to find supporting evidence in his study of the Asian communities in Manchester and Birmingham.

2.2.3 US - European Comparisons

So, how do patterns of segregation in the US compare to those in Europe? In general, the evidence suggests that the scale of segregation in Europe does not approach that found in most American cities. Two points are worth noting. First, many British studies may have been undertaken at too coarse a scale in order to make meaningful comparisons. The Dissimilarity Index is prone to scale effects, and using a coarse scale may have under-stated the true extent of residential segregation (Jones & McEvoy, 1978). This is not to deny the fact that intense segregation is found at the localised scale in some European cities, such as for Turks, Greeks, Yugoslavs and Italians in Dusseldorf (O'Loughlin, 1987) and Asians in Huddersfield (Jones and McEvoy, 1974), Blackburn (Robinson, 1979) and Leicester (Phillips, 1981). Second, it may not be appropriate to use present day segregation levels in the US as comparators for black segregation in Britain. Smith (1989) argues that this ignores the relatively short history of black segregation in Britain and suggests that the appropriate comparison is the interwar years in the US. Irrespective of the degree of segregation, the patterns in the US and in Europe differ in one further respect: the sheer concentration of blacks in American cities makes the pattern of segregation quite distinctive. Minorities in British cities, for example, typically constitute less than

10 percent of the population. Similar levels are recorded in other European cities (e.g. Hårsman & Quigley, 1995). In contrast, in many American cities, the black population exceeds 40 percent.

Notwithstanding this general conclusion, segregation in Belfast probably has more in common with patterns in the United States than in Britain or mainland Europe. Although Britain has a long history of black settlement (e.g., Fryer, 1984; Rich, 1984/1985), the patterns of segregation in Britain are primarily of post-war origin. Smith (1992) attributes the current patterns of segregation in Britain to the interplay of housing and immigration policies introduced and developed in this period. This is in direct contrast to the situation in the United States where segregation patterns were in place long before the first housing policies were developed in the late 1930s (Goering, 1992). Similarly, as will be demonstrated later in the thesis, the origin of segregation in Belfast is rooted in the historical development of the city and aspects of current residential patterns can be traced back almost 200 years. Furthermore, segregated minorities in Britain account for just 5 per cent of the population in contrast to around one quarter in the United States inner city areas (Schill & Wachter, 1995) and 42 per cent in Belfast (DHSS, 1992a). Although Smith (1989) notes that "Neither the size nor the concentration of the black population in Britain has allowed 'ghettoisation' to develop on a scale or intensity comparable to that in the USA", this cannot be said for Northern Ireland in general and Belfast in particular. The situation in Belfast is explored in some detail in the next section.

2.3 Religious Residential Segregation in Belfast

> *"...even the stranger visiting Belfast, though he might find it difficult to distinguish Catholic and Protestant People on the basis of visual appearance, would still, in many parts of the city, be able to recognize whether he were in a Catholic or Protestant area...The Belfast resident himself, of course, has an even keener awareness of the religious structure of individual parts of his city, for, whereas the stranger's knowledge is likely to be based almost entirely on landscape manifestations, the local resident extensively supplements what he sees by what he hears and, indeed, by all the information he has accumulated from a multitude of sources throughout his years of living in this acutely religion-conscious city" (Poole & Boal, 1973, pp. 1-2).*

Belfast, the principle city of Northern Ireland, has a population of some 280,000 people, although the built up area has extended beyond the city boundaries forming the larger Belfast Urban Area. This larger area contains almost half a million people, or about one third of the total Northern Ireland population (DHSS, 1992d). For most people from outside of the Province, Belfast conjures up mental images of a city torn by sectarian violence, a city ravaged by terrorist bombings and shootings, a city divided along cultural and religious lines.

Whilst this image is not wholly inaccurate[3], it does tend to obscure the fact that Belfast shares many of the features of any major Victorian city in the United Kingdom. A number of factorial ecology studies have demonstrated that the patterns of residential differentiation on the basis of age and socio-economic factors are consistent with those found in numerous other cities, leading one recent commentator to observe that "...the social geography of Belfast is quite unremarkable, and indeed typical of late capitalist cities" (Doherty, 1990, p. 28).

Many of the problems faced by Belfast are familiar and easily understood in terms of macroeconomic forces: an over-reliance on a declining traditional manufacturing base; high and increasing unemployment; a falling and ageing population base, particularly in the inner city. However, the 'Troubles', a euphemistic term used to describe the period of fairly continuous civil unrest from 1969 to the present day in Northern Ireland, are less clearly understood. It is these "Troubles" and the contemporary political problems of Northern Ireland that dominate public perceptions of Belfast. Most commentators now accept that the essence of the Northern Ireland problem lies in the conflict between the two communities rather than a continuing colonial involvement of Britain in Ireland (Boyle & Hadden, 1994). One of the problems with the inter-community conflict explanation, however, is the lack of clarity with which the two communities have been defined. There are at least three pairs of labels in common use: Protestant and Catholic, unionist and nationalist, and loyalist and republican.

Most commonly the two communities are defined along religious lines. However, as has been pointed out by several political analysts, this is somewhat misleading as the conflict in Northern Ireland is not about religion *per se*. The terms "unionist" and "nationalist" are perhaps the most common alternatives to the simplistic religious labels. There is undoubtedly a strong correlation between Protestants and unionists on the one hand, and Catholics and nationalists on the other. However, it is not a perfect correlation: not all Protestants are unionist and not all Catholics are nationalists. In basic terms, the conflict is reflective of an ethnic division between the nationalists, comprising primarily the Catholic descendants of the native Irish population, who "aspire to unity with the Irish Republic" and the unionists, comprising mainly the Protestant descendants of the plantation settlers, who "wish to maintain the political separation of Northern Ireland from the Irish Republic" (Boal *et al*, 1976a, p. 80). The chief political issue that underlies

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[3] As an indication of the pervasive nature of the "Troubles", a recent attitude survey revealed that 47% of the adult population in the Province have personally known someone who was killed as a result of terrorism, and 11% are related to someone who was killed (Smith & Chambers, 1991).

the 'Troubles' is the nature and purpose of the State itself. In essence the legitimacy of the current political and constitutional arrangements is supported by the unionist majority and disputed by the nationalist minority. Those in the unionist and nationalist traditions prepared to use or support violence in pursuit of their objectives are normally referred to as loyalists or republicans respectively. As terms to describe the two communities, this latter pair are perhaps the most unsatisfactory.

In the context of a blurring around the edges of terms such as unionist, nationalist, loyalist and republican, it is perhaps not surprising that the simplistic religious classification has such currency. Indeed, Jackson (1971, p.6) notes that 'religion' is "the handiest mark of difference between sides." Religion is regarded as a "badge of identification to describe two traditions, two perspectives on the past, two views of cultural superiority..." (Belfrage, 1988, p. 406). In short, Northern Ireland is a divided community in which it has become convenient to use religious affiliation as a label to describe two distinct ethnic groups. In addition to religion, these ethnic groups are distinguished one from the other in terms of race, language and culture (Keane, 1990). In research terms, this simple religious demarcation leads to what is referred to a "tribal analysis" (Macourt, 1995).

2.3.1 Historical Perspectives on Segregation in Belfast

> *"What is striking about the surviving documentary record is the extreme sharpness of the division between peoples whose appearances are so similar that they have to resort to tattooing if they wish to distinguish themselves physically from their rivals. Otherwise they look the same, dress and speak in the same way, and share similar tastes in food and drink. Whatever claims may be made from time to time, Catholic and Protestant strangers meeting on neutral territory cannot classify one another without asking questions" (Hepburn, 1993, p. 93).*

Historical factors are important in understanding the nature of the 'Troubles' and the contemporary pattern of religious residential segregation. Two factors are of particular significance: the impact of Britain's imperial expansionism during the seventeenth century and the wider consequences of the industrial revolution.

Although Stewart (1977) alludes to the presence of an already well-established Scottish colony, it is the Plantation that is usually cited as the origins of religious pluralism in Ireland. Belfast was established as a" bastion of the incoming Planter group" (Keane, 1985, p. 41) as

part of the large scale settlement of the northern part of Ireland by Scottish and English families[4]. Most of these families were of the Protestant faith in contrast to the indigenous Roman Catholic population of Ireland, but they differed in a number of additional ways including language, law, custom, thought and art (de Paor, 1970). In a recent contribution, Smith and Chambers (1991) write

> *"Inequality between Protestants and Catholics in Ireland originates from the policy of English and Scottish settlement carried through by the British Government in the sixteenth and seventeenth centuries to consolidate its earlier military conquest of the Gaelic and Catholic population" (p. 1).*

In a similar vein, Darby (1983) notes that "The sum of the Plantation...was the introduction of a foreign community, which spoke differently, worshipped apart, and represented an alien culture and way of life" (p. 15). In short, the Plantation introduced a different ethnic group into Ireland. It would, however, be a mistake to assume that the new settlers were a homogeneous group. For example, O'Dowd *et al.* (1980) point out that there was some tension between the mainly Scottish Presbyterians and the English Anglican settlers.

Industrial growth was the second factor of influence. Following the onset of the industrial revolution, Belfast's population expanded rapidly, mainly from an influx of people from the surrounding rural areas. This rural to urban migration resulted in a radical alteration in the religious composition of the population. Jones (1956) indicates that there is no evidence of segregation in the latter part of the eighteenth century when Catholics made up a very small proportion of the population. However, as a direct consequence of this expansion in the population, there was a disproportionate increase in the number and proportion of Catholics in the city. Boal and Murray (1977) observe that "In the late eighteenth century Catholics made up only 8 percent of the town's population...but the new migrants were disproportionately Catholic and by 1834 more than 34% of the city's residents were Catholics" (p. 367). By this time, they no longer constituted "...an unobtrusive minority and the hitherto harmonious relations between Protestant and Catholic in the town began to disintegrate" (Bardon, 1982, p. 83).

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[4] Because of the organisation of the chapters in this thesis, background information on Belfast is presented in two separate locations. Unfortunately, this is unavoidable. In this chapter, the discussion concentrates on the emergence and development of religious residential segregation within the city and the relationship between segregation and conflict. Here, the material is presented in the context of a review of the literature on segregation generally but it was thought important to introduce the reader to the Belfast situation at an early stage. In chapter 6, further, and more general information is presented on the geographic location, site and residential development of the city. This provides the context within which the results of a secondary analysis of Census and other data for 1991 is presented. Part of this analysis updates the patterns of segregation and division which are discussed in chapter 2.

In the latter half of the nineteenth and early years of the twentieth century this trend was reversed: Protestant numbers grew much more rapidly so that the Catholic community in Belfast fell to less than one-quarter. Hepburn (1993) attributes this change in direction to a boom in emigration which appealed more to Catholics than Protestants, the increased immigration of young Catholics from Belfast to other parts of Ireland, and an upsurge in ethnic conflict. He states that growth in the Protestant community in the city at this time was the most important demographic development in the history of the city. In his words: "...Protestant Belfast was the breastplate of Protestant Ulster and effectively intimidated the British government into developing the partition policy between 1912 and 1920" (Hepburn, 1993, p. 92).

Thus, the emergence of religious residential segregation in Belfast appears to have been closely related to the joint processes of plantation and industrialisation. The expansion of segregation, on the other had, has moved in parallel with the growth of the city's population and the ebb and flow of its religious composition. Baker (1973) suggests that the initial pattern of segregation reflected occupational differences in the two communities. By the early 1830s a Catholic concentration in the west of the city was evident. This, and other clusters, were consolidated and then began to expand in association with the continued influx of former rural households into the city. As the Catholic population increased, conflicts between the two communities also increased. Boyd (1987) notes that sectarian riots in the town can be traced back to 1835, with many documented outbreaks throughout the century, including 1843, 1857, 1864, 1872, 1880, 1884, 1886, and 1898. According to a commission of inquiry report into the riots of 1857[5], certain parts of the city were already segregated into distinct Protestant and Catholic areas and this segregation intensified as a direct result of the riots. Thus, Boyd (1987) reports that by 1861, half of the Catholic population lived in one distinct area of the city (the Pound and adjacent neighbourhoods).

In a series of studies Jones (1952; 1956; 1960) analysed census information from 1871 to 1951 and charted the development of religious residential segregation in the city at ward level. Although the wards at that time were much larger than at present, his analysis revealed that the scale and extent of religious segregation had increased over the period. Moreover, increases in segregation were associated with outbreaks of religious and political tension. This work is

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[5] Report of the Commission of Inquiry into the Riots in Belfast in July and September, 1857 (London, 1858). Quoted in Bardon (1982).

supported by a more recent contribution from Doherty and Poole (1995). They used the well-known Dissimilarity Index[6], calculated on the basis of the five wards that comprised Belfast at that time, to show the extent to which segregation increased towards the end of the nineteenth century. Their analysis shows that index values increased from 13.2 in 1871 to 21.6 by 1891. A further increase was also associated with the formal partition of Ireland. Thus, at a slightly different scale of 15 wards, they showed that the Index value, which had been measured at 39.3 in 1901 and 1911, jumped to 49.4 by 1926. Things quietened down after partition and Hepburn (1993) notes that the period from 1935 to 1968 is the longest period in the city's history without major riotous confrontations. During this time, Hepburn argues that segregation was "frayed" at the edges, a point also made by Boal (1994b). The most striking evidence of this comes again from Doherty and Poole (1995) whose analysis shows a gradual decline in the value from 49.4 in 1926 to 44.9 by 1971.

The analysis by Poole and Boal (1973) presents perhaps the most complete picture of the extent of religious residential segregation at the end of Hepburn's period of relative calm. It was conducted in 1969 immediately prior to the outbreak of the current "Troubles" in the province. Their data were based on a religious classification of households derived from the records of parish priests, collected at street level within the Belfast county borough area. There are serious concerns about the validity of religion data collected in this way (see footnote 9). In addition, by confining the analysis to the county borough major areas of suburban housing are excluded. This is a weakness often repeated in subsequent studies and one that is addressed in this thesis (chapter 6). Nevertheless, Poole and Boal's analysis provides an invaluable snapshot of the religious geography of Belfast at a major turning point in the city's history.

Interestingly, Poole and Boal's analysis departs from the earlier work of Jones (1960) in that whilst they provide information on the highly segregated Catholic areas, they extend their analysis to include segregated Protestant and areas of mixed religion housing. In relation to the latter, Poole and Boal (1973) write "...in such a highly segregated city, it is perhaps the well-mixed areas which are the real anomaly rather than either type of segregated area" (p. 12). From their analysis of street-based data they report that 36% of streets were 0-3 percent Catholic and 13% were 97-100% Catholic: thus, almost half of the population lived in conditions

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6 There has been an extensive debate in the literature on the Index of Dissimilarity and alternative measures of segregation. Recent contributions include those from Farley (1984), Lieberson and Carter (1982), Miller and Quigley (1990), White (1986), Waldorf (1993) and Wong (1993). Further details on the Index of dissimilarity are discussed in chapter five (5.4.2.1).

of extreme religious segregation. Furthermore, two-thirds of the population lived in streets in which 91% or more of the residents were of the same religion[7].

In terms of formal measures of segregation, Poole and Boal (1973) used a variety of indices including the Dissimilarity Index popularised by Duncan and Duncan (1955) and Taeuber and Taeuber (1965). One of the well-known properties of this index is its sensitivity to the scale at which the base data is collected, with index values inversely related to size. Thus, whilst the street-level Dissimilarity Index was calculated at 70.9[8], at the scale of the Census tract the index value fell to 56.9. Poole and Boal (1973) report that these values were consistently lower than for comparable studies in the US, although, in more recent years, segregation levels in Belfast have approached those in many US cities (Boal, 1994a). Within a British context, Poole and Boal report that segregation levels in Belfast were consistent with those revealed in Jones' (1961) study in Birmingham. The difference, however, is that in Birmingham the minority population constituted a small proportion of the city's population, whereas in Belfast Catholics accounted for one quarter of the population.

In a useful review of the empirical evidence on segregation in Belfast, Doherty (1989) shows how the pattern changed between 1921 and 1971 (Table 2.1). The important point is that, at a variety of measurement scales, religious residential segregation in the Belfast Urban Area has continued to increase throughout much of this century. The table indicates that segregation is not a uniform feature of the residential geography of the urban area. The most intense segregation is found within the Belfast City Council area, an area which roughly accords with the central core of the urban area. The core area also records the largest increases in segregation over the period from 1911. Suburban areas such as Holywood, in the east of the BUA, and Whiteabbey, to the north, have relatively low levels of segregation as measured with the Index of Dissimilarity. Nevertheless, the evidence clearly supports the conclusion that segregation levels in all parts of the Belfast Urban Area have increased to a noticeable extent

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7 A number of previous studies have adopted a five-category classification scheme in the analysis of religious segregation in Belfast (e.g., Boal, 1982; Doherty, 1990; Keane, 1985; 1990). The five levels are 0-9.9% Catholic, 10-29.9% Catholic, 30-49.9% catholic, 50-89.9% Catholic, and 90-100% Catholic. The two extreme bands are probably the most commonly used indicators of intense segregation in Belfast. Poole and Boal's (1973) classification scheme closely approximates the five-category scheme discussed above. Their data show that 53.3% of households lived in streets where between 0-9% of households were Catholic (i.e. 91-100 Protestant) and 13.8% in streets recorded as 91-100% Catholic (i.e. 0-9% Protestant). Overall, therefore, 67.6% lived in highly segregated streets.

8 This may be compared with a median Black-White ID of 87.8 for the 207 US cities studied by Taeuber and Taueber (1965).

between the early years of this century and 1969-1970. Thus, around the time at which the current "Troubles" broke out Belfast was already a highly segregated city. It is perhaps not surprising, therefore, that the "Troubles" lead to an intensification of this division. A similar pattern is evident in Jerusalem (Roman, 1989).

Table 2.1: Reported Indices of Dissimilarity for the Belfast Urban Area for Catholics Against Other Denominations (1911-1971)

Area	Source	Year	Average Size of Sub-area	Index
Belfast (wards)	Census	1911	25,796 persons	39
	Census	1926	27,677 persons	49
	Clergy	1969	28,000 persons	50
Belfast (Streets)	Census	1911	35 households	66
	Clergy	1969	38 households	70
	Clergy/Survey	1972	39 households	76
Whiteabbey (Streets)	Census	1911	36 households	32
	Clergy	1970	35 households	40
Holywood (Streets)				
	Census	1911	40 households	22
	Clergy	1971	36 households	29

Source: Adapted from Doherty (1989), p. 152.

2.3.2 The "Troubles" and Religious Residential Segregation

> *"By the end of the 1970s, after a decade of upheaval accompanied by demographic, social and ethnic change, Belfast had become a highly polarized city by world standards and it had become increasingly divided spatially between Protestants and Catholics as territories were carved out for each group" (Keane, 1990, p.90).*

As noted above a number of commentators have pointed to the relationship between inter-community conflict and intensified segregation in Belfast (e.g., Boal, 1969; Boal *et al.*, 1976a; Jones, 1956; Smith & Chambers, 1991). The origins of the contemporary "Troubles" in Northern Ireland are related to the emergence of civil unrest in the late 1960s. In August 1969 inter-community violence was widespread in Belfast so much so that by September of that year the so called "Peace Line" had been erected to keep the two communities apart, and the Northern Ireland Housing Executive, the body responsible for all public sector housing in Northern Ireland, now recognises the existence of 16 such peace lines in Belfast (NIHE, 1987a). Figure 2.1 shows the location of the current peace lines and Plates 1 and 2 provide a visual indication of how their form has been "softened" over the years.

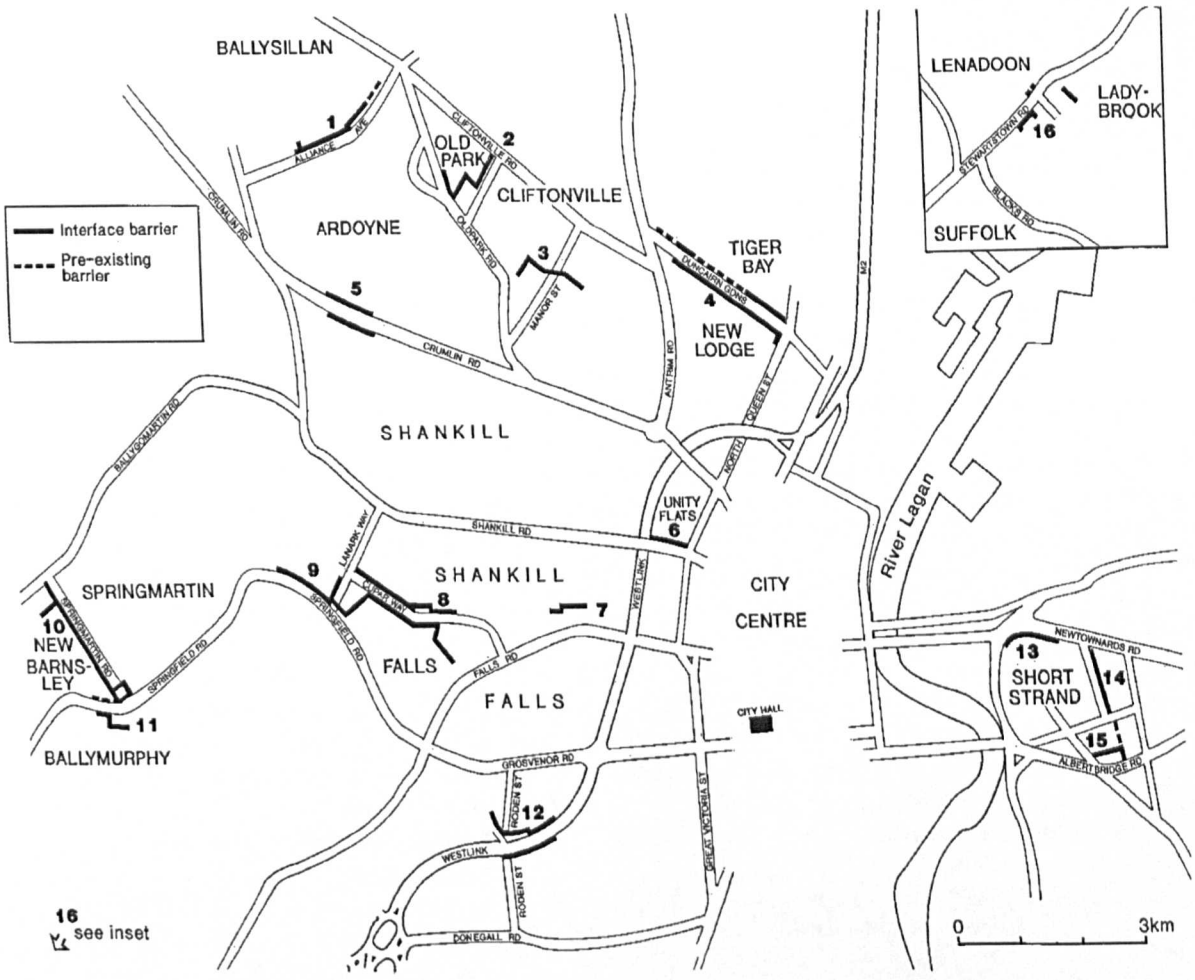

Figure 2.1: The Location of Belfast's Peace Lines

In the context of the "Troubles", segregation is an important consideration. Poole and Boal (1973), for example, report that most sectarian attacks occur within the highly segregated enclaves or at the interfaces between adjacent areas. A number of commentators have suggested indeed that terrorist violence in Northern Ireland is related to the presence of large segregated Catholic communities (e.g., Murray, 1982; Poole, 1983). Understanding the connections between segregation and conflict thus seems to be of some importance.

During the early years of the 1970s intimidation was widespread and Belfast became the "urban encapsulation of a national conflict" (Boal *et al.*, 1976a, p.77). Significant numbers of families were forced to flee from their homes and many sought refuge in the expanding Protestant and Catholic enclaves (Doherty, 1989). Clearly, the early 1970s were confused years and estimates of the scale of population dislocation vary. The Community Relations Commission Research Unit suggest that around 2,100 families were forced to move home "...in a brief

chaotic period immediately following the introduction of internment in August 1971" (Doherty, 1989, p. 152). Boal and Murray (1977) suggest that between 1969 and 1973, 6,000 families moved home as a direct result of the "Troubles" and as many as 60,000 people moved for related reasons. Darby (1976a) writes that "It seems doubtful that anything in the past even came close to the population movements that have taken place since 1969" (p. 43).

Boal (1982) reports that the extent of segregation intensified markedly over the period 1969 to 1972. In this period, the proportion of Catholics living in streets classified as more than 90 percent Catholic increased from 56 per cent to 70 percent, and a similar, but less marked, increase is recorded in respect of Protestants. Such a change can only have resulted from large-scale residential mobility. Indeed, in an earlier paper, Boal and colleagues suggested that almost one-quarter (23%) of households living in the BUA had moved home since early 1969 (Boal *et al*, 1976a). A fifth of such moves were directly attributed to the "Troubles," although this increased to almost two-fifths (38%) for Catholic households. Boal's (1982) subsequent analysis of the same data shows that the extent of segregation was greatest in working-class communities, particularly those in the public rented sector, a point taken up by Keane (1990)[9].

Keane's analysis of the patterns of segregation in Belfast shows that the proportion of the population living in highly segregated streets (i.e., > 90 per cent Protestant or Catholic) increased from 64 percent in 1969 to 78 per cent by 1977. She notes that:

> *"Three trends were observable by 1977...Firstly, segregated space both Protestant and Catholic, had been 'purified' and consolidated. Secondly, Catholic space had increased at the expense of areas of mixed housing. Thirdly, ethnic boundaries had become more clearly defined" (Keane, 1990, p. 92)*

Keane points out that segregation increased in all tenures. Although she focuses primarily on the public rented sector, where the proportion in highly segregated streets increased from 59 per cent to a startling 90 percent over the same period, it is possible to calculate the extent of segregation in the private sector from the information contained in her paper (Table 2.2).

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[9] Although Keane's analysis is of considerable interest, it suffers from a serious methodological flaw in respect of the manner in which the religion data are derived. The approach adopted is as follows: 1) divide the city into streets and street sections of approximately equal numbers of dwellings, 2) from the parish records of Roman Catholic priests "count" the number of Roman Catholic households in each street or street section, 3) calculate the number of Protestant households as a residual (i.e. total less Roman Catholic). There are a number of concerns with this approach including the assumption that all Roman Catholics are "on" parish lists, that lists are up to date and geographically correct, that it is acceptable to assume all that non-Roman Catholics are Protestant, and that there is only one Protestant household at each non-Roman Catholic address. Moreover, there is the assumption that Priests' records are uniformly of good quality. There is some doubt about this, particularly in areas where Catholics are in the minority. Keane is not alone in using this approach. Other examples include Poole and Boal (1973) and Poole (1982).

Table 2.2: Religious Residential Segregation in the BUA 1969 and 1977

% Catholic	Public Sector Households		Private Sector Households		All Households	
YEAR	1969	1977	1969	1977	1969	1977
NUMBERS	35716	51470	132261	108588	167977	160058
Segregated Protestant	%	%	%	%	%	%
0	10.4	35.6	21.9	34.7	19.4	35.0
0.01 - 9.99	33.6	25.8	32.1	27.0	32.5	26.6
Mixed						
10 - 29.99	35.5	7.2	23.7	17.8	26.2	14.4
30 - 49.99	3.3	1.3	7.1	5.0	6.3	3.8
50 - 89.99	2.2	2.0	4.2	4.3	3.8	3.6
Segregated Catholic						
90 - 99.99	4.1	4.4	2.7	1.7	3.0	2.5
100	10.9	23.8	8.3	9.6	8.9	14.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Keane (1990), p. 91. Private calculated as Total less Public

An examination of the information contained in this table shows that although the public rented sector is virtually polarised into separate Protestant and Catholic groupings, the private sector is also significantly segregated. By 1977 almost three quarters of all households in the private sector lived in highly segregated streets. Although the early 1970s witnessed a sharp increase in religious residential segregation, Boal (1982) reports that there has always been a degree of ethnic mixing, and he suggests that even in 1972 almost one quarter of households in Belfast lived in mixed streets, with this figure rising to about 30 per cent for the wider Belfast Urban Area. Although mixed areas did exist they were not regarded as stable. The information extracted from Keane's analysis (Table 2.2) supports this contention in that in 1969, 36 percent of households in the BUA lived in mixed streets but by 1977 the proportion had fallen sharply to just 22 percent, with the most significant change occurring in the public rented sector (41% to 11%). Although over the period the rate of increase in segregation is highest in the public rented sector, it is increasing in all tenures such that, irrespective of tenure or social class, the majority of households now live in highly segregated communities. Clearly, as far as housing is concerned by the end of the 1970s, Belfast is justifiably described as a divided city.

Plate 2.1: Cupar Way - An Early Peace Line

Plate 2.2: Alliance Avenue - A "Softened Approach"

More recently, Doherty (1990) has analysed small area statistics from the 1981 Census[10]. His analysis, which is based on data compiled at the 1km grid level shows that, of the 157 grids which made up the BUA in 1981, just 10 squares were more than 90 per cent Catholic (Figure 2.2)[11]. With the exception of an outlier in North Belfast, these occurred in an continuous block in the west of the city. Doherty refers to these as the "Catholic City". Immediately adjacent to the Catholic City were a further 9 grid squares with Catholic majorities. Of the remaining 138 squares, 72 were more than 90 percent Protestant. Unlike the Catholic City, the Protestant City was spilt into two distinct blocks, the first in the east and the second in the north. A further 46 grid squares had large Protestant majorities and these were dispersed throughout the urban area.

Doherty's analysis is interesting in that it attempts to place the extent of religious residential segregation in a wider context. To this end, he first calculates Indices of Dissimilarity for Catholics against all other denominations at the 1km grid square scale. This shows that for the BUA as a whole ID's rose from 49.6 in 1971 to 60.4 by 1981. Starting from the observation that previous factorial ecology studies (Boal, 1970; Doherty, 1978; 1989) revealed that the social geography of Belfast, in common with many other late capitalist cities, exhibited certain regularities in terms of the spatial pattern of age and family structure (concentric ring) and socio-economic status (sectoral), Doherty next calculated ID's for these factors. His analysis shows that although these spatial patterns exist, the extent of age and social status segregation is much less intense than that for religion.

One of the few non-Census-based studies to document segregation in Belfast is that of Smith and Chambers (1991). Their results were based on a large scale household survey conducted in 1986 and a series of secondary analyses on existing data sets conducted by the Policy Studies Institute on behalf of the Standing Advisory Commission on Human Rights. Unlike the research reported above, Smith and Chambers examine the pattern of segregation between what the refer to as "sociologically relevant" neighbourhoods[12]. The authors report that

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10 Caution needs to be exercised in the interpretation of religious differences derived from the 1981 Census. At the time of enumeration there was a political boycott in some nationalist areas of Northern Ireland, including west Belfast.

11 Doherty's original map from which Figure 2.2 was scanned was of poor quality. Hence, the scanned image is also rather poor.

12 The use of "sociologically relevant" areas carries with it a an important limitation: Sociologically defined areas are qualitative in nature; they lack a common definition and, as a direct result, it is impossible to compare results generated using such a concept either spatially or over time.

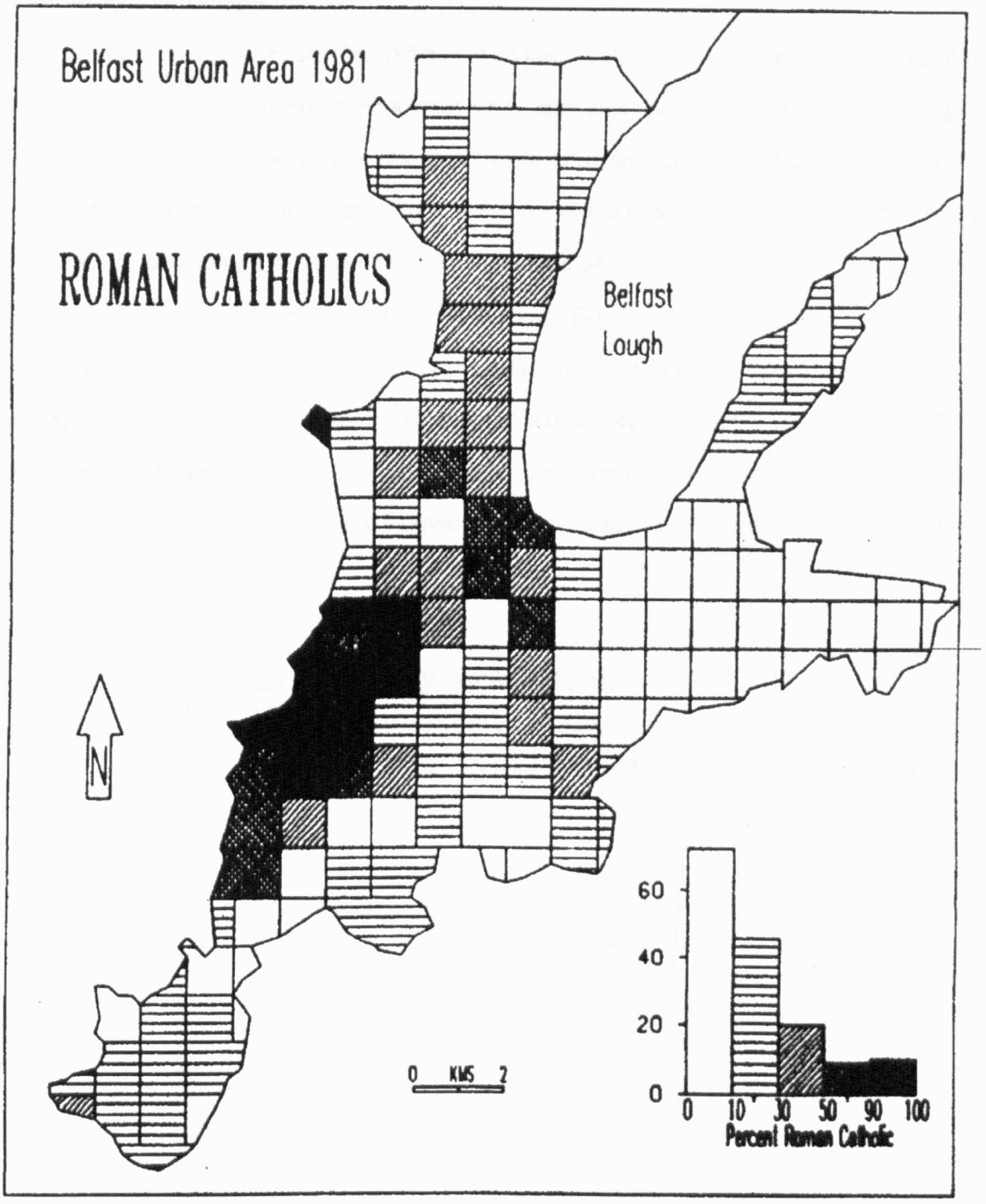

Figure 2.2: The Distribution of Roman Catholics in Belfast by 1km Grid, 1981

such an approach tends to generate segregation measures which are less extreme than those based on streets, census tracts, or local government wards. This is rather surprising. One might reasonably argue that "sociologically relevant" neighbourhoods should be more intensely segregated. Nevertheless, their results confirm the well established pattern of religious residential segregation in that the majority of Belfast households live in highly segregated areas, with the extent of segregated living more extreme for working-class households, particularly

those in the public rented sector, and less intense for middle class households, the majority of whom were home owners.

To date, there have been few published academic studies of segregation in Belfast that have drawn on the 1991 census of population and those that have been published are largely descriptive in nature. Nevertheless, the descriptive analysis confirms the pattern of intense segregation. For example, one recent study has commented that "The 1991 Census data seem to point to a continuation of (the) pattern of increased segregation across Northern Ireland" (Cormack, Gallagher & Osborne, 1993. p. 15). Similarly, Boyle and Hadden (1994, p.33) provide a descriptive analysis that "...in the majority of the wards in the area, the population was highly segregated in the sense that fewer than 10 per cent declared them selves as members of the 'other' community, whether Protestant or Catholic." Boyd and Hadden are at pains to point out that, because of non-response to the religion question (which ranged from 5% to 25% at ward

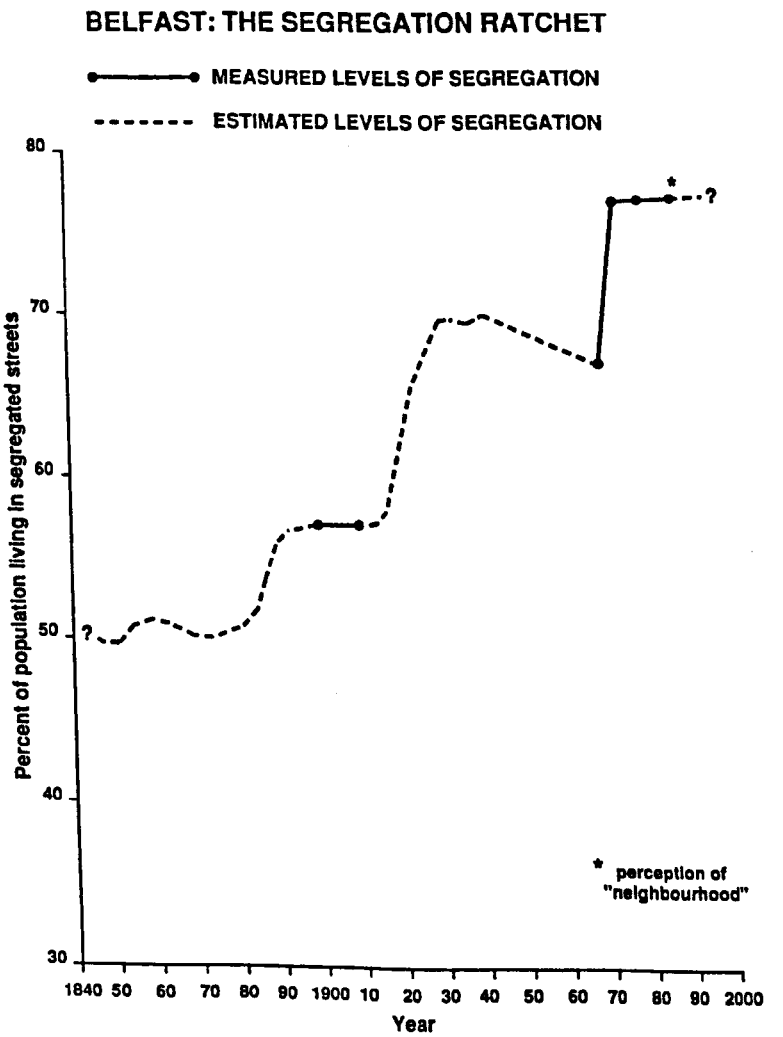

Figure 2.3: The Segregation Ratchet in Belfast (Source: Boal *et al*, 1976)

level in Belfast) it is not possible to present an accurate picture of the extent of segregation at denominational level. Nevertheless, this has not deterred press comment on the issue. Writing in the *Independent on Sunday,* McKittrick (1993) reported that about half of the Province's 1.5 million population lived in areas more than 90 per cent Protestant or Catholic. In Belfast, McKittrick reported that 35 of the 51 wards in the city were at least 90% Protestant or Catholic. Similar figures were reported by Kearney (1993).

As yet, none of the published studies have contained segregation indices of the type discussed above. In chapter 6, we will address this weakness through a secondary analysis of the 1991 Census data. Nevertheless, from the data that is available there is a clear picture of intense segregation in Northern Ireland in general and Belfast in particular. Moreover, the pattern of change in segregation levels within Belfast remains consistent with the "ratchet graph" (Figure 2.3) first published by Boal and colleagues almost 20 years ago (Boal *et al*, 1976b).

In summary, Catholic-Protestant segregation levels in Belfast have historically been lower in Belfast than Black-White segregation in the US. In spite of the increase in the degree of segregation in Belfast and recent improvements in the US, differences remain quite marked. Nevertheless, it is argued that patterns of segregation in Belfast have more in common with the patterns of black-white segregation in American than in European cities. In particular, the longevity of segregation and the relative proportions of the groups involved point towards the validity of this comparison. Given that segregation is so common, it is reasonable to ask why such intense racial and ethnic segregation exists and how it is maintained.

2.4 Understanding Racial and Ethnic Residential Segregation

> *"The incidence of racial and ethnic segregation within cities is of continuing concern not only in the United States but also in almost every urbanizing culture throughout the world. Given the pervasiveness of the phenomenon and the magnitude of the social problems engendered by continued physical separation of ethnic minorities, it is essential that we come to a better understanding of the processes that serve to create and maintain ethnic enclaves within cities" (Huff & Waldorf, 1988, p. 59).*

While there is general acceptance that ethnic residential segregation exists, there has been and there continues to be a debate on the causes and explanations of segregation. A number of authors have approached this problem indirectly though an effort to understand the functions of segregation (e.g., Boal, 1987; Knox, 1987) whereas others have hypothesised particular explanations and sought to prove or disprove them. Different explanations have found favour at different times and in different countries and, although there is a degree of common ground,

the relative weight attached to any particular explanation is context sensitive and frequently reflects the academic discipline of the researcher (Sarre, 1986; Simms, 1981). Academic debate on this issue in Britain has tended to polarise into an emphasise on choice or on constraints, although recent commentators have stressed the importance of moving beyond this "ultimately sterile question" to better understand the processes that govern choices (Smith, 1992, p. 18). The research presented in this thesis is firmly targeted at this issue. Studies of segregation in the US have emphasised three alternative explanations: economic or "class" differences, discrimination, and preferences and choice. In the remainder of this section the US three-fold classification is adopted as framework for a review of the literature on the explanations of segregation. However, it is obvious that British and American explanations are complementary: The US economic and discrimination theses, whilst distinctive in their own right, essentially correspond to the British constraint perspective, and the American preference thesis mirrors the British choice perspective.

2.4.1 The Economic Explanation

This is sometimes referred to as the "class" explanation of segregation (Darrock & Marston, 1972), although in reality, most of the debate has centred on the role of income. The economic argument is predicated on the observation that cities are segregated on the basis of socio-economic and demographic characteristics as well as racial and ethnic characteristics. The view is that as socio-demographic segregation is a reflection of tastes, preferences, and economic power, ethnic and residential segregation may be similarly explained. The class or economic theory suggests that, since various housing qualities are spatially segregated and since minorities are disproportionately represented in the lower income classes, minorities will be over represented in lower quality housing submarkets (Galster, 1978; 1980). Few commentators would argue with the logic that income is a potent influence on affordability and hence on housing choice. In terms of black segregation in the United States, Wilson (1978) speculated that class factors, particularly economic ability, was more important than race in explaining where households live. There is certainly some evidence in support of this view. For example, Marshall and Jiobu (1975) analysed a range of factors that may be related to segregation and concluded that income and occupational differentiation between black and white communities were the two most successful predictors of black-white segregation. Clark (1986b) argues that as much as two-thirds of racial segregation may be explained by economic variables. In a later

paper, he has argued that income differences are very important and, further, that differences in wealth are critical in understanding urban residential segregation in the United States (Clark, 1990). Clark notes that on average blacks have only about one tenth of the assets of whites. He concludes that "...achieving income and wealth parity is much more likely (than eliminating segregation) to have long-term gains for minorities..." (p. 146).

However, whilst there is compelling evidence that white ethnic assimilation is associated with improved socio-economic position (e.g., Duncan & Lieberson, 1959; Lieberson, 1963), the situation is less clear cut in respect of black households. Indeed, the weight of US-based evidence favours the view that socio-economic factors contribute little to our understanding of black segregation. For example, Taeuber and Taeuber (1965) argue that, at best, about one-third of racial segregation is explained by income. Kain and Quigley (1975) suggest that, although persistent, income differences between black and white households are of minor significance in explaining patterns of residential segregation. They point out that the US Bureau of Census figures for 1970 and 1977 show that at every income level blacks are less than half as likely as whites of a similar income to live in suburban locations and, following a review of a number of studies, they conclude that:

> *"Without exception, these studies have determined that only a fraction of the observed pattern of black residential segregation can be explained by low incomes or other measurable socio-economic differences" (Kain and Quigley, 1975, p. 58).*

Many US studies support this conclusion including Darden (1987), Farley (1977; 1983), Kain (1987), and Massey (1979). In his study of black segregation in St. Louis, Missouri, Farley (1983) attributes just 15% of the suburban segregation and 25% of inner-city segregation to socio-economic factors. Following a review of data on black and white occupational and education differences, Darden (1987, p.17) concludes that:

> *"...neighborhood segregation between blacks and whites does not occur merely because blacks are poorer, less educated, or in lower status jobs. The 'nature of the beast' is race, not class...black socioeconomic mobility does not guarantee freedom of spatial mobility, that is, freedom to move into the neighbourhood of choice subject only to an ability to pay."*

Although Darden's assertion that race *per se* is the key determinant of segregation is not supported by the evidence which he reviews, this belief is common in the US literature on segregation. Gilmore and Doig (1992) acknowledge that money is important but "...money does not explain away segregation. If it did, poor whites and poor blacks would live in the same neighborhoods. They don't" (p. 51). Finally, in a study of racial and ethnic segregation in

Stockholm and San Francisco, Hårsman and Quigley (1995) have convincingly demonstrated that "In each of these very different metropolitan regions, spatial segregation by race or ethnicity seems unrelated to spatial segregation by income class or demographic grouping" (p. 13).

In spite of this result, the class or poverty explanation of segregation remains a common explanation of ethnic segregation in European cities (Huttman, Blauw and Saltman, 1991). Income differences are cited as important factors in Germany (Friedrichs and Alpheis, 1991), Britain (Phillips and Karn, 1991) and the Netherlands (Blauw, 1991). Nevertheless, as in America, some academics question the strength of the income effect. For example, Peach (1981) notes that indirect standardisation methods indicate that whilst ethnic minorities in European cities are more segregated than their economic class structure would suggest, the "Inferior economic position, important though it is, plays only a small part in the explanation of the high degree of black segregation" (Peach, 1981, p. 31). The British evidence on the importance of income in explaining segregation remains somewhat uncertain. Thus, while income growth amongst West Indians is associated with increased assimilation (Lee, 1977; Peach, 1975a), groups such as the Asians remain very highly segregated irrespective of economic factors (Cater & Jones, 1989). In her study of the Asian community in Leicester, Phillips (1981, p. 110) reports that

> *"for many Leicester Asians, including the early immigrants, the concentrated and segregated community remains important...more than three-quarters of the immigrants who had lived in the city for 12 or more years still had no desire to move away from their compatriots."*

In respect of Belfast, the author is unaware of any studies that have systematically explored the socio-economic explanation of the patterns of religious residential segregation, although some studies have alluded to this explanation. For example, Jenkins (1971) suggests that segregation in Belfast, and the associated Protestant-Catholic conflict, is a reflection of an underlying conflict between rich and poor. This view has been challenged by Boal *et al.* (1976a) who described Jenkins analysis as "an attempt to twist the evidence of reality to fit a preconceived conflict model" (p. 114). Nevertheless, Boal *et al.* also report that the Dissimilarity Index between Protestants and Catholics reduced from 0.73 for "working-class" households to 0.57 for "middle-class" households, a result that may be contrasted with Massey's (1981) evidence for black households in the United States. This suggests that class does have some part in the explanation of segregation in Belfast, albeit a small part. Accordingly, the precise impact of socio-economic factors in explaining religious residential segregation in Belfast

remains largely unknown. Paradoxically, in spite of more than three decades of research in the US, the situation there is similarly uncertain (Schill &Wachter, 1995).

2.4.2 The Discrimination Explanation

The debate on the role of discrimination in explaining residential segregation is both complex and emotive. The discrimination explanation of segregation dominates the American literature, and it is increasingly common in Britain. Discrimination can occur directly or indirectly. Direct discrimination can include such practices as racial steering, denial of mortgage funding, refusal of households to sell or landlords to rent to racial groups, and demanding higher prices for minority access to comparable quality accommodation when compared to whites. Indirect discrimination normally occurs as a by-product of other forms of action. Examples include land-use regulations that serve to raise the cost of housing, housing subsidy programs that lead to the concentration of minorities in certain parts of the stock (public housing) and in certain areas (Schill & Wachter, 1995).

For almost 30 years, fair housing legislation in the US has made discrimination in the sale or rental of housing illegal. Regardless, evidence shows that discriminatory practices still persist (Galster & Keeney, 1987). Teixeira (1995) claims that the role of estate agents is particularly important in understanding both search and segregation. Brokers are frequently seen as "primary information brokers and major agents of change...They accelerate, decelerate, and prevent neighbourhood change, particularly in racially segregated areas of U.S. cities" (p. 176). A substantial body of empirical material has been amassed on the differential treatment of blacks and whites. Whilst not all studies find evidence of racial steering (e.g. Bordessa, 1978), the weight of opinion is that racial and ethnic steering by agents and brokers is common. Steering serves to limit the ability of minority groups to exercise neighbourhood choice, and it also contributes to the persistence of racial and ethnic segregation. Some of the most interesting studies have been compiled through the use of the fair housing audit methodology[13].

One of the first studies to employ the audit approach was the Department of Housing and Urban Development's (HUD) Housing Market Practices Survey (Wienk *et al.*, 1979). This was a national study in 40 metropolitan areas across the US. The audit approach has also been

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[13] The fair housing audit technique was developed as a means to measure the extent of such discrimination. In such audits it is normal to used matched pairs of individuals (auditors) who successively visit the same housing agents in search of housing. Discrimination is defined in terms of less favourable treatment towards the person from the minority community.

employed at more localized levels in, for example, Dallas (Hakken, 1979), Boston (Feins & Bratt, 1983; Yinger, 1986), and Cleveland (Saltman, 1978). These studies show that on average blacks are informed of fewer (typically 25%-30% fewer) vacancies, are offered less favourable terms and conditions in the rental sector, are offered less help in terms of mortgage advice in the home owner sector, and are frequently steered into particular areas and away from others. Similar results are reported in HUD's recent Housing Discrimination Study which indicates that more than one-third of minority searchers received unfavourable treatment with respect to information on the availability of potential dwellings (Turner, Struyk, & Yinger, 1991).

Most contemporary studies of broker behaviour indicate that whilst overt discrimination is less common than in the pre-legislation era, discriminatory practices still occur, and not always in a subtle form (Kain, 1987). For example, Miklesons and Turner (1991) and Turner, Edwards and Mikelsons (1991) report that, compared to whites, blacks have a 12 percent greater chance of being steered towards neighbourhoods with lower proportions of whites, an 11 percent chance of being shown communities with lower income residents, and a 17 percent chance of seeing areas with lower house values. Four discrimination hypotheses are commonly investigated in contemporary research on segregation: 1) the *agent prejudice* hypothesis which predicts that agents discriminate due to their personal prejudices against blacks; 2) The *customer prejudice* hypothesis which predicts that agents sometimes discriminate to secure their business with white clients and thus satisfy the supposed prejudices of their white customers; 3) The *perceived preference* hypothesis is based on the view that agents "second-guess" the preferences of their clients such that white households are assumed to prefer white areas and black households prefer integrated or black areas; 4) the *rip-off* hypothesis that claims that because of search costs agents have certain market power that enables them to charge black households more than their white counterparts for housing in integrated neighbourhoods. These hypotheses have been widely investigated (e.g. Galster, 1987a; 1987b; Roychoudhry and Goodman, 1992; Simonson & Weink, 1984; Simpson & Yinger, 1985; Yinger, 1986; Yinger, 1991). Most of available evidence supports the agent prejudice and customer prejudice hypotheses, with a general conclusion that prejudice leads to discrimination (Yinger, 1987).

In addition to direct investigation of discrimination through audit methods, economists have attempted to infer whether discrimination exists or not by analysing the relative differences in prices paid by blacks and whites for housing. The underlying theory is that if discrimination exists, then minorities will pay more than whites for similar quality accommodation. These

studies have used hedonic regression methods to control for the mix of dwelling, neighbourhood and location attributes with race of the buyer entered as a term in the equation.[14] The results are equivocal. Some studies find that blacks do pay more for comparable housing (e.g. Kain & Quigley, 1975), whereas others find that blacks pay less and whites pay a premium (e.g. Follain & Malpezzi, 1981). In any case, inferring that discrimination exists because one group pays more than another is somewhat risky; alternative explanations, such as preferences for own race living, or black or white avoidance, may also come into play.

Indeed, not all American academic researchers accept the primacy of the discrimination explanation as can be seen from a perusal of a heated debate in ***Population Research and Policy Review*** between Bill Clark, the urban geographer, and George Galster, the urban economist (Clark, 1986b; 1988; 1989a; Galster, 1988; 1989). For Galster, acts of private discrimination are the most important explanation of segregation. In contrast, Clark takes the view that segregation is a complex phenomenon which is the result of a series of interrelated factors, of which discrimination is but one factor. Clark argues that to concentrate on discrimination to the exclusion of other factors is unrealistic.

Discrimination, is also advanced as an explanation of segregation in some European cities. In Germany, for example, O'Loughlin (1987) reports that private landlords discriminate against immigrant households. In a recent study of segregative processes in Dusseldorf, Waldorf (1990, p. 639) suggests that "discrimination in the housing market is a major cause of ethnic segregation." This theme has been taken up by British academics, particularly by those interested in the role of institutions and other "urban gatekeepers" (Pahl, 1970; Rex & Moore, 1967). On the institutional front, a number of studies have examined the differential impacts of financial institutions, such as building societies, on ethnic minorities. In the UK, building societies have traditionally dominated the market for mortgage lending, although this has changed in recent years. Eligibility rules, lending criteria, and local practices might be expected to play a part in structuring residential space, both through the constraints imposed and the opportunities offered to searchers.

Much of the early research focused on the decisions made by branch managers of building societies. It was argued that building society managers enjoyed a pivotal position in the market and the mortgage allocation system "...exerts a decisive influence over who lives where,

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[14] Hedonic regression methods are discussed in detail later in the thesis (5.4.2.2 and 6.5.3.2).

how much new housing gets built, and whether neighbourhoods survive." (Stone, 1978, p. 190). A more recent report acknowledges that branch managers had considerable local discretion in their decision-making, the result of which meant that even when households had similar means the outcome could be very different depending upon which societies approached or which managers considered their applications (Housing Monitoring Team, 1982).

Lending policies were found to be biased against low income households, the self employed, and households headed by those in manual employment. One might argue, then, that lending practices in the 1970s were indirectly, if not directly, discriminatory towards ethnic minorities. In support of this view, Ford (1975, p. 298), for example, reports a branch manager as saying that "those people who do not perceive that they must live an English way of life would be treated with caution." Similarly, Duncan (1976, p. 310) reports the comments of building society managers on the mortgability of black households in Huddersfield as follows:

> *"...from a building society point of view, they do not have satisfactory status...whether we like it or not, the coloured people are here and we have to be very careful. There is no doubt that coloured gentlemen are good savers but we've to be very careful."*

More recently, Karn, Kemeny and Williams (1985) have produced evidence on discriminatory lending practices which have had the effect of concentrating minorities into pre-selected areas.

In addition to screening households, lending institutions screen dwellings as well. Older dwellings are less favoured, as are dwellings in deteriorating areas and the refusal to lend into certain areas has become known as "redlining". Whilst most of the empirical research is now dated, there is little doubt that the practice was not uncommon (e.g. Bassett and Short, 1980; Boddy, 1976; Duncan, 1976; Weir, 1976; Williams, 1977; 1978). Given the nature of the ethnic minority population in Britain, they were over-represented in such areas and were, therefore, disproportionately affected by such lending restrictions (Rex & Moore, 1967). Referring to the British evidence, Sarre (1986, p. 73) writes that:

> *"The over-riding impression to emerge from these studies is that private sector institutions are motivated to protect capital investments and there is a strong element of stereo-typing and discrimination against groups thought to be undeserving."*

As in the US, British academics have been interested in discriminatory practices and steering activity of estate agents. Knox (1987) reports that in Western Europe estate agents account for between 50% and 70% of all house sales[15]. He goes on to observe that estate agents "...are not simply passive brokers in these transactions..." (*Ibid.*, p. 238). As documented

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15 In Northern Ireland it is estimated that upwards of 95% of private market transactions are handled by estate agents.

by Palm (1976a; 1976b) in the United States, a succession of British studies shows that estate agents can manipulate the sale process in order to keep particular groups in certain areas and away from other areas (Burney, 1967; Hatch, 1973; Phillips, 1981; Smith, 1977; Williams, 1976a; 1976b). Burney's (1967) analysis is typical; he quotes one agent as saying that:

> *"I would do my best to head off black buyers from a good suburban or new estate. In fact it would be my duty to do so in the interests of the community and for the sake of the people who have bought houses in good faith" (Burney, 1967, p.39).*

Another area of British research which fits within the discrimination explanation of segregation concerns the access of minorities to public sector housing. Although there has been a lot of work in this area (e.g. Henderson & Karn, 1984; 1987), it is rare to find conclusive evidence of a link between discriminatory practices and segregated outcomes. Most recently, Jeffers & Hoggett (1995) have shown how one of the unintended impacts of officer discretion in Haringey and Lambeth in London was to segregate minorities into the least desirable stock, but they point out that they often reflected preferences and coping strategies on the part of such groups. However, in defence of public authorities, Simms (1981) writes:

> *"What ever the faults of the public sector it has attempted...to allocate housing theoretically based on need. The private sector, on the other hand, is based on allocative procedures firmly rooted in discrimination...In these circumstances, ethnic minorities who have moved into the public sector might be expected to be less segregated" (Simms, 1981, p. 124).*

Public housing in Northern Ireland is also allocated on the basis of need (NIHE, 1983), and yet, as noted above, the public housing stock is highly segregated. One of the frequent areas of contention concerns the role of tenure. Recently, for example, Melaugh (1994) argued that as Catholic households were under-represented in the public rented stock in the 1960s this was an indication of discrimination. However, later in the paper, he argues that the over-representation of Catholics in the contemporary Housing Executive stock is also an indication of discrimination. It seems more probable, however, that Catholics are over-represented in the NIHE stock because they are less likely than Protestants to be in employment and where they are employed, they are over-represented in lower income occupations. In other words, tenure is related to social-class and social-class is related to segregation (Boal, 1982).

So, how widespread is discrimination in British housing markets? There is no simple answer to this question. Phillips's (1981) study in Leicester indicates that almost half of the segregated group of Asians in the city had experienced discrimination within the housing market, including 20% who had been denied access to the area of their first choice. She also

reports that about one-third of Asian households interviewed were reluctant to leave the segregated areas because of a fear of discrimination and white hostility, and a further 11% said that they feared "that hostility from the neighbours would make life intolerable" (p.111). This is interesting because it suggests that fear of segregation is as powerful an influence on residential decision making as overt discrimination, a result consistent with the American literature. Such responses are indicative of a conflict avoidance strategy and, if reflective of minorities in general, clearly raises important doubts about the validity of relying wholly on a choice-based explanation of segregation. Moreover, the economic explanation of segregation may reflect the impact of discriminatory processes outside of the housing market, most particularly in the labour market. If minorities are discriminated against in employment terms, their ability to compete in the housing market may be constrained.

2.4.3 The Preference Explanation

The final commonly quoted explanation of segregation, that of preferences and choice, is also well established in the literature. The preference theory continues to be advanced as a major explanation of segregation much to the annoyance of advocates of the discrimination explanation (e.g. Darden, 1987; Kain, 1987). In the American literature on black residential segregation, the preference theory is predicated on two beliefs: first, the belief that most blacks prefer to live in neighbourhoods where they are in the majority; second, the belief that in living where they do, blacks are realizing their preferences for segregated living. This could also be stated in terms of whites.

At first sight, the notion of a black preference for black neighbourhoods seems reasonable. Indeed, Kain and Quigley (1975) point out that the desire to live amongst one's own kind is a natural and healthy expression of a pluralist society. However, a series of attitude and opinion polls in the United States indicates that both blacks and whites tend to prefer integrated neighbourhoods, and that both blacks and whites have a high degree of tolerance to racially mixed areas. In one of the first studies, Pettigrew (1973) cites eleven polls conducted between 1958 and 1969, all of which present a favourable view on racial mixing. Pettigrew's own analysis suggests that whilst blacks favour racial mixing, whites are less enthusiastic. Moreover, where blacks expressed a preference for black neighbourhoods, preferences were found to be strongly influenced by the perceived reactions of whites to the presence of blacks in the neighbourhood.

Although an important study, Pettigrew's analysis is weakened by the generality inherent in the definition of mixing employed.

The study by Farley' *et al.* (1978) was more rigorous. They were able to confirm the general finding that blacks prefer integration, defined as equal proportions of black and white households. A similar result is reported by Taylor (1979) who found that the 50/50 split emerged as the most desired arrangement in his study in Detroit. Galster (1982) also reports that blacks have a strong preference for equally split neighbourhoods, although he finds important differences in preferences amongst renters. In the Farley *et al.* (1978) study, whites were reluctant to move into such equally balanced neighbourhoods, preferring areas where the black population, although still significant, was generally less than 30 per cent. These results probably explain, at least in part, the apparent paradox that integration is favoured by both groups but segregation remains the norm. It is important to note, however, that opinion poll results are frequently flawed in that they fail to simultaneously control for the many different factors that affect responses (Galster, 1978). For example, some polls have tended to emphasize the tipping point effect, that is, white dissatisfaction and desire to move was correlated with the hypothetical proximity of blacks (Gallup, 1982). A valid question, and one not considered by Gallup, is whether or not these responses would hold if the incoming blacks were of similar or higher status than resident whites. It may be that attitudes are significantly modified if the socio-economic status of the incoming and resident groups are comparable.

More recently, the literature suggests that racial composition of neighbourhoods is of minor significance in preference terms with the evidence indicating that attitudes have been moving in the direction of even greater tolerance (Goering, 1993). Taylor (1981), for example, reports that factors such as cost and quality dominate neighbourhood selection. All households, black and white, look for features that constitute good housing and good neighbourhoods: schools, recreation provision, work location, public transport, and shopping provision. Foley (1973) notes that with the exception of racial composition (whites do not prefer racially mixed neighbourhoods) the residential preferences of black and white households are essentially the same. This conclusion is consistent with the evidence from Boal *et al* (1976b) on residential preferences of Protestants and Catholics in Belfast. The authors showed that Protestants and Catholics shared a common perception of what was "ideal" in a residential environment with the important exception of religious composition of neighbourhood: Protestants preferred a

Protestant neighbourhood, and Catholics preferred a Catholic neighbourhood. These results have been confirmed by a more recent study (Boal, 1995).

In the US, some authors take the view that as minority preferences are not borne out in terms of actual behaviour, this is a reflection of the joint effects of white preferences for own race living and constraints on black household relocation and choice (e.g., Clark, 1989b; Frey, 1984). However, at best this must be a tentative conclusion. After all, there is a serious question concerning the reliability of attitude studies that fail to control for factors such as status, income and education. In such circumstances, the apparent preferences for mixed neighbourhoods amongst black households "could be due solely to the superior levels of housing, neighborhood, and public service quality present there relative to those in the ghetto" (Galster, 1978, p. 13). Moreover, simple statements of preference for own-race neighbourhoods may also reflect individual household prejudices about the other ethnic group.

The role of preferences and voluntaristic choice is a strong feature of the European literature on ethnic segregation. Cultural factors are presumed to play an important part in conditioning preferences and choices of ethnic minority households. For example, Barou describes the village-like existence of Algerians in Paris (Barou, 1988) and similar results are reported for Asians in Britain. In some ways this explanation of segregation lies in the functions of segregation, not all of which are necessarily negative. Boal (1987) has argued that one of the positive aspects of segregation is to create a supportive climate which can help to preserve cultural diversity and contribute to a rich social plurality. Contemporary academic studies in the United States rarely suggest positive aspects of segregation, although some of the early studies did recognise this role. For example, Gans (1962) describes the "urban village" atmosphere in Boston's "little Italy". Such communities afforded help and assistance to newcomers and provided certain defensive functions against racial attack and harassment. Undoubtedly, physical security can be increased by living in areas of relatively homogenous ethnic areas. Contemporary American writings almost unfailingly adopt the position that assimilation is the goal and that choice is seen to mean integrated housing.

The desire to live in culturally homogenous areas is precluded in much of the American literature, but remains an important area of debate in Europe (Huttman, 1991). Knox (1987) writes that

> *"Clustered together in a mutually supportive haven, members of the group are able to avoid the hostility and rejection of the charter group, exchanging insecurity and anxiety for familiarity and strength" (Knox, 1987, p. 254).*

Research on the Asian community in Britain accords with this view. Reference is frequently made to the strength and diversity of Asian cultures, and the desire of Asian communities to preserve their distinctive cultural identity. For such communities, segregated enclaves provide "...protective space, the territorial base for the development of self-help institutions and even a separate sub-economy" (Cater & Jones, 1989, p. 152). The positive desire to seek out such enclaves has been described as "self or voluntaristic segregation" and is supported in the writings of Dahya (1972; 1973; 1974), Kearsley and Srivastava (1974), Robinson (1979) and others. It is important to stress that, in Britain at least, this explanation is almost exclusively reserved for Asians, although at least one study reports similar results for Cypriots (Peach, 1975b).

Robinson (1979) provides a lucid articulation of the preference thesis in respect of Asians in Britain. He notes that advocates of the choice theory argue that Asians regard themselves as transients not settlers; their over-riding concern is to minimize costs whilst in Britain in order to be able to retire to their homelands with their savings. As a result, the value system inherent in the Rex and Moore (1967) housing class model is irrelevant to them. The presence of Asians in poor quality, run-down, inner-city housing is perfectly consistent with their intention to minimize costs and eventually return home; it is not a sign of exclusion or discrimination, although it may reflect a deliberate desire to avoid majority-dominated areas[16]. He concludes that "Asian housing aspirations differ markedly...from those of the white population, and that spatial concentration is more important than housing quality per se" (Robinson, 1979, p. 18). Such spatial concentrations enabled the development of Asian support mechanisms and retained income within the Asian community. Furthermore, they helped to preserve cultural traits and allowed the maintenance of traditional value systems.

Interestingly, the supportive and defensive role of segregation has also been advocated as an explanation of religious residential segregation in Belfast. Boal *et al* (1976b), for example,

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[16] This view has not gone unchallenged. The fact that Asian families accept and are satisfied with housing that is unsatisfactory from a "White" perspective may well have been true of Bradford's Asian community in the late 1970s. An important question, however, is the extent to which this is true today. Although the desire to return is widespread, the fact that few Asians have returned raises the possibility that British-born Asians may have different aspirations and different housing priorities. This may undermine the preference argument, a possibility acknowledged by Simmons (1981). A second pertinent question concerns the classification of voluntaristic segregation driven by the myth of return as "choice" - the very nature of the preference argument in the context of Asian segregation implies that choices are not free choices but are governed by external factors, including a perceived obligation to the family in the country of origin.

emphasized the fact that ethnic enclaves provide important defensive functions, which may or may not be in response to external pressures. On this point the authors write:

> *"Conflict situations in cities lead people to feel threatened. This will particularly apply to recent in-migrants, who may vary culturally and indeed racially from the 'host' population...The perceived threat may materialize in the form of physical violence or remain as a psychological threat. At the same time, and indeed sometimes because of the threat, the ethnic group may have a strong urge to internal cohesion, so that the cultural 'heritage' of the group may be retained" (p. 45).*

In extreme circumstances, ethnic groups may choose segregated living arrangements because of a need for defence. This is, of course, as much a reaction to external pressures as it is a reflection of preference or choice. Boal's (1969) paper on the notorious Shankill-Falls Divide is perhaps one of the most widely quoted examples of the defensive functions of segregation. Cupar Street marked the "divide" between the Protestant Shankill and the Catholic Clonard-Springfield areas of Belfast. Boal reported that during a two month period at the onset of the "Troubles" sixty-five households moved from Cupar Street, a mixed-religion street at the time, to the relative safety of their own religious heartland. This purification of ethnic space resulted in a much sharper divide, with Cupar Street now divided with a permanent 6m barrier (Plate 2.1). It is difficult to conceive of such choice behaviour as purely a function of preferences. Choices must be seen in terms of the constraints which operate in all housing markets (Simmons, 1981).

Unlike in the US, there have been few European studies that have explored how housing preferences and tolerances differ between ethnic groups. On the basis of a limited sample of white households in Leicester, Phillips (1981) reports that 60% favoured continued segregation and 53% believed that the presence of blacks lowered the status of the neighbourhood. In Northern Ireland, McPeake (1990) reports that two-thirds of the respondents in his study were in favour of mixed religion public-sector housing estates. The proportion in favour of the proposition increased to 71% when the analysis was limited to existing Housing Executive tenants[17]. Within Belfast, however, fewer than half of existing tenants agreed with this view, and press comment suggested that the results were unrealistic (Brennock, 1990). Nevertheless, the results are similar to an earlier PSI study in which it was reported that 69% of those questioned thought that the Executive should encourage integrated housing (Smith, 1987).

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[17] The picture remained virtually unaltered when repeat studies were conducted by the Housing Executive in 1992 (Montieth, 1994) and 1994 (Fisher, 1995), although the 1994 study, which was conducted after the IRA cease fire, showed a large increase in Catholic positive response to this question. Protestant responses, however, remained remarkably stable.

The PSI research also explored the issue of religious tolerance in Northern Ireland. The study showed that three-quarters (74%) of Protestants in areas where the number of Catholics had increased were unconcerned about the change in religious composition of their neighbourhoods. A similar proportion of Catholics (72%) in areas where the number of Protestants had increased were similarly unconcerned about the change[18]. Unfortunately, information is not available from the PSI study on how these attitudes varied by tenure or by location. Nevertheless, the available research evidence would tend to suggest that the majority of households in both communities were tolerant towards members of the opposite religion moving into their areas, a situation which stands in sharp contrast with the extreme level of residential segregation, but remarkably similar to the situation in the US as indicated above.

2.5 Summary and Conclusions

This chapter has demonstrated that race and ethnicity are important and commonly applied analytic categories. Furthermore, it has been shown that not only is racial and ethnic residential segregation prevalent, but it is an ingrained feature of urban areas throughout the world. Although most of the US literature focuses on racial (i.e. black) segregation, it was suggested that European research was more diverse, embracing a range of racial and ethnic categories. An important distinction exists between racial and ethnic groups, and it was suggested that religious residential segregation in Belfast is reflective of an ethnic division in society. In this regard, religion is regarded as an mark of ethnicity. Nevertheless, principally because of the longevity of the patterns of separate living and the relative size of the groups involved, it was argued that Belfast had more in common with US patterns of segregation than patterns in European cities. A variety of competing explanations of segregation were discussed. From the literature it is apparent that US research favours a constraint-based explanation, with an emphasis on discrimination, whereas in Europe, a choice-based perspective, which emphasises poverty, cultural and preference factors, has greater currency.

As far as Belfast is concerned, few studies have sought an explanation of segregation, preferring to describe and analyse the spatial patterns themselves. In any event, the debate over which explanation is correct seems somewhat pointless, as, logically, explanations are likely to

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[18] This result must be treated carefully as the Catholic results are based on just 36 households compared to 220 for the Protestant results. Nevertheless, both Boal (1982) and Smith and Chambers (1991) report that Catholics are more tolerant than Protestants of the presence or increase in the numbers of the opposite group within their neighbourhood, a conclusion that is similar to the US evidence reviewed above.

vary according to circumstances, and the ideological stance of the researcher, both of which are subject to change over time. Indeed, it is highly likely that both choice and constraints are important. This is a view that is in sympathy with Sarre's (1986) comment that there is an element of choice within any system of constraints.

It is perhaps surprising that few studies have sought to examine in detail the role of residential decision making in the context of residential segregation, particularly in light of an acknowledged need to examine the processes that form, maintain and eventually disperse segregated areas (Baboolal, 1981; Simmons, 1981). It seems plausible that inertia and conservative residential decision-making is likely to support the continuance of separate living and, as already noted in the Belfast situation, residential mobility has been important in intensifying the separation of Protestants and Catholics in the city at times of conflict. It seems axiomatic that the persistence of segregation cannot be understood purely as a legacy of the past. People are mobile. Residential mobility is the underlying "...mechanism by which change is generated" (Berry and Horton, 1970, p. 395). Gray and Boddy (1979) note that "...residential mobility is of considerable, indeed ultimate, significance as a causal process leading to the socio-spatial pattern in cities" (p. 118). Lieberson notes that "...migration is the basic factor underlying all racial contacts and subsequent relations..." (Lieberson, 1980, p. 329). In short, many authors have drawn attention to the two way relationship that exists between mobility and urban form (e.g. Ford and Smith, 1981; Moore, 1966; Pritchard, 1976; Simmons, 1968; Waldorf, 1990). In spite of this considerable body of evidence, residential mobility in general, and the residential decision-making process in particular, remain largely at the periphery of contemporary studies of residential segregation.

The central concern of this thesis is to develop a better understanding of how residential decisions are made against the background of a highly segregated urban housing market. At the same time, the examination of such decision making processes may shed some light on the manner in which the pattern of religious residential segregation in Belfast is maintained. Within a research framework orientated around this process of residential search, it may be possible to pull together the important points from each of the competing explanations of segregation. In the context of a religiously segregated housing market, being able to understand how such decisions are made has important implications not for the households themselves, but for suppliers and sellers in the market place, and for policy makers in the wider sense. In the next chapter the evidence on search is reviewed in some detail.

Chapter 3
RESIDENTIAL SEARCH BEHAVIOUR

3.1 Introduction

The literature on intra-urban residential mobility has tended to develop within well-defined disciplinary perspectives, the three most common of which are the neo-classical economic perspective, the behavioural perspective, and the constraints perspective. This has resulted in some tensions and contradictions in the literature, two of which are pertinent to the present study.

First, each perspective has tended to emphasise particular aspects of the residential mobility process. Thus, neoclassical economists have tended to adhere to normative theories of decision making which stress rational behavioural processes within utility maximization framework. Decision makers are assumed to be perfectly informed, and are not subject to information or search constraints. Sociologists have focused on demographically determined housing choices, the family life cycle and the housing adjustment process. Needs rather than preferences are assumed to drive choices. Political scientists stress the importance of constraints by focusing on the role of institutions and "'urban managers." Behavioural geographers have stressed notions of perceptions, preferences, decision making under uncertainty and satisficing behaviour.

Second, there is tension between macro and micro approaches. Those at the macro level address the impact of market, institutional and societal forces that "structure" residential choice behaviour. Those at the micro level address individuals' residential aspirations, motivations and preferences. This dichotomy in part reflects a more general tension between choice (micro) and constraint (macro) based approaches. Clearly, choices are not always free choices; they are made within a wider social and economic context and households are subject to a myriad of constraints. There are few instances in which the richness of the micro approach has been interfaced with the predictive powers of the macro approach (Longley, 1984).

A basic belief that underscores the research presented in this thesis is that the study of residential search can help to integrate the seemingly disparate strands of research on intra urban residential mobility in general. A research framework focused on the search process can promote the investigation of household preferences, constraints and choices at the individual level. At the same time, such a framework can provide useful links to more aggregate and outcome perspectives. It is possible to conceive of search as the hub of three-spoked wheel,

with each spoke representing a major perspective on residential mobility. In this schema, search is not only a point of contact between the competing perspectives, but it holds the system together. Depending upon which spoke is emphasized, the analyst can pursue research within any particular perspective. However, given its location at the hub, analysts interested in search can draw on the strengths of each perspective.

Thus, for economists, the examination of search can help tease out the connections between the housing and the labour market, the structure and functioning of the housing market, buyer-seller interactions in the form of bargaining and bidding behaviour, and it permits the study of concepts such as market signalling and information asymmetry. For behavioural researchers, search allows the investigation of the links between perception, preference and overt behaviour, the place of cognition, perception and preferences, and the relationship between processes and outcomes in the housing market. For political scientists, the study of search enables a structured consideration of constraints at the personal, institutional and societal levels.

From this point of view, the investigation of residential search may help to promote the emergence of a genuine interdisciplinary perspective on urban choice behaviour. However, given this potential integrating role, it is somewhat surprising that this aspect of the mobility process has received comparatively little attention in the literature. As a topic for study, it reached its zenith in the early 1980s, with the majority of the material being produced between 1975 and 1985. Recently, there has been a re-emergence of interest in search, and the research reported in this thesis continues this trend.

As noted in the first chapter, the principal concern of this thesis is the need to better understand how decisions taken in the course of owner-occupier residential search serve to create, maintain or reduce religious residential segregation in the Belfast Urban Area (BUA). The starting point is to indicate why the search for housing is an important element of the housing market. It is suggested that the nature of the housing commodity together with the structure and functioning of the housing market make the search for housing an inevitable market adjustment mechanism. In particular, it is shown that the heterogeneity, spatial fixity and durability of the stock combined with the presence of sub-markets means that search is essential to ensure the successful matching of housing and households in the marketplace. Given the proposition that the investigation of search behaviour may constitute the hub of an interdisciplinary wheel, it is obvious that the relevant literature is somewhat eclectic. Thus, following the discussion of search as a market adjustment process, the main theoretical

antecedents to the study of housing search are traced. In particular, attention is focused on the contributions from the literature in the fields of economics, human geography, and market and consumer research.

As will be demonstrated later in the thesis, the Protestant and Roman Catholic populations in the BUA are demographically, socially, economically, and culturally distinct from one another. Therefore, one might reasonably postulate that search behaviour may also be different and that these differences may generate characteristic spatial outcomes. If so, it is important to discover the extent to which differences in search reflect the distinctive nature of the two communities in general, or if other external factors are involved. Thus, the third part of this chapter provides a structured review of the empirical evidence on residential search behaviour. Three themes are emphasized: search effort, spatial aspects of search, and information acquisition and use. Overlying these themes, there is a desire to illustrate how search behaviour varies according to the characteristics of the households involved and the nature of the alternatives considered. Most of the "standard" texts on residential search fail to address the issue of ethnic differences in search, although there is a specialist literature that has emerged to fill this gap. Perhaps inevitably, the bulk of this material is American in origin and has a strong racial dimension. It is also argued that many of the existing empirical studies of residential search have adopted a rather narrow view of what influences search behaviour.

3.2 The Inevitability of Residential Search

> *"The complexity of the commodity, the decentralized structure of ownership and transactions and the spatially dispersed nature of the market...ensure that the search problem is almost always present in the housing market" (Maclennan, 1979b, p. 73).*

The housing stock provides the framework within which residential mobility occurs. There is widespread acceptance in the literature that the housing market is structured along tenure lines, particularly in the more controlled economies of Western Europe. The market for housing is similarly partitioned into a component for ownership and a component for renting, and these markets are essentially mutually exclusive[1]. Much of the empirical research, this thesis included, adopts a tenure specific approach in recognition of this dichotomy. In seeking to understand the

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[1] The extent to which households are tenure neutral in search is, however, generally un-tested. It is commonly assumed that searchers search for a rented house or for a house to buy – they do not search for a house per se. Some evidence for this is presented by Rossi (1955; 1980) who shows that 85% of renters and 75% of owners searched exclusively within their own tenure group. If true, one aspect of choice (and search) is eliminated early on.

relationship between owner-occupier search behaviour on the one hand and particular housing market outcomes on the other, it is natural to begin by considering the nature and characteristics of the housing commodity, and the structure and functioning of the housing market. It is argued that both factors effectively mean that search is not only essential, but inevitable, if successful market trading is to occur.

3.2.1 The Nature and Characteristics of the Housing Commodity

> *"Housing is a special kind of commodity, making the urban housing market a special kind of market. Housing is a spatially immobile, highly durable, multidimensionally heterogeneous, physically modifiable commodity, whose durability and expensiveness make extensive mortgage borrowing essential for an owner, and make an extensive rental market practical. An owned dwelling is potentially an important asset in household portfolio management and rental status significantly changes the portfolio situation. Further, changes in occupancy are highly costly" (Rothenberg et al, 1991, p.2).*

These features have important implications for the study of urban housing markets in general and housing choice in particular. Goodman (1989) notes that many commodities exhibit one of these features but housing is peculiar in exhibiting all of these characteristics and their interaction complicates the analysis of the housing market. Although a detailed discussion on the nature of the stock is beyond the scope of this thesis[2], it is important to briefly review the implications for housing search that arise from the nature of the housing commodity.

Durability

One of the most distinctive features of the housing commodity is its extreme durability. A number of consequences arise from the durability of housing. First, in any period, most housing market transactions relate to properties built in former periods. Newly constructed properties typically represent a small component of the market[3]. This is likely to influence housing search

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[2] Interested readers are referred to the excellent reviews by Goodman (1989), Muth (1989), Quigley (1979), Rothenberg *et al.* (1991) and Smith *et al.* (1988).

[3] It is important to note, however, that whilst newly constructed houses typically represent less than 2% of the standing stock they are massively over-represented in the stock sold in any particular year. For example, information from the Council of Mortgage lenders (Housing Finance, No. 19) shows that in the first quarter of 1993 11% of mortgages in the UK were allocated to buyers of new houses. In Northern Ireland, the figure was 24%. Moreover, the role of new construction in the housing market has attracted the attention of housing theorists. Thus, new construction is an important element in Hoyt's (1939) sector model and it is the key element in the filtering theories of the housing market (e.g., Grigsby, 1963; Lowry, 1960). The concept of filtering has stimulated a considerable volume of research on vacancy chains, most of which is now fairly dated (e.g., Dzus & Romsa, 1977; Murie *et al.*, 1976), although a recent study by Forrest *et al.* (1993) demonstrates that the idea still has some currency.

behaviour in that purchasers of new existing dwellings must deal, albeit indirectly, with the existing private owners of the dwelling, whereas buyers of new housing deal only with the agent. There are possible implications in terms of information channels and bidding strategies that arise from this difference. Second, housing units are generally very expensive, so much so that they are either purchased for occupation through mortgage finance or their services are purchased through rental. Thus, analyses of housing demand must consider the discrete choice of whether to rent or buy and the continuous choice of that quantity of housing service to consume (Smith *et al.*, 1988). The analysis of those who buy, as opposed to those who rent, is complicated by the fact that the house purchase decision is also an investment or portfolio decision (Mills, 1990). Third, demand and supply in the housing market are inextricably related. In respect of this latter point Rothenberg *et al* (1991) note:

> *"In the owner occupied market, the continued demand by a household for the services of its presently owned house implies that a house is not on the market for sale to another possible buyer. But when the household decides to move to occupy a different unit, this demand decision is almost always paired with a corresponding supply decision" (p. 68).*

Spatial Fixity

Spatial fixity means that location is an integral attribute of the dwelling. As housing is spatially fixed, a whole series of neighbourhood and environmental attributes are jointly supplied with the housing bundle. This is important because they are not produced by individual property owners and they generally cannot be altered, except perhaps at the margins. In economic parlance these are referred to as externalities. These externalities may serve to confer important social significance to the occupant, both in respect of the physical unit itself and its spatial location. These are also likely to be important given that neighbourhood selection is a crucial factor in many households' search processes. Speculative providers of newly constructed properties can to some extent influence the characteristics of the local environment but even here heavy reliance is placed on purchaser perception and expectation. Sellers in the existing market may also attempt to alter or influence potential buyer perceptions of the neighbourhood in recognition of the importance of these attributes. However, physical as opposed to perceptual changes are marginal. As a result, spatial and environmental preferences and expectations are likely to be significant determinants of housing demand and search behaviour (Kain and Quigley, 1975).

Clearly as dwellings are fixed in space, the purchase process generally involves household relocation[4]. Relocating households incur substantial frictional costs, particularly in the owner occupied sector. Here, households normally have to arrange to sell their current homes, they have to arrange suitable finance for the new purchase, and they have legal and contractual obstacles to surmount. All of these complications involve costs. Moreover, the presence of such obstacles introduces powerful institutional players into the process, which in turn influence search and choice behaviour (Jones & Maclennan, 1987; Gibb, 1992). Nevertheless, as the stock is immobile, information on alternatives is imperfect, which in turn means that search is inevitable.

Heterogeneity

> *"The durability of the physical stock and the cost of transforming it at particular locations, plus the non-market provision of several attributes of housing services, create an important heterogeneity on the supply side of the market. This heterogeneity is enhanced by the behaviour of consumers, whose behaviour clearly demonstrates that the heterogeneity of the housing supply matters to them" (Kain and Quigley, 1975, pp. 2-3).*

Whilst the assumption of a homogeneous "housing services" commodity has provided useful insights into the operation of the housing market, housing itself is highly heterogeneous in nature. Housing units differ in respect of individual structural configuration, plot characteristics, neighbourhood characteristics and accessibility to a range of other services and locations. Housing represents a package of attributes many of which are outside of the direct control of the purchaser. Dwelling units that command the same price can differ dramatically in terms of their attribute combinations and hence may appear completely different to potential consumers and suppliers, a point that is largely ignored in the hedonic literature. This may also reflect differences in bargaining behaviour on the part of buyers and sellers (Song, 1995). It should be readily apparent, therefore, that "an understanding of the dimensions of heterogeneity underlying information costs, neighbourhood externalities, and market segmentation is essential to any explanation of the functioning of urban housing markets" (Rothenberg *et al*, 1991, p. 48).

One of the most significant implications of the heterogeneity of the stock is that it provides a source of market segmentation. Following Quigley (1979), Rothenberg *et al* (1991)

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[4] Speculators may purchase dwellings as investments and this transaction will not normally involve household relocation. However, when the dwelling is subsequently occupied, either as an owned or as a rental unit, household relocation is usually required.

note that there is not a single market as such but a series of distinct but interrelated submarkets. These submarkets arise because of the joint nature of structural and locational attributes and the inelastic demands for and short-run supplies of housing units over significant time periods. For example, on the demand side, inelasticity results from the high transaction costs associated with relocation. In addition, different household preference structures and the impact of constraints such as discrimination are important considerations in submarket formation. A further implication arising from the existence of submarkets is the fact that the price of a particular dwelling may diverge from the price predicted on the basis of constituent attributes. Thus, in tight submarkets the price may be higher than predicted whereas in loose submarkets the price may be less than predicted. For these and other reasons a number of economists have begun to stress the importance of submarkets in urban economic analysis (e.g., Quigley, 1979; Maclennan, 1982; Maclennan *et al*, 1987).

There is some debate about whether submarkets should be defined in spatial terms or in terms of combinations of dwelling characteristics. At the present time spatial definitions of sub-markets dominate and this view is consistent with the empirical evidence that search is often area or neighbourhood focused (e.g., Munro & Lamont, 1985). However, it is possible to argue that one weakness in the economic conceptualization of sub-markets is the general lack of behavioural relevance. Technically, comparable product groups may exist in a variety of spatial locations but, for the majority of searchers, awareness and knowledge of these sub-markets may be limited (Maclennan *et al.*, 1987). Nevertheless, the concept of submarkets is likely to be useful in the investigation of search behaviour. However, as will be argued later, most previous empirical studies have failed to test the concept by comparing the pattern of submarkets with actual spatial search behaviour.[5]

3.2.2 The Functioning of Urban Housing Markets

Traditional microeconomic analyses of the housing market have been undertaken within the context of Marshallian or Walrasian approaches which presume that resource allocation can be adequately modelled using the assumption of instantaneous and costless coordination of trade (Diamond, 1989). Such housing markets explicitly assume that markets are in long run equilibrium and, as such, their outcome orientation implies that individual choice, adjustment

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5 In later empirical chapters of this thesis, the Maclennan *et al* product group application of the submarket concept is applied and tested in this way (chapters 6 and 7).

and matching processes are of no interest. This lack of concern arises because of the inherent assumptions that markets are well behaved and are "populated by familiar, well informed, frequent and regular traders who are immediately and directly informed by price signals" (Wood and Maclennan, 1982, p.54). These assumptions are onerous, and have been questioned in the context of housing choice and search. Although the housing market is rich in information channels, imperfections, inconsistences, and prohibitive costs serve to complicate the search process. One of the results of this is that in order to ascertain the suitability of any particular vacancy, searchers must inspect the property in question, adding to the overall costs of relocation.

Maclennan (1982) and Wood and Maclennan (1982) identified a number of salient features of the housing market which suggest that an analysis of the search process is critical to an understanding of the housing choice decision. They point out that households transact in the housing market infrequently which means that the quality of market knowledge retained in memory will decay over time. With long periods of non-transaction, the dynamics of the housing market result in substantial changes in key aspects of the dwelling stock such as price and availability. In Belfast, for example, survey evidence shows that almost half of all households reported than their neighbourhoods had changed over the previous five year period (DOE, 1994b). Moreover, an analysis of change in the religious composition of wards in Belfast between the 1981 Census and the 1991 Census (see chapter 6) again supports this idea that the composition of the market can change fairly rapidly. Thus, long periods of non-transaction means that information retained in memory is likely to be obsolete and this represents a form of extra search costs. In light of such factors, Evans (1995) argues that potential movers are likely to be imperfectly informed at the onset of search, and updating the information will be costly. This may also be a problem for groups such as first time buyers and searchers from outside the area. These households will have less experience of the market in question which means that extra and more costly search will be required (Turnbull & Sirmans, 1993). As we shall see later in the chapter, the US evidence suggests that minorities are also disproportionately affected by high search costs, a result that has rather obvious implications in the context of the Belfast housing market. Moreover, as some of the aspects of the dwelling may require assistance from experts such as building surveyors, estate agents and lending institutions, Maclennan (1982) writes that:

> *"This aspect of housing market search implies that households can, given imperfect information, be subject to influence, even manipulation, by housing market professionals. At the extreme such institutions may shape households' tastes and choices" (p. 61).*

In the economics literature, such problems are referred to as principal agent problems.

Wood and Maclennan (1982) also note that search activities are particularly important where a housing market is in disequilibrium, as when there is a mismatch between the patterns of demand and supply. In the absence of instantaneous adjustment, a household's chances of achieving its housing aspirations will depend as much on its ability to negotiate the market as its ability and willingness to pay. Re-iterating Quigley's (1979) point about the high costs of housing, Wood and Maclennan (1982) observe that, given that housing is perhaps the most costly consumer good that a household will purchase, there are significant benefits to be derived from search.

To these general features of the housing market which make search inevitable, it is possible to add the observation that sellers must search for buyers. Within the mainstream British selling system, for most sellers there can be an advantage in acquiring a first time buyer not dependant on a previous sale because this can reduce the length of the buyer - seller chain, minimising the risk of withdrawal. Considerable uncertainty is introduced into buyer - seller chains when potential buyers have not sold their existing dwelling and hence are not certain about the extent of equity release available to support their subsequent purchase. In such circumstances, sellers may search for a 'cash' buyer and may be prepared to trade at a reduced price in order to secure such a buyer. Thus, sellers are likely to have an important role in search in that they act as an information source. Moreover, as most searchers are themselves sellers, problems in selling their own homes or in obtaining an acceptable offer will significantly influence ongoing search activity. For example, problems in finding a buyer may delay search for a new home; alternatively, if a potential buyer sets a tight completion date then extreme time pressures may restrict or limit the search for a new home. This relationship between selling and buying is an important factor in the housing market, and one that has received comparatively little attention in the literature, the exception being the recent contributions on bargaining behaviour from Turnbull and Sirmans (1993) and Song (1995). These studies are examined in a little more detail later in this chapter.

Increasingly, in recognition of the factors reviewed above, housing economists are taking the view that housing markets are rarely, if ever, in equilibrium. The emerging paradigm is that

urban housing markets are characterised by imperfect competition and disequilibrium that arise because of transactions costs and other forms of market friction, seller and searcher asymmetric or otherwise imperfect information (e.g. Maclennan *et al.*, 1987; Read, 1993; Wheaton, 1990; Yavas, 1992; 1995). From such a perspective, it is natural to emphasise the market adjustment and matching processes such as search. Each attempt to trade in the market in the short run generates a sale or a fail. Although frustrating, failed search is important as it generates useful market intelligence and a possible adjustment in search such as a modification to the price range being considered or a change in the area of search effort in subsequent market periods. In such subsequent periods, there will also be a new flow of potential buyers and sellers, the nature of which will, at least partially, be influenced by what happened in the current period. For example, if the market is "slow" prices may fall and in subsequent periods the volume of new sellers may also fall. This type of "backlogging" problem is an important feature of the housing market and is a feature that is largely ignored in traditional neo-classical equilibrium market models. Consequently, efforts to explain search behaviour must consider factors outside of the household or the dwelling purchased. Approaching the study of the housing market from a disequilibrium perspective allows one to tease out these sort of issues and to emphasise the importance of search as an adjustment process. It is clear, therefore, that not only is search an inevitable consequence of the nature of the housing commodity and the functioning of the housing market, but the costs of search are not uniformly spread. Different groups in the population, different submarkets may experience different degrees of cost. This means that search is not neutral.

3.3 Alternative Theoretical Perspectives on Search

Like the study of residential mobility in general, the study of residential search has been approached from a variety of disciplinary perspectives. Commentators (e.g., Aitken, 1984; Clark, 1981; Clark and Flowerdew; 1982) have identified the theoretical antecedents of housing search in the fields of economics, human geography, and market and consumer research.

3.3.1 Economics

Traditional Walrasian analysis presumes that resource allocation can be adequately modelled using the assumption of instantaneous and costless coordination of trade. Recognizing that this is highly unrealistic, economists have focused attention on search and this work owes it origin

to the economics of uncertainty. The essence of the economics of search is that consumers do not know what is available and have to search for information, mainly on price and quality, and that this process is costly. Buyers and sellers do not know what is available in the market, nor do they know the reservation prices of their potential trading partners (Yavas, 1992; 1995). Consequently, they are compelled to engage in search. Search theory is well developed in the economics literature. Diamond (1989) notes that "...search theory is the analysis of resource allocation with specified, imperfect technologies for informing agents of their trading opportunities and for bringing together potential traders." (p. 271). In a similar vein, Lippman and McCall (1979) note that, in essence, search theory is about the acquisition of information and decision-making under uncertainty stating that "...search theory rather than being a special topic of economic enquiry is an essential ingredient of any model of individual behaviour under uncertainty" (p. 1).

Clark and Flowerdew (1982) note that during the 1960s and 1970s the most important theoretical developments in the modelling of search occurred in the economics of job search, where the work of Stigler is of particular significance (Stigler, 1961; 1962). Stigler was concerned with the role of information and uncertainty in the search process. He showed how the limited amount of information available to job-seekers limited their optimal behaviour. Stigler (1961) observed that if price information is costly to obtain, some level of price dispersion would remain even in an otherwise competitively structured market. This is because there are both costs and benefits to search. Consumers will search for a lower price until the cost of search exceeds the expected gains of search. The existence of search limits the sellers' ability to trade at high prices, but the discipline is weaker when search costs are high. As searchers differ in their costs of search it is expected that different degrees of search effort will occur. Salop (1978) suggested that individual differences in search capacities effectively segments consumers into submarkets. He writes that "...the very presence of [price] dispersion both splits the market and charges a higher purchase price to the submarket of inefficient searchers" (p. 393). The fundamental result of this literature is that consumers with high search costs will search less extensively than those whose search costs are lower.[6]

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[6] This presents an interesting paradox. If we assume, as some studies do, that inexperience and a lack of information represents a search cost, then the implication is that search should be less extensive. However, the empirical evidence suggests that inexperienced and ill-informed consumers have to search more in order to compensate for these problems.

Early economic search models were non-sequential in that the number of job offers was taken as a constant known to the searcher in advance. More recently, economic search models have adopted a sequential structure, the main concern of which is optimal stopping behaviour (Lippman & McCall, 1976). In basic terms, individuals are thought to try and maximize expected wages net of search costs. Following Pickles and Rogerson (1984), individuals are assumed to face a time invariant wage distribution with a density function *f(w)*, with known parameters. Each time period the searcher pays a fixed amount *c* in return for one job offer following a random sampling of the wage distribution. The basic search model assumes that, with an infinite time horizon and no discounting of future offers, the optimal policy for a searcher is to accept the first offer that exceeds the reservation wage ξ. The reservation wage is calculated using the fact that ξ is defined to be the expected gain derived from adopting an optimal search strategy. Considering the next offer with wage *w*, the expected benefit is the higher of the offered wage and the expected value of continued search. This may be expressed:

$$E\,[\max(\xi,\ w)] = \xi\int_{0}^{\xi} f(w)\ dw\ + \int_{\xi}^{\infty} wf(w)\ dw \qquad (1)$$

The first term on the RHS of equation (1) is the return if the job offer has a wage of less than the reservation wage, ξ. The second term refers to the expected wage gain associated with an acceptable offer. Given that the search cost is *c*, the expected gain, ξ, is:

$$\xi = E\,[\max\,(\xi,\ w)]\ -\ c \qquad (2)$$

Pickles and Rogerson note that the reservation wage (or utility) is determined by equating marginal costs with the expected marginal returns from a further offer:

$$c = \int_{\xi}^{\infty} (w\ -\ \xi)\ f(w)\ dw \qquad (3)$$

Under the assumptions of the basic search model, the searcher compares the return received to date with that expected in the next offer only. In other words, searchers are assumed to be myopic. This comparison is on the basis of what Kohn and Shavell refer to as a "switchpoint level of utility". If the expected marginal benefit exceeds expected marginal cost, search continues and vice versa. An important point that emerges in this literature is that different consumers will have different reservation utility levels and hence will behave differently even when faced with the same choices. Moreover, the same individual can have different reservation

utility levels at different points in time, reflecting variations in constraints such as time and cost pressures. A useful review of the extensions to the basic model is presented in Lippman and McCall (1979) and more recently in Devine and Kiefer (1991).

Whilst the major advantage of the economic approach to search would seem to be is its parsimony and the intuitive meaningfulness of the underlying cost-benefit framework, the way in which the costs and benefits are operationalized is often very simplistic. For example, in terms of job search, the economic literature stresses the importance of information. However, as Clark (1986) notes, the main weakness in most of these job-search models is their reliance on a simplistic representation of imperfect information (usually modelled as some form of search cost). He writes

> *"...information should be considered a heterogeneous entity; full of ambiguity and indeterminacy, made so in part by spatial position. This implies that a given set of information will mean different things to different people, depending upon their circumstances...a given stock of information will lead to different behaviour in different places"*

and later, he adds:

> *"...information is not a common good, shared equally between workers and management. Rather, information should be understood as a strategic variable, indeed a contended variable in any employment relationship. This may mean that information is owned, structured, even purposely distorted (made noisy) so as to gain advantage, by one partner over another, in contract negotiation" (p. 805).*

These are very important points and are of particular relevance in the context of residential search behaviour.

Although the main influence of economic thinking has been in the area of job search, economists have also examined the problem of residential search. Some economists have approached this issue from the perspective of the seller rather than the buyer. One such study is by Zuehlke and Rasmussen (1988) who argue that search models provide a natural starting point for an analysis of housing prices. In this context, a seller receives a series of offers (from potential buyers who are engaged in search) and they must decide whether to accept the current offer, or to reject and continue searching. Zuehlke and Rasmussen's approach is conceptually similar to the job search model outlined above in that it is explicitly assumed that the optimal search strategy is to set a reservation price and to accept any offer that meets or exceeds this price. The authors make an interesting point that selling prices will vary according to seller search costs and risk preferences: where a low reservation price is set, sellers have lower expected selling prices and shorter market durations, with the obverse also holding true.

Further, they suggest that where market segmentation occurs (as with religion perhaps) competition across attribute values is restricted possibly allowing differences in marginal attribute prices to persist, resulting in a correlation between attribute values and the probability of sale.

On the demand side, Quan and Quigley (1991) and Wheaton (1990) have both developed models of market behaviour in which search plays a central role. Wheaton's analysis is particularly interesting. He applied the search and matching models of the labour market to the housing market. Households are hypothesised to relocate in response to being "mismatched," a concept similar to consumption disequilibrium in the economic models of intra urban mobility (e.g., Cronin, 1978; Hanushek & Quigley, 1978; Weinberg, Friedman & Mayo, 1981). Wheaton indicates that the prospect of remaining in such a mismatched state determines the degree of search effort and the offer price made by buyers, and his model explicitly accounts for the fact that many buyers are also sellers. In terms of results, Wheaton argues that, although simple in conception, the model provides realistic explanations for the empirically observed behaviour of housing markets.

One of the newest areas of research in the economics of residential search concerns the process of bargaining. Clearly, the behaviour of buyers and sellers is related. Turnbull and Sirmans (1993) examined the extent to which certain groups (first time buyers and out of town buyers) were disadvantaged in the bargaining process by virtue of their less well developed information base. Bargaining was defined as the asking price minus the selling price divided by the asking price. Their descriptive analysis indicated that in-town, continuing home owners were the most successful in negotiating a discount on the initial asking price. However, in a more rigorous hedonic analysis, they were unable to translate these results into significant differences in purchase price between the various groups.

The more recent study by Song (1995) attempted to explain bargaining outcome in terms of buyer characteristics and dwelling attributes. The results are interesting. Following a comparison of hedonic equations for selling price and bargaining outcome, Song (1995) concludes that bargaining outcome in housing transactions is affected by the difference of implicit prices assumed by the seller and buyer. Two of the most influential factors in explaining bargaining outcome were the racial composition of the purchase tract (+) and dwelling age (+). In terms of race, the implications are that in less homogeneous areas (i.e. where there are more blacks), households are able to bargain more for their homes than in more homogeneous

neighbourhoods (i.e. more white). It would be interesting to know how the results would have varied if the equations were estimated separately for blacks and whites, or if a race term was added to the equation, but this was not done. In terms of dwelling age, the older the house, the larger the bargaining outcome. Song (1995) argues that this may reflect that older houses have a greater chance of needing repair and he hypothesises that searchers will place greater emphasis on age knowing that there is this risk. In contrast, sellers will know exactly what work is required, but due to the moral hazard involved, they will keep this information to themselves. This translates into different implicit prices for sellers and buyers, making bargaining all the more likely.

Unfortunately, neither study made any effort to understand the relationship between search and bargaining outcome. This is a pity because it seems likely that bargaining outcome could be seen as a benefit of search. As such, it would be important to determine if households that engage in more extensive and, therefore, more expensive search, are able to reap greater rewards or benefits as a result. In this sense, bargaining outcome may prove to be an important determinant of search behaviour and this is an issue to which we return later in the thesis. Nevertheless, it is clear that developments in the investigation of search within the economics literature represent an important and vibrant area of research activity.

3.3.2 Human Geography

In the field of search behaviour, much of the geographical contribution has come from scholars drawn from the behavioural tradition. The studies by Wolpert (1965) and Brown and Moore (1970) made a seminal contribution to the investigation of residential decision-making in general and search in particular. Wolpert was one of the first geographers to question the validity of the utility maximization thesis inherent in neoclassical economic approaches to spatial decision making. He developed the concept of "place utility" to represent the overall attractiveness of a particular place for a particular individual evaluated across a range of dimensions. Brown and Moore (1970) built on this concept to produce what may be described as the standard behavioural mobility model (Figure 3.1). Within this standard model, search is presented as the second stage in the mobility process, although in reality the decisions associated with movement, search and evaluation will be highly inter-related. Under the assumptions of the basic behavioural model, when the "place utility" is found to be significantly at odds with the household's needs, the search for a new residence is initiated. Households are assumed to

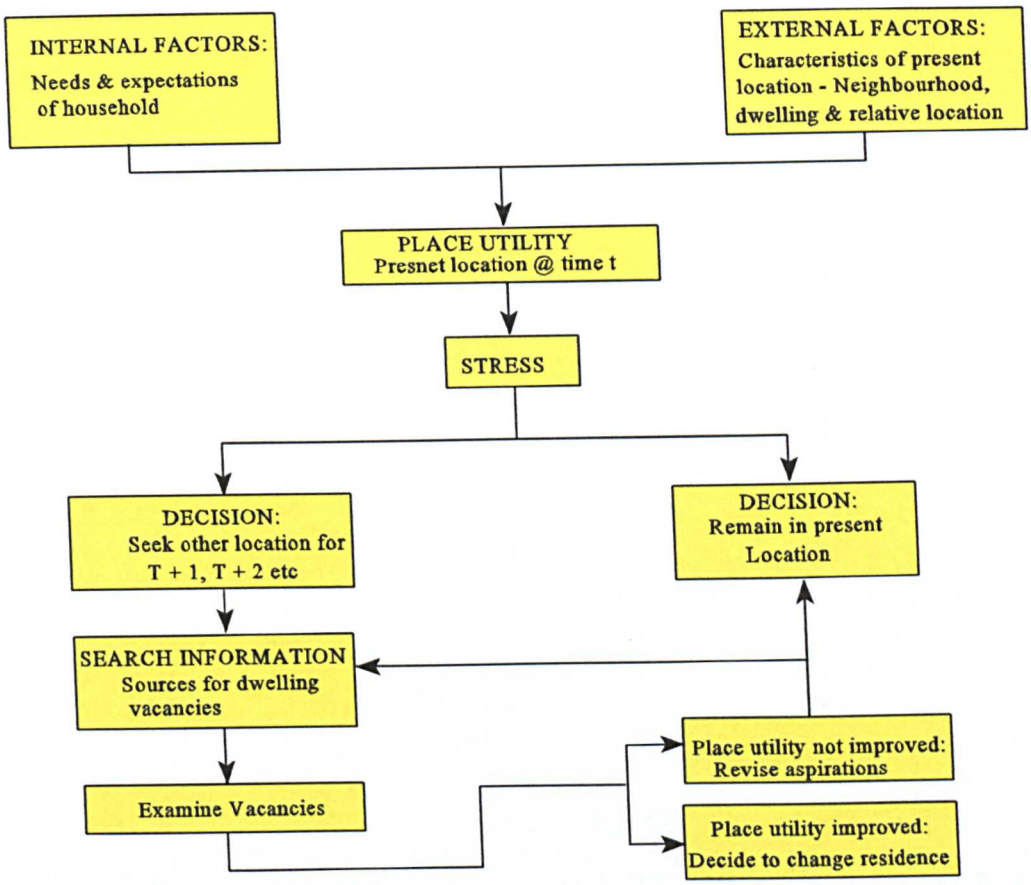

Figure 3.1: The Brown and Moore (1970) Residential Search and Mobility Model

have an "awareness space", which is that part of the urban area for which households can assign place utilities. This is an irregular information surface and thus, the model implicitly, allows for imperfect information and that decision-making occurs under conditions of uncertainty, i.e. the awareness space will normally be restricted to particular localities rather than covering the complete urban space because households' knowledge will be spatially constrained. Having decided to move, households define their "aspiration region." This region is defined as a vector of upper and lower bounds for acceptable dwelling and spatial attributes. The model assumes that search and evaluation occurs within the household's "search space" which is defined by the intersection of its "aspiration region" and its "awareness space." Successive vacancies are identified and their place utility values are evaluated. Relocation is contingent upon the identification of a vacancy that delivers an improved place utility when compared against the current residence. The model allows for the possibility that a household may, in light of its search activities, revise its aspiration region and continue searching, or to abandon search altogether.

One shortcoming of the standard model is its restrictive emphasis on the sequential nature of residential decision-making. Households are assumed to become dissatisfied with their

housing and, as a direct result, they decide to move home. Having made this initial decision, aspiration regions are formed and the household initiates the search for alternative accommodation. Although dissatisfaction is an important trigger factor, and one supported in recent consumption-disequilibrium and stress-resistance models of intra-urban mobility (e.g., Clark *et al.*, 1986; Phipps & Carter, 1984), it is not clear why dissatisfaction must be a necessary pre-condition for search to occur. A satisfied household may search if it perceives that the expected benefits from relocation exceed the costs involved and there is empirical evidence in support of this view (Cronin, 1978; McMillan, 1978). Extensions of the basic model exist that accommodate this observation (e.g., Spear, Goldstein & Frey, 1974). In reality the two "stages" in the basic model may be thought of as steps that can occur in any order or, indeed, in a recursive fashion. By adopting an economic framework, Spear *et al* (1974) further depart from the standard model by allowing dissatisfied households not to search if the costs of doing so are perceived to outweigh the potential benefits. A further limitation is worth noting: The Brown and Moore model suggests that search always occurs. However, it is possible that households may relocate without engaging in search, as in the case of Rossi's (1955) windfall purchases.

Recent contributions from geographers in the behavioural tradition have focused on how dwellings are selected for on-site inspection. Building on earlier contributions from Preston and Taylor (1981) and Stough (1981) amongst others, Aitken has applied personal construct theory to understand how individuals develop construct systems to detect and evaluate the parameters of place-utility exhibited by dwellings (Aitken, 1984; 1987a; 1987b). Much of Aitken's work has been set in the rental as opposed to owner occupied market. Nevertheless, his analyses provide useful insights into the search process in general. For example, it would appear that during the passive or background search stage households effectively eliminate large numbers of potentially suitable dwellings from their choice set, which in turn means that their on-site, active stage is more efficient. This may account for the finding in most studies that an apparently small number of dwellings are considered by searchers. Similar conclusions may be drawn from recent research on how brokers sell residential property (Cahill, 1994). Interestingly, Aitken's work also suggests that different criteria are employed at different stages of the search process. Typically, physical dwelling characteristics, such as dwelling type and size, were used to select dwellings for on-site inspection; having been thus selected, these criteria no longer featured in the subsequent evaluation. Environmental and neighbourhood factors were more important during on-site inspection as were internal attributes of the dwelling.

One of the fundamental problems that a searcher faces is the decision of when to stop searching. Much of the geographical research effort has been focused on the construction of optimal stopping rule models of search, one of the most well-known of which was originally set out by Smith *et al.* (1979). This model, which is based on the economic theory of expected utility, attempts to relate the initiation, duration and spatial location of search to factors such as household resources, preferences and beliefs (Figure 3.2). The basic concept is that searchers will form an overall assessment of the utility of each dwelling considered and will terminate search whenever this utility level exceeds that of a previously defined threshold.[7] Specifically, it is

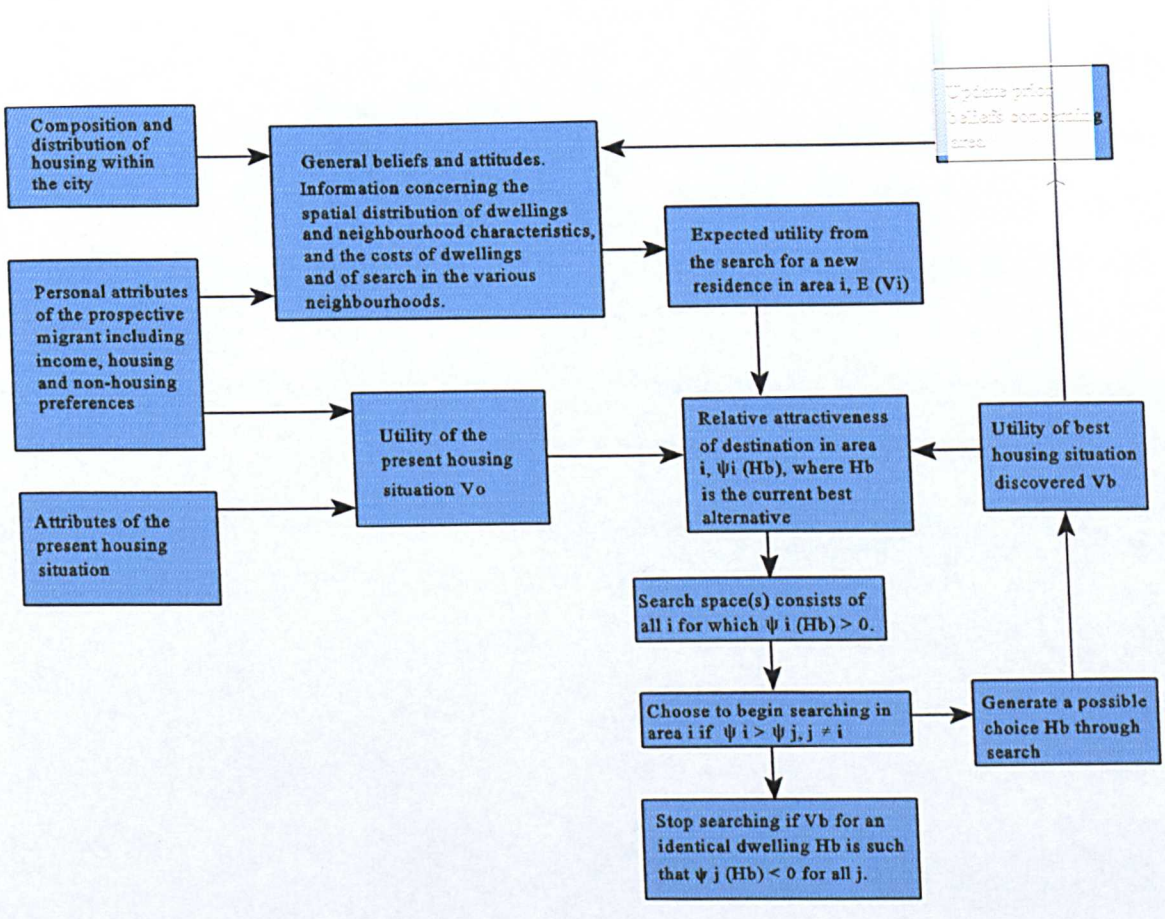

Figure 3.2 A Decision-Making Model of Residential Search (Smith *et al.*, 1979)

assumed in the model that prospective movers have a set of preferences defined over both housing and non-housing commodities, an income constraint and a set of beliefs about the market. The interaction of these three factors determine the manner in which searchers evaluate particular housing options. The model explicitly recognizes the heterogeneous nature of the housing commodity and that the housing market comprises a set of distinctive sub-markets, and

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7 Important parallels clearly exist with the job-search models discussed earlier with their concepts of "reservation wages".

the nature of the market implies that decision-making occurs under uncertainty. A searcher will have imperfect information on the distribution of dwelling and neighbourhood attributes, and on the range of prices pertaining in any sub-market location. Thus, search is seen as a process that both generates the choice alternatives and provides essential market intelligence about the sub-market containing the last observed vacancy. Such information is used to update the searchers local market knowledge which may, in turn, result in modification of the search strategy. The model assumes that individuals will aim to maximize expected utility subject to certain constraints. The authors note that the "...expected utility hypothesis provides the most generally accepted approach to the problem of making decisions under uncertainty" (Smith *et al*, 1979, p. 7). The basic assumption is that a household will compare the expected utility of a situation involving search with that without search. A particular area is included for search if the expected utility of search in that area is greater than the household's present utility. This difference is regarded as a measure of locational stress. Only areas of positive stress are selected for search purposes[8].

The basic model was refined by Smith and Mertz (1980) to allow searchers to change their beliefs in the course of search but the empirical testing of the model was left to Smith and Clark (1982) and Clark and Smith (1982). Unfortunately, in spite of a rigorous effort, the results were somewhat disappointing. Whilst Smith and Clark were able to show that hypothetically derived utility assessments were applicable in real world search and evaluation situations, their results also suggested that household decision making in search was not always optimal. In addition, they found some evidence to suggest that compensatory decision making implicit in the model was not uniform. Some decisions appear to be non-rational, sub-optimal, and based on non-compensatory processes. More positively, an analysis of the significance of the independent variables showed that a linear or additive model was appropriate, a result that should simplify modelling efforts. However, because of data limitations, their analysis provided only tentative support for the theory of expected utility of search and a more recent commentator implies that this theory is unlikely to be successfully tested in a housing context (Munro, 1987).

More recently, geographers interested in search behaviour have begun to examine search processes in the context of computer-simulated environments (e.g., Clark & Smith, 1985;

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[8] Whilst consistent with the empirical evidence on search, this concept of search does not sit comfortably alongside notion that search is a discovery process. To have an "expected utility" in a series of possible search areas, a household must know quite a lot about these areas.

Phipps, 1988; Phipps & Laverty, 1983; Phipps & Meyer, 1985; Smith, Clark, & Cotton, 1984). This has facilitated a more detailed examination of stopping behaviour. The study by Phipps and Meyer (1985) is illustrative of this trend. Specifically, they compared the predictive abilities of the conventional normative stopping-rule model (Phipps & Laverty, 1983) with a more simplified heuristic stopping-rule model (Meyer, 1980). In the context of a computer-based simulation of the Saskatoon housing market, Phipps and Meyer (1985) found that the heuristic model provided a superior prediction of subjects' stopping behaviour. They tentatively conclude that the unsatisfactory performance of the normative model stems from the possibility that subjects employed non-optimal cutoffs or stopping processes. Furthermore, the heuristic model was particularly good at predicting the choices made by searchers with a satisficing approach.

3.3.3 Market and Consumer Research

Srinivasan (1990) notes that research in marketing and consumer research has parallelled investigations in psychology in that many marketing studies are little more than the application of psychological models to problems of consumer choice, particularly in the area of durable goods such as video recorders, televisions, and cars. In the psychological literature, studies of search behaviour are usually considered within a choice-based framework (Aitken, 1984). Although choice amongst alternatives implies the existence of a search process, psychological research has tended to concentrate more on how choice alternatives are evaluated rather than how they are identified in the first place. Two distinct strands of work may be distinguished: motivational studies and information processing studies.

One of the earliest examples of the motivational approach is the study by Howard and Sheth (1969). In this study, attention is used as the motivational basis of search. Attention is regulated by the stimulus-ambiguity-response relationship, with consumer confidence seen to boost attention and therefore external search. Exogenous variables postulated to impact on search included the importance of the purchase, personality traits of the searcher, and time pressure. In the marketing literature, goal-orientation is seen as one of the key aspects of motivation. Some of the earliest studies of residential search adopted the concepts of motivation and goal-orientation (e.g., Hemple, 1969) and they remain important in contemporary studies particularly by geographers (e.g., Goetgeluk, 1992). Beliefs are also regarded as important in this context. For example, Duncan and Olshavsky (1982) showed how beliefs were important

in shaping search for television sets. In a regression-based analysis, they were able to explain around 50% of the variation in search activity by recourse to belief variables alone.

The second strand of research, builds upon the first and, as a result, it has been more influential. The information-processing viewpoint emphasises how information is acquired, stored and used, and in this process the role of memory is of vital importance. Bettman's (1979) contribution is particularly noteworthy. He sees search as divided into internal and external components which are guided by goal-orientated motivation. Bettman notes that consumers have relatively limited cognitive capacities and he suggests that they adopt simplifying heuristics in order to ease decision-making and choice behaviour. This idea of simplifying heuristics has emerged as a fruitful area of activity in the field of spatial choice (Hirtle & Garling, 1992) and residential search behaviour (Phipps & Meyer, 1985).

Typically, studies of consumer information search have two basic objectives: the quantification of the amount of search conducted by consumers prior to purchase, and the identification of factors that influenced the amount of search. As we shall see, these objectives have likewise dominated the empirical literature on residential search, although the consumer studies are usually more rigorous. In terms of the first objective, a wide variety of measures have been reported in the literature including the number of outlets visited, sources and types of information used, alternatives considered, the time spent on search, and the evaluation methods employed prior to purchase. Most of the early studies usually examined a single measure of search effort. Some of the more sophisticated single-measure studies employ a weighted measure of search effort based on a series of indicators each of which was scored by "experts" (e.g., Duncan & Olshavsky, 1982; Kiel & Layton, 1981). Whilst attractive, this "index" approach remains rather arbitrary, and little regard seems to have been paid to the fact that the "importance weights" are likely to vary between consumers (Srinivasan, 1990). More recent studies of consumer search consider multiple measures of effort, and these are usually placed within a much broader analytical framework (e.g., Srinivasan & Ratchford, 1991). Regardless of approach, a common finding is that the extent of pre-purchase search is relatively limited, a result consistent with the customary view of housing search. Perhaps more importantly, the consumer literature also reports that the distribution of search effort, however measured, is heavily skewed towards the lower end, implying that relatively small mean values mask significant variations in search.

In terms of understanding how and why search varies, Newman's (1977) comprehensive and well-cited review of the empirical literature on consumer search synthesises the various findings into a series of categories. These include potential benefits, costs of search, buying strategies, situational variables and personality factors. Similar groupings have been advanced by Cobb and Hoyer (1985) and Moore and Lehmann (1980) amongst others. Recent contributors have added additional categories including product involvement (Ratchford, 1987), product knowledge and experience (Brucks, 1985), familiarity and expertise (Alba & Hutchenson, 1987), and memory and prior knowledge (Baker & Wilkie, 1992). The inclusion of a wide range of potential search correlates is the hallmark of research in this field and, as shall be seen later in this chapter, it stands in marked contrast to empirical studies of residential search behaviour. The balance of evidence suggests that limited search is particularly associated with the purchase of specialist and first-time purchases, and non-durable goods. It is also commonly reported that past product experience, existing product knowledge, urgency, search costs, and the age of the searcher are all negatively related to search effort. In contrast, the perceived benefits of search, the perceived risk, the extent of pre-search uncertainty, the number of alternatives, the size of the feasible set, and the complexity of the choice process are positively related to search effort. For a number of other variables the relationship with search effort is equivocal. The evidence on prior knowledge serves as a good example. Some studies have found a negative relationship between prior knowledge and search effort, suggesting that consumers with such knowledge do not need to search as much as those without such knowledge (e.g., Moore and Lehmann, 1980). However, others report a positive relationship between search and prior knowledge (e.g., Johnson & Ruso, 1984). This apparent contradiction may be explained by a third group of studies that found an inverted-U shaped relationship between prior knowledge and search effort. Interestingly, two of these studies were of residential search behaviour (Hemple, 1969; Park and Lutz, 1980). However, the message that emerges from the literature is that search is context sensitive, and that we should not be surprised to find that the correlates of search behaviour differ according to the product under investigation.

One of the main themes in consumer research of search behaviour is the identification of market segments based on the nature of search activity. For example, Kiel and Layton (1981) studied the dimensions of consumer information search by examining the sources of information used in search, the brands of products searched, and the time spent in search. Using cluster methods, three groups of consumers were defined based on search behaviour: a high search

group, a low search group, and selective information searchers. A similar study was undertaken by Furse, Punj and Stewart (1984).

A number of recent studies have sought to develop better theoretical and analytical models of search behaviour. An early such example is that by Punj and Staelin (1983) who estimated a casual model with three endogenous and six exogenous variables. Although a major step forward in analytical terms, the explanatory power of the model was disappointingly low with R^2 values for some of the equations as low as 0.01. They interpreted their findings to indicate the presence of significant specification problems. This suggests the need for a wider range and greater number of explanatory variables, an issue that is taken up again in chapter four. This multivariate approach, however, is clearly very promising and a number of more recent studies have sought to develop the basic Punj and Staelin model. One of the most relevant is Srinivasan's (1987) investigation which adopted a similar framework but added a range of new variables, multiple measures of search effort, and considered the issue of direct and indirect effects. He found that the perceived benefits of search together with the size of evoked set were the most important determinants of search effort. Moreover, the model was more successful with around 80 percent of the variance in search effort explained in the model.

In summary, the market and consumer literature provides ample evidence of the complexity and variability of search behaviour. It also demonstrates that the best results are achieved from an analytical framework that embraces consideration of the costs and benefits of search, motivation and beliefs, prior knowledge and experience, in addition to the more standard product, socio-economic and demographic factors.

3.4 Empirical Evidence on Residential Search Behaviour

Over the past 15 years, the literature on residential search has grown spasmodically in sharp contrast to the corresponding literature on job and consumer search. After an initial burst of activity in the early 1980s, interest in search waned somewhat, although it now appears to be experiencing something of a resurgence, particularly in terms of theoretical aspects of search behaviour. However, all too often these theoretical studies have failed to adequately test their hypotheses with fresh empirical evidence, favouring instead a *post-facto* rationalisation based on previous and often dated empirical studies. When attempts have been made to test search theories with new data, sample sizes are usually modest raising the possibility of unreliable conclusions. The overall result is often one of conjecture and confusion.

There is, therefore, a need to review the empirical literature on search in an attempt to clarify what is known about search behaviour and what is more speculation than fact. The empirical literature on search has focused on three major issues: the apparently minimal degree of "search effort" expended by searchers, spatial aspects of search activity, and information acquisition and use during search. A theme that commonly links these issues is the investigation of differences according to dwelling and household characteristics such as tenure, dwelling type and location, family life cycle stage, household size, income and race. More formal frameworks of the type employed in consumer research are rare.

3.4.1 Search Effort

There is no common definition of "search effort". Typically, however, scholarly studies of search have indicated that searchers examine a small number of vacancies over a short period of time. Although widely reported in the literature, the empirical evidence for this generalization is surprisingly thin. There are arguably just two major empirical studies of residential search: Barrett's (1973; 1976) study in Toronto and Hemple's (1969;1970) investigation in two Connecticut housing markets. Additional, and less direct, information on search comes from major investigations of residential mobility such as Rossi's (1955) landmark study of mobility in Philadelphia, Spear, Goldstein and Frey's (1976) examination of mobility in Rhode Island, New England, and Michelson's (1977) analysis of relocation behaviour in Toronto. These groups of studies have two things in common: they are all set in North America and they are all now rather dated. Nevertheless, from citation lists, much of the empirical evidence on search comes from these studies. Unfortunately, it would appear that some investigations that cite these originals appear to adopt different interpretations of what the research actually shows, and other studies generalize away many important differences in favour of basic measures of central tendency such as the mean duration of search. Indeed, as shall be demonstrated later, some studies have misinterpreted, misquoted or selectively quoted data from the original sources. All of this activity has tended to perpetuate the myth that search effort is almost non-existent; in reality search effort is much more diverse than this.

A further difficulty concerns the lack of rigour in definitions that have been employed. Undoubtedly, this has hampered the objective interpretation of the evidence that is available. Logically, if one wished to argue that in the course of search households examined very few prospects, as happens in the general literature (e.g. Golledge & Stimson, 1987; Hartshorn,

1992), one must be prepared to say relative to what baseline. Few studies do this. Moreover, as noted above, many more recent theoretical studies of search have been supported by modest data sets. A related difficulty is that these data sets may be used to generate multiple papers on search, each with a slightly different slant. Whilst understandable from an academic perspective, it makes the review of the literature more difficult. Prolific academics can exert an undue influence in that, through citation, their generalizations can rapidly become part of the accepted wisdom, in spite of the fact that the base data are weak. For example, a small retrospective survey of 120 house buyers provided the key empirical data for a succession of studies by Smith and Clark (Smith and Clark, 1980; Clark, 1981; Smith & Clark, 1982; Clark & Smith, 1982). If one accepts this argument, then it does not seem unreasonable that the empirical basis for the generalization that households engage in minimal search effort is weak, or at least open to question. Therefore, in the remainder of this section we concentrate on a critical review of the main empirical studies of residential search behaviour, concentrating on the duration of search and the number of dwellings considered.

3.4.1.1 The Duration of Search

One of the difficulties in reviewing the literature on duration of search is how one defines the starting point. Hemple (1970) provides information on two distinct periods: a *total* search period which extended from initial perusal of newspaper advertisements to the time of purchase; and an *active* search period, which was not pre-defined[9]. The picture was quite different for each measure and for each of the two markets considered. Thus, whilst the mean duration for total search in south eastern Connecticut was 8.9 months, for Hartford it was 7.2 months. In respect of active search, however, the duration was longer in Hartford (5.0 months) than in the other study area (3.5 months). Means are notoriously poor summary measures as a consideration of the range of responses in each area clearly demonstrates. For example, in the Hartford area one buyer in ten had less than one month of active search, but almost one-fifth of buyers (18%) searched for more than one year.

Spear *et al.* (1976) acknowledge that the extent of search prior to purchase is an important aspect of the mobility process. One of their basic hypotheses was that households engaged in limited search and they test this by considering the duration of search. They found

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[9] This is poor survey practice. Contemporary guidelines stress the need for proper definitions to ensure that all respondents answer the question in the same way (e.g., Fowler, 1993).

that 14% of movers, rising to 30% of owners, conducted no search whatsoever. The figure for owners is similar to the 31% "windfall" purchases in Philadelphia reported by Rossi (1955; 1980). Excluding non-searchers, Spear *et al.* report that "...the median time spent looking was in the order of one month. Only 12 percent of the sample spent more than six months looking for a new place..." (p. 246). These statistics, however, include both owners and renters. From the tabular information presented in Spear *et al.* it is clear that owners searched for longer than renters. The modal search period for owners was two to three months, a figure roughly consistent with Hemple (1970). In contrast, renters typically searched for two weeks or less.

Comparative data on the duration of renter and owner search is also presented by McCarthy (1982). His data was drawn from two Midwestern housing markets and is derived from the Housing Assistance Supply Experiment (HASE). He reports that owners tended to search for longer than renters in both case study areas. Around 40% of renters searched for one week or less compared to around 20% of owners. In contrast, whilst one third of owners searched for four or more months, less than 10% of renters searched for this period. McCarthy attributes this difference to the high transaction costs associated with home ownership.

In terms of search duration, Michelson (1977) draws a distinction between pre-active search thinking time and active search proper[10]. He reports that people spend a longer time deciding to look than actually inspecting and choosing new housing. Michelson writes:

> *"The median length of thought before starting an active search...is over two months, while the search itself is typically less than one month. While those who took longer to decide to look for housing also tended to take somewhat longer in the active search process, the lengths of the two processes are not highly related" (p. 97).*

Michelson's data showed that about 56% of movers spent more than two months in the pre-active search thinking phase whereas the majority of movers spent less than one month in active search (59%). Unfortunately, the definition of active search is not made clear.

Shannon-Daly (1981) hypothesised that two-worker households would search for shorter times than single-worker households on the basis that having both partners in employment would serve as a time constraint. In reality, she found the opposite to be the case; search duration for two-worker households was, on average, about 20 percent longer than that for single-worker households. Unfortunately, as full distributional data are not presented in her study it is difficult to judge the extent to which outliers may have affected her findings. However, her

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[10] More recently, this pre-active stage has been referred to as passive search (e.g., Aitken, 1984; Wood & Maclennan, 1982)

tabular data shows that these estimates are accompanied by large standard deviations which are indicative of a wide range in responses. It is possible that conflict between earners may partially explain her findings, a factor which is considered in this thesis.

In his study of the movers from the inner areas of the Saskatoon (Canada) housing market, Phipps (1984) showed that 46 percent of voluntary movers searched for less than one month. Not surprisingly, households forced to relocate had typically shorter search periods, with 57 percent finding a new property within one month. This suggests that the reasons for movement are likely to be important determinants of the amount of search effort. This is not surprising as the general residential mobility literature indicates that reasons for movement exert important effects on the distance and direction of subsequent relocation (e.g. Cadwallader, 1992; Clark, 1982; 1986; Hartshorn, 1992).

There are fewer studies on search behaviour outside of North America, a situation common in the residential mobility literature in general (Short, 1978). Nevertheless, there are some studies worth mentioning. Although set within a more general mobility framework, the study by Munro and Lamont (1985) is one of the few British studies that reports on search behaviour. Referring to owner occupier search in Glasgow, they observe that

> *"The period of housing search...seems to be quite short, with 41% of the sample of recent movers having taken seven weeks or less to find a house and 75% no more than fifteen weeks" (p. 1344).*

First time buyers were found to search for longer than continuing home owners, a result attributable to the more extensive knowledge and experience in the latter group. This is consistent with the consumer research literature on the role of prior knowledge and experience. Karn, Kemeny and Williams (1985) report that more than half of the inner city buyers in Birmingham and Liverpool found their homes within a three month period. Stimpson (1978) showed that the mean duration of search by households in Adelaide, Australia, was 8.4 months. The distribution was positively skewed such that one in ten movers searched for more than two years, although the modal period was between one and three months. As noted above, this skewed distribution is typical of search effort in a variety of contexts.

The length of time spent in search is clearly influenced by a multiplicity of factors including the urgency of finding an alternative dwelling, the time and money costs involved in search and the specific requirements of the searcher. Hemple (1970) is one of the few studies to document these differences in detail. He showed that, for example, the duration of active search was longest in both of his case study areas amongst those households headed by a

person aged between 30 and 39 years. By comparison, search was shorter for households headed by a younger or older person. Household size was also an important distinguishing factor. In Hartford, the distribution was bimodal with peaks in the small and large household groups. In south eastern Connecticut, however, the smallest and largest households had below average durations of active search. Clark (1981) and Clark and Smith (1982) incorrectly state that Hemple's data indicates a negative relationship between family size and search duration. Higher income was found to be associated with longer search periods, although, as with household size, the relationship was non-linear. As with household size, Clark and Smith are too simplistic when they claim that Hemple's data indicates that income is negatively related to search duration. In analysing their own data Clark (1981) reports that larger households in their study had a tendency to search for a shorter period, a result that he failed to recognize as consistent with Hemple's south eastern Connecticut data (but not the Hartford data). All other differences in the Clark and Smith data were not significant, which is hardly surprising given the small size of the sample.

Michelson (1977) provides an alternative perspective on how search effort varies within the population. His primary concern was with dwelling and location attributes rather than the characteristics of the households. For example, he reports that households that moved to houses took much longer to look for their new accommodation than those choosing apartments. Similarly, the longest active search period was associated with households moving to detached houses, irrespective of the form of their previous accommodation. No explanation is offered, but it seems likely that market constraints may be influential in such cases.

Maclennan's (1992) more recent study in the Strathclyde Region of Scotland provides similar evidence on differences in search duration according to the type of property purchased. For example, he reports that buyers of new houses searched for just eight weeks on average compared to a regional mean of 14 weeks. Search duration increased where buyers were looking for detached dwellings, bungalows, large properties (6+ rooms) and properties above the £80,000 price threshold. Whilst this might be indicative of a more cautious search strategy for those at the higher end of the market, Maclennan suggests that it may in fact reflect supply constraints. In making this point, Maclennan provides further evidence of the need for models of search that include explanatory factors beyond those related to the household and the purchased dwelling. In terms of socio-economic determinants, in reporting a negative association between age of head of household and search duration Maclennan's analysis

Table 3.1: The Duration of Search - Examples from the Housing Literature

Author	Year	Area	Subjects	Search Duration	Comments
Hemple	1970	Two study areas: 1) Hartford 2) SE Connecticut Both New England.	Home owners	1) 7.2 months total search, 5.0 months active search. 2) 8.9 months total search, 3.5 months active search.	In both study areas, around 10% of households searched for less than 1 month, but 18% in Hartford and 12% in S.E. Connecticut searched more than 1 year. Education negatively related to search duration in both areas. Other correlates less clear cut.
Spear *et al.*	1976	Rhode Island, New England.	Owners and renters	Median search "around 1 month", rising to 2-3 months for home owners.	Found that 14% had "no search", rising to 30% for home owners. Only 12% searched for more than one year.
Barrett	1976	Toronto, Canada.	Home owners	No reported mean values. Estimated from published tables at 22 weeks.	Large range in search effort. 7% conducted no search, 41% searched for up to one month, and 9% searched for more than 2 years.
Michelson	1977	Toronto, Canada.	Home owners	Around two months in "passive search", plus one month in "active search"	No definitions of active search. Significant variations in effort according to types and locations of dwellings purchased.
Stimpson	1978	Adelaide, Australia.	Home owners	8.4 months on average with a modal search period of 1-3 months.	Positively skewed distribution. 10% searched for more than two years.
Clark & Smith	1982	San Fernando Valley, California.	Home owners	Retrospective sample searched mean 3.7 weeks. Longitudinal sample searched mean 77 days (11 weeks).	Big differences in two samples. Also large range. For example, retrospective sample had mean 3.7 weeks, median of 3.0 weeks, and standard deviation of 6.13 weeks. In retrospective sample, age of Head of Household had significantly related to search duration (-). In longitudinal sample, dwelling size significantly related to search (+).
Kam, Kemeny & Williams	1985	Birmingham & Liverpool, England.	Home owners	No reported means. More than half sample found homes within a three month period.	Inner city buyers.
Munro & Lamont	1985	Glasgow, Scotland.	Home owners	No mean values reported but 58% within 11 weeks.	Strong bi-modal distribution with peaks at 0-3 weeks and 16+ weeks. First time buyers had longer search than continuing home owners. For example, 31% of FTB searched for 16 weeks or more compared to 18% of continuing home owners & 26% of the full sample.
Maclennan	1992	Strathclyde Region, Scotland.	Home owners	Mean search duration of 14 weeks. But, 11% searched less than one week; 37% less than 1 month; only 4% searched more than one year.	Search 8 weeks for buyers of new houses; 18 weeks for buyers of existing property; first time buyers buying new houses searched for 10 weeks; time positively related to dwelling size, and certain types of housing (bungalows & detached property). Elderly had longer search.

is consistent with the earlier studies reviewed above. Interestingly, Maclennan also argues that extended search duration reflects searcher problems rather than searcher whims. He supports this view by showing that, at 18 weeks, search duration is significantly longer for those who reported problems in finding a house of the right size compared to 11 weeks for those who did not experience this difficulty. Similarly, he shows that those who had problems in finding suitable areas searched for longer (18 weeks) than those who had no such problem (10 weeks).

In assessing the empirical evidence on the duration of search it is fairly clear that there is no common ground. Search duration is much more variable than one is often lead to believe. It is true that many, indeed the majority of, owner occupiers search for short periods. However, it is also true that many search for extremely lengthy periods. Reaching a consensus view is further hampered by the lack of definitions or by differences in definitions. Moreover, of itself, the mean duration of search is a poor measure of search effort in that it says nothing about the intensity of search or the difficulties that may or may not have resulted from imperfect information or other constraints experienced in the course of search. For example, it may be expected that duration will be influenced by financial and time constraints, the social, demographic characteristics and preferences of the searchers themselves, and the general market and economic conditions in which search occurs. In such circumstances, it would be surprising if patterns were always geographically comparable and consistent over time. Table 3.1 summarises the findings on search duration for a number of the major studies noted above.

3.4.1.2 The Number of Dwellings Considered

As with search duration, estimates of the numbers of houses searched are bedevilled by definitional problems. Hemple (1970) measured the number of dwellings entered for inspection. He found relatively little difference in the two Connecticut markets in his study. He reports that in both areas buyers examined a median number of eight dwellings, although some differences were apparent in the mean values and in the distributions. Thus, buyers in Hartford inspected an average of 13.6 properties against an average of 11.9 in south eastern Connecticut. At one extreme, 10% of Hartford buyers and 16% of south eastern buyers inspected less than three dwellings prior to purchase. In contrast, 38% of Hartford buyers and one third of south eastern buyers inspected more than 12 properties. An interesting result was that the majority of inspections in both areas occurred without the presence of the estate agent. As with search duration, differences were apparent when household characteristics were taken into account.

In Hartford, for example, young and old household heads reported below average numbers of inspections. In south eastern Connecticut, however, the older households had the most extensive search. In terms of household size, in both case study areas, the number of dwellings inspected declined with an increase in size. The pattern with income was different. The highest income groups inspected the most properties in Hartford but the least in south east Connecticut.

Around the same time as Hemple was collecting his data in New England, Brown and Holmes (1971) were examining the residential choice behaviour of a sample of 189 movers in Cedar Rapids. They report that the maximum number of properties viewed by their respondents was ten, although 44% viewed just one dwelling and three-quarters viewed less than four dwellings. Spear *et al.* (1976) did not compile data on the number of dwellings inspected and Rossi's (1980) evidence is confusing. When he writes "Some families were able to consider several places within their acceptability ranges; others had their choices limited to only one place" - it is not clear whether the term "places" refers to dwellings or areas (p.210).

In contrast to the conventional view that searchers consider a small number of dwellings, Michelson (1977) reports that "Home buyers looked at very many places during the search process" (p. 101). He showed that house buyers tended to examine more dwellings than apartment buyers with about three-quarters inspecting seven or more units compared to about one-third of apartment buyers. Households that purchased suburban dwellings had a more extensive search than those buying in central locations. In this respect, more than twice as many suburban buyers inspected seven or more units compared to buyers in downtown Toronto.

Michelson's results are not dissimilar from those reported by McCarthy (1982). From a study of recent movers in Midwestern USA, McCarthy found that a sizable minority of buyers had examined seven or more properties. In the Brown County area, for example, 46% had inspected this number of dwellings, and almost one in five reported that they had examined more than 16 dwellings. Nevertheless, there was considerable variation in the results in that about one third of owners examined three or fewer dwellings, and somewhere between one fifth and one quarter had examined just one dwelling.

In a series of studies in the early 1980s Smith and Clark build on this empirical information. Two separate samples of buyers were involved: a retrospective survey of 120 buyers (Smith and Clark, 1980; Clark, 1981; Smith & Clark, 1982; Clark & Smith, 1982) and a longitudinal sample of 43 active searchers (Clark and Smith, 1982; Smith & Clark, 1982). The results from both samples presented somewhat different pictures, a situation that the authors

attribute to the possibility that the samples were drawn from two different populations. In terms of numbers of dwellings inspected, the retrospective survey provided a mean of 15.3 and the longitudinal sample a mean of 24.8 dwellings. An examination of the standard deviations indicates that, for the retrospective survey, there is a wide diversity in search effort (Clark, 1981). Indeed, Clark and Smith (1982) report that one searcher examined 76 dwellings and another inspected 95 houses. Outliers and extreme values can cause problems in the analysis and modelling of the data, but they do illustrate that the commonly reported "fact" that search effort is minimal requires careful consideration and should not be accepted unquestioningly. Shannon-Daly's (1981) study draws a similar conclusion; she reports that typically households examine between 15 and 20 homes before a decision to purchase is made. In her view, these results "cannot support earlier research that has suggested that housing searches tend to be casual or short-lived" (p. 109).

Relatively few British studies provide details on the number of dwellings considered in search. Even government run research projects on house purchase have tended to ignore this and many other aspects of search (e.g., Littlewood & Mason, 1984). Nevertheless, there are some studies which present this type of information. For example, Karn *et al.* (1985) report that a sizable minority of households considered only one dwelling (34% Birmingham, 28% Liverpool) and around 60% in both cities considered three or fewer dwellings. In contrast, just 11% of buyers in Birmingham and 13% in Liverpool considered ten or more dwellings. Data for Northern Ireland is even more scarce. Although Murie, Hillyard, Birrell and Roache's (1976) landmark study of residential mobility and vacancy chains provides basic descriptive information on search behaviour, no data is presented on the duration of search or the number of dwellings considered. The only study to include information is McPeake's (1985) investigation of low-cost home ownership in Northern Ireland[11]. He reports that buyers in his study appeared to exert relatively limited search effort. Almost 40% of searchers seriously considered only one dwelling and three-quarters considered three dwellings or fewer. Nevertheless, a small minority engaged in very extensive search, with 8% considering more than 15 dwellings.

As with search duration, for definitional reasons, it is difficult to reach a consensus view on the number of dwellings inspected in the course of residential search. However, the common

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[11] The term "low-cost" was defined by reference to the price ceilings set for entry to the Northern Ireland Co-Ownership scheme. At the time of the survey, the scheme was restricted to newly constructed dwellings costing less than £25,000 or existing dwellings in Belfast only costing less than £20,000.

Table 3.2: The Number of Dwellings Considered - Examples from the Housing Literature

Author	Year	Area	Subjects	Search Duration	Comments
Hemple	1970	Two study areas: 1) Hartford 2) SE Connecticut Both New England.	Home owners	1) Mean 13.6 dwellings; Median 8; Standard deviation 12.0. 2) Mean 11.9 dwellings; Median 8; Standard deviation 12.9	Large differences in number of dwellings considered across the two areas. For example, in Hartford, "husband's education" positively related to number of dwellings seen; In SE Connecticut, relationship is "U-shaped". Similarly, in Hartford, income is positively related to number of dwellings seen, but negatively related in the other area. In both areas, this aspect of search effort declines with family size.
Barrett	1976	Toronto, Canada.	Home owners	No reported mean values. Estimated from published tables at 11.7 dwellings; Modal group 2-4 dwellings.	Wide variation with 14% viewing just one dwellings, 28% inspecting 2-4 dwellings, and 17% inspecting 5-7 dwellings. At opposite end of scale, 8% reported examining more than 50 houses.
Michelson	1977	Toronto, Canada.	Home owners	Around three-quarters looked at seven or more units. No mean values presented.	
McCarthy	1982	Parts of Pittsburgh & Philadelphia.	Home owners	Median in Brown County, Philadelphia 6.4 dwellings; Median in St. Joseph's County, Pittsburgh 5.8 dwellings.	Results for owner occupier search in both areas similar. In Brown County, 21% examined only one dwelling; 26% in St. Joseph's County. At opposite end of scale, 18% in BC and 10% in SJC examined 17 or more dwellings.
Clark & Smith	1982	San Fernando Valley, California.	Home owners	Retrospective sample examined mean 15.3 dwellings, median 9.5 dwellings, with standard deviation of 16.5 dwellings. The figures for the longitudinal sample were 24.8, 22, and 16.3 respectively.	Regression analysis for retrospective sample has R^2 of 0.20. Use of estate agents was only significant term (+). For longitudinal sample, R^2 was better at 0.32, but again only one significant term - neighbourhood quality (+).
Karn, Kemeny & Williams	1985	Birmingham & Liverpool, England.	Home owners	Birmingham searchers - 34% considered just one dwelling, and 16% considered 10+. For Liverpool, figures were 28% and 13% respectively.	Inner city buyers.
Gibb	1992	Glasgow	Home owners	No mean values reported, but 15% viewed just one dwelling, 10% viewed two and 8% viewed three. A large proportion (40%) viewed 10 or more, including 19% that viewed 16 or more.	Survey based on small sample of 144 cases. Interestingly, the pattern for bids was very different with 60% bidding on one dwelling only, and 26% on two.

view that searchers examine a small number of properties is an over-simplification. Furthermore, it is difficult to assess the information without recourse to some baseline measure. Undoubtedly, the numbers are small relative to the total number of vacancies potentially available. However, when set against the number of available dwellings that match the searchers requirements, a different picture may emerge. In any event, if a household's search is very efficient, i.e., if unsuitable dwellings are filtered out during what Michelson (1977) refers to as "the pre-active" or passive stage of search, the numbers of dwellings inspected may seriously under count the numbers searched or considered in the widest sense. Details from selected studies are summarised in Table 3.2.

3.4.2 Spatial Aspects of Search Behaviour

There has been relatively little research effort on the spatial aspects of search when compared to other aspects of the search process (Huff, 1982). This is particularly surprising in that many of the empirical studies of search have been completed by geographers. Studies with a spatial dimension have tended to focus on two main issues: (1) relatively simple measures of search activity; (2) the development of formal models of spatial search, few of which have been tested empirically.

3.4.2.1 Measures of Spatial Search Activity

As with measures of search effort, it is difficult to compare spatial search behaviour because of general lack of agreement in the literature over how "space" should be measured and recorded. A variety of measures have been employed. Most rely on simple counts of the number of "areas" searched, the distance over which search occurred, and, in fewer cases, the shape of search clusters, and their orientation relative to a single point in space.[12] There is nothing inherently wrong with this approach as long as the definitions are made clear.

Not all of the major empirical studies find differences in spatial search behaviour. For example, Hemple (1970) reports no differences in the geographic extent of search in his two case-study areas. On average, searchers in both areas inspected houses in three different towns. However, no attempt was made to analyse patterns within particular towns. In other studies, the information that is presented is misleading or confusing. For example, whilst Spear

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12 Usually the address of the dwelling occupied prior to search, or the town centre or Central Business District (CBD).

et al. (1976) report that about one-third of movers had considered just one community area, the data appears incomplete as they also note that just 13% had considered two or more areas. Even allowing for the high percentage of "non-searchers", there is a large proportion about which nothing is said.

Still, the underlying message of many studies is that search is spatially restricted. Silk (1971) suggests that when faced with a spacial search problem, most people tend to search within a restricted number of known areas, and the empirical evidence does tend to support this proposition. Thus, Barrett (1976) reports that more than 90 percent of searchers in his study of Toronto restricted their search activity to areas within three miles of their current home. According to him, search behaviour is not a spatial excursion but is areal mobility within "reassuring confines" (p. 131). This conclusion was based on the finding that 70 percent of his respondents claimed that they were familiar with the neighbourhood that they moved into before they purchased their new homes, and 60 percent knew the street. A more recent study in Australia similarly reports highly focused spatial search activity. Stimpson (1978) found that two-thirds of households in his study searched in only three or less suburbs compared to 3% that searched ten or more, although there was a considerable range in behaviour. Shannon-Daly (1981) also reports that the spatial extent of search amongst her sample of Orlando searchers was modest and that no significant differences could be detected between different types of households. Phipps (1984) reports that voluntary searchers in Saskatoon examined properties in a median number of 2.4 neighbourhoods and relocated an average distance of 2.98 miles.

One of the few studies that provides a detailed description of how search areas were defined is Clark and Smith's (1982) study of buyers in the San Fernando Valley. Here, the authors attempted to define areas that were relevant to searchers. Thus, rather than using administrative areas which is common in other papers, they based their areas on descriptions used by realtors in their newspaper advertisements, supported by a secondary analysis of information on prices and dwelling characteristics. They found that buyers searched an average of 2.75 of these types of areas, although there was considerable variability. In general, the distribution was negatively skewed, but with a tendency towards a bimodal pattern (Clark & Smith, 1982). In the retrospective part of their survey, the education of the head of the household and the length of residence at the previous address were found to have significant negative correlations with the number of areas searched. None of the remaining 16 variables had a significant effect.

Studies in the UK report similar findings. Thus, Ford and Smith (1981) show that Birmingham owner occupiers moved an average of just 3.15 kilometres. In Northern Ireland, Murie *et al.* (1976) report that one third of residential moves occurred within walking distance of the mover's previous place of residence. Maclennan's (1979a; 1979b) study of student search behaviour in Glasgow provides a range of information on spatial search patterns. Although set in the private rented sector, the results are interesting. Using data compiled from surveys and by students in the course of their search, Maclennan found important differences in spatial search activity between new and continuing students. In general, new students had fairly large, regular-shaped search areas centred on the university. In contrast, the more experienced continuing students were more discriminating in their search, preferring more tightly defined areas close to, but centred on, the university. Continuing students also searched more areas, whereas new students tended to search in a single, large amorphous area. These results point to the importance of information in search - the more experienced, continuing students had a better information base on which to draw, and this influenced spatial search activity. Interestingly, this finding runs counter to the evidence from the consumer literature which tends to suggest that, because of reduced uncertainty, more experienced searchers should search less than less experienced searchers. Nevertheless, the important point here is that certain spatial biases in search may result from the use of particular channels and that existing knowledge may be an important determinant of subsequent search behaviour.

The study of owner occupier residential mobility in Glasgow conducted by Munro and Lamont (1985) confirms that, as in the rented sector, search does appear to focus on a small number of areas. The authors analysed mobility within a framework of six broad areas and found that between 83% and 89% of moves occurred within the sector of origin. They conclude that area selection is a very important part of the housing choice process and "...even allowing for the overall dominance of the tenure decision...most people commence their search with a strong spatial preconception" (p. 1345). In Maclennan's (1992) more recent study more detailed information is provided on how the extent of search varies according to households and dwelling characteristics. His analysis demonstrates that the number of search areas increased with search duration from 3.6 areas for those housed within a week, to 4.6 for those within a month and 5.7 within six months. Interestingly, for those searching beyond six months, the mean number of areas fell back to 5, a result that Maclennan attributes to "sticky preferences". On this issue he writes:

> *"That is, as search duration becomes extended two different sub-groups exist within the sample. First there are those households who, failing to secure homes in their initial areas of search gradually extend their area 'set'. Secondly, there are households who stick to a limited set of areas and extend search duration as a means of fulfilling areas preferences" (p. 55).*

Maclennan also reported important differences in the extent of spatial search according to the certain socio-economic factors. For example, he found that 57 percent of young, low-income, first-time buyers searched in just one area, compared to 44 percent of his overall sample. In contrast, high income households searched over a much wider range of areas mirroring the effect with search duration. Whilst in general households in his study searched in an average of 3.6 areas, elderly households were more restrained, searching in just 2.4 areas on average.

The spatially restricted nature of search is reflected in the relative shortness of distances moved by intra-urban movers in general. There are rather obvious implications that emerge from this hypothesis in terms of segregated housing markets. For example, if segregated minorities live in identifiable contiguous zones, as is the situation with Roman Catholics in Belfast (Chapter 2), then it seems possible that short distance relocation will, *ceteris paribus*, tend to occur within the segregated zone. This raises an important issue about whether or not search occurred outside the segregated zones and, if so, why was it unsuccessful?

In terms of the shape of search areas, the study by Adams (1969) in Minneapolis lead him to suggest that urban residential search is sectoral in shape. Drawing on the Burgess concentric zone model (Burgess, 1925), Adams postulated that the spatial bias in intra urban migration behaviour is explicable in terms of orientation to the CBD. Adams' thesis rests on the proposition that households have limited awareness of the urban environment and that residential search only occurs within this "awareness space" (Brown & Moore, 1970). He argues that the daily movement pattern, or kinetic field, of an urban resident is concentrated in the home sector which includes that part of the city where the resident lives, the most direct route between the abode and the CBD on the one hand and the urban fringe on the other. He suggests that the mental maps possessed by individuals will follow this sectoral pattern and hence search will also adhere to this pattern.

Empirical testing of the Adams' model has, however, produced conflicting results: Some studies confirmed sectoral biases in search activity (Donaldson, 1973; Whitelaw and Robinson, 1972; Ford & Smith, 1981) whereas others questioned whether the model could be generalized beyond the geographic setting in which it was developed. Brown and Holmes (1971), for example, argued that the model could not be generalized beyond the setting in which it was

developed. They take a different perspective on search. In their study they attempted to uncover information on what they referred to as "...distance bias, directional bias, and sectoral bias" (p. 310). Using a mapping program developed for the purpose,[13] they found that there was

> *"... a tendency for the search space of migrants to consist of a particular area that is removed from their initial residence site in both a sectoral and directional manner vis-a-vis the CBD. In contrast, search within that space appears to be on a highly localized scale with little or no directional or sectoral bias. One spatial bias that does occur, however, is the location of the chosen vacancy near the centre of the search space rather than at its periphery" (p. 318).*

Brown and Moore also make the important point that the search activity of low-income, inner city residents was more spatially constrained than that of higher-income, suburban searchers.

In addition to providing descriptive information on the number of areas searched, Barrett's (1976) study in Toronto furnishes some indication of the spatial intensity of search activity. He showed that search was very tightly clustered, with clusters typically less than three-quarters of a mile in radius, and a modal size of just one-quarter of a mile. Only 4% of his sample of 380 movers searched clusters with radii in excess of four miles.

There are several difficulties with the simplistic measures of spatial search. Such measures ignore the role of housing supply. No matter how thoroughly a household searches, it may have difficulty finding a dwelling. If the supply of vacancies is spatially biased, then search may also be biased. But, certain vacancies may not be acceptable to particular searchers, for reasons such as price, location, dwelling characteristics, and so on. This is akin to the notion of the "evoked set" that is common in the consumer literature on search (e.g. Baker & Wilkie, 1992). In housing, this again raises the importance of sub-markets or product groups (Maclennan, Munro & Wood, 1987). It is possible that product groups may be arranged in price or status order. Thus, the position of the searcher in this hierarchy of product groups will obviously influence spatial search activity. As one moves up the hierarchy, numerically there are fewer and fewer dwellings to consider. This has implications for search strategy. It may be that for certain product groups there are very many geographic clusters, but for others there are few. As with search effort, therefore, attempts to explain the spatially localized nature of search must employ a wide range of explanatory factors that move beyond those that pertain solely to the dwelling or the household itself.

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[13] The program was TRANSMAP (Brown, Moore & Moultrie, 1969)

3.4.2.2 Modelling Spatial Search Behaviour

A number of authors have explicitly referred to residential search as a spatial search problem (e.g. Silk, 1971), but comparatively little work has been completed on the spatial patterns as opposed to topics such as search effort and information use in search. One of the few scholars to investigate spatial search behaviour in detail is James Huff.

Huff (1986) identifies two competing perspectives on spatial search. The first perspective views search as the outcome of an unconstrained spatial choice process, where the pattern of search reflects spatial biases in search strategy. Within this perspective, distance-decay and area-based search models dominate. Both implicitly assume that searchers adopt a spatially biased search strategy which reflects the household's selective knowledge of market opportunities. Distance-decay models assume that the probability of visiting a vacancy declines with distance from key nodes such as existing residence and place of work. Area-based search models are consistent with the traditional behavioural mobility model in that they assume that search involves a two stage process: households first select an area and then inspect vacancies within the selected area (Smith *et al.*, 1979). The essential mechanism of the area-search model is the manner in which households decide to continue searching in the initial area, begin searching a new area or stop searching altogether.

The second perspective emphasizes the importance of constraints and concentrates on the spatial structure of the search context. One of the weaknesses of the simple behavioural model is that it implicitly assumes that all searchers face the same set of choices, with the final choice simply a reflection of preferences. It is now well accepted that all households do not share the same opportunity set and that a number of constraints significantly influence search outcome (Desbarats, 1983). These constraints are many and various, and may reflect a variety of agencies ranging from national governments to individual household circumstances. Particular types of households, such as the elderly, recent market entrants, particular ethnic groups, may be highly constrained to housing in particular geographic areas, and housing within sharply defined price ranges.

In a more recent contribution Huff (1986) provides a detailed examination of three alternative spatial search models: a constrained choice set model, an area-based search model and an anchor points model. Huff's analysis of these models confirms that households exhibit strong spatial regularities in their search behaviour and that these regularities can be related to identifiable household and housing market characteristics. This is an important point, because

it implies that certain types of households (e.g. minorities) may adopt particular spatial search strategies which are, in some ways, different from other types of households. The basic constraints model is found to provide a good description of the aggregate search pattern, but it fails to adequately represent individual search behaviour. The main discrepancy between observed and predicted outcome is that the observed search patterns are much more concentrated than those predicted by the model. One possible explanation of this discrepancy is that households may deliberately choose a particular submarket for intensive search, a procedure tested in the area-based search model. Using Markov chain analysis, Huff provides strong evidence that households employ spatially biased search strategies and, furthermore, that geographically defined submarkets limit the search arena of individual households. However, like the constraints model, the area-based model provides weak correspondence between observed and predicted search behaviour. The third model, the anchor-points model, is considerably more accurate than the previous models. Huff is able to demonstrate that households orientate their search to key anchor points. He concludes that

> *"..the key to understanding where a household will search and ultimately move is to be found in its locational preferences as mapped onto the distribution of vacancies in the possibility set...and these preferences are a function of the locations and the relative importance of key anchor points in the household's activity space." (Huff, 1986, p. 223)*

There are important implications that emerge from this result in terms of spatial search in a segregated housing market. It was shown in the previous chapter that the Roman Catholic population in Belfast is highly segregated from the Protestant majority. Apart from residential separation, the two communities in Belfast have separate sets of institutions such as schools, places of worship, recreational facilities and so on. If anchor points within the household's activity space are also located within the segregated space, then it is very likely that search will be spatially constrained.

As noted in the introduction to this chapter, after a relatively fallow period, in the past few years there appears to have been an increase in interest in search as a focus for academic investigation. Spatial search problems are at the forefront of this renewed research effort. As noted earlier, many of the modelling approaches that characterise housing search draw on economic search theory. One of the limitations of economic search theory is its largely aspatial nature. A number of authors have begun to address this deficiency and a series of papers have emerged in the areas of job and retail search behaviour (e.g. Hirtle & Gärling, 1992; Jayet, 1990a; 1990b; Maier, 1991; 1993; Miller, 1994; Rogerson, 1982; 1990). These recent efforts are

theoretical in nature and remain to be tested empirically. Nevertheless, they represent a lively area of research activity which has begun to highlight some specific problems that need to be addressed if spatial search, in the context of the housing market, is to be adequately modelled.

In relation to spatial search, the decision-maker must solve two interrelated problems: (1) the sequence in which to search available opportunities, and (2) the identification and choice of an acceptable alternative. These may be referred to as the routing problem and the stopping problem. In the preceding sections we have discussed the nature of the stopping problem and have demonstrated the insights available from economic search theory. Economic search theory, however, does not account for routing problems. Furthermore, as Maier (1991) notes, the routing problem and the stopping problem are inseparable and can only be solved simultaneously. This is a major weakness in existing economic approaches.

Although mostly associated with transportation studies, routing problems are dealt with in a number of disciplines (e.g. Boden *et al.* 1981). One of the most well-known routing problems is the travelling salesman problem (TSP). Recently Rogerson (1990) and Maier (1991) have independently attempted to relate the TSP to problems of spatial search behaviour, although neither have been entirely successful. Rogerson (1990), for example, argues that the relationship between routing problems and spatial search makes spatial search highly complex. He writes

> *"Solutions to the problem fall between two extremes. Where search is costly relative to expected returns, it will be optimal to search only a small number of alternatives; in the extreme case where only one alternative is searched it is clearly optimal to simply visit the closest one. When search is not costly relative to expected returns, in the limit all alternatives will be examined, and the problem collapses to a TSP" (p. 338).*

Obviously, the more common situations are some way between these two extremes. Using simulation methods, Rogerson tested a series of alternative routing algorithms including nearest neighbour, random and TSP routes. The results were somewhat disappointing in that TSP solutions resulted in only marginal improvements over routes selected on a random basis.

Maier (1991) points out that insights from complexity theory would suggest that the selection of an optimal route is only possible if all solutions are fully enumerated and, for most problems, this cannot be realistically achieved. For Maier this indicates that the travelling salesman problem may not be solvable. Moreover, the linking of routing and stopping problems in spatial search suggests that spatial search problems may also be intractable causing Maier

(1991) to comment that "For the spatial search problem, the consequence of this...is rather disappointing" (p. 145).

Maier does, however, detect a glimmer of hope. He suggests that the mere fact that real life searchers cope with spatial search raises the prospect that searchers use simplifying heuristics rather than optimal search strategies, a point echoed by Hirtle and Gärling (1992). In residential search, the empirical evidence reviewed above indicates that searchers adopt a hierarchial approach, first selecting areas and then dwellings within areas. The first stage area selection is a form of simplifying heuristic - a large part of the spatial system is ignored. It is also possible that the use of agents in search may constitute a form a simplification. Moreover, Huff's (1986) contribution on anchor points is consistent with a heuristic model. This should simplify the routing problem and Maier (1991) concedes that certain spatial structures may lead to more simple spatial search patterns. As yet, it is not possible to infer the affect of religious residential segregation. From a certain perspective, segregation simplifies routing by reducing choice sets; From another perspective, it may complicate route selection by inducing problems of learning.

In a more recent contribution, Maier (1993) further explores the structure and complexity of spatial search problems (SSP). He begins by setting out a series of assumptions that define the nature of spatial search problems in a general sense. The assumptions, whilst quite restrictive, are common to many search models. For example, the assumptions preclude search terminating without a purchase, supply difficulties are ignored, and learning and behaviour modification during search is also ruled out. In spite of these simplifying assumptions, Maier (1993) is still unable to solve the routing aspects of the spatial search problem. The problem remains NP-Complete, that is, all routes must be evaluated before an optimal route can be identified. Nevertheless, Maier remains hopeful that some form of solution is possible. He writes that "...in order to get a problem of manageable complexity, some additional constraints have to be imposed upon the general SSP..." (p. 250). He suggests that one course of action may be to restrict the size of the problem considered, although no guidance is given on how this might be achieved. A further possibility is to consider solutions that are less than optimal in nature.

Irrespective, it is clear that recent attempts at developing a model of spatial search behaviour that accommodates routing and stopping problems is fraught with difficulties. Whilst interesting and intellectually challenging, it is unlikely that major progress will be made in the field in the foreseeable future. Moreover, the current state of knowledge offers few insights into how search behaviour may differ between particular segments of the population.

3.4.3 Information Acquisition and Use in Search

The housing market is a complex market in which information and information providers are important factors. Households are faced with imperfect information on potential housing opportunities and must, therefore, search for information upon which to base their choices. From the outset, studies of residential search have noted that search is essentially about the collection of information and its use in order to reduce uncertainties (Barrett, 1970; Hemple, 1969; 1970; Silk, 1971). Smith and Clark (1980) have commented that the housing market is a good example of a decision making environment in which there are several distinct channels of information and in which considerable resources are expended in acquiring this information. Hemple (1970) noted that in order to develop a knowledge of search behaviour, it is necessary to explore both the nature and extent of information-seeking behaviour. This is because differences in information acquisition between searchers is pervasive and has been shown to impact on search costs and the outcome of search (Turnbull & Sirmans, 1993). Clearly,

> *"It is of considerable importance in the analysis of the housing market to understand how individuals acquire new information but also to comprehend how this information is used to revise housing consumption strategies" (Maclennan, 1982, p. 73).*

There would, therefore, appear to be a common belief that information plays a vital and central role in household residential search behaviour.

One of the earliest studies that emphasized the role of information in housing search was that by Brown and Moore (1970). According to their conceptual framework (noted earlier), search behaviour consists of the utilization and reaction to a variety of information channels. There are a potentially wide number of information channels available to searchers. Hemple (1970) suggests that it is important to discover what channels are used, what kinds of information are gleaned from particular channels, and how this information affects subsequent decision-making behaviour. Similarly, Maclennan (1977) indicates that it is important to discover *why* certain sources are used and not others[14]. Obviously, the various channels will differ in a number of ways including their frequency of use, their formality, their accuracy, their reliability, their coverage and their cost. A succession of empirical studies suggest that the most important channels are newspaper advertisements, estate agents, personal contacts and personal

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[14] Although the survey instrument developed for use in this study compiled information on these issues, constraints of space prevent their reporting in this thesis.

observation of "For Sale" signs usually by "driving around", although the relative significance of each varies from study to study[15].

We have already acknowledged Rossi's (1955; 1980) contribution to the field of mobility research. Rossi (1980) notes that "Between the household and the housing market intervene the channels of information" (p. 207). In his study of movers in Philadelphia, the most frequently employed sources were newspaper advertisements (63%), personal contacts (62%), walking or driving around (57%), and estate agents (50%). Perhaps surprisingly, a sizable minority "...were appraised of housing opportunities without any expenditure of effort on their part" (p. 208). Rossi describes these opportunities as windfall opportunities, although he acknowledges that respondents may have over estimated their significance. He makes an important point that a channel of information may be widely used but still be of relatively little value. Thus, he also reports on the effectiveness of channels, that is, those channels that were used to find the dwelling that was eventually purchased by the searcher, an approach adopted in many subsequent studies. The effectiveness pattern differed somewhat from the more simple coverage pattern outlined above. The most effective source was found to be personal contact (47%), with windfall gains in second place (25%). In summarising the evidence, Rossi (1980) notes that:

> *"Apparently the most effective means of obtaining a new dwelling unit are personal contacts. Real estate agents and newspapers, although commonly employed, have a high proportion of fallow results. Windfalls are not, of course, a means which can be 'employed'; windfalls can only 'happen'" (Rossi, 1980, p. 209).*

In analysing the channels used by house buyers in Connecticut, Hemple (1970) first classified the sources into two broad categories: commercial sources and social sources. He notes that commercial sources are under the direct control of the seller and communications from these sources are motivated by a desire for profit. Social sources are much less formal and are outside of the control of the seller. Hemple notes that social sources are the by-product of "normal interpersonal relations with friends, co-workers, and relatives" (p. 76). In common with Rossi, Hemple found that newspaper advertisements were the most widely used information source in both of his study areas. In Hartford, for example, 87% of buyers had used newspaper advertisements. Estate agents were also widely used. A number of authors including Hemple (1970) and Palm (1976a; 1976b) note that estate agents can be seen as a biased information

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15 The place of "For Sale" signs in American studies serves as a good example. In some states, the use of signs was / is prevented under local laws. This means that care is needed in making cross-study comparisons.

source. Nevertheless, newspapers and estate agents were typically used by 80% or more of buyers in the Connecticut area. Interestingly, walking or driving around was the third most commonly employed source in both case study areas, a result consistent with Rossi's analysis. It is difficult to compare the importance of personal contacts as a single category (as used by Rossi) because Hemple considers a plethora of different types of personal contact. Nevertheless, it is obvious that such contacts are important. For example, around half of the buyers in both areas used information from friends, and around one-third received information from work colleagues.

Hemple's (1970) data is particularly interesting in that it permits an, albeit limited, analysis of the sequence of channel use. It appears that the majority of buyers use newspaper advertisements as their first source of information (51%). In contrast, just 11% used estate agents as their first information source. Part of the explanation for such differences lies in the type of information conveyed by particular channels. For example, newspaper advertisements were found to be a useful guide to the choice of estate agents. Although not covered by Hemple (1970), it is also possible that newspapers are good at providing general market knowledge (see Cahill, 1994). Social sources were used to provide information on neighbourhood and locational aspects, and as a source of referral to estate agents. Social sources may also provide information on the more qualitative aspects of housing choice. In summarising his evidence, Hemple (1970) writes

> *"Newspapers and friends or business associates are often used to select real estate agents. In turn, the real estate agent exposes the buyer to various existing properties, and, in a smaller number of cases, to home builders and contractors. The broker is also influential in his recommendations of where to apply for a mortgage ... Personal sources of information and newspapers are used throughout this process to supplement and verify the information which has been obtained from other commercial sources. Word-of-mouth communications which are transmitted by friends, business associates, and relatives are clearly one of the most valuable and influential sources of information in the home buying process" (Hemple, 1970, pp. 87-88).*

Hemple's description comes close to a universal view in that these sentiments are reflected in a host of subsequent studies. For example, word-of-mouth and less formal sources in general have been stressed by Herbert (1973) in Swansea, particularly for low income groups. Similarly, Maclennan (1979b) reports that informal channels were the most successful amongst student searchers in the private rented sector in Glasgow. Friends were the second most common source used by inner city buyers in Birmingham (30%) although not in Liverpool (Karn *et al.* 1985). Littlewood and Mason (1984) cite newspaper advertisements as the most common

source in their study of low-cost buyers. Overall, 29% of respondents in their study used newspaper advertisements, although buyers of starter homes were the most likely to use this source (45%). Michelson's (1977) study in Toronto also showed that less formal sources such as driving around (63%) were very important and, although the role of friends as a key information source was less significant (27%), friends constituted a mainstream information channel. Newspapers were generally the most frequently consulted source in Toronto, particularly for apartment buyers, although estate agents were also significant. As noted above, empirical evidence on search behaviour in the Northern Ireland housing market is limited. Nevertheless, the material that is available tends to confirm the importance of estate agents (79%), newspaper advertisements (57%) and friends and relatives (32%) as key information sources (McPeake, 1985).

Most studies of search that consider information appear to focus on issues such as channel selection. The existing store of information in the possession of the searcher is rarely, if ever, mentioned. Yet, an important aspect of the Brown and Moore (1970) model is the recognition that at the onset of search each household will have some initial information on the market place. Similarly, this is a common feature of both economic and consumer research studies as indicated earlier in the chapter. This initial information has been described as the "image" or value filtered reality (Boulding, 1956). Although this stored information is probably out of date, it is not unreasonable to infer that it exerts an influence on subsequent search behaviour, especially if the household is a recent mover. Households will have a variable knowledge of the urban area, ranging from complete ignorance of certain areas to a very detailed knowledge of other areas. Brown and Moore (1970) refer to that part of the urban area about which the household has some knowledge prior to search as the awareness space, a term similar in meaning to Wolpert's (1965) action space. Some of the knowledge will have been directly acquired in the course of normal day-to-day activities such as shopping, recreation, and work. Other aspects are indirectly acquired, such as via media reporting of events in the city and second-hand knowledge from friends. This concept seems particularly relevant in the study of household search in a segregated urban environment.

One of the few studies that explicitly recognise the importance of existing information is that of Talarchek (1982). In his study of movers in the Syracuse area of New York State, personal knowledge was cited as the second most important information source after newspapers. Talarchek comments that a surprising aspect of his study was the finding that

almost one-third of movers did not use their existing knowledge of the area in the course of search. However, in light of the comments made earlier about the redundancies in stored knowledge, this result is perhaps not that unexpected. Nevertheless, around 35% of movers in Syracuse cited existing personal information as the first information source consulted "...indicating that for many people consulting their own schema of the decision environment is the logical first step in the search process" (Talarchek, 1982, p. 42). Existing information was used mainly to define their search criteria and to structure their search and subsequent information gathering activity. Talarchek is, however, careful to warn against the over-generalization of search behaviour, pointing to the great diversity that characterizes search activity, even with specific income and household composition groups.

In summary, there is little doubt in the empirical evidence that information has a central, role in household search behaviour. Without information market trading would be difficult if not impossible and "choice" would be limited. Furthermore, information plays an important role in helping to mediate between a household's expectations and the constraints that it faces in search. It is essential in assisting households to structure feasible choice sets and therefore it impacts strongly on the outcome of search.

3.5 Racial and Ethnic Differences in Search Behaviour

It has already been noted that search behaviour varies according to the characteristics of the searchers and the types of properties and neighbourhoods searched. Despite this, surprisingly few studies have examined the role of race or ethnicity in understanding how search differs between households and the evidence that is available is rather dated. With the exception of a recent contribution from Newburger (1995), the bulk of the material comes from the late 1970s and early 1980s. Newburger also recognizes this problem, noting that "...there is almost no empirical evidence with which to compare...the search characteristics of minority and white home seekers" (p. 446)[16]. In this section, we review the rather limited evidence that is available.

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16 Although the racial evidence is dated, a sizeable number of studies have been completed. This stands in marked contrast to the situation with religion in Northern Ireland where no previous studies have been identified in which the search behaviour of Protestant and Catholic households have been compared. The results presented in this thesis, therefore, make a significant contribution in this field of scholarly research.

3.5.1 Evidence from the United States

Not surprisingly, the bulk of the evidence is from the US. One of the most influential developments in terms of providing information on racial differences in search behaviour in the United States was the US Government's Housing Allowance Demand Experiment (HADE). The Demand Experiment was one of three experiments conducted by the Department of Housing and Urban Development (HUD) as part of the Experimental Housing Allowance Program, details of which are reviewed by Kennedy (1980). The experiments were designed to test the concept of direct cash assistance to low-income households to enable them to live in suitable housing. HADE focused on low-income renter households in Allegheny County, Pennsylvania (Pittsburgh) and Maricopa County, Arizona (Phoenix). Data were collected on approximately 1,200 experimental households and 600 control households at each of the two sites. As part of the experiments, substantial information was compiled on racial differences in mobility behaviour, including residential search[17].

In the previous section, three main indicators were used to describe search effort: the duration of search, the number of dwellings inspected, and the number of areas searched. Using the HADE data it is possible to examine the extent to which these aspects of search effort varied by race. For example, Cronin (1982a) reports significant differences in search effort between minority and non-minority households on the basis of a regression analysis. In the Pittsburgh study area, minority households were found to search in 0.68 fewer neighbourhoods, examine 1.52 fewer dwellings and telephone about 5.4 fewer dwellings when compared against non-minority households. Search time for minority households exceeded that of non-minority households by 83 days on average. Cronin reports a similar, although less intense, pattern for the Phoenix data. Whilst interesting, it is difficult to judge the significance of these differences as no information is provided on the fit of the regression equations, although Cronin reports the

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[17] The HADE data presents something of a dilemma for contemporary scholars of search behaviour in the owner occupied sector. On the one hand, the nature of the HADE programme means that there are particular limitations with the data: 1) it is heavily biased towards low income groups; 2) it focuses on renter households; 3) it is drawn from selected neighbourhoods in highly segregated US inner city areas; 4) there is the possibility that enrolment in the HADE programme affected search behaviour. These limitations raise questions concerning the reliability and generalizability of the results. On the other hand, it is one of the few data sets on search that is available, and it has spawned a series of studies of search behaviour which have been widely cited in the literature - one might argue that the bulk of empirical research on ethnic differences in search draws on this core data. Moreover, it does permit a highly disaggregated analysis of racial differences in search behaviour in the specific population without the confounding effects of income and tenure differences between minority and non-minority groups that are common in other, more general studies.

regressions "performed very well" (p. 91). In addition, the equations were estimated on a particular tranche of HADE data.

A comparison of the search effort results from the full HADE data set summarised in Vidal (1980) shows that the differences are less marked than those in Cronin's paper. Vidal's data for searchers who subsequently moved home are summarised in Table 3.3 below. This shows that whilst blacks searched for longer than whites, the difference was about one-third of that reported by Cronin. Furthermore, there was a slight, non-significant, difference in the number of properties enquired about and no difference in the number of dwellings actually seen. In many ways, the most striking conclusion that can be drawn from the data is the remarkable difference in search effort statistics between the two HADE sites: differences by virtue of geography far outweigh the racial differences.

Of particular relevance is Vidal's (1980) finding that where discrimination was experienced, irrespective of race, search times were longer, more dwellings were considered, and more enquiries were made. Significantly, however, the exact nature of the relationship between discrimination and search effort was uncertain. On this point Vidal notes:

> *"...it is not clear whether increasing one's search effort increased the likelihood of encountering discrimination, or whether encountering discrimination was an obstacle which led searchers to increase their search effort" (Vidal, 1980, p. A-52)*

Nevertheless, discrimination is clearly an important aspect in explaining segregation as was noted in the previous chapter. Courant (1979) has suggested that the rational search behaviour of households facing discrimination in housing markets might serve to perpetuate adverse market conditions facing such households. The key aspect of Courant's model is that black households, in the face of anticipated discrimination in particular neighbourhoods, will down grade their assessment of finding a suitable vacancy in this area and, *ceteris paribus*, will be less likely to search in such areas. As a result, households that experience such problems should search more areas (i.e. to compensate for areas found to be unacceptable) but examine fewer vacancies when compared to other households. Cronin (1982b) attempted to test Courant's theoretical model in an empirical setting. Again using HADE data, he showed that minority household search was far from optimal. The results are similar to his earlier paper (Cronin, 1982a): non-minority households, all other things being equal, searched in 0.61 less neighbourhoods, inspected 5.1 fewer dwelling units, telephoned about 7.8 fewer dwellings, and

searched over a more restricted geographic space. All of these differences were significant at the 0.01 level of testing.

Table 3.3: Indicators of Search Effort for Households that Moved by Minority Status (Mean Values)

	Black	White	All
Pittsburgh			
Number of days searched	125.46	93.71	100.30
Number of dwellings visited	7.31	7.06	7.11
Number of enquires made	13.48	16.35	15.75
Phoenix			
Number of days searched	52.49	34.32	39.29
Number of dwellings visited	6.90	6.92	6.31
Number of enquires made	4.76	11.50	9.59

Source: Vidal (1980, p. A-53)

Perhaps the most comprehensive study of racial differences in search behaviour that is not derived from HADE data is Lake's (1981) investigation of five local communities in New Jersey, USA. In terms of search duration, he found that black households spent significantly longer than whites thinking about moving (10.2 months compared to 6.5 months) and slightly longer in active search (5.7 months compared to 5.6 months). Differences also emerged in terms of the number of dwellings considered; Minority households "looked at" 18.1 compared to 22.8 in the case of whites, and they "internally inspected" 13.9 compared to 17.0 for non-minority households. Despite this, blacks and whites "seriously considered" the same number of dwellings (2.2). In respect of areas searched, blacks were found to search fewer (3.3) areas than whites (3.5). Lake recognized that differences in search effort might be explained by background socio-economic, demographic and other differences between the two groups. Thus, using regression methods, he examined seven groups of possible explanatory factors: housing needs, buyer characteristics, location of previous residence, reasons for movement, selection criteria, prior knowledge, and information sources used. He found that race continued to exert an independent effect even after controlling for the background factors. The "racial effect" was especially strong in terms of search duration, with blacks spending 54 percent longer thinking about moving and 24 percent longer in active search than whites, all other things being equal. In contrast, when background factors were taken into account, the differences in the number of dwellings considered and areas searched disappeared.

A more recent study by Newburger (1995) in Boston produces results that, at first sight, appear broadly consistent with Lake's study: Blacks were found to search for longer than whites and examine fewer vacancies. However, when these differences were tested statistically, the result was the opposite to that found by Lake. Thus, differences in search duration were not significant (were significant in Lake's study) and the differences in the number of dwellings inspected were significant (not significant in Lake's study). These differences raise the important question of context effects, a problem that has bedevilled many studies of residential choice behaviour (Eagle, 1988; Oppewal & Timmermans, 1991; Preston, 1986). Newburger argues that the finding that white households examine more dwellings prior to purchase than blacks may have implications for the quality of choices made by the respective groups. However, because of the limitations of her data, her analysis is largely descriptive[18]. She proposes two possible explanations of differences in search behaviour: there may be differences in the characteristics of black and white respondents; and, there may be differences in actual or perceived market conditions faced by blacks and whites. Her results suggest that both explanations are useful in understanding racial differences in search. From a regression analysis she finds that respondent age is negatively related to the number of dwellings seen, price (used as an income proxy) is positively related to search, as is being a first-time-buyer. These variables were significant at the 0.1 level of testing. More importantly, however, the race dummy variable was the most significant (0.01 level) indicating that when the background variables were controlled, black households on average made eight fewer inspections than white buyers. Whilst useful, Newburger's analysis is incomplete because there are many potentially important background variables that have been excluded from her regression analysis. In terms of the second possible explanation, Newburger found no evidence of direct discrimination, although she was able to demonstrate that black households searched over a more spatially confined area, a finding consistent with the studies reviewed earlier in this section. This more restricted spatial search was associated with the inspection of fewer vacancies and a lower rate of inspection per agent used. She also argues that because of the spatial concentration, the market of suitable properties is rather "thin". It is the "thinness" of the market that means that black search still takes as long as white search; it takes longer to view a smaller number of properties because there are fewer dwellings to "discover". Unfortunately, data limitations prevent her from testing

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18 Her postal survey was based on just 152 returns (38%). The reliance on small samples in many of the "major" studies of search is a weakness to which we have already alluded.

this proposition. Nonetheless, her suggestion that dwelling supply may influence search effort is area that is considered later in the thesis.

Discrimination is a search barrier that acts to limit the choice of available housing, whereas other barriers may serve to increase the costs of search, leaving the choice unaffected. A number of studies, particularly those from within the hedonic tradition[19], have documented the fact that blacks appear to pay more than whites for comparable services (e.g., Kain & Quigley, 1975). Alternative studies have drawn on the consumer purchase literature. For example, Masson (1973) argues that the existence of seller racial discrimination increases the costs of black price search compared to whites thus resulting in blacks paying a price premium. In effect, all sellers are found to raise prices to blacks because of the prejudice of some sellers and this has the effect of increasing the information costs of search. The higher prices charged by prejudiced sellers makes it more expensive for blacks to discover lower non-prejudiced prices. Masson's paper was theoretical in nature - there was no empirical testing - and some authors have suggested that alternative explanations are possible. For example, Shapiro (1974) argued that price premiums are the result not of discrimination but of inefficient search behaviour. Shapiro argues that groups such as blacks, tourists and women often pay more because they are characterised by buyers "deficient in price searching abilities" or buyers that "are less motivated to find lower prices" and that sellers are aware of these deficiencies (p. 423). Although Shapiro is critical of Masson's argument, Masson's ideas have been developed and extended into the housing arena by Lee and Warren (1976). A number of scholars, including Courant (1978), have shown that aversion to black buyers on the part of a small number of white sellers can result in market-wide racial price differentials. This occurs because some sellers directly refuse to sell or inflate their prices and blacks organise their search to avoid certain areas in anticipation of such practices. This type of search behaviour is also likely to raise search costs.

The study by Weisbrod and Vidal (1981) is one of the few studies that directly examine the barriers encountered during search. Using data from the HADE they classify and document the search problems experienced by low and moderate income searchers in the rental sector.[20] Factors that restricted choice or that raised search costs were more prevalent in Pittsburgh than

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19 See chapter five (5.4.2.2) for a general overview of hedonic prices analysis, and chapter six (6.5.3) for an application of the approach to the BUA housing market.

20 Weisbrod and Vidal (1981) note that many of the problems encountered by renters may also apply to owners and higher income groups.

Phoenix, but in both areas such problems were common. For example, 56% of searchers in Pittsburgh and 32% in Phoenix reported encountering some form of discrimination. Similarly, 28% of Pittsburgh searchers and 19% of those in the Phoenix sample had problems of transport during search. Interestingly, racial discrimination was much less common than discrimination against families. However, the results of their research also show that a substantial minority of households modified their search in order to avoid neighbourhoods where they anticipated that discrimination would occur, and blacks were more likely to adopt this course of action than whites. Weisbrod and Vidal (1981) write

> *"... the combination of experience and expectations may be important in determining where households search, and that the expectation of discrimination may have led some blacks to search for housing primarily in black or 'mixed' neighbourhoods" (p. 472).*

Relatively little information is available on racial and ethnic differences in spatial aspects of search behaviour, although the evidence that is available is unequivocal: black households engage in more restricted spatial search than white households. Using simple descriptive measures, Cronin (1982a) shows that when compared to non-minority households minority households search fewer neighbourhoods and that their search is more restricted geographically. Moreover, Cronin's results reveal that minority households search and move to neighbourhoods that are different from those selected by non-minority households. In this regard, he writes that

> *"... minority households will, ceteris paribus, be less likely to search in general, and will be more likely to search in neighbourhoods with higher proportions of minority households than they otherwise would" (p. 81)*

Furthermore, Cronin reports that non-minority households have a higher probability of moving between neighbourhoods of similar status than is the case for non-minorities where the majority of moves were from lower to higher status areas.

One possible explanation for the longevity of racial residential segregation is that segregated households may concentrate their search in their area of origin. It has been widely reported in the literature on residential mobility over the past five decades that intra urban mobility tends to occur over short distances (e.g., Rossi, 1955; Simmons, 1968; Short, 1978; Clark, 1982; 1986; Cadwallader, 1992b). In such circumstances, it is possible that households may not search outside of the confines of their own neighbourhoods. At least as far as Pittsburgh is concerned, however, Vidal (1980) reports that this is not the case. More than 70 percent of black households that searched considered neighbourhoods other than their own, a

result also obtained for white searchers (72%). Moreover, black households in highly segregated areas were more likely to search elsewhere than those in less segregated neighbourhoods. In addition, blacks and whites were equally likely to have moved outside of their origin neighbourhood (28% compared to 26%).

An alternative explanation for continued segregation might be that blacks searched or moved over shorter distances, an explanation consistent with the work of Cronin (1982a) noted above. Again, Vidal's (1980) data does not support this proposition: blacks and whites searched and relocated over similar distances, although these were crudely measured. Although the blacks exhibited a strong propensity to search outside their home neighbourhood and searched over similar distances to whites, Vidal (1982) noted that both black and white households "restricted their search in ways that tended to reinforce a racially concentrated pattern of housing" (p. 63). White households concentrated their search in white neighbourhoods. Vidal reports that 87% of neighbourhoods searched by white searchers had less than 15% minority population. Similarly, black households concentrated their search in neighbourhoods with substantial minority populations. Almost two-thirds of neighbourhoods searched by minority households were black or racially mixed. Such neighbourhoods made up just 15% of all neighbourhoods in Pittsburgh. Although striking, the use of neighbourhoods as a measure of the geographic intensity of search is likely to be misleading. A better measure would have been the number of dwellings considered by neighbourhood type. Nevertheless, Vidal's results do suggest that segregated outcomes in part reflect segregated search patterns, a result of some significance in the context of Belfast.

It has already been noted above that the housing market is characterised by a wealth of potential information channels. It was shown that the most important channels were newspaper advertisements, estate agents, personal contacts and driving or walking around (i.e. searching via "For Sale" and vacancy signs). The relative significance of the channels will depend upon the characteristics of the searcher and the nature of the housing and neighbours searched. For example, Rossi (1955; 1980) postulated that vacancy signs were more heavily used by poorer households and those resident or searching in the inner city area. Although not stated by Rossi, it is likely that blacks and other minorities are over-represented in the poorer sections of society and should, therefore, be over-represented amongst users of this particular channel. Rossi postulated that the bias towards vacancy signs was because in this particular market (the Philadelphia inner city rental market) the landlords of properties sought were

unwilling to pay for newspaper advertisements or estate agency services. As noted earlier, the literature on search emphasises the importance of friends and relatives as a source of housing information. Rossi's results indicate that irrespective of tenure or socio-economic status, personal contacts were the most frequently employed information source and the most effective in terms of finding accommodation. Studies of information acquisition by home owners confirm the importance of personal contacts as a major information source (Barrett, 1973; Hemple, 1970), but they fail to support Rossi's contention that personal contact is the most important and effective source. Part of the explanation for this may be the more homogeneous nature of the home owner samples.

The empirical literature on racial and ethnic differences in search information is rather limited. Most of the major search studies (e.g. Hemple, 1970) do not disaggregate their results according to the race of the searcher. One of the first general studies of racial differences in information use during search was conducted by Zonn (1980) in Milwaukee, Wisconsin. Zonn wanted to test the hypothesis that black households had "a form of information acquisition that differs significantly from that of the white population" (p. 43). He argued that an appreciation of the black household's mode and intent of gaining information for a move may be essential for understanding the processes by which residential segregation is perpetuated and he suggested that a comparison of black and white information flows would constitute a first step in this direction. He found that blacks relied more heavily than whites on real estate brokers (90% compared to 69%), newspapers (68% compared to 43%), and driving or walking around (79% compared to 72%). In contrast, whites relied more heavily on friends and relatives (45% compared to 43%). Importantly, blacks were found to be more extensive information users than whites, a result that Zonn attributed as follows:

> *"...the reason could be that the black household perceives or experiences racially caused difficulties in locating a satisfactory residence. In the hope of finding useful information, the household would use a greater variety of sources, beginning with one or two sources and then changing to others if the original inputs prove to be ineffective" (p. 46).*

In contrast, Lake (1981) reports that the most surprising result of his analysis is that "startlingly little differences is discernable in either the information sources used or found helpful by black and white homebuyers..." (P. 145), although nothing is said about the volume of information use. His data indicate, however, that minorities rely more heavily than whites on informal sources. Blacks were significantly more likely than whites to rate as very helpful

information obtained from friends (33% compared to 25%) and relatives (21% compared to 14%). Similarly, blacks were also found to think more highly of information obtained whilst driving around (42% compared to 36%), and from "For Sale" signs (18% compared to 11%). In common with Zonn, information from estate agents was also more important to blacks (76%) than whites (72%), although the difference is modest.

Further insights into racial differences in information use may be obtained from the HADE data. Cronin's (1982) analysis of the second six-month period HADE data provides some basic indicators for both sites. Whilst information acquisition and use appeared to differ according to race, the pattern was not consistent across the two study areas. Thus, in Pittsburgh, newspapers were the most frequently used source, irrespective of race, although minority households were more likely to use estate agents (56% against 44%) and vacancy signs (50% against 31%) and non-minority households were more frequent users of friends or relatives (66% compared to 59%). In Phoenix, the pattern was a little different. Newspapers remained the most important source for non-minority searchers (61%), but was ranked third by minorities (40%). Minority households were more frequent users of vacancy signs (63% against 50%) and friends and relatives (57% against 47%). In terms of the effectiveness of the information source, however, a much clearer pattern emerged. In both areas, and for both groups, personal contact with friends and relatives emerged as the most effective source.

On the basis of the HADE data, Vidal (1982) notes that, irrespective of race, the ranking of the most commonly used sources was the same: friends and relatives (80% minority, 74% majority), newspapers (75% against 70%), estate agents (73% compared to 57%) and vacancy signs (67% against 45%). It is interesting to observe that minority use exceeded majority use for all sources, implying that minorities are more extensive information users in search. Commenting on the Pittsburg component, Vidal (1980) notes the importance of friends and relatives as the leading non-market information source. He reports that less than one-third of the searchers in his study consulted a non-market information source other than friends and neighbours. Interestingly, Vidal also demonstrates the presence of a strong inverse relationship between search effort and the use of non-market information sources: He notes that over 40 percent of households relying on non-market sources moved home after viewing just one dwelling, compared to less than 10 percent of households that had used market-based information. However, Vidal also notes that such informal sources are less effective for blacks than whites. On this point he writes:

> *"The central role of friends and relatives as an information channel...has important consequences for the moving behavior of black households because this key extra-market information source does not serve black households as well as it serves white ones. Although black households were at least as likely as white ones to seek information from relatives and friends, black searchers that obtained such information were significantly less likely than white searchers to move to a dwelling located in this way...This suggests that the information available through market-specific sources may have particular importance for black households" (Vidal, 1980, p. 29).*

Later, Vidal adds that white and black searchers appear to have similar likelihoods of relocating when their housing search included market-specific information. The differences between black and white searchers mainly occur because:

> *"...white searchers are more likely to find housing relatively quickly through non-market information sources. Black households are thus at a relative disadvantage because their network of personal contacts appears to provide them with fewer housing opportunities than are available to white households through such channels" (p. 31).*

A further important aspect of racial and ethnic differences in information in search is the extent to which particular sources have differential impacts on search outcomes. Such impacts may range from the relatively benign to the outright discriminatory. For example, it is possible that the use of information derived from personal contacts may have a differential impact according to the race or ethnicity of the searcher. As personal contacts are likely to share a searcher's attitudes and circumstances the range of choice generated by such contacts is likely to be relatively narrow. Thus, if the searcher is from a minority community that is highly segregated (e.g. blacks in the USA or Roman Catholics in Belfast) then search behaviour is likely to be more spatially restricted. This is an example of a relatively benign, but nonetheless serious, differential effect. More overtly discriminatory practices are also possible. It is well established that estate agents are important information providers and the preceding review shows that black households rely heavily on this source. It is equally well established, as noted in the previous chapter, that estate agents can and do engage in racial steering. As Palm (1976b) points out, households that rely on estate agents are "making use of a highly structured and spatially limited information source." (p. 28). The fact that some agents engage in such activity does not, of course, mean that they all do. Thus, Vidal's (1980) data does not support the view that agents steered minorities to minority areas. Quite the reverse was found; blacks that used information from estate agents were more likely to have moved to neighbourhoods of low minority concentrations than blacks that relied on information from friends and relatives[21].

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21 This must remain a tentative conclusion because disaggregation to specific sources and spatial locations reduces the sample size to a relatively small number of cases.

Perhaps the most interesting point to emerge from Vidal's analysis is that information form friends and relatives proved to lead more directly to segregated environments than other sources.

Further evidence on steering is reported in a more recent study. Using data from the 1988 HUD Housing and Discrimination Study, Turner and Mikelsons (1992) examined the issue of racial steering in four metropolitan areas (Chicago, New York, Los Angles, Atlanta). All four areas were racially segregated, with the lowest levels in Atlanta and highest levels in Chicago. In terms of steering, the authors note that

> *"... black home buyers who are shown and recommended addresses are likely to be steered to neighbourhoods that are lower percentage white and less affluent than those shown and recommended to comparable white home buyers" (pp. 229-230)*

Agents in the four areas were found to have a biased set of properties on offer in that dwellings in black and integrated neighbourhoods were under-represented. Therefore, setting aside the issue of steering, black households faced a much reduced choice set when compared with whites, a particularly serious problem given black reliance on estate agents as a market information source. Furthermore, even in Chicago, the most segregated of the cities, agents' offices tended to be located outside of black and integrated neighbourhoods. Turner and Mikelsons write

> *"...when home buyers initiate their housing search with units advertised in the major metropolitan newspaper, they are likely to be served by agents whose offices are in predominantly white neighborhoods and to be shown and recommended houses in similar neighbourhoods" (p. 219).*

In terms of steering behaviour, one of the most interesting results is that in markets where segregation is highest fewer opportunities of steering occurred. Only in areas where segregation was less intense, as in Atlanta, was steering found to be common. This reflects the fact that in highly segregated areas agents did little business in black or integrated areas and therefore did not have the stock to which to steer blacks into. Nevertheless, the authors did find that in these areas, blacks were steered to lower income neighbourhoods.

Newburger's (1995) study in Boston also found differences in information use by race. Unlike Zonn (1980) and Vidal (1980; 1982), however, Newburger found that blacks used fewer information sources than whites. Thus, blacks used an average of 1.9 agents compared to 2.2 for whites (not significant) and, overall, blacks were less likely than whites to use agents in the first place. Blacks were also found to make less use of "open houses", "For Sale" signs, and local newspapers. Taking all sources into account, almost 38 percent of blacks in her study

reported that they had used just one source of information compared to less than 10 percent of whites.

3.5.2 Evidence from Elsewhere

As noted above, there have been some non-American studies on racial and ethnic differences in residential decision making but most of these have concentrated on residential mobility as opposed to residential search behaviour. Only two studies have been identified that focused specifically on search[22]. The first is a British study of Asian housing choice which is set in Bedford (Sarre, Phillips and Skellington, 1989), and the second is a Canadian study of search by Portuguese households in Toronto (Teixeira, 1995).

The study by Sarre, Phillips and Skellington (1989) of ethnic housing change in Bedford provides a considerable amount of information on Asian housing choice in the city, although the material on search was still rather limited. Their study is based on a combination of household survey material and interviews with an number of institutional players in the local housing market.[23] The household survey, which involved a sample of approximately 1,000 households (divided equally into each of the four groups involved in the study: Italian, Indian, West Indian and white British households), was carried out in 1981/1982.

In terms of search, the authors took the view that the preoccupation of geographers and others with spatial aspects of search was misdirected. In their view, spatial search patterns simply reflect the information sources used. Information, they argue, is the key to understanding search behaviour. Similarly, search effort was not even raised as an issue. In respect of information use, they found significant differences in the sources used between each of the main racial groups studied. For example, in terms of households moving into owner occupation, two-thirds of white-British found their homes through estate agents compared to just 17 percent of Indians. Half of the Indian group located their new home through "For Sale" signs and one-third through friends and relatives. This reliance on non-market sources is particularly important. Italians and West Indians, although less extreme than Indians, also relied more heavily on non-

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22 This does not mean that no other studies exist; simply that the author was unable to locate any other studies in spite of a rigorous effort to do so.

23 The inclusion of institutional players reflects the fact that British studies of ethnic housing are firmly wedded to the "urban managerial" perspective, even though, in the case of Sarre, Phillips and Skellington (1989) this is brought up to date in terms of Giddens Structuration Theory.

market sources than native white British searchers. Importantly, Sarre *et al.* (1989) conclude that:

> *"..it is likely that reliance on personal contacts or observations bias their search towards existing ethnic concentrations...The relatively low reliance on sources, especially estate agents and newspapers, which are potentially all inclusive in favour of sources that are biased toward existing ethnic areas must tend to predispose our sample towards vacancies in or near ethnic concentrations" (p. 166).*

Overall, they found that 40 percent of ethnic minority first-time buyers did not approach an estate agent at any time during their search, in contrast to less than one-quarter of the white British sample. Even amongst more experienced continuing home owners, differences in information strategy persisted. This stands in marked contrast to the evidence on racial differences in information use reported in the previous section. However, it is not an isolated result; the pattern of estate agent avoidance has also been reported in the study by Karn *et al.* (1985) in Birmingham and Liverpool referred to earlier in the thesis. Sarre *et al.* (1989) postulated that such avoidance strategies primarily reflected language differences, an issue that one would think is not likely to be a feature in Belfast as Catholics and Protestants are all native English-speakers even though knowledge of the Irish language is one of the cultural differences between the groups.[24]

Sarre *et al.* (1989) hypothesise that institutional avoidance and reliance on non-market information sources will have restricted the range of options and precluded any careful weighing up of a wide range of alternatives before deciding to buy (P. 264). Unfortunately, they did not follow up this with a consideration of other aspects of search effort. So, it is not actually known whether racial minorities in Bedford considered fewer vacancies than the white British sample. Nor is it known if their spatial search was more restricted. These are important questions that remain unanswered.

The study of Portuguese household search in Toronto is interesting because it focuses on the ethnicity of the estate agent as well as the searcher (Teixeira, 1995). Using participant observation methods similar to the housing audit methodology frequently employed in the US (Yinger, 1986; 1991), Teixeira and his wife presented themselves to a sample of realtors in Toronto. On each visit, the same circumstances were presented, including being a first time buyer, having no children, moving because of job relocation, approximate down payment to be

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[24] This is not to deny the fact that amongst the Catholic community the Irish Language is an important cultural tradition. Indeed, the 1991 Census shows that there are some 50,000 persons in the BUA with some knowledge of Irish (DHSS, 1992a).

made, and approximate salary. Ethnicity (both of Portuguese extraction) was not proffered, but was inferred by the agents. The results confirmed the anticipated steering of white brokers, but most surprisingly, the intensity of steering towards already established Portuguese areas in the city was strongest amongst Portuguese brokers, leading to an intensification of segregation. Teixeira (1995) regards this activity as a reflection of the desire to maintain and support cultural enclaves within the city.

3.7 Conclusions

This chapter began with the suggestion that the study of search behaviour can help to integrate various competing perspectives on residential decision making. It was shown that the study of search behaviour has proceeded in a variety of disciplines, and that there are a number of ideas and concepts regarding search behaviour that appear time after time. In particular, it is clear that a plethora of studies across a variety of contexts show that households engage in relatively modest pre-purchase search activity and that the driving aim is to reduce uncertainty. However, it was argued when one delves deeper into these studies it becomes apparent that search behaviour is rather more varied than first appears to be case. Furthermore, irrespective of the product category involved, search behaviour varies with respect to a variety of factors and many of these factors, for example age and education, appear to exert similar effects in different search contexts. A key task, therefore, is to understand why these differences exist and what impact they may have on the outcome of search. Arguably, studies of consumer behaviour have come closest to the development of formal behavioural models of search of the type necessary to identify and isolate individual explanatory factors. Many of these studies have been set within a broad cost-benefit framework, but they also recognise the importance of individual and product-related factors.

With a few notable exceptions, and in stark contrast to the literature on job and consumer search, studies of residential search have tended to be largely descriptive in nature. Whilst many housing search studies refer to factors such as uncertainty, beliefs, cost and benefits, and supply constraints, empirical applications in the field have generally ignored these factors as possible determinants of search. Moreover, studies of residential search behaviour have been hampered by data limitations inherent in small sample sizes. On a more positive note, the literature on racial differences in search behaviour is much more analytical in approach, although here again small sample sizes often limit the empirical analysis of what are

very important policy-related issues such as the precise role of race in the process of search. The literature is also somewhat equivocal in terms of just what the "racial or ethnic effect" on search actually is. Most studies agree that minorities search in fewer areas or over a more restricted spacial field than non-minorities. Most also agree that minorities search for longer periods than non-minorities. There is less certainty about the number of dwellings inspected with some studies reporting that blacks examine fewer dwellings than whites and others indicating that no differences exist; in practice, there is consensus that blacks do not examine *more* dwellings than whites. Similarly, some uncertainty exists about racial differences in information use, although the weight of the evidence points towards more extensive use, with a particular reliance on agents. Non-market sources, which are seemingly less frequently used by minorities are, however, directly related to patterns of segregation. As suggested earlier, some of the inconsistences that exist probably reflect context effects.

In order to move the debate forward, progress is required in two areas. First, an improved conceptual framework for the investigation of search is required. Such a framework should build on the best of the existing housing search studies by incorporating ideas and approaches from other disciplines where search has been investigated. Second, a more robust research design is required in order to escape the serious limitations of small sample sizes. It is argued that the approach adopted in this thesis represents a move in both of these directions. In the next chapter, the conceptual framework for the subsequent empirical research is set out together with a series of specific research hypotheses that are derived from this framework and the review of the relevant literature presented in chapters two and three.

Chapter 4
RESEARCH PROPOSITION, HYPOTHESES AND A CONCEPTUAL MODEL OF SEARCH BEHAVIOUR

4.1 Introduction

It was noted in chapter one that the key objective of the research presented in this thesis is to develop a better understanding of how residential search operates in the highly segregated Belfast urban housing market. The central proposition was that Catholic search behaviour in the BUA would mirror black search behaviour in similarly segregated urban areas in the United States. In order to examine this proposition, it is necessary to translate it into a series of more formal hypotheses. Testing could occur through a bivariate analysis of religion and search behaviour (this is done in chapter 7). However, a comprehensive testing of the proposition and its associated hypotheses requires a multivariate approach.

As noted in chapter three, at best, previous studies of search have estimated a series of separate regression equations in an effort to isolate the independent effects of factors such as race (e.g., Lake, 1981). There are two problems with such studies. First, the range of explanatory factors that have been considered is generally too limited. Potentially important factors pertaining to market conditions, for example, have been ignored, raising the possibility of specification error. Indeed, the relatively low explanatory power of previous regression models would indicate that specification is a problem. Second, indicators of search behaviour such as search duration, the number of dwellings inspected, the number of areas searched and the use of particular information channels are jointly determined in the course of search. Consequently, in order to better understand search behaviour, models of search must be more than a series of separate regression equations. It is argued in this thesis that the solution to both of these problems is to specify and estimate a path model which includes several endogenous measures of search and many exogenous predictors. Such a model will obviously be very complex and its estimation will require a wide range of information on household's demographic and socio-economic circumstances, their current and previous housing characteristics, the market conditions, their pre-search aspirations and expectations, their active search strategies and experiences, and their post-search attitudes and opinions.

Following these introductory remarks, the chapter is structured into two main parts. In the first part, the initial research proposition is translated into a series of five specific hypotheses for investigation. These are formulated on the basis of the preceding review of the literature on racial and ethnic segregation and residential search behaviour. This is followed, in the second part, by the description of a conceptual model of search behaviour which serves as the framework within which the specific research hypotheses are later tested. The use of a

framework such as this is necessary in order that other factors that may influence search behaviour can be controlled for, which in turn will allow the unique and independent effects of religion to be assessed. In outlining the conceptual model it is also necessary to indicate the effects that these other correlates might have on search. However, these are not set up as formal hypotheses in the same fashion as with those related to religion. They are there to provide the context for the evaluation of the religion hypotheses and to help develop an understanding of how searchers actually behave in the BUA housing market. Nonetheless, their inclusion and subsequent examination may be expected to contribute to the general empirical evidence on residential search behaviour.

4.2 Research Proposition and Hypotheses for Investigation

The similarity between racial segregation in many US cities and religious segregation in Belfast has already been noted. These patterns of segregation have remained remarkably stable over several generations. Three common explanations for the existence and persistence of such patterns were discussed in chapter two: differences in the socio-economic and demographic characteristics of the groups involved, discrimination, and preferences and choice. It was suggested that each explanation has some merit and that a complete explanation of these patterns probably involved elements from all three points of view. Moreover, it was argued that the investigation of residential decision making in general and search behaviour in particular offered a means by which it might be possible to tease out the various factors.

The basic proposition that underlies the research presented in this thesis is that Catholic searchers in the BUA will exhibit search behaviour comparable with black households in similarly segregated urban areas in the United States. The literature on racial differences in search suggests that minorities search for longer than non-minorities, during which time they view a similar number or fewer dwellings, but over a more restricted range of areas. In terms of information use, the evidence is that minorities are extensive information users. In particular, informal sources such as friends and relatives, which serve to reinforce the localized nature of search, and estate agents are important sources of information for minority searchers. It is also clear that, regardless of stated preferences, black households tend to move to black or mixed areas whereas whites tend to relocate to white areas.

Accordingly, it is hypothesised that:

H1: *Roman Catholic households will search for longer periods than non-Catholic households, all other things being equal .*

H2: *Roman Catholic households will examine a similar number or fewer vacancies (but no more) than non-Catholic households.*

H3: Roman Catholic households will search in fewer areas than non-Catholic households.

H4: Roman Catholic households will make more extensive use of existing information channels, and will rely more heavily than non-Catholics on non-market sources and estate agents.

H5: Roman Catholic household religion will be positively related to the Catholic population composition in the ward of purchase.

The first three hypotheses reflect search effort, the fourth relates to search strategy, and the final hypothesis refers to search outcome. Together, they cover the key aspects of search behaviour.

4.3 A Conceptual Model of Residential Search Behaviour

As noted in the introduction to this chapter, in order to adequately test the hypotheses, it is necessary to control for a wide range of possible alternative influences on search behaviour. A key element of the approach adopted in this thesis is to set these hypotheses within the framework of a behavioural model of search.

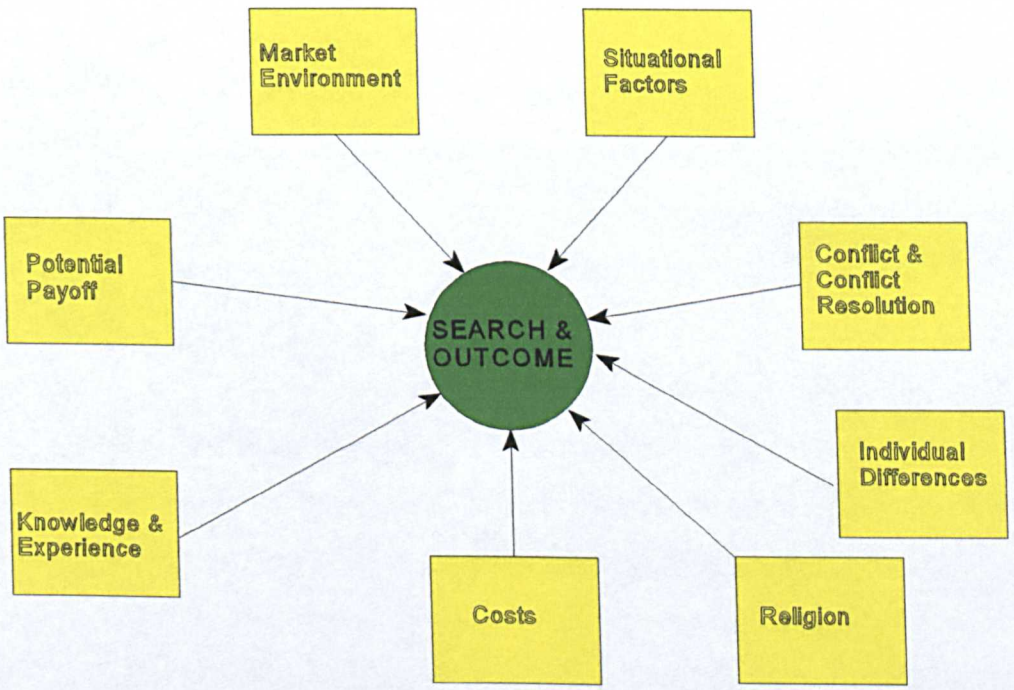

Figure 4.1: A Conceptual Model of Search

The conceptual model set out in this section is informed by the earlier literature reviews on segregation (chapter 2) and search behaviour (chapter 3). In particular, the model draws heavily on recent studies of consumer search behaviour where, in contrast to the literature on residential search behaviour, more factors are considered as influences on behaviour (Baker & Wilkie, 1992; Beatty & Smith, 1987; Srinivasan, 1990; Srinivasan and Ratchford, 1991; Urbany,

Dickson & Wilkie, 1989). Beatty and Smith's (1987) paper is particularly relevant. They list seven categories of variables that impact on search behaviour: market environment, situational variables, potential payoff, knowledge and experience, individual differences, conflict and conflict resolution, and cost of search (Figure 4.1). Similar classifications have been cited by Bettman (1979), Moore and Lehmann (1980), and Newmann (1977). Whilst it is possible to include religion within the individual differences category of variables, it was thought useful to set this predictor out as a separate category. Together with the categories suggested by Beatty and Smith, this provides the basic framework of the model. Naturally, most of the predictor variables included within these categories are different from those employed by Beatty and Smith whose study was concerned with consumer durables as opposed to housing.

In the following sub-sections, details of the individual variables selected as possible explanatory factors are presented. Where appropriate, the anticipated direction of the effects from these variables are indicated, although it is stressed that these are not being established as formal hypotheses in their own right. For the most part, the effects are based on evidence gleaned from previous studies. Where no previous literature exists, the effects are predicted in terms of what seems logical.

4.3.1 The Endogenous Variables

Five endogenous variables are specified in line with the hypotheses. These relate to search duration, the number of dwellings inspected, the number of areas searched, the number of information channels employed, and the percentage of the Catholic population in the ward of purchase.

Many possible relationships could exist between these variables. Figure 4.2, however, sets out the anticipated relationships. They are specified in a recursive fashion suitable for subsequent estimation within a path analytic framework. This means that no reciprocal relationships are indicated, although this could happen in reality. For example, one could envisage a two-way relationship between search duration and, say, the number of dwellings inspected. For reasons of simplicity, and bearing in mind that the framework exists merely as a context for the evaluation of the religion hypotheses, such reciprocal associations have been excluded. Further, in setting out the framework, an effort has been made to be consistent with the literature, although it is conceded that a variety of possible alternatives exist. It is suggested that the logical causal ordering for the model is from duration to areas and number of dwellings. That is, the longer that a household searches, the more dwellings will be inspected and the more areas will be searched. Obviously, one could approach this from a different direction and

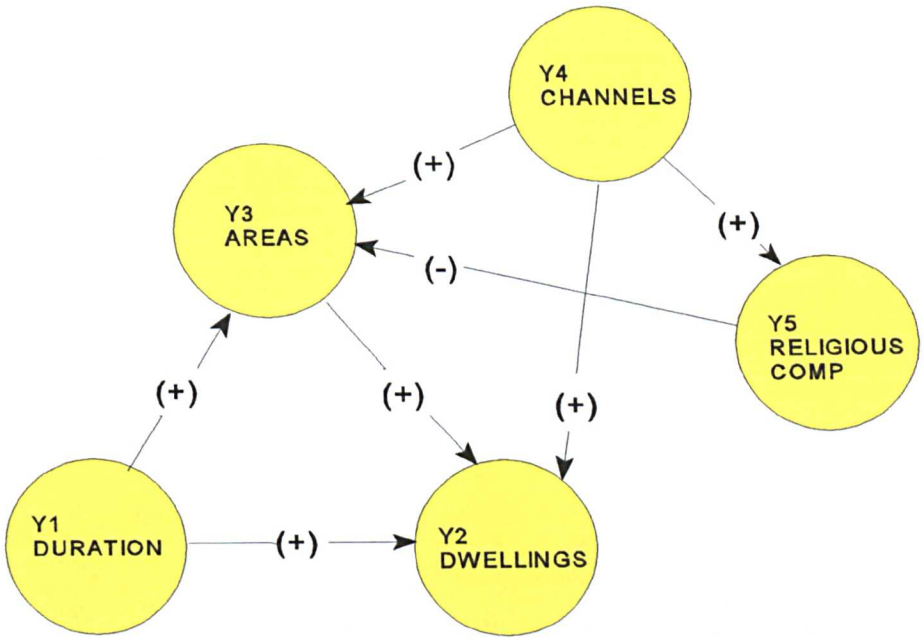

Figure 4.2: Anticipated Relationships Between Endogenous Search Variables

suggest that the more areas that are searched, the more dwellings will be examined and the longer the search will take. The possibilities are numerous. Therefore, whilst the framework proposed in Figure 4.2 serves as a useful starting point, it is but one of many possible frameworks.

4.3.2 Market Environment

As noted in the previous chapter, studies of housing search have generally ignored or, at best paid lip-service to the influence of supply on residential search behaviour. In contrast, this issue has received considerable attention in the consumer literature on search. In this thesis it is argued that supply considerations will influence the amount of search effort required to secure purchase of a suitable product. Following Punj and Staelin's (1983) analysis of car purchase behaviour, the size of the feasible set is defined as the number of viable alternatives available to the household taking into account the household's pre-search aspirations, family requirements and individual constraints. Set size is expected to be positively related to search effort (duration, number of dwellings inspected, and number of areas searched) and to information use.

The state of the housing market is also likely to be influential. Throughout the study period, the UK housing market was in recession although, as will be seen in chapter six, the BUA market remained reasonably buoyant. Nonetheless, for the most part searchers are also sellers; unlike in the market for major consumer durables (e.g. cars), the housing market has no equivalent of the "trade-in" concept. Having to sell a previous home will undoubtedly influence

subsequent search behaviour. A variety of strategies are possible depending upon market conditions. For example, households may wait until they have offers on their existing home before initiating active search for a new home. Alternatively, households may attempt selling and searching simultaneously and adopt a different pricing and/or bidding strategies. It is possible that home owners who took a long time to sell their previous homes may exhibit different search behaviour from those who sold their previous homes more quickly. Logically, those taking longer to sell their previous home will have longer to search for their new home and should thus also examine more dwellings and search in more areas than households that sell more quickly.

One of the features of the housing market is that dwellings may be sold before the household even becomes aware that they are available (e.g. a dwelling can be sold between the time it is "listed" in a Property Magazine and the time that the magazine is printed). Similarly, households may visit a dwelling and then wish to re-visit at some later time only to find that it has been sold. In essence, these are reflections of searcher competition in the market place. Where this competition exists, search duration should be extended, more dwellings should be examined, more areas searched, and more information channels used, reflecting the greater effort required to generate a successful trade. On the basis of the racial model, it is expected that competition will be higher in areas where the Catholic population is in greater evidence.

Later in the thesis (chapter 6) it is argued that the housing market may be usefully segmented into a series of fairly homogeneous submarkets or product groups (Maclennan, Munro & Wood, 1987). If search is orientated towards homogeneous product groups, it should be quite efficient. For households to search outside of the product group areas, therefore, greater effort will be required, suggesting that search will be longer, involve more dwellings and more areas, and require the use of more information.

Many commentators draw attention to the fact that the housing market is an information rich environment (e.g. Gibb, 1992; Huff, 1986; Maher, 1989; Maclennan & Wood, 1982; Smith & Clark, 1980). Information channels vary in their costs, reliability, timeliness and veracity (Smith and Mertz, 1980). Reliance on particular channels may, therefore, be expected to impact directly on a household's search strategy and subsequent search behaviour. Two categories of sources were seen to be important in the earlier literature review: non-market sources such as friends and relatives, and commercial sources, such as estate agents.

Use of non-market sources is expected to result in greater search effort (i.e. longer, more dwellings, more areas). The situation with agents is more complex. Although they are important information providers in the housing market, they exist to make a profit. Thus, it is in their interest to ensure that search is quick and efficient. Hence, it is to be expected, that estate agent

use will promote a reduction in search duration (to speed the payment of commission) but an increase in the number of dwellings seen and the number of areas searched (to ensure a successful trade). Use of either measure will be positively related to channel use overall and to the extent of the Catholic population in the ward of purchase.

4.3.3 Situational Factors

In the market research literature, situational factors normally relate to the nature of the product and the circumstances surrounding its purchase. The residential search literature suggests that dwelling attributes such as age, size, and price are important determinants of search behaviour.

Although most housing market transactions occur in the standing stock, previous studies have indicated that whether or not the dwelling is new or existing is likely to influence search behaviour (Clark & Smith, 1982; Maclennan, 1992). As will be seen later in the thesis, new dwellings are particularly important in the BUA. Buyers of new houses should have shorter search durations and they should examine fewer dwellings because of the way in which they are marketed (i.e. show houses)[1]. However, as there are likely to be more potential trading opportunities from within the standing stock in most areas than from newly built dwellings, it follows that buyers of new dwellings should search more areas than buyers of existing properties. As developers in the BUA intensively market new homes, new home purchase should be positively related to information channel use. Land supply constraints in Catholic areas will mean that relatively few new private sector houses are built in such areas Thus, dwelling age should be negatively related to purchase ward religious composition.

Analysis of the nature and composition of the housing stock in the BUA (chapter 6) shows that the distribution of the stock by size is heavily skewed towards the lower end of the distribution. A similar situation occurs in terms of price. This means that large and expensive dwellings are in relatively short supply. Accordingly, searchers interested in such dwellings, may have to wait longer than searchers interested in other types and prices of dwellings, but will tend to inspect fewer (as fewer exist). It should also mean that time and financial costs associated with extra information use should be worthwhile.

The economics literature makes clear that dwellings are multi attribute in nature; they comprise neighbourhood and location attributes in addition to dwelling attributes of the type noted above. In the BUA, it is argued that the religious composition of the neighbourhood

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1 Some scope for confusion exists in terms of the number of dwellings inspected in the course of search. If the newly is in the course of construction and is not yet complete, does walking through the shell on a Saturday afternoon count as an inspection? Unfortunately, this was not foreseen during the design of the survey questionnaire. So, the results of subsequent analyses of new house buyers may need to be treated with care.

constitutes one of the most important neighbourhood externalities. Although it has also been suggested that households in the BUA are "religion-aware", for both Catholic and Protestant households there will always be some grey (as opposed to orange and green!) areas where the religious composition is not known with any degree of certainty in advance of search. Through various means (explored in chapter 7) households learn about the composition of such grey areas and act accordingly. In the course of such discovery, households may feel that certain areas are unsafe or they may feel discriminated against. If this occurs, search will take longer, more dwellings will be inspected, more areas will be searched, and use more information channels will be used. This occurs because of the need to find an alternative property to the one just considered. Further, on the racial evidence, the incidence of such problems will be positively related to the percentage of the Catholic population in the purchase ward.

It is well established that households move home for a wide variety of reasons. The literature on residential mobility suggests that households that move home for economic and job-related reasons behave differently from those moving for other reasons (e.g. Clark, 1986a; Short, 1978). Households relocating for economic or job-related reasons will have high search costs and should thus engage in efficient search. It is suggested that such movers will search for a shorter period of time, on a highly focused spatial basis, but inspect a large number of dwellings. With such focused search, information channel use should also be depressed.

Households that moved within the same ward or from an adjacent ward will already have well-developed local market knowledge. Thus, they should search for a shorter time, examine fewer vacancies, search in fewer areas and employ fewer information channels than households moving over greater distances. Intra ward/adjacent ward movement should also be positively related to the level of the Roman Catholic population in the purchase ward in reflection of factors such as attachment to place, fear of moving elsewhere, and active preferences for "ones own kind".

Finally, the extent of Catholic population in the household's previous ward will be positively associated with search duration, channel usage and purchase ward Catholic composition but, on the basis of the racial model, negatively or not significantly related to the number of vacancies inspected and negatively related to the number of areas searched.

4.3.3 Potential Payoff

This is an important category for this particular study. The basic concept that underlies this framework is that buyers will engage in search effort as long as the perceived benefits or incentives of search exceed the perceived costs of search. Benefits can be interpreted in a

different ways although most studies that employ this measure conceptualise it in terms of satisfaction with the outcome of the search process (Punj & Staelin, 1983) or in terms of cost savings (Srinivasan & Ratchford, 1991).

Although easy to include in surveys, the concept of satisfaction is very subjective and rather emotive in the context of residential search. Households having just spent thousands of pounds on a new home are not likely to freely admit dissatisfaction with their purchase, although variations in the level of satisfaction may be detected. Logically, households that are most satisfied should have engaged in the greatest effort and used the greatest amount of information in the course of search. A different insight into payoff may be obtained by considering household reported satisfaction with the process of search itself. Similar effects are to be expected, with more positive responses associated with greater effort.

In terms of cost savings, the housing market is usually characterised as a bidding market where sellers offer their dwellings for sale with an "asking price" and searchers make offers ("bid prices") and eventually acquire the dwelling for the "purchase price". Some households will negotiate a discount on the offer price, whereas others will pay the offer price, or even exceed it. In the economics literature, achieving a discount is seen as the bargaining outcome (Song, 1995; Turnbull & Sirmans, 1993). Logically, bargaining discounts are the payoff of more extensive search.

4.3.5 Knowledge and Experience

External search is not the only means by which households obtain relevant product-related information. One alternative, at least for existing home owners, is to consult long-term memory. Such information, which can be obtained at little cost, reflects the household's knowledge and experience of the housing market in general and previous search activity in particular. Surprisingly little research has been done in which prior knowledge and experience have been encompassed within a formal model of search behaviour. However, by including indicators such as first-time-buyer status and whether the household was an "out-of-town buyer" (Clark & Smith, 1982; Maclennan, 1992; Turnbull & Sirmans, 1993), this issue is implicitly covered.

Thus, first-time-buyers should have a limited store of usable prior knowledge; they will also be less experienced and have less knowledge than previous home owners. However, it would be misleading to suppose that all continuing home owners have usable prior knowledge. It is accepted that market information becomes rapidly redundant (Maclennan & Wood, 1982). Thus, if the length of residence in their previous home was more than a few years, then one might argue that there is little usable prior knowledge.

Consequently, it is expected that first time buyer status will be positively related to search duration, the number of dwellings viewed, the number of areas searched and the intensity of information channel usage. Further, in reflection of the demographic and life cycle differences between Catholic and non-Catholic households, Catholic households should be over-represented amongst first time buyers which means that first time buyer status will be positively related to the percentage of Catholics in the ward of purchase. Recent movers will search for shorter durations and examine fewer vacancies than non-recent movers, but because of reduced attachment to place, their search will be more spatially extensive.

Irrespective of previous housing circumstances, households may exhibit varying degrees of pre-search uncertainty. The presence of uncertainty is commonly quoted as a main reason for search. Whilst research in the field of consumer choice supports this basic proposition (e.g. Urbany, Dickson & Wilkie, 1989), few housing studies have explicitly studied this aspect of search behaviour. According to search theory, households with greater uncertainty at the outset of search should engage in greater search effort than those with less uncertainty. Thus, it should be expected that search duration, the number of dwellings inspected, the number of areas searched, and channel use will be positively related to the extent of pre-search uncertainty.

4.3.6 Individual Differences

As noted in chapter three, most studies of residential search effort have identified some regularities in search effort according to particular socio-economic and demographic factors. The most important and most consistent influences appear to be from the age of the Head of Household (HoH), the educational standard of the HoH, the size of the household, the number or presence of children in the household, and income. Irrespective of product category, age is normally negatively associated with search effort (Cole & Balasubramanian, 1993; Beatty & Smith, 1987). Given this, and in recognition of the demographic differentials between Catholic and Protestants (Heenan, Grey & Paris, 1994), it is likely that HoH age will be negatively related to search duration, the number of dwellings inspected, the number of areas searched, the number of channels employed, and the level of Catholic population in the ward of purchase.

The evidence on the effect of education on search behaviour is mixed. As noted in chapter three, Clark and Smith's (1982) study found negative relationships between eduction and search duration, the number of dwellings inspected and the number of areas searched. In contrast, Hemple's (1970) research showed that the relationship was less clear cut, and perhaps not even linear. The consumer research literature provides similarly mixed indications. On the basis that the residential search literature tends to favour negative relationships, years in full

time education is expected to be negatively related to search effort. However, education may be positively related to the number of channels employed.

As noted in chapter three, previous research on the impact of family size on search effort has been ambiguous (e.g. Clark, 1981; Hemple, 1970). If we suppose that for larger families the size of new dwellings being sought will be an important criteria and that such dwellings are in short supply, then such households have to search for longer and in more areas, but fewer dwellings will be inspected.

Life cycle effects are well established influences on mobility behaviour (e.g. Clark & Onaka, 1983; Gober, 1992; Kendig, 1984; Weisbrod & Vidal, 1981). In tems of search, it may be argued that the presence of school-aged children in the household will act as an important constraint. There will be less time available for search and households may wish to preserve existing social, family and educational networks more so than households without school-aged children. Such households may wait longer for a suitable dwelling within a more tightly defined set of locations and rely more on informal, localised information than formal, market-wide sources. Because of demographic differences between the "two communities", school-aged children will be more common in Catholic families and thus this factor should translate into a positive association with Catholic population levels in the purchase ward.

Although the evidence on consumer search and income suggests that the relationship is usually negative (Beatty & Smith, 1987), studies of housing search behaviour often point towards a positive relationship, perhaps in recognition of the expense of the product involved (Clark & Smith, 1982; Hemple, 1970). In this study, therefore, it is anticipated that family income will be positively related to search duration, the number of dwellings inspected, and the number of areas searched, but negatively related to the level of Catholics in the ward of purchase.

4.3.7 Conflict and Conflict Resolution

This is a particularly interesting aspect of the literature on consumer research, although it is not clear what factors should be considered. What is clear, however, is that households experience conflicts in the course of their search and the presence of such conflicts and the manner in which they are resolved are likely to impact on search. Households may change their minds over what is important to them, perhaps in response to learning or perhaps in recognition that their original ideas were unrealistic. They may also have problems in actually choosing between competing alternatives (Urbany *et al.*, 1989) or in obtaining mortgage finance to fund the dwelling that they have selected (Maclennan, 1982). Recent research also shows that when faced with a range of choices, conflicts can arise over what choice to make (Urbany *et al*, 1989).

The obvious source of conflict in the owner occupied housing market arises from the fact that most searchers are couples or families rather than single-person households. Thus there is scope for internal conflict within the household over what may or may not be important, that is conflict over the evaluation criteria to be applied. This is an area that has not been explored in any previous published study on housing search of which the author is aware. The common approach in most empirical studies of search and housing choice is to focus on the head of household alone.

Table 4.1: Summary of Expected Relationships

Category	Exogenous Factor	Expected Effect on Endogenous Variables				
		Search Duration	No of Dwgs	No of Areas	No of Channels	% RC in ward
Market Environment	Size of feasible set	+	+	+	+	
	Time to sell previous home	+	+	+		
	Competition from other searchers	+	+	+	+	+
	Searching outside product group	+	+	+	+	
	Use of non-market information	+	+	+	+	+
	Use of estate agent	-	+	+	+	+
Situational Factors	Dwelling purchased new	-	-	+	+	-
	Size of dwelling	+	-		+	
	Price of dwelling	+	-		+	
	Problems with safety / discrimination	+	+	+	+	+
	Moved for economic reasons	-	+	-	-	
	Moved from same or adjacent ward	-	-	-	-	+
	Catholic population in previous ward	+	-/=	-	+	+
Potential Payoff	Satisfaction with home	+	+	+	+	
	Satisfaction with outcome of search	+	+	+	+	
	Bargaining outcome	+	+	+	+	
Knowledge & Experience	First time buyer	+	+	+	+	+
	Recent mover	-	-	+		
	Degree of certainty re requirements	+	+	+	+	
Individual Differences	Age of Head of Household	-	-	-	-	-
	Education of Head of Household	-	-	-	+	
	Family size	+	-	+		
	School aged children in household	+	-	-	-	+
	Family income	+	+	+		-
Religion	Religion (Catholic)	+	-/=	-	+	+
Conflict & Conflict Resolution	Change mind in course of search	+	+	+	+	
	Problems picking between dwellings	+	+	+	+	
	Conflict between Head and Partner	+	-	-	+	
Costs of Search	Time constraints	-	-	-	+	
	Financial constraints	+	-	-	-	+

Thus, it is anticipated that households that changed their minds during search will search longer, examine more vacancies, search more areas, and make use of a greater number of information channels than those that didn't change their mind. In contrast, the presence of conflict in the household over the relative importance of evaluation criteria will positively related to search duration and the number of information channels used, but negatively related to the number of dwellings inspected and the number of areas searched. Finally, problems in choosing

between alternatives will be positively related to search duration, number of dwellings inspected, the number of areas searched, and the number of information channels employed.

4.3.8 Costs of Search

One of the main insights from the economics literature on search is that households will search as long as benefits exceed costs. Most texts acknowledge that search is costly, but few actually develop measures of cost that can be applied in an empirical study. One measure that can be readily applied is the household's perception of time-based and cost-based constraints to search.

Time constraints are expected to lead to highly focused and intensive search in which relatively few dwellings are inspected over a short period in a few areas but using a considerable amount of information. On the basis that households with cost constraints may have problems in transport, search duration may be extended, but it may be over fewer areas and involve fewer dwellings. Given that information is costly, households with financial constraints will employ fewer channels. Because of economic differences between Catholics and non-Catholics, it is expected that cost constraints will be positively related to the religious composition of the purchase ward.

4.3 Conclusions

In the introduction to this chapter it was argued that to assess the validity of the proposition that Catholic owner occupier search behaviour in the BUA mirrors that of black households in segregated cities in the United States it was necessary to translate the proposition into a series of more specific hypotheses. Five such hypotheses were specified. To determine the independent effect of religion, religion must be considered alongside a range of other possible factors. Within the framework of a conceptual model of search behaviour, some 30 explanatory variables were discussed and their relationships with the endogenous variables are summarised in Table 4.1. Although common in the consumer literature, such an approach is unusual in studies of residential search behaviour.

Chapter 5
RESEARCH DESIGN AND DATA COLLECTION

5.1 Introduction

There are two basic aspects to any research design: the source of the data, and the method(s) by which the data are to be collected. The objective of this chapter is to explain how these basic aspects were addressed in this study. In brief, the research presented in this thesis is based on primary data generated from households and individuals with recent search experience in the Belfast Urban Area and secondary data on the structure of the market itself. A variety of methodological techniques are employed in a triangulated design to collect the data. The chapter begins by providing an overview of the research design and discusses the concept of triangulation in more detail. The remaining sections of the chapter are devoted to a discussion of each of the components of the research.

5.2 Overview of the Research Design

There are several different styles of research, although Wilson (1979) notes that many social science researchers work within one particular style because of training and because of accepted practice. He suggests that

> *"...research would gain by the use of more than one method to investigate a problem because of the way in which the strengths of one method may offset the weaknesses of others" (Wilson, 1979, p. 22).*

The study of a specific problem from a variety of methodological perspectives is referred to as triangulation[1]. As each method has its own particular strengths and weaknesses, the use of a variety of methods in combination can help to improve the validity of the study and add breadth and depth to the analysis (Fielding and Fielding, 1986). Triangulated designs are particularly common in sociological and anthropological research, and amongst advocates of qualitative research (Morgan, 1988). However, a triangulation strategy is also widely applied in quantitative research. Traditional survey researchers often engage in within-method triangulation as a means of improving the validity of their results. Recent studies in Belfast that have employed within method triangulation include Gingle's *et al.* (1995) study of health and housing, and Murtagh's (1994) investigation of "peace lines". The problem with this type of triangulation is that it fails to overcome the weaknesses of relying on a single method - the survey. A more

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1 Triangulated designs do not have to involve three different techniques - the important point is that more than one approach is used.

satisfactory form of triangulation is the between-method approach. This is the basic approach adopted in this thesis: a series of dissimilar methods are used to provide insights on the residential search and choice behaviour of residents in the Belfast Urban Area.

There is nothing magical about triangulation as a research design strategy (Patton, 1990). In fact, such a strategy may make the analysis and interpretation of the results less straightforward than may have been the case in a single-method design. Denzin (1989) notes that researchers using a variety of methods should not expect the results generated by these methods to fit into a neat and coherent pattern.

Nevertheless, there is considerable support in the methodological literature that such an approach can radically improve the breadth and depth of the study, and lead to greater insights, particularly in the pursuit of understanding human behaviour and decision-making (Denzin, 1989; Wilson, 1979). In this research, two data collection / analysis methodologies are employed in a triangulated design as follows:

i) The secondary analyses of existing Census, household survey, and administrative data on the study area. These analyses involve two major strands: first, the investigation of existing information on the demographic structure of the population within the BUA, with special reference to the patterns of religious residential segregation; second, the examination of the structure and composition of the housing market, with particular emphasis on the identification of sub-markets.

ii) A "traditional" retrospective survey of recent buyers. The sample based survey involves around 600 buyers in the Belfast Urban Area. This is the primary data collection method and is used to provide information on many aspects of the search and choice processes, including housing history, tenure choice, reasons for mobility, household preferences and attitudes, information acquisition and use, spatial search behaviour, previous selling experiences, and social, economic and demographic data on the household.

In addition, the qualitative technique of focus groups was used to provide an important input to the design process. Although the focus group technique is widely accepted as a respectable research method in its own right, in this study it was used exclusively in the design and testing phase of the survey instrument; the method was not used to generate data for analysis *per se*. Initial design concepts were piloted, revised and re-piloted prior to finalisation. This emphasis on design reflects the importance attached to obtaining reliable and valid measures of search

behaviour and is indicative of the quality approach recommended in modern texts on applied research design (e.g., Fowler, 1993; Hendrik, Bickman, & Rog, 1993).

5.3 Preliminary Design Input - The Use of Focus Groups

Qualitative methods have become much more common in the social sciences in recent years, and yet they are still viewed with a degree of scepticism, particularly from researchers schooled in the positivist tradition. Nevertheless, a wide range of qualitative methods are now available including in-depth interviewing, group interviews, focus groups and participant observation. These methods are frequently used as stand alone methodologies but they are also used in combination with other methods (Wolff, Knodel & Sittitrai, 1993). In this thesis, the focus group method was used to support the retrospective survey of recent buyers.

5.3.1 What Are Focus Groups?

Focus groups are groups of individuals gathered together to "focus" on a particular topic of interest to the researcher. A focus group is not a haphazard discussion amongst people who happen to be available; it is a well-planned research exercise that requires the same care associated with any other research approach. The participants are selected, usually following a screening exercise, because they have certain characteristics in common that relate to the topic of discussion. Discussions are directed, with varying degrees of intervention, by a moderator. The basic objective of focus groups is to generate data on a particular topic - they are not, as is the case with many other types of groups, designed to reach a consensus view. Focus groups are useful when it comes to investigating what people think, but they excel at uncovering why people think as they do (Morgan, 1988).

Although the focus group approach had its origins in sociology, it now constitutes the dominant qualitative method in market research and is growing in popularity in the social sciences (Morgan & Krueger, 1993). Focus groups may be used at virtually any point in a research project, although Stewart and Shandasani (1990) note that they are particularly suited for exploratory research at the early stages of a more quantitative research programme. Such practice has received increased attention in the literature, particularly in the health field (e.g., Bauman & Adair, 1992). In such an application, focus groups provide in-depth information into a relatively small number of carefully selected cases. Using qualitative methods as a prelude to more quantitative procedures offers a number of advantages: it helps the researcher to learn

about the vocabulary of the target population, it helps to develop a feel for the range of responses that might arise in the main survey, and it permits a much more interactive data collection process in which the researcher can probe the informants in greater depth than can be achieved in traditional survey-based approaches. Last but not least, running focus groups before a major survey can help to generate new insights into the topic (e.g. O'Brien, 1993).

Nevertheless, in common with all data collection techniques, focus groups also suffer from a number of limitations. The seriousness of these depends upon the use to which the groups are put. One of the most frequently quoted problems is the difficulty in generalizing from the results. This is particularly a problem when the focus group is the only means of data collection used, but it is not a significant issue when focus groups support other methods, as in this study. A detailed consideration of the pros and cons of focus groups is beyond the scope of this thesis. Nevertheless, it is clear that unless focus groups are carefully planned and organised the results will be questionable, irrespective of whether they are stand alone or used in support of other methods.

5.3.2 Design Issues

Although the focus group method was used in a supporting role only, this did not obviate the need to apply the basic design principles inherent in the methodology. As with other approaches to studying social phenomena, the design of a focus group study requires careful thought and reflection. The are a number of important issues to consider. Typically, the first design stage in a focus group study is to clearly define the purpose of the focus group. The purpose of the focus group in the context of the search study was to explore and provide a greater understanding of the experiences, perspectives, perceptions and attitudes of active searchers and recent buyers of homes in the owner occupied sector of the Belfast Urban Area. In particular, the objective was to develop a better understanding of how households searched for new homes, what factors were important, and how these were used in the evaluation process. The overall emphasis was to help "tune into" the problem as a prerequisite to the design of the survey questionnaire.

One of the early design issues is the size of the group. Krueger (1988) suggests size is conditioned by two factors: it must be small enough to allow each participant to have his/her say, and it must be large enough to provide diversity of perceptions. Although there is no absolute guide as to the size of the group, there is a consensus in the literature that groups are typically composed of between six and 12 individuals (Morgan, 1988; Patton, 1990; Stewart and

Shamdasani, 1990). Less than six is seen as providing too dull a discussion and groups of more than 12 tend to fragment. On average, the groups used in this study comprised eight members.

A second issue is the composition of the group. Apart form the obvious need to draw the group membership from the population under study, the literature suggests that groups should be relatively homogeneous in terms of socio-economic status, age and sex, unless these factors form part of the research design. Focus groups are usually composed of individuals who are unknown to one another, although Stewart and Shamdasani (1990) conclude that the influence of acquaintanceship "...appears modest at best" (p. 35). More recently, Morgan and Krueger (1993) have argued that the restriction of focus groups to strangers is unnecessarily limiting. Participants of the search and choice groups were recruited by advertising in the Housing Executive's staff magazine[2] and hence they represent a convenience sample. Whilst this is not ideal, convenience samples are not uncommon in focus group research (Stewart and Shamdasani, 1990). Each individual was subject to a screening interview that determined if they had moved or were still searching, their family details, their main area of search, and their religion.

One of the recognised difficulties of focus groups is the problem of generalizing to the population as a whole. In probability sample-based methods, such as the survey approach, the ability to generalize is based on the concept of representativeness. In focus groups, the number of participants will normally be too small to representative in the sense of sample surveys. Although in this study it was not intended to generalize to the population as a whole, it is still important that the focus group are in some way representative of the population. The strategy, adopted was to first divide the population into a series of subgroups of relevance to the study objectives and then to select group members as representatives of these separate domains (Alexrod, 1975). In this study, four major domains were identified: first time buyers, continuing owner occupiers, households searching or buying in highly segregated communities, and households searching or buying in mixed areas. Where possible, subjects were selected with these domains in mind. Mixed sex groups were used specifically because of the need to probe

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[2] The Housing Executive is Northern Ireland's comprehensive housing authority. At the time that the research was conducted, the author was in the employ of the Executive and the staff magazine, **In House**, served as a convenient vehicle for contacting persons who had recently moved or who were in the course of active search. Obviously, there will be some bias associated with the selection of focus group members in this way, but the scale of such bias is believed to be acceptable.

for conflict between partners in decision making. Unfortunately, only one group contained a married couple. This is a consequence of the way in which the group members were recruited.

A third issue is the need to decide how many sessions to hold. Once again there is no unequivocal answer to this question, except that one group is never enough. It does appear, however, that where the scope of the focus group is wide more sessions are required. Where, as in the case of this study, the focus is more tightly defined (i.e. to feed into a quantitative study) fewer sessions may suffice. Krueger (1988) suggests that researchers plan for four sessions but evaluate after three. The premise is that sessions should be added until no new insights are achieved. Similar advice is offered by Morgan (1988) who suggests that most applications of the focus group approach require three or four group sessions. In this study, three group sessions were held.

A fourth issue that is frequently mentioned in the literature is the selection of a location for the focus group sessions and the actual arrangement of the room. The focus groups in this study each met over the lunch period in a small seminar room in the head quarters of the Housing Executive. The chairs in the room were laid out in a circular fashion, around a large table, in such a manner that participants could face one another. This facilitated eye contact, a factor which is regarded as conducive to effective discussion. Nine chairs were arranged and the moderator was the last to sit. All sessions were tape-recorded, with participants informed in advance. The tapes were subsequently transcribed as an aid to analysis.

The next issue concerns the design of the interview guide and the role of the moderator. As indicated above, the focus group is not a haphazard discussion group. It follows a structure, under the management of the moderator. Typically, the interview guide comprises fewer than 12 main questions, although the moderator has considerable freedom to probe and follow up on issues that were raised. In practice, interview guides are little more than a set of general topics, often supported by more specific probes. The interview guide used in this study contained 8 broad questions with associated probes (Appendix 1). Following the advice of Morgan and Krueger (1993), each focus group was moderated by the author.

5.3.3 Lessons Learned from the Focus Groups

Although the use of focus groups, and other qualitative methods, as design aids for instruments such as questionnaires has received increased attention in the literature over recent years, few examples of how this works in practice have been published. One of the few published accounts

is O'Brien's application of focus groups as a design tool in an investigation of the attitudes and beliefs of gay and bisexual men (O'Brien, 1993). She concentrated on two aspects:

i) Focus group data was used to inform the actual content of the survey questionnaire. In particular, the focus group method was used to influence question wording, item development, and overall design considerations;

ii) Focus groups were used to provide an understanding of what the research project meant to the population under investigation.

This basic approach was followed in the context of this thesis. The author conducted three focus group sessions with groups with two basic objectives in mind: I) to learn the language the group members used to describe their search experiences; 2) to explore these experiences as a guide to question formulation and the identification of missing issues. Some of the lessons learned were general, whereas others were more specific.

In terms of the general lessons, these essentially involved the learning of terms and phraseology employed by participants to describe their search experiences and the subsequent use of this language within the questionnaire. Perhaps the most important general lesson concerned the definition of passive and active search. In the literature, these terms are often used without clear definition. The focus group data showed that these terms meant different

Table 5.1: Design Changes Resulting from Focus Groups

No.	Key Changes
1	Provided additional reasons why sellers picked particular estate agents.
2	Suggested additional reasons for moving home in the first instance
3	Provided evidence of conflict within households over what issues were important in search and what criteria should be applied. As a result, certain key questions were changed to permit separate recording of partner's views.
4	Provided suggestions on which factors were considered important in the search / evaluation of homes.
5	Provided information on constraints faced by households during search.
6	Provided support for a basic area-based search model with religious composition as a factor, although also suggested that households try to rationalise decisions to exclude this factor.
7	Providing basic information on the way in which households first discovered about properties on the market. In particular, the focus groups clearly showed that households engaged in a considerable amount of background or passive search activity.
8	The Groups confirmed the importance of the main information channels and, in particular, the pivotal role of estate agents.

things to different people and thus should be clearly defined in order to provide valid measures of these aspects of search. The second category, specific lessons, is more difficult to generalise. Very many useful ideas were generated from the groups which lead to specific changes in the initial draft questionnaire (Table 5.1).

5.4 Secondary Analysis of the BUA Housing Market Data

Traditionally researchers have tended to collect their own data, although constraints on finance and time mean that this is not always possible. Consequently, secondary analysis of pre-existing data sets to answer original research questions has become more common. As a research approach, secondary analysis has been widely applied in several social science disciplines over the past thirty years (Permut, 1978; Kulka & Colten, 1982; Bobo & Licari, 1989; Bradshaw & Phillips, 1992; Wang *et al*, 1992). Secondary analysis may involve the use of previously published statistical tables or the re-analysis of the actual data itself, with the latter the most common (Kiecolt and Nathan, 1985).

5.4.1 Review of the Selected Data Sets

Data are required on aspects of population, household and dwelling stock characteristics and distribution. Five Data Sets with this type of information were identified as follows: the 1991 Census, the 1991 Relative Deprivation Database, the 1991 Northern Ireland House Condition Survey (HCS), the Department of Environment House Price Database (HPD), and the Northern Ireland Property Market Analysis Project database. Key aspects of the selected Data Sets are summarised in Table 5.2 and further details are outlined in the following sub-sections.

<u>The 1991 Census of Population</u>

The 1991 Census in Northern Ireland is similar to that in other parts of the United Kingdom. It was conducted on April 5th, 1991 and a series of reports have been published. From the perspective of this thesis, the most important reports include those on the Belfast Urban Area (DHSS, 1992a), housing and households (DHSS, 1992b) and religion (DHSS, 1992c). Data from the published Census reports were supplemented by a series of specially commissioned tables.

There is always an element of non-response with the Census and this is not unique to Northern Ireland. For example, the post Census validation study in Britain revealed non-enumeration levels of around two percent (OPCS, 1993), a situation that prompted some debate

in the literature (Dorling, 1993; Smith, 1993). Moreover, as Craig (1993) points out, non-enumeration was not restricted to the 1991 Census; similar problems were reported in both the 1971 and 1981 Censuses in Britain and the most recent census in the United States. The important question about non-enumeration is the extent to which it was concentrated in particular geographic areas or amongst particular sections of the population. This was very much the problem with the 1981 Census in Northern Ireland, where the estimated five percent non-enumeration was concentrated in Roman Catholic areas of the province (Compton, 1983; Morris, Compton & Luke, 1985). Fortunately, the most recent Norther Ireland Census produced enumeration levels much as expected (Cormack, Gallagher & Osborne, 1993; Macourt, 1995).

Nevertheless, the 1991 Northern Ireland Census did suffer from problems of item non-response. This was particularly evident in terms of the religion question. In the BUA, for example, eight percent failed to reply to the question. Analysis is complicated by the fact that a further six percent indicated that their religion was "none" and nine percent were classified as other. In other words, just 77 percent of the population in the BUA are classified as Protestant or Catholic, with almost one quarter unclassified or classified in some other fashion. In a society that considers religion in terms of the simple Protestant-Catholic dichotomy these "people in between", as they are described by Boyle and Hadden (1994), are an analytical inconvenience, particularly if "tribal analysis" is intended. Details of the religious denomination of those classified as "other" are presented in the Census. An examination of the information suggests that most of the "others" can be classified as Protestant. Dealing with the "none" and "not stated" categories is less straightforward. There is no acceptable basis for allocating these groups back into the mainstream Protestant and Catholic categories. Consequently, in the descriptive analysis of the religion data, the three-fold classification advocated by Boyle and Hadden (1994) is employed, i.e. Catholic, Protestant, and none/not stated. In the analysis of patterns of segregation, however, following the many previous studies in Northern Ireland (see chapter 2), formal indices of segregation are calculated on the basis of Roman Catholic versus the rest.

The 1991 Relative Deprivation Database

Following the publication of data from the 1991 Census, the interdepartmental Statistics Co-ordinating Group of the Northern Ireland Civil Service commissioned a team of consultants from the University of Manchester to produce a general index of relative deprivation for the Province (Robson, Bradford & Deas, 1994). Eighteen indicators were used at three different scales. The

indicators were measured using a log transformation of signed chi-square values which take account of the small denominators of some of the observations and produce values in which zero represents the value for the whole of Northern Ireland and positive values show deprivation greater than the provincial value. From the 18 indicators three separate composite deprivation scores were produced as follows:

i) The **degree** of deprivation in an area is simply the sum of the individual values on each of the eighteen base indicators used, the values first having been subject to a transformation routine. The degree measure is regarded as the most general measure of deprivation and its interpretation is easy: the higher the positive value, the greater the overall deprivation of the area.

ii) The **intensity** of deprivation was designed to assess the relative depth of deprivation within any given area. For an analysis based at ward level, as in the case of the BUA, intensity of deprivation for any particular ward is determined on the basis of the average score in the worst three enumeration districts (EDs) that make up that ward.

iii) The third composite measure, the **extent** of deprivation, is measured as the proportion of the population living in sub-areas that can be defined as "deprived". For ward level analysis, Robson *et al.* (1994) define extent in terms of the worst 10 percent of EDs province-wide. This is a "catch all" indicator; it would pick up on a ward which has relatively low deprivation on the degree and intensity measures but which had just one ED with severe (i.e. worst 10%) deprivation.

The full range of deprivation data were provided in ASCII format to the author by the Department of the Environment. These were converted to an SPSS format, prior to analysis.

The 1991 Northern Ireland House Condition Survey

There is a long history of house condition surveys in the United Kingdom. National house condition surveys have been conducted on approximately five yearly intervals from 1971 in England and Wales and from 1974 in Northern Ireland (DOE, 1973; Welsh Office, 1973; NIHE, 1974a)[3]. Unlike in England and Wales, where the surveys are conducted by the Department of the Environment, the survey in Northern Ireland is not a central government responsibility.

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3 In contrast, the first national house condition survey in Scotland was conducted in 1991 (Scottish Homes, 1993).

Table 5.2 Summary of Data Bases Identified for Secondary Analysis

Name	Source	Type	Population	Period	Geographic Coverage	BUA Identifiable	Sample Design	Sample Size (BUA) Jan-Sept 1993	Response Rate	Type of Information
The 1991 Census of Population	DHSS (NI)	Census	Population Households Dwellings	April 1991	Northern Ireland	Yes	NA	NA	NA	Basic population, household and dwelling characteristics, including: age, sex, household size, employment, religion, tenure, dwelling size, over-crowding, amenity provision, one-year migration.
The 1991 Relative Deprivation Database	Robson *et al.* (1994)	Census plus various admin sources	Areas (based on population & household data)	1991	Northern Ireland	Yes	NA	NA	NA	Details on 18 individual indicators and three composite deprivation measures: degree, intensity & extent.. Data available at three spatial scales: local government district, ward, and enumeration district.
The 1991 House Condition Survey	NIHE	Sample	Dwellings Households	Oct-ober 1991	Northern Ireland	Yes	Disproportionate stratification	Physical: 2,200 Social: 800	Physical: 90% Social: 92%	Physical: comprehensive description of dwelling stock (e.g. age, type, tenure, condition, facilities, amenities, neighbourhood characteristics etc.) and summary data on occupants (e.g., age, sex, religion). Social: comprehensive data on occupants (e.g. demographic, economic & social structure, health and safety, attitudes to home and neighbourhood).
DOE House Price Data Base	DOE	Census	All dwelling transactions	1986 to date	Northern Ireland	Yes	NA	NA	NA	House price, house type, local government district, ward, and postcode sector.
NIPMAP house price data	University of Ulster, Real Estate Studies Unit	Sample	Open market transactions with vacant possession sold via estate agents	1984 to date	Northern Ireland	Yes	Stratified random sample	1,600	?	Address, date sale agreed, sale price, dwelling type, dwelling age, nominal floor area, number of bedrooms, number of reception rooms, presence of selected services (bathroom, garage, central heating), condition indicator.

Since 1974, the various house condition surveys in the Province have been conducted by the Housing Executive, Northern Ireland's comprehensive housing agency.

The 1991 House Condition Survey (HCS) was the fifth such survey of housing conditions conducted by the Executive. It involved two distinct survey components: a physical survey of some 10,000 dwellings province-wide and a social survey of residents based on a 25% re-sample of dwellings included in the physical survey. The sample design of the main physical survey was one of disproportionate stratification in which those local government districts (Belfast included) where dwelling conditions were better than average were over-sampled. The social survey component was disproportionately stratified to over-sample those living in poor condition dwellings (unfit or with high levels of disrepair), those who moved home in the year prior to survey, and those with disabled members in the household. Both surveys were weighted and grossed to known population totals. Further details are presented in the technical appendices of the published reports (NIHE, 1993; 1995).

The HCS compiled a comprehensive range of information about the physical characteristics of the dwelling stock and its condition. This is complemented by a range of information on the occupants of the stock and the environmental conditions of the neighbourhoods within which individual dwellings are located. Unlike with the census, it is possible to analyse the relationships between variables at the level of individual dwellings.[4] This provides for a more incisive analysis of the nature of the housing stock in the BUA and makes it possible to provide quite detailed information on the owner occupied stock in particular. The main weakness is the relatively small size of the BUA sample which limits the level of disaggregation that is possible. Nevertheless, with almost 2,200 cases, the BUA component of the HCS is still quite substantial.

The Department of Environment House Price Database

As in Scotland, there is an official record of every dwelling transaction in Northern Ireland. This data is held by the Valuation and Lands Agency (VLA) of the Department of Environment for Northern Ireland and is used to provide official house price statistics (e.g. DOE, 1994). Potentially, this is a very valuable research resource. However, the VLA database differs from

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[4] It would be possible to analyse Census data in this way if samples of anonomized records (SARS) were used. However, at the time at which the secondary analysis was conducted SARS were not available in Northern Ireland.

the Register of Sassinines in Scotland in at least three important respects: the data is not made available to the public, computerised records of the data are only available from 1986 onwards, and, apart from price and address-related information, very little other information is held.

As will be discussed later in this chapter, it had been intended to use the VLA data as the sample frame for the survey of recent buyers as well as using the data for secondary analysis purposes. However, the VLA were unable to provide address-level access to their data, citing restrictions imposed under the Data Protection Act as the reason for refusal. This meant that the data set could not be used as a sample frame. However, the VLA agreed to provide anonomized records at ward level for the BUA for the purposes of secondary analysis. Data were made available for the period January 1986 to December 1993. This data was provided as 32 separate ASCII files, one for each quarter in the period, and in total there are details on more than 100,000 transactions. Each file contained four variables: selling price, local government district, local government ward, and dwelling type. The data required major re-working before it was suitable for any analysis. In particular, three problems required attention:

i) The first problem was that the coding schema changed during the period and that these changes were implemented at different times across Northern Ireland's 26 local government districts. Fortunately, the DOE provided information on when the various changes were implemented in each area. Thus, it was possible to construct a single house price database and to re-code all spatial referencing to a common framework.

ii) The second problem concerned the house type variable. This variable had 37 different levels to which an individual property could be coded. Only one level could be assigned to an individual property. The schema attempted to take on board factors such as size, so that in terms of terraces, for example, some dwellings are recorded as small-terrace, medium-terrace, or large-terrace. Likewise, some dwellings were recorded as "modernised" or not and provision was made for such things as "mansions" and "closed dwellings". Significant variations existed between districts, implying that certain offices were more likely than others to use the full range of codes available. Apparently, no guidance was issued by VLA on when to use particular codes. In such circumstances, the extra elements of the "type" variable would appear to be somewhat unreliable. Thus, the variable was collapsed into a more simple structure, hopefully eliminating local coding variations. The effect, however, was to produce a rather large "other" category.

iii) The third problem was to construct a flag on the database to indicate if the transaction occurred within the BUA. This was a relatively simple process because the BUA is defined in terms of complete wards. The only difficulty was that the local government ward boundaries were modified in April 1993. Thus, some recoding of the data compiled from April to December 1993 was required. The ArcView Geographic Information System software package was used to overlay the original and revised ward boundaries together with raster data on housing density obtained from Ordnance Survey Northern Ireland (OSNI). As individual addresses were not available, it was necessary to make an allocation judgement on the basis of probability.

The NIPMAP Data Base

The Northern Ireland Property Market Analysis Project (NIPMAP) is one of the key data sets on house prices in Northern Ireland. The project has been running since 1984 and is based in the Real Estate Studies Unit of the School of the Built Environment at the University of Ulster. Data are collected on a quarterly basis from a sample of estate agents across the province. Agents participating in the project record details of all dwellings that they sell on a pro-forma sheet. As noted in Table 5.2, the NIPMAP database contains a much wider range of property-related variables than the VLA data set, but neighbourhood and location factors are poorly covered. This is an important limitation which meant that prior to hedonic analysis the basic NIPMAP frame had to be supplemented with survey-based data on these important attributes.

Although the NIPMAP data is richer than the VLA data set, it shares the problem of poor spatial referencing. Whilst addresses are recorded, they are very inaccurate, with a large number having the wrong postal towns recorded, and less than 10 percent are postcoded. Where post codes are recorded, they are usually incomplete or inaccurate. Moreover, the data was not held on computer and there appears to have been limited validation, with the result that any effort to use the information for analytical purposes had to be preceded by a substantial capture and cleaning exercise. As the NIPMAP database served as the primary sample frame for the retrospective survey of buyers, further details are provided later in this chapter (5.5.1.1).

5.4.2 Main Analytical Methods

The secondary analysis focuses on the segmentation of the BUA housing market. Two distinct lines of enquiry are pursued: a spatial analysis aimed at updating the patterns of religious

residential segregation discussed in chapter two, and a more econometric analysis of market segmentation based on the concept of product groups (Maclennan, Munro & Wood, 1987).

5.4.2.1 Patterns of Segregation

As noted previously, segregation can refer to both a process and an outcome. In updating the spatial patterns of religious residential segregation in Belfast, the emphasis in the secondary analysis of Census data is clearly on the outcome rather than the process of segregation; the processes are considered using the survey data which are discussed later in the chapter. The examination of patterns of segregation involves two separate but related stages: First, the geographic distribution of the two main religions and the "others in between" is examined and analysed, although, in keeping with the previous research on segregation in Belfast noted in chapter two, the mapping effort concentrates on the distribution of the Roman Catholic population. Second, a specific measure of the degree or extent of segregation, the Dissimilarity Index, is then calculated. Further details on each of these stages are presented in the following paragraphs.

Descriptive Analysis of the BUA Population by Religion

As noted above, non-response to the religion question in the 1991 Census means that there are effectively three main groupings to consider: Protestants, Roman Catholics and the rest. These three categories are examined in order to give a picture of the distribution of the population by religion. As an aid to interpretation, however, the analysis concentrates on the distribution of the Roman Catholic denomination. The classification schema used was originally developed by Poole and Boal (1973) and was later applied by Boal (1982), Doherty (1990), and Keane (1990). This schema classifies areas according to a simple five-point scale: 0-9.9% Catholic, 10-29.9% Catholic, 30-49.9% Catholic, 50-89.9% Catholic, and 90-100% Catholic, with the end points indicative of extreme segregation. The spatial patterns of segregation are mapped using the ArcView GIS package. Digital boundary data were obtained from OSNI.

Measuring the Degree of Segregation

Having mapped the distribution of the population by religion the next step is to examine the degree of segregation. There are a large number of indices of segregation available, although the Dissimilarity Index, originally developed by Duncan and Duncan (1955), is the most

commonly applied. In spite of its popularity, the Dissimilarity Index is not without its problems, the most important of which concerns its aspatial nature and its sensitivity to changes in the size of areal units at which it is calculated. A number of alternatives exist including the distance-based measures developed by Jakubs (1981), Morgan (1983) and White (1983), a series of boundary-modified versions suggested by Morrill (1991) and Wong (1993), and a relocation-based index developed by Waldorf (1993). In practice, these modified indices do not produce results that are radically different from those derived from the Dissimilarity Index, except perhaps the last one. Given that most previous studies of segregation in Belfast have employed the Dissimilarity index (e.g., Doherty, 1989; Keane, 1985), its use in this study makes good sense from a comparative analysis point of view.

In basic terms, the Dissimilarity Index compares the distribution of two population groups over discrete spatial units of an urban population. It can be expressed as follows:

$$DI = \frac{\sum_{k=1}^{n} T_k \mid p_k - p \mid}{2T_p(1-p)} * 100$$

where T is the total population size in the city; T_k is the population in unit k; p is the proportion of the minority population in the city; and, p_k is the proportion of the minority population in unit k. In essence, the numerator expresses the number of relocations necessary to bring about a uniform distribution of minority-majority throughout the city, that is $p_k = p$ for all k. The denominator refers to the hypothetical situation of complete segregation, that is $p_k = 0$ or 100 for all k. The Dissimilarity Index, which is interpreted as the ratio of efforts to achieve desegregation, ranges from 0 (uniform distribution) to 100 (complete segregation).

5.4.2.2 Identification of Sub-markets

As noted in the previous chapter, there is common agreement in the literature that the housing market is not a unitary system, but is best conceived of as a series of sub-markets. There is less agreement, however, on the empirical basis on which such submarkets should be defined. There are two schools of thought. The first school, exemplified in the work of Rothenberg *et al.* (1991), takes the view that market segmentation occurs on the basis of the substitutability of particular dwelling attributes. They use an hedonic index of dwelling quality to segment the

market by first estimating the hedonic relationship and then arraying the units in the stock in order of the index values. Using this approach, submarkets are defined by grouping together dwellings with similar hedonic values. Importantly, such groupings are not regarded as necessarily spatial in nature. The second school of thought takes a contrary view that spatial aspects are paramount. According to advocates of this approach, housing markets are seen to comprise a whole series of functionally independent and spatially contiguous submarkets differentiated on the basis of their housing and location attributes (eg. Straszheim, 1975). Unfortunately, there is no sign of any consensus in the literature. These are two conflicting alternative paradigms. From the perspective of this thesis, however, the spatial model appears to be more appropriate. Belfast is a highly segregated housing market where it is well established that the religion of an area is influential in the choice process. By ignoring space, the substitutability approach runs the risk of producing counter intuitive results. Moreover, the value of adopting an explicitly spatial approach to submarket analysis in the context of racial and ethnic segregation is endorsed in a recent contribution by Randolph (1991).

In order to identify submarkets, the approach taken in this study is based an earlier study in Glasgow by Maclennan, Munro, & Wood (1987) . This study involved four stages as follows:

i) The aggregation of the stock into a series of "product group zones" based on an analysis of dwelling characteristics and prices;

ii) For each zone, a hedonic regression model is specified and estimated;

iii) Each individual zone equation is compared to one for the urban area as a whole in an effort to identify both similarities and differences;

iv) Finally, an effort is made to determine if price differentials persist over more than one year.

The analytical approach in the BUA study differed in two important respects from the earlier work in Glasgow.

First, in the construction of the product groups Maclennan *et al.* used factor analysis for this purpose. Factor analysis is a data reduction technique the aim of which is to describe a set of observed variables with a smaller set of unobserved and uncorrelated factors. Using a clustering algorithm, Maclennan *et al.* then grouped cases together on the basis of the factors. Since the Glasgow study, this type of analytical approach has been subject to some criticism. Echoing the work of Gower (1969), Arabie and Hubert (1994) argue that the preliminary spatial reduction of the original variables can discard relevant information and distort the true cluster

structure of the data. Similar concerns have been expressed by other commentators (e.g. DeSarbo *et al.*, 1990; Dillon, Mulani & Fredrick, 1989; Green & Krieger, 1995; Milligan & Cooper, 1987). The basic message in these studies is that there is no real advantage in using factor analysis prior to clustering and there may actually be important disadvantages. Accordingly, in the Belfast research, "product groups" are identified through cluster analysis, without any prior factor analysis. One of the advantages of this is that the richness of the input data is maintained. Moreover, as Marriott (1974) has noted, if distance-based measures are used in the clustering process, as they are in this study, then it is illogical to eliminate correlations before the groups are formed.

The second point of departure concerned the analysis of price persistence. In the Glasgow study, Maclennan and colleagues considered persistence over a three year period; for the BUA study this is extended to five years. This is not a criticism of the earlier work but reflects the importance that Maclennan *et al.* (1987) attach to the assessment of price persistence over time.

There are a wide variety of clustering methods available, although hierarchical or agglomerative methods are perhaps the most common (Howard, 1991). The process proceeds sequentially from a situation in which all cases are deemed individual clusters in their own right, to the final stage in which there is a single group containing all cases. At each stage in the process, the number of groups is reduced by one by fusing the two groups considered to be the most similar. There is no single best approach for deciding which groups should be combined in the clustering process, and a variety of alternative methods exist. Several authors recommend that different linkage methods be tried in order to help validate the outcomes (e.g. Everitt & Dunn, 1983; Howard, 1991; SAS, 1990). In this study, therefore, a variety of methods were examined, including single linkage, average linkage and Ward's method. The "best" results were obtained with the average linkage method more commonly referred to by the acronym UPGMA (Unweighted Pair Group Method using arithmetic Averages). The UPGMA linking system has been widely applied and validated in a range of different contexts and found to perform satisfactorily (Howard, 1991).

As noted previously, there is a debate in the literature over the role of spatial considerations in submarket definition. Rothenberg *et al.* (1991) dismiss space in their approach to the problem but given that search has a strong spatial dimension, it is logical to conceive of spatially defined sub markets (Munro, 1986). To facilitate this, the unit of clustering is the local

government ward of which there are 117 within the BUA. Most of the data used in the cluster analysis were derived from the Census, although information on dwelling age was derived from

Table 5.3: Variables Selected for Product Group Construction

Factor	Cluster Indicator	Source
Tenure	% dwellings owner occupied % dwellings rented from Housing Executive % dwellings rented from private landlords	1991 Census, BUA Report.
Dwelling Age	% dwellings built before 1919 % dwellings built in interwar period % dwellings built 1945-1960 % dwellings built after 1960	1985 Greater Belfast Household Survey
Dwelling Type	% terraced dwellings % semi-detached houses % detached houses % flats or apartments	1991 Census, commissioned tables.
Dwelling Size	% dwellings with 4+ bedrooms	1991 Census.
Religion	% Roman Catholics in ward % Protestants in ward % Others in ward	1991 Census, BUA Report.

a major household survey conducted by the Executive in 1985 (NIHE, 1986). The age data were updated, where possible, to allow for changes in the stock between 1985 and 1991. The nature of the data sources were such that cluster variables concentrated on the basic characteristics of the stock; unfortunately insufficient information for cluster purposes was available on neighbourhood characteristics. The details of the variables used in the clustering process are summarised in Table 5.3. All cluster analyses were conducted using the hierarchical procedures included in the SPSS for Windows Professional Statistics module's procedures.

Having clustered the stock into a series of distinct "product groups", the next stage was to estimate hedonic equations for each cluster and for all clusters combined. The hedonic method is regarded as the "state-of-the-art" method in the study of house prices (Quigley, 1994). Such studies are based on an explicit recognition of the heterogeneity of the dwelling stock. Dwellings vary in terms of their internal, location and neighbourhood characteristics. In the Lancastrian tradition therefore (Lancaster, 1966), housing is defined as a bundle of attributes and households are assumed to vary in the amount of these attributes that they wish to consume. Freeman notes that "The hedonic technique is potentially applicable to any attribute which differentiates houses in the eyes of potential occupants..." (Freeman, 1979, p.193). The hedonic method, through the application of regression techniques, essentially 'unbundles' these

attributes by expressing property prices as a function of the mix of attributes and hence reveal the implicit prices of goods which are not explicitly traded but which are characteristics of traded goods (Maclennan, 1982). In terms of sub-market analysis, individual hedonic equations are compared against a single equation estimated for the urban area as a whole. The theory is that significant differences in terms included in the respective equations constitutes *prima facia* evidence of the existence of sub-markets. Estimation of the hedonic equation for the BUA as a whole is based on data extracted from the database used as the sample frame for the retrospective survey (see 5.5.1.1). Although this list contains comprehensive information on dwellings it lacks information on neighbourhood and location attributes which previous studies have identified as important. Consequently, it was necessary to supplement the basic list with additional data. This was done in two stages. First, a series of questions on neighbourhood attributes were added to the retrospective survey form and interviewers were required to collect this data irrespective of the outcome of the interview (i.e. for refusals and non-contacts as well as for completed interviews). Second, addresses not included in the survey were visited and the neighbourhood data collected in the same format as in the survey.

5.5 The Retrospective Survey of Recent Buyers

The population for the study was defined as all private households that had purchased a dwelling as their primary family home in the BUA during the first nine months of 1993. The population includes first-time buyers and continuing home owners, but excludes those who purchased dwellings not as their primary home. Similarly, purchase of dwellings by institutions and organisations are specifically excluded, as are dwellings purchased through the Housing Executive's Voluntary Sales Scheme (VSS) and dwellings acquired through other non-market means such as inheritance.[5]

The restriction of the population to those market sales occurring during the first nine months of the year was for operational reasons, and primarily the need to begin fieldwork early

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5 Information on the relative size of each of the excluded groups is piece meal in nature. The most reliable information refers to the Executive's VSS. It is estimated that during the first nine months of 1993, some 550 dwellings in the BUA were purchased through this scheme. The exclusion of these sales is justified on the basis that the dwellings were purchased without search, although it is possible that purchasers may have engaged in some unsuccessful search of the private market proper and this lead them to buy as sitting tenants. The next largest category on which information is available is the 114 dwellings purchased by the Housing Executive and the housing association movement through the government's house purchase scheme. No objective data is available on the remaining groups, but they are thought to be relatively small.

in 1994. By excluding last quarter sales, it was thought that most of the purchased dwellings would be occupied by the time that the survey was in the field. A previous study in Belfast showed that a sizeable proportion of dwellings remained vacant or occupied by their previous owners at periods up to three months after the completion date (Adair & McGreal, 1994). Overall, it is estimated that the total population for the survey is around 3,600 dwellings.

The survey was designed to be conducted on a sample basis with face-to-face interviews. In terms of the first issue, given the size of the population under study it was not possible (or necessary) to survey each household, hence sampling is appropriate. In terms of the second issue, given the complexity of the topic involved, it was judged that a postal or telephone-based survey would be inappropriate.[6]

5.5.1 Sampling Issues

Sample surveys are widely accepted as means for providing statistical data on a range of issues, although the process is often misunderstood or miss-applied. The design of a sample is one of the most important stages in survey design, but it should be seen as an integral part of the overall design process, particularly because sample design is often a compromise between what is technically appropriate and what is financially possible. The basic task of sample design is to decide how to select that part of the population to be included in the survey. It is normally the case that sample members should be *representative* of the population. Typically, quantitative and policy-orientated research, such as that reported in this thesis, addresses this issue through probability sampling methods. In the following sub-sections, three important design issues are discussed: the sample frame, sample size, and sample selection. The related issue of sample error is discussed later in the chapter.

5.5.1.1 The Sample Frame

The sample frame is a major ingredient of the overall sample design. At a minimum it provides a means of identifying and locating the population elements, and it often contains information of possible value in stratification. Ideally, the sample frame should list all members of the target

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[6] It is well-known that postal and telephone surveys are inappropriate where complex issues are involved, they are characterised by low response rates, a lack of control over who completes the form or answers the telephone questions, and are subject to a host of related biases (e.g. Fowler, 1993; Moser and Kalton, 1971; Oppenheim, 1992).

population and would contain no other information, an ideal that is seldom realized in practice (Kalton, 1983), and one that was unfortunately not achieved in this study.

Constructing the Sample Frame

As noted above, all domestic property transactions in Northern Ireland are recorded by the VLA. Unfortunately, the VLA refused access to their data as a sample frame. Alternatives therefore had to be pursued. The most obvious alternative was the NIPMAP database of house sales maintained at the University of Ulster (see 5.4.1).

Before the NIPMAP data could be used as a sample frame a number of tasks had to be completed. In the first instance, the data had to be captured to computer - perhaps surprisingly, it was found that the NIPMAP data was held as a manual system. Data capture involved two stages: a manual stage and a computer entry stage. In the manual stage, transactions within the BUA were sifted out from the full data. This was a labour intensive process because a BUA code did not exist on the NIPMAP records. As noted above, the BUA is defined in terms of local government wards. Unfortunately, NIPMAP does not record ward. Thus, ward codes had to be assigned from the individual address records. For Belfast district council area wards (roughly the inner-city component of the BUA) the Belfast Street Directory was used to assign ward codes to addresses. For those parts of the BUA outside of Belfast district, ward codes were assigned by checking the addresses against Ordnance Survey ward maps. Only those transactions identified as falling inside the BUA were then captured to computer in the second stage. The SPSS Data-Entry module was used to capture the data. The screen layout was designed to mimic the paper record. Overall, almost 1,700 records were captured, representing about 36 percent of the population.

Problems with the Sample Frame

In his classic text, Kish (1965) classifies sample frame problems into four categories: missing elements, non-coverage or incomplete frames; clustering of elements within the frame; blanks or foreign elements within the frame; and, duplicate listings. With the exception of clustering, each of these types of problems were found in the NIPMAP frame. Some were recognizable prior to sampling (e.g. missing elements, foreign elements, and duplicates), whereas others did not become apparent until after fieldwork started (e.g. foreign elements and blanks).

In terms of the first problem, the NIPMAP data base is clearly incomplete as it is itself based on a sample of transactions provided by the participating estate agents. Thus, dwellings purchased through other means (e.g. private sales, auctions etc.) would not be included. However, as it is widely believed that the great majority (95%+) of sales occur through estate agents this is not likely to be a significant weakness. Moreover, if it can be shown the NIPMAP data is representative of all open market transactions, then the incompleteness of the frame will not be a problem. The obvious comparison is with the DOE HPD. As the DOE data comprises all transactions, it is first necessary to exclude sales to sitting tenants in order to compare like-with-like (Table 5.4). Although former Housing Executive dwellings are not identified on the DOE data set, by matching the respective profiles, it is possible to "net off" sitting tenant sales.

Comparing the original NIPMAP with the adjusted DOE HPD (data columns 1 & 4) revealed that there were a number of important differences in the profiles. In terms of price, NIPMAP slightly over-represented lower price properties and under-represented the rest. Larger differences were observable in terms of the types of dwellings sold. The DOE data, particularly after adjustment, classified a much higher proportion of sales as "other" types and fewer as "terraced" compared to the NIPMAP frame. Discussions with DOE revealed that during 1993 they tightened up the definition of each of the standard types of properties with the result that many dwellings that would formerly have been classified as terraced (e.g. "kitchen" and "parlour" houses) were now treated as "miscellaneous." In such circumstances, it is difficult to make a precise comparison. Nevertheless, as far as detached and semi-detached dwellings are concerned, the profiles from both Data Sets are similar. There was also a problem with location in that the NIPMAP frame under-represented sub-urban sales and over-represented sales in North Belfast. In respect of dwelling age, NIPMAP substantially under-represented the new build market. Finally, in terms of the religious composition of the areas in which sales occurred the frame over-represented sales in Catholic areas at the expense of Protestant areas.

In order to compensate for these deficiencies a supplementary list was generated by the Department of Environment (Planning Service). This list comprised private sector new build schemes that were completed during the first nine months of 1993. Following a detailed comparison of the NIPMAP and the DOE (Planning Service) list, an additional 274 addresses were appended to the NIPMAP frame. These were predominately from the locations with a large Protestant majority or mixed religion areas and where prices were in the middle or upper bands and were randomly selected (i.e. after screening to remove duplicates and addresses where

Table 5.4: A Comparison of Owner Occupier Sales Data on the Belfast Urban Area for January - September 1993

Characteristic	Original NIPMAP		DOE HPD (Full data)		NIHE Sales to Tenants		DOE HPD net of NIHE sales		NIPMAP with DOE new houses list	
	No.	%	No.	%	No.	%	No.	%	No.	%
Price Band										
<=£31,500	815	50.6	2332	51.0	553	100.0	1779	44.5	842	44.6
£31,501 - £44,000	397	24.6	1177	25.9	0	0	1177	29.4	589	31.2
>£44,000	400	24.8	1051	23.1	0	0	1041	26.1	455	24.1
Dwelling Type										
Terraced	593	36.8	1166	25.6	286	51.7	880	22.0	616	32.7
Semi-detached	640	39.7	1827	40.2	179	32.4	1648	41.2	745	39.5
Detached	302	18.7	768	16.9	74	13.4	694	17.4	432	22.9
Other	77	4.8	789	17.3	14	2.4	775	19.4	93	4.9
Location										
Suburban BUA	438	27.2	1772	38.9	304	55.0	1468	36.7	672	35.6
North Belfast	443	27.5	747	16.4	24	4.3	723	18.1	443	23.5
East Belfast	233	14.5	770	16.9	67	12.1	703	17.6	273	14.5
South Belfast	416	25.8	991	21.8	43	7.8	948	23.7	416	22.1
West Belfast	82	5.1	270	5.9	115	20.8	155	3.9	82	4.3
Dwelling Age[1]										
New	202	12.5	1024	22.5	0	0	1024	25.6	468	24.8
Existing	1410	87.5	3526	77.5	553	100.0	2973	74.4	1418	75.2
Religious Composition										
Protestant	919	57.0	3097	68.1	376	68.0	2721	68.1	1148	60.9
Mixed	258	16.0	593	13.0	30	5.4	563	14.1	303	16.1
Roman Catholic	435	27.0	860	18.9	147	26.6	713	17.8	435	23.0
Total	1612	100.0	4550	100.0	553	100.0	3997	100.0	1886	100.0

1 Estimated for DOE HPD

NIPMAP was not under-represented) from within the complete list provided by the DOE. As can be seen by comparing the final two columns in the table, the original deficiencies have, to a large extent, been ironed out.

As noted above, no problems of clustering were apparent in the NIPMAP frame, although there were difficulties with both foreign elements and duplicates. In respect of foreign elements, these are entries on the list which fall outside the scope of the project. The three most common foreign elements found were dwellings that had not been purchased by a private household, dwellings that had been sold but were still vacant at the time of the survey, and dwellings which were incorrectly reported as having been sold. In general, these problems were mainly discovered at the time of the survey, although for one special class of the first problem action was possible prior to sampling.

During 1993 the Housing Executive initiated a house purchase scheme in which 214 dwellings were purchased from their former owners and were allocated to applicants in urgent housing need. Just over half (114) were in the BUA. Given the relatively small size of the

NIPMAP frame it was possible to scan the frame and identify dwellings found to have been purchased by the Executive. Overall, 40 matches were found. A similar scanning exercise identified 16 duplicates on the NIPMAP data set. Investigations revealed that in all cases these referred to sales that had fallen through after the initial notification by the agent to the NIPMAP team but which were subsequently sold in a later period. Thus, together with the Housing Executive purchases, some 56 records were deleted prior to sampling, thereby reducing the initial 1,668 records to the 1,612 shown in column two of Table 5.5. Some duplicates were also screened out whenever the DOE supplementary list was being added to the frame. Details of the scale of the remaining faults are presented later when response rates are discussed, although the basic strategy advocated by Kalton (1983), was to ignore such elements as and when they arose. In general, it appears safe to conclude that the adjusted frame, whilst not perfect, closely approximates the known profile of dwellings sold during the first nine months of 1993 and, therefore, is suitable for sampling purposes.

5.5.1.2 Sample Size

The determination of an appropriate sample size is an important task in survey research design. As with other aspects of research design, the selection of a sample size is usually a compromise between the precision required and the resources available. Fowler (1993) discusses the three standard approaches to this problem, showing that each is ill-conceived. The first approach involves taking a fixed proportion of the population such as five or ten percent. It is a common misconception that the size of the sample fraction is a relevant factor. The second approach is to follow what others have done. As was noted in the chapter three, whilst there is little consistency in the size of samples employed in retrospective surveys of search, there is a tendency for such samples to be fairly small (typically less than 400 households). Fowler finds some merit in this approach, but it clearly fails to adequately reflect the nature of the specific research project. A third approach is the "statistical approach". Most statistical texts provide formulas for the estimation of sample sizes based on the precision required for a particular variable. Whilst theoretically correct, in a practical sense it is rare for researchers to base a sample size decision on the need for precision of a single estimate. Most surveys, this one included, are designed to provide numerous estimates, and the needed precision for these estimates is likely to vary. Moreover, the adoption of the statistical approach, with its emphasis on sample error, tends to ignore the presence of other errors in the survey process.

Fowler recommends that in order to determine an appropriate sample size, researchers should begin by considering the subgroups within the population for which separate estimates will be required, together with estimates of the proportion of the population that may fall into these groups. These are usually referred to as the domains of study (Moser & Kalton, 1971). With a "good" sample frame, that is a frame which contains information pertinent to objectives of the survey, it is usually possible to provide estimates of the form required in order to build up the estimate of the required sample size.

Within this study separate estimates are required for Roman Catholic and non-Catholic households[7], and for households that purchase in segregated areas and in mixed religion areas. Fowler (1993) shows that precision of sample estimates increases steadily up to sample sizes between 150 and 200, with modest improvements thereafter. Thus, it is not unreasonable to aim for minimum samples of 150 for each domain. The frame contains listings of just 303 sales in mixed areas, implying a sample fraction of 50 percent. Overall, the "build up" approach to sample size estimation suggests a figure of between 450 and 600 (depending on the choice of 150 or 200 per domain - say 525 as a mid-point).

At this juncture it is worth checking this estimate against that which would result from the application of the standard statistical formula. Accepting the notation of Kalton (1983), the formula for estimating the size of a simple random sample with 95% probability is as follows:

$$n = 1.96^2 \frac{PQ}{S.E.(p)^2} \qquad (2)$$

In this formula, n is the desired sample size, 1.96 is the z-score associated with the 95 percent probability level, P is the proportion in the population with some particular attribute, Q is the proportion without the attribute in question, and S.E. (p) is the Standard Error of the proportion in question. As indicated above, surveys typically aim to examine a series of variables as opposed to just one. This makes it difficult to select values for P. The conventional approach is to use 50 percent, thus maximizing the variability and erring on the conservative side for sample size estimation (Kalton, 1983). It is more difficult to select an appropriate figure for the Standard Error. In practice, researchers often calculate for several different values and make a choice on the basis of resources available. Before presenting the results of such calculations, it is worth

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7 Because of the relatively small number of mixed marriages and religion that do not fit within the Catholic or Protestant camps, it was decided to "lump" all non-Catholic households together.

making two further points. First, where the sample size represents a sizeable proportion of the population, it is advisable that the estimate be revised using the finite population correction factor. This is expressed as follows:

$$n' \frac{n}{1 + (n / N)} \quad (3)$$

where n' is the adjusted sample size, n is the original sample size, and N is the population size. With a population in this study of less than 4,000, the finite population correction should be applied. The second point to note is that researchers usually modify sample size calculations to take account of expected non-response. There is no hard and fast rules on what level of non-response to expect. This is likely to vary from survey to survey depending on factors such as the objectives of the survey, respondent interest, survey length and sponsorship. On the basis of experience within the study area, expected non-response for the retrospective searchers survey was set at 25 percent (Table 5.5).

It can be seen that the results are sensitive to the estimate of the Standard Error, ranging from 3,087 with a Standard Error of just one percent, to 354 for an error level of five percent. The build up calculation of 525 is consistent with an expected precision level of four percent (before adjustment for non-response). Allowing for non-response, a sample of around the 660 mark (525 * 1.25) would therefore seem to be appropriate.

Table 5.5: Sample Size Estimates at Different Standard Errors (Assuming P = 50%)

S. E.	Initial Sample Size	Following Finite Population Correction Adjustment	Following Adjustment for Non-Response
1	9,604	3,087	3,859
2	2,401	1,572	1,965
3	1,067	864	1,080
4	600	530	663
5	384	354	442

5.5.1.3 Sample Selection

The key objective of the research is to examine differences in search behaviour according to the religious composition of the household. Unfortunately, the religious composition of the

households that purchased dwellings recorded on the NIPMAP frame is not known in advance. Given the highly segregated nature of the BUA housing market, the religious composition of the wards in which sales occurred is used as a surrogate for religion of the household. This is based on the original proposition that segregation is maintained by religiously biased residential mobility. Thus, the sample was designed to adequately reflect buyers in three different types of area: largely Catholic, largely non-Catholic, and mixed.

As a first stage, individual records on the adjusted NIPMAP frame were classified according to the religious composition of the ward as revealed in the 1991 Census of Population. It was noted in chapter two that several previous studies used a five-fold classification with the ends representing less than 10 percent or more than 90 percent Catholic. Such extreme segregation (i.e., <10% of either group) is typically concentrated in wards dominated by Housing Executive accommodation (see chapter 6). An initial application of the five-fold classification to the frame data resulted in just 195 sales in the 90 percent or more Catholic category, 570 in the less than 10 percent Roman Catholic group, and the remainder (1121) were somewhere in between. Given the small numbers in the Catholic category and the need to achieve a sample of at least 150 Catholics, it was thought that this classification would not be suitable for stratification purposes. Thus, an alternative three-fold classification was developed. In this revised schema, wards were classified "Protestant" where the Roman Catholic population was less than 30 percent, "Mixed" if the Roman Catholic population was between 30 and 50 percent, and "Roman Catholic" for the remaining areas. When compared to the original schema, the revised method resulted in fewer sales being classified as "Mixed" (303), more as "Protestant" (1148) and more as "Roman Catholic" (435).

The unequal distribution points to the need for a disproportionately stratified sample design if adequate numbers of "Mixed" area sales are to be selected on the basis of the revised classification. A straight forward proportionate stratification would produce fewer than the recommended minimum of 150 per domain (excluding an allowance for non-response). Thus, it was decided to boost the sample from "Mixed" areas by increasing the sample fraction by a factor of two, and leaving the fractions for "Protestant" and "Roman Catholic" areas unchanged. The effect of this is to increase the number of "Mixed" area sales to around 210 and the overall sample size to around 770. The alternative approach would be to increase the overall size to around 1,250 and rely on simple random or proportionate stratified selection to produce adequate numbers in each domain. This is not cost effective.

Table 5.6: Sample Stratification

Sale Price	Religious Composition of Ward	Frame Count	Sample Fraction	Sample Size
< £31,501	Protestant	501	0.35	175
	Mixed	82	0.70	57
	Roman Catholic	259	0.35	91
£31,501 - £44,000	Protestant	409	0.35	143
	Mixed	86	0.70	60
	Roman Catholic	94	0.35	33
> £44,000	Protestant	238	0.35	83
	Mixed	135	0.70	95
	Roman Catholic	82	0.35	29
Total		1886		766

Where the expected sample size for a single domain of study is short of that required, Fowler (1993) recommends disproportionate stratification of the type discussed above. In addition to stratifying by religious composition of ward, the sample was further stratified by sale price. In this instance, properties were allocated into one of three price bands. The decision to disproportionately stratify the sample means, however, that the resultant survey data must be weighted to compensate for differential sample fractions. The interaction of religion and price produces a matrix of nine cells. Separate samples were selected, using simple random means, within each of the nine cells. The details are summarised in Table 5.6.

5.5.2 Questionnaire Development

In the following paragraphs, the development of the questionnaire is described, together with a discussion of the piloting exercise and the structure and content of the final form. A copy of the form is attached as Appendix 2.

5.5.2.1 The Design and Testing Work

Oppenheim (1992) notes that all questionnaires are unique. However, similarities are found in questionnaires designed for very different objectives. In designing a questionnaire, therefore, it is rare to begin with out any guidance. A prudent researcher will examine what others in the field have done and may decide to adopt or adapt previous questionnaires, either in part or in whole (Bourque & Clark, 1992). The adoption strategy may be particularly appropriate if the researcher intends to make direct comparisons with the earlier studies. Straightforward adoption

is, however, a risky strategy. Adaption is more common and has been described as the orthodox approach to questionnaire design (Oppenheim, 1992). In some cases, however, it may be necessary to develop new questions from scratch. Although many questionnaires involve elements of all three approaches, the questionnaire used in this study was developed primarily from scratch, with limited adaption of search-related questions from studies by Hemple (1970) and Talarachek (1982). There are two main reasons for this. First, as noted in chapter two, the majority of search studies are of North American origin, and are frequently set in the private rental market. Oppenheim (1992) advises caution when applying non-British questionnaires to British studies. Consequently, adoption was not a viable strategy, and only limited adaption could be contemplated. Second, very few studies publish details of their questionnaires and, with one notable exception it proved very difficult to track down examples [8].

The design process began with a simple listing of issues that appeared to be related to the research objectives. Following the review of the relevant literature on search and segregation (chapters 2 & 3), and building on the feedback from the focus groups, a series of draft questions were prepared. Where available, previous questionnaires on search were used as guide. The questions were then grouped into a number of modules, with each module reflecting a particular theme or topic area (e.g. reasons for movement, tenure choice, information use etc.).[9] The modules were organised into broad sections and were then ordered in a logical sequence before being tested. Testing occurred in two stages: First, the use of a technique referred to as Cognitive Laboratory Interviews and, second, the use of more common pilot survey methods.

Cognitive Laboratory Interviews

In the first stage, a method known as "cognitive laboratory interviews" (CLI) was used to test the validity of the questions and the way in which they had been worded (Forsyth & Lessler, 1992).

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8 It was possible to track down the questionnaire used in Talarchek's (1982) important study of information use in search. This was obtained directly from Dr. Talarachek at the University of New Orleans.

9 It is important to note at this stage that some of the modules contained in the questionnaire are not directly related to the objectives of this research project. This is because the survey was also designed to meet the needs of a NIHE research project on residential mobility and housing choice. The fact that the NIHE research was planned provided an opportunity to collect the search data needed for this thesis and to share in the basic demographic and socio-economic classification data. The overall survey was designed by the author with both research projects in mind.

In this technique, volunteers are used to complete interviews with the questionnaire designer. An important difference between this and standard interviews is that the interviewee is also required to give some form of feedback on the questions. There is no standard method for doing this, although Fowler (1993) reports that most studies simply ask the interviewee to "think aloud" while they are preparing their answers. The emphasis is on identifying questions that are not consistently understood or are not being answered in the way expected. Although volunteers are not representative of the population, "such interviews are increasingly seen as an essential step in the design and evaluation of a survey instrument" (Fowler, 1993, p. 98).

In the Belfast study, cognitive laboratory interviews were conducted with a convenience sample of six members of staff of the Housing Executive known to the researcher to have moved home during 1993 or who where in the course of active search at the time of the interviews. All six had purchased or were seeking accommodation in the BUA. Five of the six were continuing buyers, with the sixth being a first-time buyer. The basic protocol for the interview was as follows: 1) the questionnaire was administered by the author; 2) the subject was asked to "think aloud" as he or she considered each question in turn; 3) all interviews were taped and later transcribed, although notes were also taken during the interviews; 4) at the end of the interview, a series of questions were asked about the interview in general, the flow of the questions, the relative balance of questions, and whether or not issues important to the subject had been omitted. Significant changes were made to the draft questionnaire following the completion of this test.

Pilot Testing

Following the use of the CLI method, the revised questionnaire was subject to more traditional pilot testing. Although there is a considerable volume of material that extols the virtues of pilot or pre-testing questionnaires (e.g. Churchill, 1991; Hunt *et al.*, 1982; Fowler, 1993; Green, Tull & Albaum, 1988; Oppenheim, 1992), the literature on how this might be done is surprisingly sparse. There are, however, some noteworthy exceptions, including recent papers by Diamantopoulos *et al.* (1994) and Reynolds *et al.* (1993). Following the advice in these more recent papers, pilot testing of the retrospective survey sought to provide feedback on individual questions, overall design, and data analysis.

The complete questionnaire was used in the pilot survey. Interviews were conducted at 20 addresses selected at random from the main sample frame. Half of the pilot interviews were

completed by the author and half by a trained interviewer who was employed by one of Northern Ireland's leading research agencies.[10] Although a small number, 20 cases falls within the normal range for pilot surveys (Fowler, 1993).The important points to make are that the respondents were drawn from the same population (and frame) as the main survey, the separate domains of study were covered, and the author and an experienced interviewer conducted the pilot interviews.

All pilot interviews were taped, with the consent of the respondents, and were evaluated after the exercise was completed. The use of taped interviews was useful in that in addition to providing information on the progress of the interview, it provided accurate feedback on those questions where clarification was sought by respondents and questions where the interviewer departed from the strict wording of the question. Fowler (1993) reports that certain types of questions are consistently misread by interviewers and others consistently promote inadequate answers from respondents. An important objective of the pilot study was to identify and correct such questions.

Ideally, modifications made following a pilot study should also be tested. This was only possible on a small scale; Five further interviews were carried out, three by the author and two by the same trained interviewer used in the main pilot interviews. Some further minor modifications were made to produce the final form.

5.5.2.2 The Structure and Content of the Final Questionnaire

The structure and content of the final questionnaire is summarised in Table 5.7. Details are provided on the types of issues covered and, where questions have been adapted from previous surveys, the sources are given. The final questionnaire runs to 62 pages including the cover, the non-response and environmental scoring sheets. Overall, there are 79 main questions, organised into eight sections. These are supplemented by a record of the sample details (address, schedule number, sample strata code, location codes and a religion code for the location) and a record of interviewer calls at the address.

Where possible, a standard layout has been used, the essential elements of which are as follows: a right hand margin for interviewer routing instructions, a clear division between sections and questions within sections, introductory text for each section, a standard recording

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[10] The interviewer was a friend of the author. She donated her time free of charge.

Table 5.7: Structure and Content of Questionnaire

Section Number	Section Description	Issues Covered	Source
A	Household Details	For each family member: age last birthday, sex, relationship to Head of Household (HoH), marital status, economic status, age left full time education, highest educational qualification. Summary variables on household: number of pre-school children	Mainly adapted from 1991 Northern Ireland House Condition Survey (NIHE, 1994).
B	Residential History	For all - previous home: address, tenure, distance from current, living arrangements, dwelling characteristics, length of residence. For former owners: who bought previous home from.	Developed from scratch.
C	Selling Previous Home	For previous owners: type of sale (private/agent), why sold in this way, selecting an agent, financial details of sale (price, fees etc), number of viewers, bidders, failed sales etc, time taken to sell, steps taken to promote sale, viewing experiences.	Developed from scratch.
D	Your Current Home	For all: date moved in, characteristics of dwelling, satisfaction with dwelling, nature of neighbourhood, attitudes to current and previous neighbourhood .	Adapted from NIHCS (NIHE, 1994) and survey of buyers in Glasgow (Munro & Lamont, 1985)
E	Tenure Choice and Reasons for Mobility	For all: first time or continuing buyer, other options considered (different tenures), reasons for not selecting other options. For continuing households: reasons for movement (HoH and Partner).	Adapted from NIHCS (NIHE, 1994), Glasgow survey (Munro & Lamont, 1985), together with literature review.
F	Housing Search and Choice	For all: time taken in search, price range considered, areas searched, number of dwellings considered, bidding activity, constraints in search, relative influence of HoH, Partner and others in choice process. For HoH and Partner separately: spatial preferences at outset, search strategy, religion and search, importance of location, neighbourhood and dwelling factors, initial expectations re type, age, size of dwelling wanted, change in aspirations, information sources used and experiences with use, information used for particular tasks, information use over time, merits of each source, source by type of information.	Mainly from scratch, but with some guidance from Hemple (1970) and Talarachek (1982). Personal correspondence with Talarackek on informational use.
G	Housing Finance	For all: costs of removal, legal, valuation, survey and mortgage. Price paid, size of deposit, size of mortgage, monthly payments, source of funds.	Developed from scratch.
H	Socio-Economic Profile of Household	For HoH and Partner: employment status, occupation, SEG,. For Household: Gross household income (banded), opinion of social class, religious composition of household.	Adapted from 1991 NIHCS (NIHE, 1994) and PPRU's Continuous Household Survey.

approach such that most responses are recorded immediately to the left of the right-hand margin dividing line, and a standard coding schema which codes don't know as 7 (or 77, 777 etc.), not applicable as 8 (88. 888 etc.) and unobtainable as 9 (99, 999 etc.). The questionnaire was

designed to facilitate direct computer entry without the need for the transcription of codes, the exception being for open-ended questions. This should lead to a much cleaner data set. The final document was printed on A4 size paper in booklet form.

5.5.3 Survey Implementation

The three most important aspects to consider under this general heading are interviewer training, survey fieldwork and survey response rates, and data preparation and validation.

5.5.3.1 Interviewer Training

The survey fieldwork was conducted by interviewers from Price Waterhouse. This firm won the contract to conduct the Housing Executive's Housing Choice Study which contained the questions on search and choice used in this thesis. Training for the survey was provided by the author in association with fieldwork management staff from the company. Training involved three distinct, but inter-related, stages: the provision of a written survey manual, a formal briefing session, and a series of practice interviews.

The Survey Manual

The survey manual was prepared by the author. This covered the procedures for contacting respondents and introducing the objectives of the survey, the conventions used in the design of the survey questionnaire (e.g. layout, coding, routing etc.), procedures for probing (including allowable phrases), procedures for recording open-ended and closed questions, and guidelines for handling the inter-personal aspects of the interview in a non-biasing way. The survey manual also provided a "running commentary" on each question, with a more detailed discussion on questions identified in the cognitive interviews and the pilot surveys as being the "more difficult." As part of this, particular words and terms were defined such that each interviewer would interpret the questions in the same way, thus promoting greater consistency and reliability.

Most standard research texts on survey research emphasise the important role played by interviewers in contacting and gaining the cooperation of the sampled household or individual (e.g., Moser & Kalton, 1971). The ability to establish a rapport with the respondent is one of the most important attributes of a good interviewer. For the most part, this ability is innate. However, if the approach is poor, the task of establishing rapport and thus achieving a successful interview is made more difficult. For these reasons, the survey manual outlined in detail how the

interviewer should approach the initial contact with the respondent. This includes providing a succinct explanation of what the survey is about, how the respondent was selected, the importance of the project, and how long the interview would take. In addition, given that the sponsor was the Housing Executive, commonly seen as just a public sector landlord, the manual provided a series of answers for questions that respondents might ask, such as, "What has this got to do with the Housing Executive?" Where possible, the survey manual drew on good practice identified in earlier studies (e.g. McCrossan, 1992).

It is important that the survey manual clearly describes the conventions used in the questionnaire. Perhaps the most important issue concerns the routing of the interviewer from question to question. A failure to ask the correct questions to the correct respondents constitutes a serious fault in data collection, and one that is difficult to correct (re-survey is usually required). The pilot study demonstrated that the system used in the questionnaire was simple and effective. Nevertheless, a series of examples from the questionnaire were replicated in the survey manual and discussed in some detail in the text.

Whist some allowable probes were printed on the questionnaire, the manual provided additional guidance on exactly what type of probes were allowed, and a series of examples were included. Again, the OPCS guide was the source of much of this material (McCrossan, 1992). OPCS make it clear that whilst probes should not put words into respondents' mouths, it is legitimate to probe with phrases like "..anything else?" or "..can you expand on that?" or "..can you clarify that for me?"

The Formal Briefing

The formal briefing was an integral part of surveyor training. It is common practice to provide interviewers with a formal briefing, irrespective of the nature of the survey (Oppenheim, 1992). There is, however, less certainty over how long such briefings should be or how they should be organised. It is axiomatic that the more complex the questionnaire, the longer the briefing should be. Following guidance from the fieldwork company, three separate briefing sessions were held, each of which occupied a half day. The structure of the briefing was fairly simple. The briefing opened with an explanation about the objectives of the survey and the importance of the research to Housing Executive. This was followed by an overview of the technical aspects of the research, in which some information was provided on sampling and the ultimate uses of the data. Both introductory sessions were delivered by the author. The third session

concentrated on establishing contact with the respondent and maximizing response rates. The remainder of the formal briefing involved working through the questionnaire on a question-by-question basis and responding to queries from the interviewers. Some of these queries required modifications and additions to be made to the survey manual. During the question-by-question session, considerable emphasis was placed on how to ask questions and how to record responses.

Practice Interviewing

It was not feasible within the time frame available for the survey to have extensive practice interviews and de-briefing for the interviewers. Thus, practice interviews were conducted in the afternoons following the formal briefing sessions. These were all conducted within the office, with interviewers paired off and taking turns at being an interviewer or a respondent. Following the completion of the practice interviews, a question-and-answer session allowed for discussion of areas of uncertainty. Although less than ideal, the practice sessions proved a useful addition to the interviewer training.

5.5.3.2 Survey Fieldwork and Response Rate

Twenty-five interviewers were used on the project. All sampled households were notified in advance by letter (Appendix 3). This letter briefly explained the objectives of the survey, explained how the particular address was selected, and promised confidential treatment of the data collected. In addition, an insert from the survey company was included with the letter indicating that households that co-operated would be entered into a prize draw, with a prize of £100 and three runner-up prizes of £50. Such cash incentives have been found to promote improved response rates. Over the past four decades, empirical research has demonstrated the effectiveness of cash incentives in boosting response rates, especially in postal surveys (e.g. Heads & Thrift, 1966; Yielding & Haldane, 1973; Harvey, 1987; Yammarino & Skinner, 1991b). More recently, Oppenheim (1992) reports that future incentives, such as prize draws, are helpful in promoting response rates.

Fieldwork began in the week beginning 14th March, 1994. By the end of March it was apparent that all remaining interviewing should be conducted in the evenings and at weekends, reflecting the high level of economic activity in the population and the corresponding difficulties of establishing contact during normal office hours. This slowed the process of fieldwork so that

the final interviews were not completed until the end of July. Day to day management of the fieldwork was conducted by the research company. This included the allocation of work and monitoring of progress, and the assessment of quality. However, as is normal practice in all Housing Executive research projects, quality was also assessed independently of the contractor. Thus, the author conducted a regular (mostly weekly) check on refusals, non-access addresses and achieved interviews. This involved calling at addresses to confirm the details provided by the research company.

Ideally, survey researchers aim for 100 percent response rates. In practice this is almost never achieved. There are a variety of reasons for non-response, ranging from "out of scope" addresses being issued (sample frame problems), through difficulty in locating a particular address or gaining access to the sampled household, to outright refusal. In general, the better the response rate, the less chance of non-response bias. Clearly, there is greater scope for non-response bias with low rates of response, but the fact that response rates are low does not *automatically* mean that the data are biased (Oppenheim, 1992). Testing for non-response bias is, therefore, a vital aspect of the research process (see 5.5.4.2).

The process of calculating the final response rate is complex. It is not simply a matter of expressing the number of achieved interviews as a proportion of the number of addresses issued, although this is often done. It is more normal to first correct the numerator (i.e. the number of addresses issued) to allow for particular problems such as invalid addresses. In this survey, there were several types of invalid address including dwellings which had not been sold, dwellings that had been demolished, and dwellings that remained vacant at the time of the survey. Once this adjustment is done, the actual response rate can be simply calculated. Overall, full responses were received from 77 percent of "in scope" address. Partial data records were excluded (2%) and all subsequent analyses were based on the 571 cases where complete data were available (Table 5.8).

5.5.3.3 Data Processing

Data preparation, validation and analysis constitute the core of survey data processing. They have been described as being like the backstage of a theatre - rarely seen and frequently ignored (Bourque & Clark, 1992). Nevertheless, like stage production, they are essential to successful survey implementation. Thinking about how survey data is to be processed should not be left until the survey is complete. Whilst the discussion thus far may have implied that the

research process has been sequential, in reality many of the stages overlap. This is particularly true in terms of questionnaire design and data processing.

Some of the most important decisions in terms of data processing are actually taken during the questionnaire design stage, for it is at this time that the coding of the data is established. Moreover, as noted above, the questionnaire was designed to facilitate direct data entry, that is, without the need for large-scale post-survey coding and transcription. Certain instructions on the questionnaire are also associated with this stage of the research process. For example, where financial information is recorded, the questionnaire contains instructions to the interviewer to right justify information recorded on the form. Some financial data recorded during the pilot had been incorrectly left justified with the result, for example, that an asking price of £38,500 had been punched as £385,000. Thus, by anticipating such issues at the questionnaire design stage, subsequent data processing should be made more straightforward.

Table 5.8: Response to Retrospective Survey of 1993 Buyers

		Number	%
Issued addresses:		770	100.0
Less:	Dwellings not sold	4	0.5
	Dwellings purchased by Housing Executive	4	0.5
	Dwellings purchased for private renting	5	0.6
	Dwellings sold, but still vacant	12	1.6
	Dwellings demolished	2	0.3
	Dwellings with non-existent addresses	3	0.4
Revised count of valid addresses issued:		740	96.1
Valid "in scope" addresses:		740	100.0
Non-responses:			
	Dwellings not found	3	0.4
	Occupied, no reply after multiple calls	88	11.9
	Refused - prior to surveyor visit	9	1.2
	Refused - at doorstep	52	7.0
Response			
	Part interviews	17	2.3
	Complete interviews	571	77.2

Similarly, by adopting standardized codes that distinguish between "don't know" (a valid response) from "unobtainable" (should be an answer, but none recorded) and "not applicable" (no answer expected), many potentially confusing errors are avoided. Finally, perusal of the questionnaire clearly shows that it has been designed with a simple "rectangular" database structure in mind. There is no provision for nesting of responses and multi-punching is similarly

not provided for. In order to make such decisions early in the research design process, the researcher must have a clear idea of the software to be used for the subsequent capture, validation, and analysis of the data. In the following paragraphs these issues are explored in a little more depth.

Data Preparation

Data preparation involves two distinct, but related, phases: data coding and data capture. Data coding is the application of, usually, numeric codes to represent responses on the questionnaire. For the most part, the design of the survey means that responses are coded "on the fly" by the interviewer. There are two exceptions: data in sections designated for "office use" and open-ended questions. Data capture refers to the transfer of the information from the paper record to magnetic media. In this study, data was captured using the Data Entry module of the SPSS statistical software package. This is a DOS-based product in which data entry screens were designed to mirror the paper record.

Data Validation

Data validation involves the checking of data to ensure its reasonableness. Errors occur in survey data for a variety of reasons, including response error on the part of the respondent, recording errors on the part of the interviewer (both intentional and unintentional), coding errors in the post fieldwork stage, and data punching errors. Most survey data errors are actually very difficult to identify. The validation approach in this survey proceeded in four stages.

In the first stage, an effort was made to "design out" obvious sources of error at the questionnaire design stage. For example, where respondents were asked to provide information on the time spent in the various stages of their search, the interviewers were required to calculate the total time and confirm it with the individual respondent, correcting erroneous data items as necessary. Interviewers were also instructed in the survey manual to review each questionnaire for completeness and legibility before returning it to the office. Furthermore, where anomalies were apparent *during* the interview, interviewers were advised to write such additional notes on the questionnaire as they believed necessary, and additional space was provided for general comments at the back of the questionnaire. This process of building an awareness of errors into all aspects of the research process is referred to as total error control (Fowler, 1993).

In the second stage, all questionnaires were subject to a manual office-based check prior to data capture. In this way, omissions and obvious interviewer errors could be detected and corrected at an early stage. In some cases, questionnaires were referred back to interviewers for correction, but in most cases this was done in the office.[11]

The third stage, usually referred to as the data entry edit, involved the use of the SPSS Data Entry software to validate the data at point of capture. Data items were subjected to basic range and inter-field checks at the point of entry. This permitted a detailed checking of questionnaire routing and, at the same time, ensured that "not applicable" codes were consistently entered for skipped sections.

The final validation involved the production of frequency counts and cross-tabulations of key variables once the data capture was complete. In this final stage, the aim was to identify inconsistencies, anomalous entries and relationships which may have slipped through the earlier validation. This is sometimes referred to as "cleaning" the data. In this study, the final validation was conducted using the SPSS for Windows package.

Preparing for Data Analysis

Most of the analysis of the survey data was conducted using the Windows version of the SPSS statistical package[12]. This is a modular software system, and further details of the package and the modules employed in the analysis are presented in Appendix 4. The preparation for analysis included the documentation of the SPSS system file (database) to include variable naming and labelling and the computation of key summary variables such as household type, age of the head of household, etc. An important task at this point is to determine the representativeness of the sample. This is generally done by comparing sample distributions and profiles against those for the sample frame and the population in general. This raises the important issue of survey error, a topic which is discussed in the next section.

5.5.4 Survey Errors

There are many sources of errors in surveys. The effect of certain types of errors can be ameliorated through the design process in general. Thus, many interviewer-related responses

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11 All serious errors were referred back.

12 Some other packages were also used. Most notably, LISREL 8 for Windows was used for the path analysis (details in chapter 8).

can be, at least partially, controlled through the use of standardized question layout, clear instructions on the questionnaire and in the survey manual, adequate survey briefing, regular quality control during the fieldwork process, and rigorous validation[13]. Details on some of these actions have been presented above. Thus, in this section on survey errors we concentrate on sample errors and non-response errors.

5.5.4.1 Sample Error

It is sometimes forgotten that figures produced from sample surveys are estimates of the population parameters. Because samples are used there will always be a question about the precision of the estimates. Fortunately, it is possible to gauge the degree of precision associated with any particular survey estimate. The formulae contained in the standard statistical texts usually begin with the assumption of a simple random sample (SRS). In practice, most sample designs depart from this basic assumption. The most common departure concerns the use of stratification.

In general, proportionate stratification should result in sample errors slightly less (or at least no worse) than those estimated on the basis of a SRS design. As noted above, the design of the retrospective survey of buyers was based on disproportionate stratification. The effect of disproportionate stratification on the precision of survey estimates is less clear cut than with proportionate stratification. Kalton (1983) notes that in some cases the estimates are more precise than those based on a SRS of the same size, whereas in other cases the reverse may be the situation.

In the context of the current survey, the use of disproportionate stratification to boost coverage of sales in mixed religion wards may be expected to improve the precision of estimates based on this strata, but reduce the precision of estimates based on the total sample. To estimate the sample errors in this survey, the basic method used was to examine the relationship between the standard errors computed on the actual sample design and the standard errors that would have applied had a simple random sample design been employed. Simple random sampling acts generally as a useful basis for comparison of all varieties of

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13 Certain types of response errors, respondents choosing to mislead an interviewer (e.g. by inflating or understating earnings, telling "white lies" about their age, etc.) cannot be as easily avoided. Various estimates exist on the possible scale of such response errors, but there is common agreement in the literature that little can be done to prevent a determined interviewer or respondent from engaging in this activity.

random sampling and the ratio of the variances (S.E.^{2}) of an estimator for a simple random sample of the same size is known as the design effect (deft) where:

$$deft\ (p) = \frac{estimated\ variance\ of\ p\ with\ complex\ design}{estimated\ variance\ of\ p\ with\ a\ SRS\ design} \qquad (4)$$

In practical applications, the square root of the deft (p) represents a multiplier that can be applied to a SRS standard error to give an approximation of the standard error with the complex design, that is:

$$S.E.\ (p)\ complex\ design = \sqrt{deft\ (p)} * S.E.\ (p)\ SRS\ design \qquad (5)$$

Sampling errors attached to estimates from a SRS design are relatively straightforward to compute using the formula for the standard error of a proportion:

$$S.E.\ (p)\ SRS\ design = \sqrt{\frac{p*(1-p)}{n}} \qquad (6)$$

Standard errors attached to estimates from the actual sample design can be computed using the formula for a disproportionate stratified sample where the strata are represented by the three different types of areas in which dwellings were purchased (ie, Protestant, Roman Catholic and Mixed) and the three different price bands. The formula may be written as:

$$S.E.\ (p) = \sqrt{\frac{1}{N^2} \sum \frac{Ni^2 * pi\ (1-pi)}{ni-1}} \qquad (7)$$

Where,

ni	=	the achieved sample size in each strata
Ni	=	the total number of sales in each strata
N	=	the total number of sales in the BUA
pi	=	the proportion in question
Σ	=	the sum for all strata

Moser and Kalton (1971) recommend that detailed design effect calculations should be made for a small number of the more important results and these are averaged to provide a correction factor that can be applied to results obtained from the SRS approach. Using the formulae indicated above (5 & 6), Table 5.9 sets out the Standard Error estimates under the SRS and

actual designs, and the corresponding deft ratios, for a range of key survey estimates. The measures included in the table are reflective of the three main areas of analysis: search effort, spatial search, and information acquisition and use. The figures in the table suggest that the sample design used in the survey inflated sample errors by less than 10 percent when compared with a SRS design. Although not strictly correct, inflating SRS estimates by 10 percent should approximate actual sample errors.

Table 5.9: Design Effect Ratios for Selected Estimates from the Retrospective Survey of Buyers

Survey Variable / Question		Sample Proportion (p)	S.E. SRS Design	S.E. Actual Design	Design Effect Ratio
Search Effort:					
1	Proportion of searchers that considered just one dwelling.	26.3	1.84	1.99	1.082
2	Proportion of buyers that searched for less than three months.	49.4	2.09	2.30	1.103
Spatial Search:					
1	Proportion of searchers that searched in just one area.	60.9	2.04	2.26	1.107
2	Proportion of searchers that searched three or more areas.	14.8	1.49	1.61	1.080
Information Acquisition:					
1	Proportion of searchers used non-market information sources.	79.4	1.69	1.84	1.088
2	Proportion of searchers that used more than 4 sources of information.	32.8	1.97	2.12	1.076

It should also be noted that the various statistical tests employed in this thesis are commonly based on the assumption of SRS. Packages like SPSS do not adjust the test statistics to compensate for sample design effects. This means that there is a risk that some significant results will be missed and some non-significant results will be reported as significant. To help assess where this might be a problem, most of the tables with test statistics include the estimated probability value for the statistic. Where the probability value is close to the critical threshold, the results should be treated with some caution.

5.5.4.2 Non-Response Error

Non-response is inevitable in any sample-based survey. However, non-response does not automatically in-validate the survey. A considerable volume of literature exists on how to

minimize non-response bias through effective research design and survey implementation. In addition, for most surveys it is possible to estimate the likely scale of any non-response bias. In terms of the first of these areas, we have already discussed how an effort was made to keep response rates as high as possible (advance notification, adequate explanation of survey objectives, importance of data, use of incentives, repeat calls at different times of day and different days of week). Nevertheless, around one quarter of sampled households were classified as non-respondents. It is thus of some importance to consider the possible bias that this introduces. The main issue is the extent to which the characteristics of respondents and non-respondents differ from one another, rather than the response rate *per se*. In essence, researchers are concerned about non-response because of the risk that non-respondents may differ *in some important way* from respondents, with the result that estimates developed from respondents only will not be accurate measures of the population as a whole.

In order to estimate the scale of non-response bias it is necessary to have information on what Moser and Kalton (1971) refer to as the response stratum (N_1) and the non-response stratum (N_2). In this survey, some information is available on both stratum from the initial sample frame and from a non-response sheet which was completed for each address at which questionnaires were not completed. Four variables are selected for comparative purposes: the

Table 5.10: Estimates of Non-Response Bias for Selected Variables

Variable	Survey Respondents	Non-Respondents	Test
Mean selling Price	£39,172	£38,187	t=0.526
Percentage of new dwellings	26.9%	28.1%	Z=-0.31
Percentage of terraced dwellings	34.6%	35.1%	Z=-0.12
Percentage of two storey dwellings	80.0%	72.0%	Z=2.08

mean selling price, the percentage new, terraced and two storey. The first variable, price, is compared using a two-tailed t-test. Formally, this tests the null hypothesis of no difference in mean selling prices in the two response stratums. The t-value is calculated at -0.526 which means that, at the 95 percent level of testing, the null hypothesis is not rejected; that is, the evidence supports the proposition of no non-response bias, at least as far as price is concerned. The remaining variables are compare using a difference in proportions test (Blalock, 1981). In each case we test the null hypothesis of no difference but this time the approach requires the

use of Z-scores. As the table shows, as far as dwelling age (% new) and type (% terraced) are concerned, the null hypotheses stand; the test statistics fail to reach the critical value at the 95 percent level of testing. However, in terms of the number of storeys, the situation is somewhat different; the test statistic, at 2.08, exceeds the threshold value and it is possible to reject the null hypothesis in favour of an alternative i.e., there is evidence of some non-response bias in terms of this variable. Overall, taking all four indicators into account, the extent of non-response bias is small if present at all. This is not likely to present any significant worries in terms of the representativeness of the survey data.

5.6 Conclusions

This chapter has provided a detailed discussion of the research design and data collection strategy adopted for the empirical work presented in this thesis. It was noted that the study is based on a triangulated design which embraces elements of primary and secondary data analysis. The empirical research is underpinned by extensive developmental and pilot testing work, reflecting a desire to compile a high-quality data set with which to explore the aims and objectives of the thesis.

With the completion of this chapter, we reach the end of the background and context setting parts of the thesis. In the next chapter we begin the process of presenting the results of the empirical research detailed in this chapter.

Chapter 6
THE BELFAST URBAN AREA

6.1 Introduction

> *"Belfast is on the Atlantic edge of Europe; it is on the outer limits of the imprint left by the Industrial Revolution and it is on the interface between the British and the Irish realms. Belfast is also metaphorically on edge as it struggles to sustain an industrial base and to encapsulate, without self destruction, the stresses and strains of the age-old British-Irish love-hate relationship" (Boal, 1994, p. 141).*

The Belfast Urban Area, which comprises the city of Belfast and its immediate suburbs, is the setting for the research presented in this thesis. This chapter has two basic aims. First, by providing a picture of the BUA, it serves as a link between the review of the literature and the methodology on the one hand and the main empirical results on the other. Second, through extensive secondary analysis of existing Census, survey, and administrative data, the chapter provides a fresh insight into the development and current circumstances within the BUA. The chapter opens with a brief introduction to the location and residential evolution of the city from its earliest years until the present day. This is followed by an analysis of the contemporary socio-economic and demographic structure of the BUA population and its housing circumstances. A more in-depth analysis of patterns of religious residential segregation is then presented, together with an analysis of the structure and functioning of the owner occupied housing market.

6.2 Belfast's Residential Development

6.2.1 Location and Early Development

Belfast, the capital city of Northern Ireland, is peripheral both within the context of the United Kingdom, and within the wider European Community. Many authors have commented on the magnificence of the city's natural setting, nestled at the mouth of the River Lagan where it flows into Belfast Lough, and surrounded by the Antrim Plateau to the north and the more gentle, rolling hills of Castlereagh and Holywood to the south and east (e.g. Johnstone and Kirk; Jones, 1960). Although undoubtedly a picturesque setting, the site is rather restricted and this has constrained residential development in the area right from its initial settlement until the present day. (Figure 6.1).

Although there has been a settlement at Belfast since Neolithic times, the origins of contemporary Belfast lie in the seventeenth century Plantation of Ulster. Even after the Plantation, Belfast developed rather slowly. During the first half of the eighteenth century, the growth was almost imperceptible, although this was soon to change. The town's population,

which had been 8,549 in 1757, rose to 13,524 by 1782, and 19,528 before the turn of the century. As with many British cities, it was the growth of industry that triggered the rapid urbanisation of Belfast. Belfast's population growth intensified, reaching 37,300 by 1821, 53,000 by 1831, exceeding 70,000 by 1841 and reaching 87,000 by 1851. Industrial and commercial expansion attracted a large number of immigrant workers into the city, the majority of whom

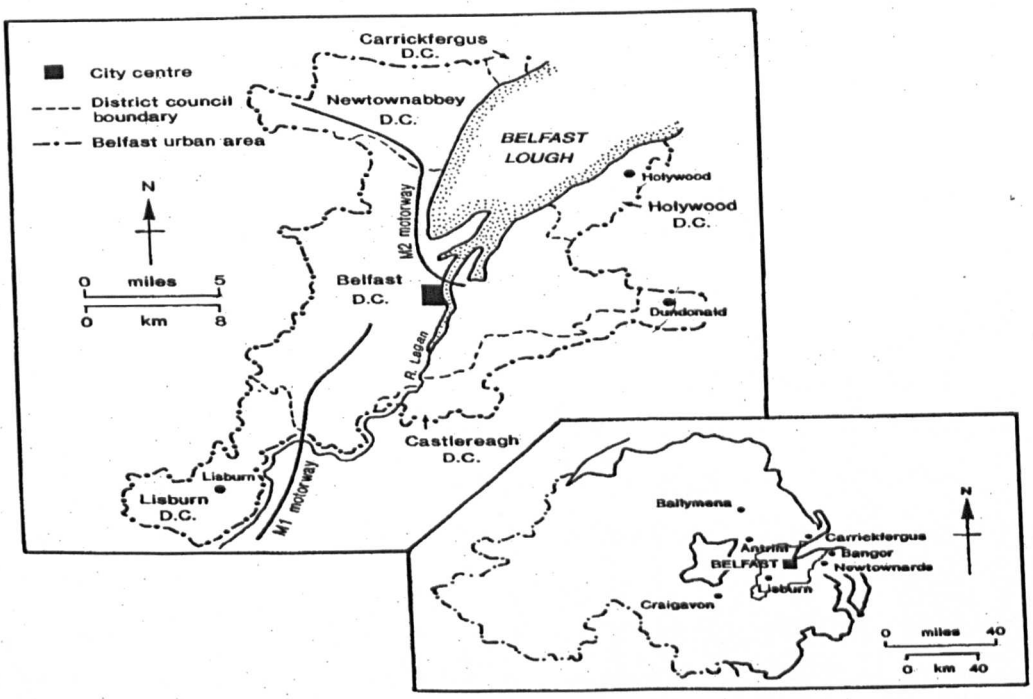

Figure 6.1: The Belfast Urban Area Location Map

were of Catholic origin, resulting in an expansion of the Catholic community in the city generally. One local commentator notes that as early as 1851 the bulk of the population were settled in religiously segregated quarters and by "...the 1860s community separateness was almost complete" (Heatley, 1983, p. 142).

However, it was not until the last 40 years of Queen Victoria's reign that Belfast deserved its place as a great industrial and commercial centre. Industrial success was marked by continued rapid population growth. Between 1861 and 1901, Belfast's population trebled to 349,180 and, by the onset of the Edwardian era, Belfast was the twelfth largest city in the UK. At the same time, it became officially the largest city in Ireland and, perhaps more importantly, Belfast was firmly established as an outpost of industrial Britain (Boal, 1987b). Unlike in the

period before 1850, the later half of the nineteenth century was marked by a decline in the rural population of Ulster, the main impact of which was an absolute urban concentration in Belfast, which by 1901 contained almost 30 percent of the Northern Ireland population (Table 6.1). The religious composition of the city also changed during this period. Paradoxically, perhaps, whilst the number of Catholics in the population grew in absolute terms, their proportion in the population as a whole fell from one-third in 1861 to just under one-quarter in 1901. Hepburn (1993) considers the relative increase in the number of Protestants in Belfast during this period as the single most important demographic event in the city's history. This asserted Belfast's position as a "Protestant City" which was later to become the capital of a "Protestant Ulster".

Table 6.1: Population Change in Belfast 1821-1901

Year	Population of Belfast	Belfast Population Change (% pa)	Rest of Northern Ireland Population Change (% pa)	% Northern Ireland Population Resident in Belfast
1821	37,000	-	-	2.7
1845/46	71,000	2.6	0.6	4.3
1851	87,000	3.5	-2.7	6.0
1871	174,000	3.5	-0.6	12.8
1891	256,000	2.0	-0.8	20.7
1901	349,000	3.1	-0.9	28.2

Source: From Compton (1990), p. 18.

Towards the end of the nineteenth century, there had been something of a boom in housing construction. Most was speculatively provided private housing, primarily aimed at the lower middle and middle classes. The bulk of the newly provided housing was located in and around the main industrial areas of the city, and comprised mainly "two-up-two-down kitchen houses" and the slightly more salubrious "parlour houses", the standards of which improved with distance from the city centre. Particularly rapid expansion was evident in the west of the city, but also in the north and east (BDP, 1969b).

Much of this new housing construction was completed regardless of demand or the ability of prospective residents to pay. Between 1880 and 1900, some 50,000 private houses were constructed in Belfast, although conditions were still poor. The Corporation was slow to react to these problems. Thus, the first improvement scheme in Belfast was not started until 1910, by which time such schemes were commonplace in most other industrial cities in the UK. In addition, some authors have been critical of the lack of municipal new house construction at the time (e.g. Budge & O'Leary, 1973; Weiner, 1980). In reality, Belfast Corporation's response was not unique; throughout Ulster, local authorities were similarly slow to recognize and accept

the need for improvement and new municipal housing. This is not really surprising. Northern Ireland's population fell by around one quarter between 1841 and 1911; there was no general housing shortage. Furthermore, the minimalist approach was merely a symptom of the political reality of the time, a reality that placed tremendous faith in the role of private enterprise. Nevertheless, in the first two decades of the twentieth century, many of Belfast's currently prestigious suburban housing areas in the south and east of the city (e.g., Malone, Belmont, Knock , and Stormont) were developed. Prices were hopelessly out of reach for the average citizen, although Collins (1983) notes that the religion of their neighbours were as important as price in determining where people lived.

6.2.2 Partition to the "Troubles"

Following partition, Belfast formally became the capital of Northern Ireland on 3rd May, 1921. This was a period of intense sectarian conflict which was undoubtedly deepened by the severe economic depression of the time. The new Northern Ireland government pursued a housing policy that was different from that in other parts of the UK in two major ways. First, after 1923 subsidies and legislation were not revised in line with those in England and Wales (Murie, 1992), and second, there was a much greater reliance on the role of the private developer in Northern Ireland, with little or no action to promote the provision of public sector housing.[1] In Britain, the Wheatley Act (1924) had emphasised the welfare role of housing, but such a role was anathema to the Northern Ireland government (Singleton, 1989). Between 1919 and 1939, some four million new dwellings were completed in England and Wales. If similar rates of activity were applied to Northern Ireland more than 100,000 dwellings would have been built; in reality, just over 50,000 houses were completed, more than four-fifths of which were provided by private enterprise.

O'Brien (1951) noted that whilst a quarter of a million slum dwellings were cleared in Great Britain during the interwar years, the problem remained virtually untouched in the Province. However, it is wrong to attribute this situation solely to sloth. There were other factors of influence. For example, as has already been noted there was no widespread view that Northern Ireland faced a housing shortage of any significance. In addition, given the building

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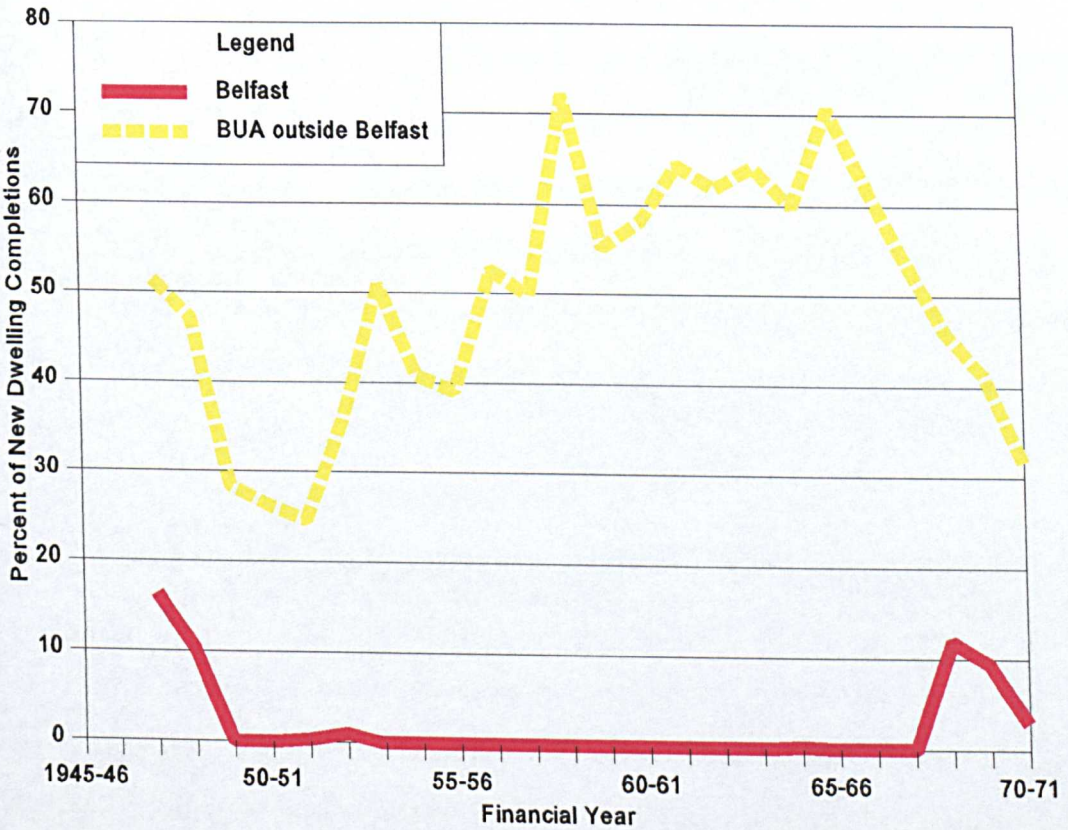
1 For example, throughout the interwar period, 82 percent of all new dwellings were privately provided, with local authorities providing just 15 percent. In urban areas, the private sector bias was even more pronounced, with just 6 percent of dwellings provided by local authorities.

boom in the last two decades of the 1880s, a large proportion of Belfast's stock was built to bye law standards which, although basic, meant that conditions were not that bad relative to urban areas in other parts of the UK (Brett, 1986).

However, in order to tackle the joint problems of inadequate provision and low standards, a special Planning Advisory Board was appointed in January 1943 to consider and report on the general housing problem in Northern Ireland with particular references to the clearance of slums and the provision of new housing in the post-war period (PAB, 1944). Following publication of the Board's second report, the government established the Housing Trust under the 1945 Housing Act to assist local authorities in working towards a target of 100,000 new dwellings to meet "immediate needs" (McPeake & Murtagh, 1993). From the outset, the Trust was conscious of the acute housing problems in the city, but deliberately avoided, where possible, operating within the city boundary in deference to the role of Belfast Corporation (NIHT, 1946; 1949).

This would suggest that Belfast Corporation was an active player in the market. In point of fact, between 1944 and 1969, Belfast Corporation completed an average of just 30 dwellings



NOTE: The Trust did complete one scheme in Belfast during1945/46 - 1946/47. However, this was taken over from a private developer and is not a "true" Trust scheme. It is excluded from this graph because it would distort the picture

Figure 6.2: NIHT New Housing Completions in the Greater Belfast Area 1947-1971

per 1000 population compared to 92/1000 in Glasgow. Even in Londonderry, output at 39/1000 was substantially better than achieved in Belfast. Whilst the Trust provided relatively few new dwellings in Belfast, it made a major contribution to meeting overspill demand outside the city boundary (Figure 6.2).

The publication of the 1961 Census was an important landmark in information on the housing situation in the city, containing as it did, the first accurate assessment of the tenure distribution in the city. Figure 6.3 shows that at this time, more than half of all households in the city lived in dwellings rented from private landlords (54%). The next largest grouping, involving around one-third of all households, was owner occupation (32%). Just 14% of households rented from Belfast Corporation (Budge & O'Leary, 1973).

The 1961 Census also showed that Belfast's dwelling stock was in a poor state with, for example, 41 percent lacking a hot water supply and 49 percent without a bath. That Belfast Corporation was slow to tackle the problems of poor housing conditions is not in question; the reason for the slowness in response is, however, a pertinent issue. One of the most important, and surprisingly not well-known, factors in this was the attitude of the Roman Catholic Church. Glendinning and Muthesius (1994) suggest that the Church opposed redevelopment and decanting because of the financial implications of having its parishioners move to suburban locations. They note that "Unlike, for instance, Presbyterian congregations, who could call on centrally organised finance for relocation, this responsibility in the Roman Catholic Church largely devolved to individual priests and their parishioners, and was more onerous, owing to the Church's involvement in education. Decanting to the suburbs could be a financial disaster..." (p. 289). In its resistance, the Church exploited the clause in the Government of Ireland Act 1920 which forbade compulsory purchase of religious-owned property, a "loop hole" that was eventually closed in the Northern Ireland Act 1962.

The 1961 Census was also important because it confirmed the existence of trends that suggested that the continued expansion of the BUA was being fed by a process of suburbanisation from within Belfast itself. Against a background of almost 40 percent of the Northern Ireland population living in the BUA, the Northern Ireland government commissioned Sir Robert Matthew to prepare a plan for the Belfast region as a whole. Matthew's plan aimed to "...simultaneously demagnetize the centre, and re-invigorate the many attractive small towns in the region" (Matthew, 1963). One of the main tools was the introduction of a development limit for the BUA, later to be known as the "Matthew Stop Line". It is likely that without this policy, the

Table 6.2: Population Change in Belfast and the BUA 1926-1991

Year	Belfast			Belfast Urban Area			NI
	Population	Annual % Change	% of Total NI Population	Population	Annual % change	% of Total NI Population	Annual % Change
1926	415,000	0.7	33.0	460,000	-	36.8	-0.2
1937	438,000	0.5	34.2	492,000	0.7	38.4	0.0
1951	444,000	0.1	32.4	532,000	0.8	38.8	0.7
1961	416,000	-0.6	29.2	564,000	0.6	39.6	0.9
1966	398,000	-0.9	26.8	573,000	0.3	38.6	1.5
1971	362,000	-1.7	23.6	582,000	0.3	37.9	1.6
1981	310,000	-1.4	20.2	510,000	-1.2	33.3	0.0
1991	279,000	-1.0	17.7	476,000	-0.7	30.3	0.3

Sources: Compton (1990), Boal (1987b) and DHSS (1992a). BUA figures for 1926 and 1966 are estimates.

BUA would have exceeded the population target of 600,000 set by Matthew in 1964[2]. As it turned out, the population of the BUA peaked in 1971, just 12,000 short of the target figure, and it has declined thereafter, although the rate of decline was not as marked as that for Belfast itself (Table 6.2). At the same time, the tenure profile of Belfast's households had changed substantially. In particular, many thousands of privately rented dwellings had been vested in anticipation of future clearance (Belfast City Council, 1971). As a result, by 1971 fewer than one-third of Belfast households rented privately compared to more than half in 1961. By the same token, owner occupation had increased such that it was the most common tenure (43%) by 1971. The public sector stock in the city had also expanded both in absolute and in proportionate terms such that almost one-quarter of households now resided in this sector (Figure 6.3). It should be noted however, that many public sector tenants were living in dwellings that had been acquired for future redevelopment. Thus, their living conditions were less than ideal, and the true nature of their circumstances was not revealed until the publication of the 1974 House Condition Survey (NIHE, 1974a). This is discussed further in the next section.

6.2.3 Residential Development and Civil Unrest

> *"Belfast is not Beirut, and a large part of the population can live pleasant, untroubled lives. They adapt to what are for them minor inconveniences when they leave their peaceful suburbs to shop in town" (Johnstone & Kirk, 1983, p.93).*

In spite of Johnstone and Kirk's sentiments, in the early 1970s Belfast was racked by sectarian conflict. As noted in chapter two, the period of fairly continuous civil unrest since 1969 has had a dramatic impact on the city and its populace. The recent cease fires mark the end (hopefully)

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2 Interestingly, nothing was said about households in spite of the fact that households, as the basic unit of housing, are more important than population counts to housing practitioners.

of what has probably been the longest and most intense period of sectarian conflict and violence in Belfast's history. During this period almost 2,000 people were killed in the city and thousands of residential and commercial buildings were damaged or destroyed in more than 5,000 explosions.

Partly in response to claims of discrimination and maladministration in the operation of local authority housing departments (HMSO, 1969), and partially because of the scale of the Province's housing problems, in 1971 the government announced the formation of a single-purpose, centralised, comprehensive housing agency, the Northern Ireland Housing Executive, whose task it would be to take over responsibility for the building, management and allocation of all public housing in the Province.

This was a difficult time for the new organisation. In its first year of operation, throughout the Province there were 1,334 explosions, which damaged some 14,000 dwellings, and 464 people were killed in the "Troubles." The Executive's head quarters was bombed, three staff were killed, and seven others injured in separate shooting incidents. In spite of this difficult environment, it was readily apparent that the housing situation in the city, where there was open conflict on the streets, was critical. Arguably, the fledgling organisation faced two distinct but related housing problems in Belfast.

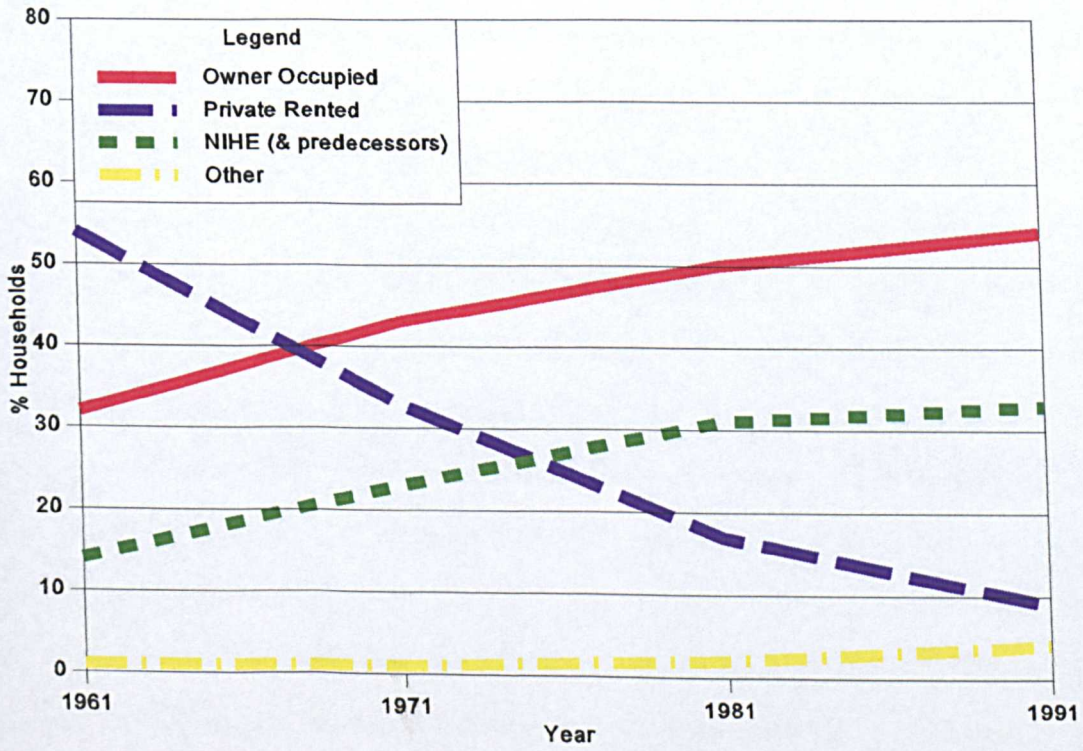

Figure 6.3: The Changing Tenure Profile of Belfast's Households 1961-1991

The first, which stemmed from large-scale population movement in response to the "Troubles," was the extreme housing need in the west of the city. Between 1969 and 1973 it is estimated that some 60,000 individuals, from both communities, were forced to move home as a direct result of the conflict (cited in Darby, 1976b). Most displaced households relocated from formerly mixed religion areas to the security of the areas which were almost totally Protestant or Catholic in religious composition. For Protestant families, it is commonly believed that this process lead to suburban growth in areas primarily outside the city boundary (Harrison, 1981). In particular, areas such as Rathcoole, Mossley and Glengormley to the north of the city, and Ballybeen and Tullycarnett to the east were major destinations for such households. For Roman Catholic families, because of the more spatially restricted nature of acceptable "Catholic areas", displaced households were funnelled into the west of the city, forming a large and almost unbroken area of solidly Catholic housing that remains a dominant feature of the city's sectarian geography to this day.

Keane's (1985) analysis shows that this large scale relocation was reflected in a significant increase in the extent of segregation; the proportion of households living in streets that contained less than 10 percent of the "opposite" religion increased from 64 percent in 1969 to 78 percent in 1977. The concentration of the Roman Catholic population into the west of the city intensified an already serious housing shortage in that part of Belfast. Housing conditions were poor and overcrowding was widespread. Residents in west Belfast wanted their problems addressed within the confines of west Belfast. Because of the shortage of building land in the area, the only viable option was to expand beyond the city boundary. In March 1973, the Executive proposed to construct a 4,000 dwelling estate at Poleglass. This was within the Unionist controlled Lisburn district council area and was considered as "Protestant space". Brett (1986), a former Chairman of the Executive, noted that the decision was a highly controversial one "that was to cause endless sectarian antagonism over the ensuing years - on a few occasions, inside the boardroom as well as outside it" (p.48). Following a public inquiry, approval was granted for 2,000 dwellings, half of that originally intended, a decision that pleased neither side.

The second major problem that characterised Belfast in the early 1970s was the poor condition of the dwelling stock and the intense levels of deprivation in many inner city areas. Bardon (1982) has suggested that the Executive inherited a situation that effectively made it the largest slum landlord in Europe. The publication of the 1974 House Condition Survey revealed

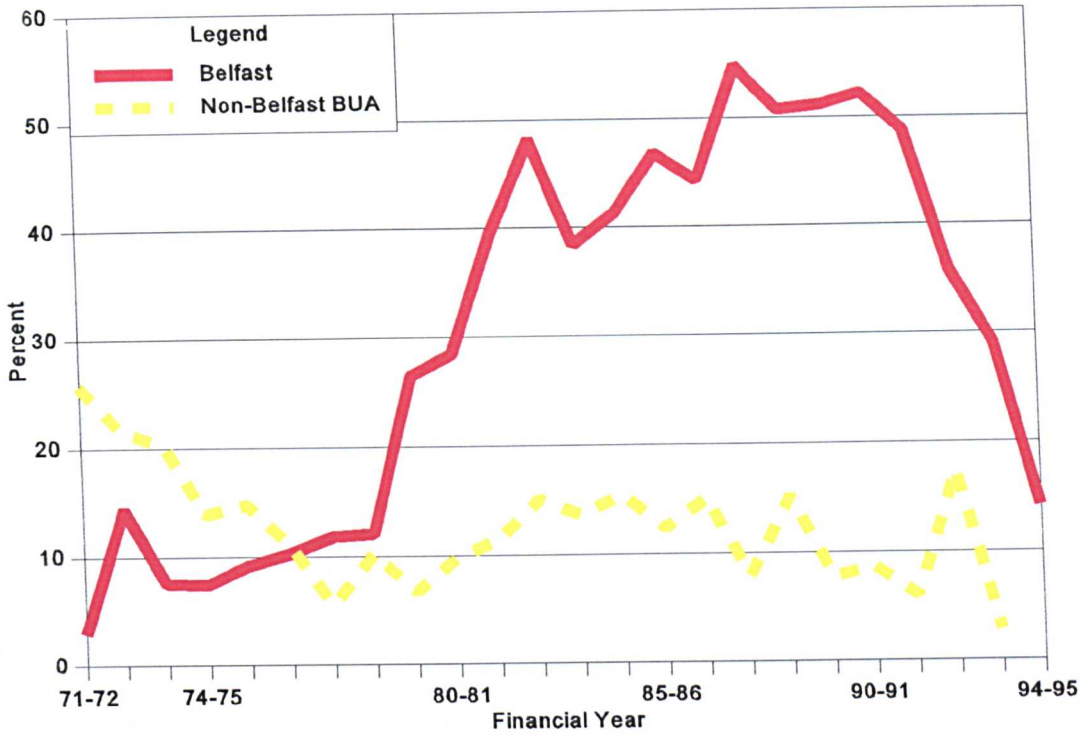

Figure 6.4: NIHE New Build Completions in the BUA 1971-1995

the extent of housing dereliction in the city with, for example, one-quarter of the stock classified as unfit for human habitation and one-third without basic amenities. In the inner city wards, around half the stock was in a poor state of repair. Within the inner city wards, half the stock lacked amenities or was unfit for human habitation. In tandem with this problem, deprivation was also a major feature of the Belfast situation. The study by Boal, Doherty, and Pringle (1974) was the first to highlight the problem in a systematic fashion. This existence of pockets of extreme deprivation in the inner city wards and in the predominately Catholic west of the city reported in this early study were confirmed in later studies by the government (Project Team, 1977) and Townsend (1979). All three studies showed housing problems constituted a particular dimension of deprivation and these served to emphasise that, regardless of infrastructure developments elsewhere in the city, little real progress had been made in tackling Belfast's formidable housing problems, particularly in difficult areas like west Belfast. Recent work by Gaffikin and Morrisey (1990) and Robson, Bradford & Deas (1994)[3] would tend to suggest that this connection is an enduring feature of social geography of the city.

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3 Data from this study were made available to the author and the results of a secondary analysis at ward and "sector" level within the BUA are discussed in section 6.3.5.

In Belfast, throughout the 1970s, the main provider of new housing was the newly formed Housing Executive. The Executive's main response to the condition problem was to pursue a vigorous programme of redevelopment within the inner city wards which, from the mid-1970s, was supplemented by a programme of rehabilitation based around some 30 Housing Action Areas introduced under the 1976 Order. This was an important landmark in housing legislation in the Province because, in addition to introducing HAAs, it led to the development of the housing association movement and it extended the hitherto rather limited terms of the renovation grant scheme. Both of these developments were important in shaping the subsequent residential development of the city.

Shortly after the introduction of this revised legislation the Minister announced a new drive to focus on the needs of Belfast (NIHE, 1977). This initiative was to concentrate on meeting the needs within the confines of the city boundary as opposed to through the overspill policy that had dominated housing provision in the Belfast area since 1945. A "Belfast Housing Steering Group" was established, under the chairmanship of the Minister, and in its first full year some £38 million was spent on housing within the city. As Figure 6.4 demonstrates, from the late 1970s, following the Ministerial Initiative, until the early 1990s Belfast captured a growing share of the Executive's new build output. Indeed, throughout much of the 1980s, the city accounted for around half of all new public sector dwellings completed in the Province, with the non-Belfast parts of the BUA taking up a further 10 to 15 percent. This is virtually the opposite of the situation that prevailed in the pre-1971 period. By the end of the seventies, the Executive had built more than 5,000 dwellings in the city.

Accurate information on private sector new build completions is not available at district council level in the Province.[4] However, some indication of activity in this sector can be obtained through an examination of dwelling starts. Information is available for each tenure in Belfast back to 1979 (Table 6.3). This shows that the private sector new dwelling starts climbed from an average of 152 per annum in the last years of the 1970s, through 397 per annum in the first half of the eighties, to a peak output of 432 per year in the second half of the decade, before

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[4] The Department of the Environment (Northern Ireland), who compile the official housing statistics for the Province, used to publish district-level figures for private sector completions. They ceased doing so in 1985 when they conceded that their methodology was faulty. Whilst it would be possible to extract figures for Belfast up to 1985, the inherent unreliability of the figures means that this effort is neither justified or justifiable.

falling back again in the most recent period. The study by Hendry, Neill and McConaghy (1986) is one of the few sources on the composition of this new build effort. Their exercise, which covered the period 1982 to 1985, showed that about two-thirds of all output was directed at the lower end of the market.

Table 6.3 New Housing Starts in Belfast 1979 - 1993

Year	Private		Housing Association		NIHE		Total	
	No.	%	No.	%	No.	%	No.	%
1979	166	3.2	19	0.6	454	3.5	733	3.4
1980	137	2.6	20	0.7	959	7.4	1119	5.2
Total	303	5.8	39	1.3	1413	10.9	1852	8.7
Average	152		20		707		926	
1981	205	3.9	166	5.4	1263	9.7	1639	7.7
1982	321	6.2	377	12.3	1516	11.7	2214	10.4
1983	383	7.4	61	2.0	1556	12.0	2000	9.4
1984	497	9.5	207	6.7	1436	11.0	2144	10.0
1985	581	11.2	155	5.1	748	5.8	1484	6.9
Total	1987	38.2	966	31.5	6522	50.2	9481	44.3
Average	397		193		1304		1896	
1986	475	9.1	229	7.5	1289	9.9	1993	9.3
1987	197	3.8	203	6.6	946	7.3	1352	6.3
1988	609	11.7	136	4.4	1043	8.0	1788	8.4
1989	476	9.1	198	6.5	588	4.5	1262	5.9
1990	403	7.7	456	14.9	426	3.3	1285	6.0
Total	2160	41.5	1222	39.8	4292	33.0	7680	35.9
Average	432		244		858		1536	
1991	95	1.8	377	12.3	316	2.4	788	3.7
1992	488	9.4	334	10.9	309	2.4	1131	5.3
1993	172	3.3	129	4.2	148	1.1	449	2.1
Total	755	14.5	840	27.4	773	5.9	2368	11.1
Average	252		280		258		768	
Total	5205	100.0	3067	100.0	13000	100.0	21381	100.0
Average	347		205		867		1425	

Source: DOE Housing Statistics (Various issues).

One of the most useful aspects of the Hendry *et al.* study is that their data is broken down to district council level. This shows that in Belfast between 1982 and 1985 there were some 2,000 new private sector houses provided, of which 63 percent were defined as being "low cost". Within Belfast, most of the new housing provision studied by Hendry *et al.* occurred in the south and east of the city, with some activity in the north. Very little activity was recorded in west Belfast. The composition of the new stock provided in Belfast during this period differed radically from that in Northern Ireland in general. For example, at the Northern Ireland level, semi-

detached houses and bungalows accounted for three-quarters of all new private completions; in Belfast, terraced housing and apartments made up 54 percent of new housing provided in the period. Indeed, Belfast accounted for half of all apartment construction Province-wide. Unfortunately, such information is not available on new dwellings provided after 1985, although the evidence on the ground is that developers moved "up-market".

Around the same time that housing was accorded a higher priority in public spending terms, the Executive launched a new strategy for the city which constituted a serious attempt to provide a wider range of initiatives embracing both the public and private sectors (NIHE, 1982a). About one-quarter of the city's stock was directly affected by the strategy, the key elements of which were 42 further redevelopment areas, later reduced to 33 in response to public consultation, 15 new Housing Action Areas, making a total of 43, and a series of areas, referred to as Private Investment Priority Areas (PIPAs), where the Executive and the private sector could work in partnership.

It had originally been intended that work in HAAs would be predominantly rehabilitation. However, by 1982 it was clear that rehabilitation costs were very high, often approaching and sometimes exceeding new build costs. Given that the life expectancy of a rehabilitated dwelling was typically less than half that of a new dwelling, on economic grounds the argument began to swing away from rehabilitation towards replacement. Moreover, as modern space, layout and design standards could not be delivered within the majority of rehabilitated dwellings, tenant attitudes also moved in favour of redevelopment. In addition, the Renewal Strategy document pointed out that progress in rehabilitation was slower than anticipated, with the rate of grant take-up being particularly disappointing. In the 28 HAAs that had been declared by the end of 1981, only 900 improvement grants had been improved, with more than 70 percent going to just six of the areas (NIHE, 1982a).[5]

Throughout the 1980s, redevelopment remained an important tool in housing terms. Although these schemes were more sensitive in scale than those of the previous decade, the sheer number of areas involved meant that new build activity in particular increased dramatically. For example, in the four years following the publication of the Strategy, the Executive completed an average of around 1,520 dwellings per annum in Belfast compared to

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5 It would be misleading to give the impression that renovation grant aid was not having an impact. Indeed, between 1976 and March 1982, some £37 million had been spent on grant aid, approximately two-thirds of which was spent on improvement grants.

770 per annum in the four years prior to publication. Over the decade more than 11,000 dwellings were built, equivalent to an annual average double that achieved in the 1970s.

Although community groups were much more in favour of redevelopment, some suspicions remained, with Unionist politicians in particular critical of the process that they saw leading to the further "de-Protestanisation" of the city. The first official recognition on the part of the Executive that such allegations had been laid against it came in the organisations twelfth annual report (NIHE, 1983). There is no doubt that redevelopment does radically alter the composition of neighbourhoods thus affected and, given that the Belfast Protestant community is over-represented in unfit housing (NIHE, 1995), such fears were not groundless. In terms of the Protestant Shankill area of west Belfast, a Unionist councillor was reported to have said that "...the bricks and mortar of the Shankill are part of our Protestant heritage. What we want is rehabilitation, if necessary, brick by brick."[6] Singleton (1987) points out that the experience of large-scale redevelopment is unlikely to have inspired confidence citing the experience of the Protestant Shankill area in west Belfast (Table 6.4).

Table 6.4: The Impact of Re-Development in the Shankill

Indicator	1968	1983
Number of houses	7,000	1,100
Small businesses	200	11
Corner shops	202	1
Mission halls	23	1
Pubs	68	0
Playgrounds	3	0

Source: Singleton (1987, p.161)

It has already been noted that one of the problems that have dogged housing provision within the city over the past 50 years is the lack of suitable building land. Arguably, the private sector has been most adversely affected by this problem, especially in areas where demand was high. One of the areas where this problem was particularly evident in the early 1980s was the south east of the city. In February 1980 a joint Working Group comprising officers from the Department of the Environment and the Housing Executive was formed with a brief to review housing demand in south and east Belfast and "related urban areas" (DOE/NIHE, 1980). The Group highlighted the problem of excess demand in the Castlereagh part of the BUA and advocated, among a number of strategies, the modification of the stop line to accommodate

6 Recalled by member of NIHE staff who attended Belfast City Council meeting that first discussed the Executive's Shankill redevelopment plans.

additional private sector housing in the Borough. The Department of Environment, the body responsible for development planning in Northern Ireland, subsequently bowed to political pressure from the Minister who had been lobbied directly by a major developer and released land, including the controversial Cairnshill site, outside of the Stop Line (Murray, 1991). Following a public enquiry, the Department confirmed approval for 500 dwellings on the site. Interestingly, in announcing the decision the Minister noted:

> *"I attach high priority to private housing development particularly for first-time buyers, and this has been a major factor in my arriving at my decision to permit limited development" (Cited in Singleton, 1987, p. 163).*

The first dwellings were sold in 1986 at prices some 40 to 100 percent above the average price of new houses at this time. Thus, it would be difficult to argue that the Cairnshill scheme was targeted, as the Minister suggested, at first-time buyers.

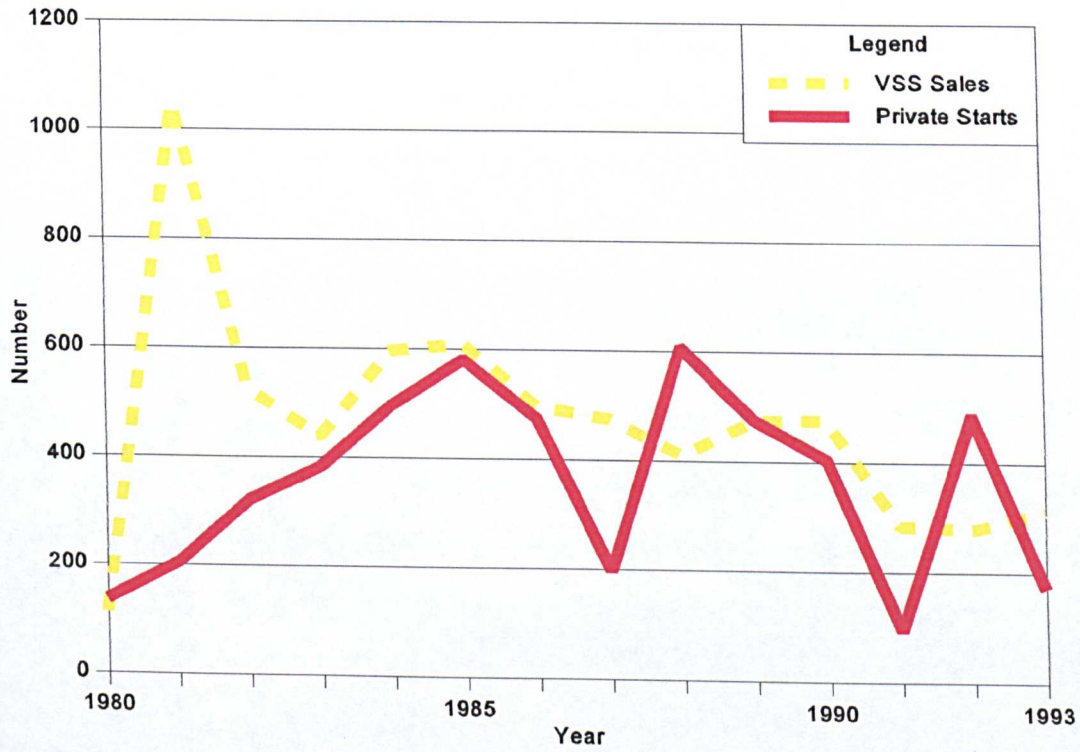

Figure 6.5: Private Sector New Build Starts and VSS Sales in Belfast 1980-1993

Whilst private sector new build has been important in promoting the growth of home ownership in Belfast in general, and the wider BUA in particular, it is worth noting that the sale of Housing Executive houses to sitting tenants has also made a significant contribution to the expansion in this sector of the housing market. Indeed, between 1980 and 1993, more than 6,500 dwellings were sold through the Executive's Voluntary Sales Scheme (VSS), a scheme that is similar to the "Right-to-Buy" scheme in other parts of the UK. A useful indication of the impact

of this can be gauged by comparing annual sales against new starts by private builders in the city: this reveals that since the introduction of the scheme in 1980, VSS sales were some 30 percent greater than new private-sector building. In fact, during the 14 years in question, new starts exceeded VSS sales in just four of these years, and for two of the years the difference was negligible (Figure 6.5). One of the imponderables is the impact of such activity on the re-sale market.

6.3 The BUA in 1991 - A Demographic and Socio-Economic Profile

6.3.1 Approach

In this section, information from the 1991 Census is used to provide an overview of the demographic and socio-economic structure of the population within the study area. This takes the form of a descriptive analysis which draws on the published tables, together with commissioned "special tables" and the secondary analysis of a deprivation data set derived from the Census by Robson, Bradford and Deas (1994). An important component of this analysis is the exploration of spatial variations within the BUA system. To facilitate this, the area is disaggregated into 13 sectors, based on a scheme originally developed by the Housing Executive in the mid-1980s (NIHE, 1986). Belfast is divided into eight sectors, four of which correspond to the "inner city" and four to "outer city". The remaining five sectors reflect the separate components of the BUA within each of the adjacent five district council areas. These sectors lie between the city boundary and the edge of the built-up area. The sectors vary in size from just three wards in the case of Greenisland (Carrickfergus district) to 20 wards in case of both Castlereagh and Netwownabbey. The definition of the 13 sectors is shown in Appendix 5.

6.3.2 Population and Households

The 1991 Census reveals that the BUA has a population of 475,967 persons, organised into some 177,943 households giving a mean household size of 2.67 (Table 6.5). Within the BUA, Belfast contains approximately three-fifths of both population and household totals, although there are a number of important variations worth highlighting. For example, whilst the four inner city sectors account for around 17 percent of the population, smaller household sizes in these wards mean that almost one-fifth of BUA households live in the inner city. At 2.09, household size is particularly small in the inner south sector when compared to 2.36 for all four inner sectors, 2.60 for Belfast and 2.67 for the BUA as a whole. Not surprisingly, larger households

Table 6.5: Population and Households in the BUA 1991

Area	Population		Households		MHS
	No.	%	No.	%	
Inner North	27,878	5.9	11,400	6.4	2.45
Inner East	14,702	3.1	6,472	3.6	2.27
Inner South	21,257	4.5	10,160	5.7	2.09
Inner West	15,631	3.3	5,631	3.2	2.78
All Inner Wards	79,468	16.7	33,663	18.9	2.36
Outer North	64,068	13.5	23,820	13.4	2.69
Outer East	44,721	9.4	17,727	10.0	2.52
Outer South	47,765	10.0	19,294	10.8	2.48
Outer West	43,215	9.1	12,890	7.2	3.35
All Outer wards	199,769	42.0	73,731	41.4	2.71
All Belfast	279,237	58.7	107,394	60.4	2.60
Greenisland BUA	4,992	1.0	1,894	1.1	2.64
Castlereagh BUA	52,982	11.1	20,240	11.4	2.62
Lisburn BUA	70,588	14.8	23,836	13.4	2.96
Newtownabbey BUA	56,762	11.9	20,400	11.5	2.78
Holywood BUA	11,406	2.4	4,179	2.3	2.73
All Non-Belfast BUA	196,730	41.3	70,549	39.6	2.79
All BUA	475,967	100.0	177,943	100.0	2.67

Source: 1991 Census, BUA Report. Calculated from Table 4.

are generally found in the suburban parts of the urban area, although the largest households are located in the outer west sector. As we shall see later (6.4), this area is predominately Roman Catholic in composition.

Table 6.6 summarises the population structure of the BUA and provides basic information on how this structure varies geographically. As is common in developed societies, the gender distribution is slightly biased towards females (52.7%). The gender imbalance is greater within Belfast in general and in the inner city wards in particular, where the proportion of females is 53.3%. This reflects the fact that the population is generally older in the city and younger in the suburbs. Thus, 17 percent of the population in the inner city wards is aged 65 or older, compared to 15 percent for the outer Belfast wards, and less than 13 percent in the rest of the BUA. The major exception to this is inner west Belfast where just 13.3 percent of the population are aged 65 or older, and almost 27 percent are aged under 15 years, compared to 22 percent for inner city wards in general. Again, this reflects the largely Roman Catholic composition of these areas.

Age-sex pyramids can provide a useful visual impression of the structure of the population. The pyramid for the BUA as a whole (Figure 6.6 (a)) has an "onion" shape which

Table 6.6: Population Age-Sex Structure and Distribution by Sector 1991

Area	0-14		15-44		45-64		65+		Depend-ancy Index	Males		Females		Total	
	No.	%	No.	%	No.	%	No.	%		No.	%	No.	%	No.	%
Inner North	6466	23.2	10589	37.9	5853	20.9	4970	18.0	69.6	13,029	46.7	14,849	53.3	27878	100.0
Inner East	3148	21.4	5686	38.7	3127	21.3	2741	18.6	66.8	6,801	46.3	7,901	53.7	14702	100.0
Inner South	4030	18.9	9473	44.6	3967	18.6	3787	17.9	58.2	9,956	46.8	11,301	53.2	21257	100.0
Inner West	4175	26.7	6571	42.0	2808	17.9	2077	13.4	66.7	7,297	46.6	8,334	53.4	15631	100.0
All Inner Wards	17819	22.4	32319	40.7	15755	19.8	13575	17.1	65.3	37,083	46.7	42,385	54.3	79468	100.0
Outer North	15013	23.4	25805	40.3	13611	21.2	9639	15.1	62.5	30,270	47.2	33,798	52.8	64068	100.0
Outer East	8230	18.4	18112	40.4	9914	22.2	8465	19.0	59.6	20,927	46.7	23,794	53.3	44721	100.0
Outer South	8564	17.9	21165	44.3	9544	19.9	8494	17.9	55.5	21,812	45.8	25,953	54.2	47765	100.0
Outer West	12275	28.4	18951	43.8	7872	18.2	4117	9.6	61.1	20,728	47.9	22,487	52.1	43215	100.0
All Outer wards	44082	22.2	84033	42.0	40939	20.5	30715	15.4	59.9	93,737	45.9	106,032	53.1	199769	100.0
All Belfast	61901	22.2	116352	41.7	56694	20.2	44290	15.9	61.4	130,820	46.7	148,417	53.2	279237	100.0
Greenisland BUA	985	19.7	2054	41.1	1267	25.3	686	13.9	50.3	2,378	47.6	2,614	52.4	4992	100.0
Castlereagh BUA	9531	17.9	22024	41.6	12775	24.1	8652	16.4	52.3	25,120	47.4	27,862	52.6	52982	100.0
Lisburn BUA	18577	26.3	31717	44.9	12926	18.3	7370	10.5	58.1	33,967	48.2	36,621	51.8	70588	100.0
Newtownabbey BUA	12739	22.4	24895	43.8	12556	22.1	6562	11.7	51.5	27,262	48.1	29,500	51.9	56762	100.0
Holywood BUA	2313	20.2	4673	40.9	2498	21.9	1922	17.0	59.1	5,485	48.1	5,921	51.9	11406	100.0
All Non-Belfast BUA	44143	22.4	85363	43.4	42032	21.4	25192	12.8	54.4	94,212	47.9	102,518	52.1	196730	100.0
All BUA	106044	21.8	201715	42.3	98726	21.3	69482	14.6	58.4	225,032	47.3	250,935	52.7	475967	100.0

Source: 1991 Census, BUA Report. Calculated from Tables 4 & 6. Dependency Index simply population aged 0-14 and 65 and over expressed as a percentage of the population aged 15 to 64.

gradually broadens out from the youngest age bands towards a maximum width in the 20-39 age bands and tapering quite sharply thereafter. It is also clear that females out-number males in every quinquennial band from age 20-24 onwards, with the difference becoming more obvious with age. Thus, in the 75 and over age-bands, females account for almost 70 percent of the population, and in the 85 plus bands, they account for 80 percent. The bulge for both males and females in the 20-24 group reflects the fact that Belfast is a university city with a large number of students living in and around the main Queen's University campus.

Within the BUA, variations in the pattern are apparent. Figure 6.6(b) shows the age-sex pyramid for the inner city sectors. This has a "Christmas tree" profile with several peaks and troughs. For example, pre-school age out number primary and secondary school-aged children and university-aged persons out number those in the next age bands. When compared against the BUA as a whole, the inner sectors pyramid has a more pronounced gender imbalance at advanced age. Whilst the Outer Belfast pyramid displays the same university-age and young family bulge, the middle-aged bands are not as constricted and gender imbalance at advanced age is not quite so pronounced. The final age-sex pyramid relates to the suburban wards beyond the city boundary (Figure 6.6(d)). This has more of a "beehive" shape with very little differentiation in gender or numbers in the first six quinquennial bands; the "sides" are almost straight. This pattern reflects the relative youthfulness of the suburban population which is characterised by families with young children. The top of the pyramid is the most "pointy" of the four areas considered. This "pointiness" is also a feature of the relatively young age profile of the area. Overall, the shifting age-sex patterns are consistent with the traditional family life cycle model of residential mobility (e.g. Clark & Onaka, 1983; Gober, 1992; Kendig, 1984).

Table 6.6 also provides a useful summary measure of the population age structure: the Dependency Index. Technically, this index expresses the dependent population as a proportion of the population of economically active age groups. The larger the resultant index value, the more "dependant" the population of any given area. However, for ease of calculation the index shown in the table is slightly more coarse, expressing the 0-14 plus 65 and over groups as a proportion of the rest. The values range from just over 50 in the Greenisland part of the BUA to almost 70 in the inner north sector. In general, values are higher in the inner city wards (65), and decrease with distance from the inner city. Thus, outer sector wards have an average score of 60 with the remaining parts of the BUA scoring just 54.

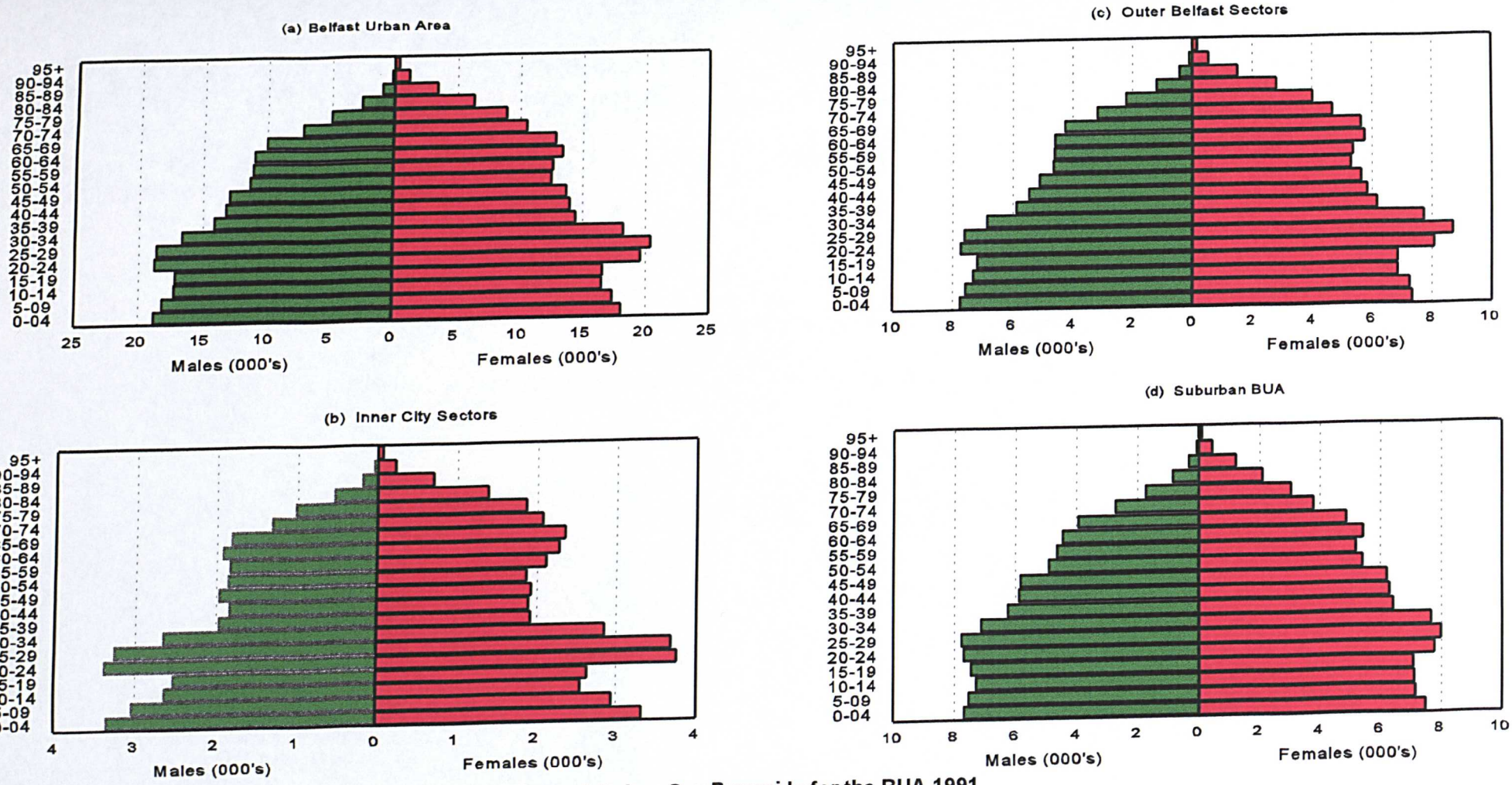

Figure 6.6: Age-Sex Pyramids for the BUA 1991

Table 6.7: Economically Active Persons by Sex and BUA Sector 1991

Area	Males						Females						Total					
	Economically Active		Out of Work		In Work		Economically Active		Out of Work		In Work		Economically Active		Out of Work		In Work	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Inner North	6256	100.0	2481	39.7	3777	60.3	4108	100.0	1017	24.8	3091	75.2	10364	100.0	3498	33.7	6868	66.3
Inner East	3418	100.0	1208	35.3	2210	64.7	2338	100.0	511	21.8	1827	78.2	5756	100.0	1719	29.8	4037	70.2
Inner South	5289	100.0	1725	32.6	3564	66.4	4010	100.0	712	17.7	3298	82.3	9299	100.0	2437	26.2	6862	73.8
Inner West	3539	100.0	1555	43.9	1984	56.1	2550	100.0	571	22.4	1979	77.6	6089	100.0	2126	34.9	3963	65.1
All Inner Wards	18502	100.0	6969	37.6	11535	62.4	13006	100.0	2811	21.6	10195	78.4	31508	100.0	9780	31.0	21730	69.0
Outer North	15388	100.0	3658	23.7	11730	76.3	11383	100.0	1584	13.9	9800	86.1	26771	100.0	5252	19.6	21530	80.4
Outer East	11600	100.0	1216	10.4	10384	89.6	9109	100.0	607	6.6	8502	93.4	20709	100.0	1823	8.8	18886	91.2
Outer South	12068	100.0	1327	10.9	10741	89.1	10581	100.0	732	6.9	9849	93.1	22649	100.0	2059	9.0	20590	91.0
Outer West	10082	100.0	3737	37.0	6344	63.0	7111	100.0	1445	20.3	5666	79.7	17193	100.0	5182	30.1	12010	69.9
All Outer wards	49138	100.0	9938	20.2	39197	79.8	38184	100.0	4367	11.4	33817	88.6	87322	100.0	14305	16.4	73014	83.6
All Belfast	67640	100.0	16907	25.0	50732	75.0	51190	100.0	7178	14.0	44012	86.0	118830	100.0	24085	20.3	94744	79.7
Greenisland BUA	1362	100.0	187	13.7	1175	86.3	993	100.0	80	8.0	913	92.0	2355	100.0	267	11.3	2088	88.7
Castlereagh BUA	14158	100.0	1512	10.6	12646	89.4	11540	100.0	743	6.4	10797	93.6	25698	100.0	2255	8.7	23443	91.3
Lisburn BUA	184141	100.0	3106	16.8	15309	83.2	12723	100.0	1419	11.2	11304	88.8	31137	100.0	4525	14.5	26613	85.5
Newtownabbey BUA	5245	100.0	2150	40.9	13095	59.1	11670	100.0	1028	8.8	10642	91.2	26915	100.0	3178	11.8	23737	88.2
Holywood BUA	3022	100.0	289	9.5	2733	90.5	2167	100.0	134	6.2	2033	93.8	5189	100.0	423	8.2	4766	91.2
All Non-Belfast BUA	52201	100.0	7244	13.9	44958	86.1	39093	100.0	3404	8.7	35689	91.3	91294	100.0	10648	11.6	80647	88.4
All BUA	119841	100.0	24151	20.2	95690	79.8	90293	100.0	10582	11.7	79701	88.3	210124	100.0	34733	16.5	175391	83.5

Source: 1991 Census, BUA Report. Calculated from Table 16.

6.3.3 Employment, Unemployment and Occupations

The Census shows that just over 44 percent of the total population of the BUA is classified as economical active, representing some 210,000 individuals. Approximately one-fifth of economically active males in the BUA were out of work, rising to 38 percent in the inner city wards. The situation is particularly poor in the inner west sector where 44 percent of economically active males are out of work. In contrast, male unemployment is less than 10 percent in the Holywood part of the BUA. Although female unemployment rates are lower than those for males right across the urban area, the patterns are similar with the highest rates in the inner city sectors (22%) and the lowest rates in the suburban sectors outside the city boundary (9%). Unlike male unemployment, female unemployment peaks in the inner north sector, although it is also high in the inner west. Table 6.7 summarises the distribution separately for males and females and for each of the 13 sectors.

The Census employs a relatively crude occupational classification and it is restricted to a subset of the economically active, that is only those in employment, excluding those on

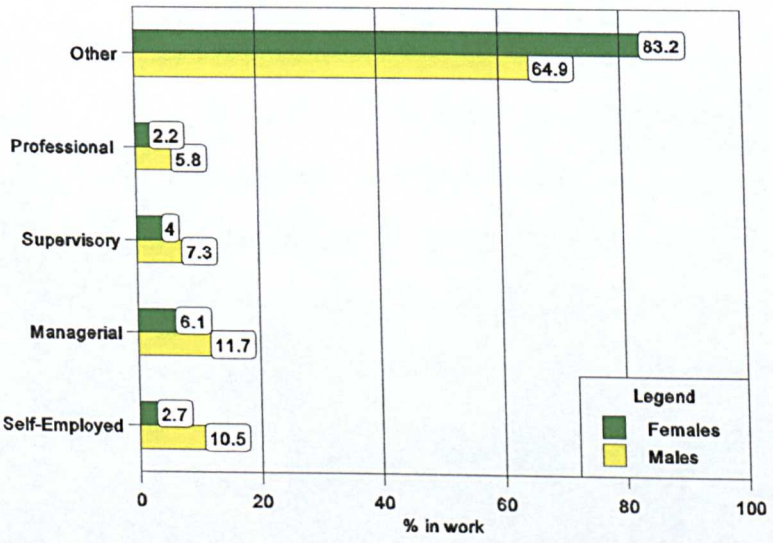

Figure 6.7: Occupational Structure of BUA Residents in Work by Gender 1991

government employment or training schemes and those who were unemployed. In terms of those in work, it is clear that males are over-represented amongst those in self-employment, and those regarded as being in professional, managerial or supervisory positions. In contrast, females dominate the "other," primarily manual occupational category, with 83 percent of females in work assigned to this group compared to two-thirds of working males (Figure 6.7).

6.3.4 Deprivation

The most recent and most comprehensive information on deprivation within the BUA comes from a study conducted by Robson, Bradford and Deas (1994). The study, which was commissioned by the interdepartmental Statistics Co-ordinating Group of the Northern Ireland Civil Service, is based primarily on data derived from the 1991 Census of Population. The main objective of the study was to produce a general index of relative multiple deprivation for Northern Ireland. The data generated in the study was made available to the author for the purposes of secondary analysis within the BUA. As noted in chapter five, the Robson *et al.* study employed 18 indicators to construct three composite measures of deprivation which they referred to as degree, intensity and extent. Each of these composite measures is examined in the following paragraphs. Whilst this chapter focuses on the BUA, as the index values are relative to Northern Ireland as a whole, the analysis begins by placing the BUA within its Provincial context, and then proceeds to examine differences within the BUA itself.

6.4.3.1 The Belfast Urban Area in Context

Of the 566 wards in Northern Ireland, 117 (21%) fall within the BUA, 230 fall within other urban centres in the Province (41%) and the remaining 219 wards are rural in nature (39%). In population terms, the split is such that the BUA captures a larger share (30%) and the other urban areas a smaller share (30%) when compared to the distribution of wards (Table 6.8).

Turning to the first composite measure, the degree of deprivation, both the BUA and other urban areas are relatively less deprived when compared to the rural parts of the Province. Thus, the mean degree of deprivation scores for the BUA (-4.32) and other urban centres (-4.48) are significantly better than those for rural Northern Ireland (+2.31). Consequently, wards within the BUA have an average rank score of 320 compared to 329 for other urban areas and 216 for rural wards (Table 6.8). Nevertheless, there are clearly major variations within each of the broad locations as suggested by the fact that one-fifth of the BUA wards appear in the worst decile of all Northern Ireland wards on this measure of deprivation. In contrast, just four percent of other urban wards and 11 percent of rural wards appear in the worst decile. Indeed, the BUA contains nine of the worst 10 wards province-wide on the degree measure.

A similar picture emerges in terms of the intensity of deprivation. Both the BUA and other urban areas are relatively less deprived (with scores of +0.42 & -0.12 respectively) than rural areas (+2.89). As a result, the BUA mean rank score (309) and the other urban areas mean rank

Table 6.8: Composite Measures of Deprivation - The BUA in Context

Location	Population	%	No. of wards	%	Degree of Deprivation			Intensity of Deprivation			Extent of Deprivation			
					Mean Score	Mean Rank (max 566)	% wards in worst decile / quartile	Mean Score	Mean Rank (max 566)	% wards in worst decile / quartile	No. wards deprived	% of wards deprived	Population in deprived wards	% population in deprived wards
BUA	475967	30.2	117	20.7	-4.32	320	19.7 / 23.6	+0.42	309	22.2 / 27.4	38	32.5	71521	15.0
Other Urban	476764	30.2	230	40.6	-4.48	329	3.9 / 14.3	- 0.12	344	3.9 / 13.0	45	19.6	39515	8.3
Rural	625105	39.6	219	38.7	+2.31	216	11.4 / 13.7	+2.89	207	11.4 / 36.1	87	39.7	45330	7.3
Total	1577836	100.0	566	100.0	-1.82			+1.16			170	30.0	156366	9.9

Sources: 1991 Census, Summary Report. Data supplied from the Robson, Bradford and Deas (1994) project.

score (344) are both significantly larger than the mean rank score for rural wards (207). A higher proportion of BUA wards (22%) fall in the worst decile of Northern Ireland wards on this measure than on the previous measure of deprivation. The corresponding figures for the other locations remain unaltered at four percent and 11 percent respectively.

In terms of the final composite measure, the extent of deprivation, a slightly different picture is apparent. Overall, 170 wards are deemed to contain EDs that fall within the worst 10 percent of all EDs in Northern Ireland. Of these, one-third are in the BUA compared to just 21 percent of all wards. Other urban areas contain half of the expected number of deprived wards, and rural areas have about the expected number. In population terms, 15 percent of the BUA population reside in wards classified as deprived on the extent measure in contrast to eight percent in other urban areas and just seven percent in rural areas. The basic conclusion, therefore, is that whilst the rural areas of the Province are generally more deprived than urban areas, there are major pockets of deprivation, on all three composite measures, within the BUA. In the next section we seek to identify these pockets.

6.4.3.2 Deprivation Within the Belfast Urban Area

Within the BUA, it is clear from each of the composite indicators that the inner city sectors have consistently high levels of deprivation (Table 6.9). The table also reveals mixed results for the outer Belfast sectors but consistently good results for the suburban sectors outside the city boundary.

In terms of the degree measure, the inner city sectors have remarkably high positive scores indicating extreme deprivation. With a score of +17.84, the situation in the inner west sector is particularly noteworthy. Taken as a group, the inner city wards have a mean rank score of 23, although the score reaches as high as 10 in both the inner east and inner west sectors. As a further indication of the severity of the deprivation in the inner city wards, we can see that 88 percent of such wards fall in the worst decile of all wards in Northern Ireland on the degree measure, and they all fall within the worst quartile. Indeed, eight of the ten most deprived wards in the Province are found in inner city Belfast, with one further ward in the outer south sector. The situation in the outer Belfast sectors is considerably better as is suggested by an average degree score of -4.26. However, this average score masks the fact that higher than expected deprivation levels are recorded in the outer north (+1.34) and west sectors (+7.26). In the outer west sector in particular high levels of deprivation are found. Thus, in this sector, 43 percent of

Table 6.9: Composite Measures of Deprivation - A Sectoral Analysis Within the BUA

Sector	Population	%	No. of wards	%	Degree of Deprivation			Intensity of Deprivation			Extent of Deprivation			
					Mean Score	Mean Rank (max 566)	% wards in worst decile / quartile	Mean Score	Mean Rank (max 566)	% wards in worst decile / quartile	No. wards deprived	% of wards deprived Population	Population in deprived wards	% population in deprived wards
Inner North	27,878	5.9	6	5.1	+15.52	24	83.3 / 100.0	+6.82	35	83.3 / 100.0	6	100.0	12023	43.1
Inner East	14,702	3.1	3	2.6	+16.56	10	100.0 / 100.0	+6.93	25	100.0 / 100.0	3	100.0	6121	41.6
Inner South	21,257	4.5	4	3.4	+13.46	40	75.0 / 100.0	+6.89	32	100.0 / 100.0	4	100.0	5852	27.5
Inner West	15,631	3.3	3	2.6	+17.84	10	100.0 / 100.0	+8.38	11	100.0/ 100.0	3	100.0	12104	77.4
All Inner	79,468	16.7	16	13.7	+15.64	23	87.5 / 100.0	+7.15	28	93.8 / 100.0	16	100.0	36100	45.4
Outer North	64,068	13.5	12	10.3	+1.34	239	25.0 / 33.3	+2.93	212	25.0 / 41.7	6	50.0	7576	11.8
Outer East	44,721	9.4	8	6.8	-12.89	448	0 / 0	-0.45	365	0 / 0	0	0.0	0	0.0
Outer South	47,765	10.0	8	6.8	-14.12	463	0 / 0	-0.05	357	0 / 0	2	25.0	738	1.5
Outer West	43,215	9.1	7	6.0	+7.26	138	42.9 / 57.1	+6.41	65	71.4 / 71.4	6	85.7	17918	41.5
All Outer	199,769	42.0	35	29.9	-4.26	318	17.1 / 22.9	+2.19	250	22.9 / 28.6	14	40.0	26232	13.1
All Belfast	279,237	58.7	51	43.6	+1.98	225	39.2 / 47.1	+3.73	181	45.1 / 51.0	30	58.8	62332	22.3
Greenisland	4,992	1.0	3	2.6	-5.37	349	0 / 0	-2.85	456	0 / 0	0	0.0	0	0.0
Castlereagh	52,982	11.1	19	16.2	-11.68	433	0 / 0	-3.57	458	0 / 0	0	0.0	0	0.0
Lisburn	70,588	14.8	20	17.1	-7.29	365	5.0 / 15.0	-0.80	360	15.0 / 15.0	4	20.0	7655	10.8
Newtownabbey	56,762	11.9	20	17.1	-8.87	381	15.0 / 15.0	-1.95	397	10.0 / 10.0	4	20.0	1534	2.7
Holywood	11,406	2.4	4	3.4	-12.39	455	0 / 0	-2.59	426	0 / 0	0	0.0	0	0.0
All Suburban BUA	196,730	41.3	66	56.4	-9.19	394	6.1 / 9.1	-2.15	408	7.6 / 7.6	8	12.1	9189	4.6
Total	475,967	100.0	117	100.0	-4.32	320	20.5 / 22.2	+0.41	309	23.9 / 26.5	38	32.5	71521	15.0

Sources: 1991 Census, Summary Report. Data supplied from the Robson, Bradford and Deas (1994) project.

wards fall in the worst decile province-wide. In contrast, none of the wards in the outer east and south sectors fall in the worst decile, a situation reflected in mean rank scores of 448 and 463 respectively. In contrast, in the suburban sectors beyond the city boundary deprivation is less prevalent. Indeed, each of the five sectors displays below average levels of deprivation. With the exception of the Greenisland sector, an area dominated by public sector housing which is a good deprivation correlate, the degree scores are all better than for any of the individual Belfast sectors.

A finer picture of the degree of deprivation can be obtained by mapping the scores at ward level within the BUA (Figure 6.8). For ease of interpretation, all wards with negative scores (i.e. relatively less deprived wards) are shown blank. The shaded wards are grouped in quartiles of values relative to the range within the BUA as a whole. Although this has the advantage of highlighting differences within the BUA, it should be noted that if the quartile values had been set relative to Northern Ireland then almost twice as many BUA wards would fall in the highest quartile. The map shows quite clearly that most of the suburban parts of the BUA have negative scores and are, therefore, relatively non-deprived. Equally obvious is the concentration of the highest, fourth quartile scores into a spatially contiguous area that encloses the bulk of the inner city wards and a number of adjacent outer wards. This inner core of high deprivation is surrounded by an intermittent ring of wards with slightly lower (3rd quartile) scores. This ring includes important offshoots, particularly in a westward direction that extends beyond the city boundary into the large peripheral, Roman Catholic public sector estates of Twinbrook and Poleglass. Almost without exception, the remaining deprived wards (quartiles 1 & 2) are wards with large concentrations of private and public sector renting. They generally fall close to the edge of the city boundary. Good examples include the Monkstown and Whitehouse areas of the Newtownabbey sector, the Old Warren estate in the Lisburn sector, and the Tullycarnett estate in Castlereagh. This apparent association between deprivation and tenure will be further explored later.

The distribution of deprivation based on the intensity measure displays many of the same features as that for degree of deprivation. Thus, inner city wards exhibit the highest levels of deprivation, with almost 95 percent of wards falling in the worst decile of all wards on this measure than on the degree measure, with 23 percent falling in the worst decile and 29 percent in the worst quartile overall. The figures for degree were 17 and 23 percent respectively. This

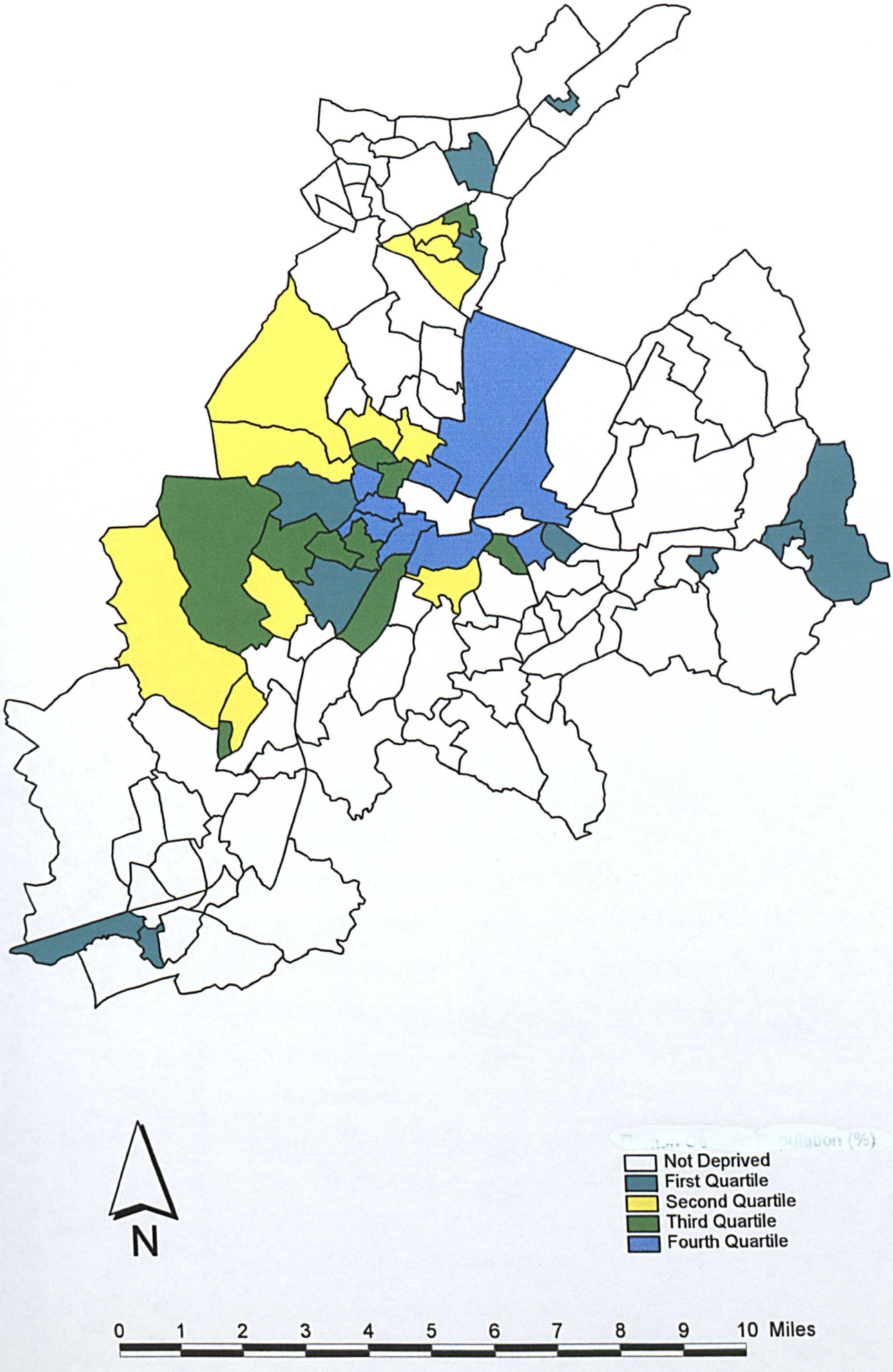

Figure 6.8: The Degree of Deprivation in the BUA by Ward 1991

would suggest that the outer Belfast wards contain more sub-areas where deprivation levels are high, a factor that the intensity measure was designed to recognise. It is possible that these are public sector estates, although without access to enumeration district maps it is not possible to confirm this tentative conclusion. The suburban sectors beyond the city boundary appear relatively non-deprived as was the case with the degree measure.

In terms of the extent of deprivation, 38 of the BUA wards (33%) contain EDs that fall in the worst 10 percent of all EDs province-wide. All 16 inner city wards are defined as deprived on the extent measure, with a further 14 outer Belfast wards similarly defined. The situation in west Belfast is particularly poor, with 86% of outer west Belfast wards classified as deprived. Taking west Belfast as a whole (i.e., inner & outer), 90 percent of the wards that comprise the area are defined as deprived. High levels are also recorded in north Belfast (i.e. inner & outer) where the figure reaches two-thirds. In contrast, in the south the figure drops to half and in the east, the figure is just 3/11. Overall, almost 60 percent of Belfast's wards are defined as deprived on this measure. Beyond the city boundary, the situation is more favourable, with just eight wards (12%) similarly defined (Table 6.9).

6.4 Religious Residential Segregation in 1991

In chapter two of this thesis, the historical development of religious residential segregation in Belfast was traced as far as the late 1980s. In this section, the aim is to bring this picture fully up to date using information from the most recent Census. No previous studies of segregation derived from the 1991 Census have yet been published. All of the data employed in this section were extracted from published and commissioned "special tables".

This section is organised into a number of component parts beginning with an overview of religious affiliation in the BUA. The analysis then shifts to examine spatial patterns within the urban area, focusing on the distribution of the Roman Catholic community. The extent of segregation is assessed using the well-known Dissimilarity Index (DI). Given the importance of the owner occupied sector in this thesis, separate indices are calculated for home owners and non-home owners.

6.4.1 Religious Affiliation in the BUA - An Overview

Religion has always been an important question in the Northern Ireland Census, having first been included in 1861. The form of the question in the 1991 Census required respondents to

provide details of the religious denomination of each household member. This was subsequently classified into five major denominational groups in order of size as follows: Roman Catholic, Presbyterian, Church of Ireland, Methodist and Other. Two additional categories were added in the published tables: None and Not Stated. Table 6.11 summaries the responses with each category separately for the BUA and for Northern Ireland as a whole.

Before considering the details of the table, two points are worth noting. First, and most importantly, it is clear that the Census does not provide a complete picture of religious affiliation. At the Northern Ireland level, information is not available for more than seven percent of the population, and a further four percent cite their religion as "None". The situation is worse within the BUA, with more than eight percent not stating their religion, and almost six percent classified as having no religion. This makes the analysis of religious affiliation somewhat difficult, particularly given the traditional dichotomous analysis of Roman Catholic versus Protestant. Boyle and Hadden (1994) have criticised previous studies that have adopted this simple dichotomy, arguing that this serves to exaggerate and accentuate the degree of division and separation. They suggest that rather than trying to apportion the "None" and "Not stated" into either Protestant or Roman Catholic, it would be more appropriate to treat them as a third group which they refer to as "the people in between" (p. 28). With this in mind, subsequent tabular analyses of religious affiliation provide information separately for Roman Catholics, Protestants and "the people in between." However, when mapping religious affiliation and calculating the indices of segregation, convention dictates that the emphasis is placed on the position of the minority (i.e., Roman Catholic) community versus the rest. The second point concerns the place of the "Other" category. The Census provides a detailed breakdown of the nature of this group. At the Northern Ireland level, of the 122,448 "Other" religions, just six percent would not be described as "Protestant." Consequently, in subsequent analyses the "Other" group is combined with the three main Protestant groups for certain analyses. There is a strong precedent for this (e.g., Jones, 1960; Poole & Boal, 1973) and in any case, as it was argued in chapter two, in Northern Ireland the term "Protestant" is synonymous with "non-Catholic".

Returning to Table 6.10, it can be seen that Roman Catholicism is the single largest denomination at the Northern Ireland scale (38%) and within the BUA (31%). Presbyterianism is the most common Protestant denomination at the Northern Ireland level (21%) with the Church of Ireland (18%) and Methodists (4%) following behind. In the BUA, the Church of Ireland faith is the most common Protestant denomination, followed by Presbyterianism and with

Table 6.10: Religious Denomination in the BUA and in Northern Ireland 1991

Religious Denomination	Belfast Urban Area				Northern Ireland			
	Population		Households		Population		Households	
	No.	%	No.	%	No.	%	No.	%
Roman Catholic	148295	31.2	46557	26.2	605639	38.4	174506	32.9
Presbyterian	94804	19.9	NA	NA	336891	21.4	NA	NA
Church of Ireland	97769	20.5	NA	NA	279280	17.7	NA	NA
Methodist	28805	6.1	NA	NA	59517	3.8	NA	NA
(Protestant)	(221378)	(46.5)	(90335)	(50.8)	(675688)	(42.8)	(251230)	(47.4)
Other	40529	8.5	15791	8.9	122448	7.8	42910	8.1
None	26469	5.6	11390	6.4	59234	3.8	24236	4.6
Not Stated	39297	8.3	13869	7.8	114827	7.3	37489	9.1
Total	475968	100.0	177942	100.0	1577836	100.0	530371	100.0

Source: Papulation: 1991 Census, BUA and Summary Reports, Table 8; Households -commissioned tables from the Census selecting "Head of Household" in each case.

the Methodist faith in third place again. If we consider the "Other" religions as Protestant, then the BUA split becomes: Roman Catholic (31%), Protestant (55%) and "the people in between" (14%). In the BUA, therefore, Protestants have a clear the majority. At the Northern Ireland level, however, even allowing for the addition of the "Other" group, Protestants fail to pass the 50 percent mark.

Table 6.10 shows the religious affiliation of households and persons. Because of the differences in mean household size between the various groups, the overall pattern for households differs from that for persons. The most obvious difference is that, because Catholic households are on average about 30 percent larger than Protestant households, there are proportionately fewer Catholic than Protestant households. Thus, the closeness in population numbers is not so apparent in terms of households. At the Provincial scale, Roman Catholics make up one-third of all households compared to 47 percent in terms of Protestants and 56 percent if Protestants and Others are combined. A similar situation exists in the BUA. Although Catholic and Protestant household sizes are both smaller in the urban area than in Northern Ireland generally, the 30 percent differential remains. Thus, just over one quarter of households in the BUA are headed by a Roman Catholic (26%) compared to half that are headed by a Protestant (51%). The corresponding population figures, at 38 percent and 47 percent respectively, are much closer together.

Table 6.11: Religion by BUA Sector 1991

Area	Roman Catholic		Protestant		Other		Protestant & Other	None		Not Stated		"Others in between"	Total	
	No.	%	No.	%	No.	%	%	No.	%	No.	%	%	No.	%
Inner North	10252	36.8	12760	45.8	1688	6.1	51.9	924	3.3	2254	8.1	11.4	27878	100.0
Inner East	2220	15.1	8831	60.1	1605	10.9	71.0	890	6.1	1156	7.9	14.0	14702	100.0
Inner South	4670	22.0	10854	51.1	2074	9.8	60.9	1811	8.5	1848	8.7	17.2	21257	100.0
Inner West	14268	91.3	238	1.5	92	0.6	2.1	132	0.8	901	5.8	6.6	15631	100.0
All Inner Wards	31410	39.5	32683	41.1	5459	6.9	48.0	3757	4.7	6159	7.8	12.5	79468	100
Outer North	21839	34.1	29302	45.7	4369	6.8	52.5	2834	4.4	5724	8.9	13.3	64068	100.0
Outer East	1360	3.0	29497	66.0	6396	14.3	80.3	3446	7.7	4022	9.0	16.7	44721	100.0
Outer South	14947	31.3	20407	42.7	3702	7.8	50.5	4289	9.0	4420	9.3	18.3	47765	100.0
Outer West	39393	91.2	772	1.8	183	0.4	2.2	428	1.0	2439	5.6	6.6	43215	100.0
All Outer wards	77539	38.8	79978	40.0	14650	7.3	47.3	10997	5.5	16605	8.3	13.8	199769	100
All Belfast	108949	39.0	112661	40.3	20109	7.2	47.5	14754	5.3	22764	8.2	13.5	279237	100
Greenisland BUA	391	7.8	3385	67.8	495	9.9	77.7	387	7.8	334	6.7	14.5	4992	100.0
Castlereagh BUA	4544	8.6	33208	62.7	7327	13.8	76.5	3337	6.3	4566	8.6	14.9	52982	100.0
Lisburn BUA	23453	33.2	33092	46.9	5624	8.0	54.9	3386	4.8	5033	7.1	11.9	70588	100.0
Newtownabbey BUA	8937	15.7	32767	57.7	5973	10.5	68.2	3539	6.2	5546	9.8	16.0	56762	100.0
Holywood BUA	2021	17.8	6264	54.9	1001	8.8	63.7	1066	0.9	1054	9.2	10.1	11406	100.0
All Non-Belfast BUA	39346	20.0	108716	55.3	20420	10.4	65.7	11715	6.0	16533	8.4	14.4	196730	100
All BUA	148295	31.2	221377	46.5	40529	8.5	55.0	26469	5.6	39397	8.3	13.9	475967	100

Source: 1991 Census, BUA Report. Calculated from Table 8.

6.4.2 Spatial Patterns of Religious Affiliation Within the BUA

Within the BUA, there are major differences in the distribution of the three main groups (i.e. Roman Catholic, Protestant and "others in between"). Table 6.11 summarises the situation at sector level. It can be seen that whilst Protestants form the major component in all but two of the 13 sectors, the Catholic population is over-represented in a number of the sectors, and Catholics form very large majorities in two areas (inner and outer west). Even when Protestant and other groups are combined, the Catholic majorities remain very large in the west of the city. Indeed, half of the Catholic population of the city is found in these two sectors.

In the inner city sectors, there are almost equal numbers of Roman Catholics and Protestants which means that Catholics are over-represented and Protestants are under-represented in this part of the BUA. Other religions, those with no religion and those who refused to declare their religion are all under-represented in the inner city wards. The religious composition of the outer Belfast wards is similar to the inner city, with Roman Catholics making up 39 percent of the total and Protestants accounting for 40 percent (47% when "others" are added). In the suburban parts of the BUA beyond the city boundary, the Roman Catholic population falls dramatically to just 20 percent, whereas the Protestant proportion increases to 55 percent, and two-thirds when "others" are added.

In order to obtain a better picture of the spatial patterns of religious affiliation in the BUA, each of the 117 wards in the urban area was classified according to the proportion of Roman Catholics within the population. Table 6.12 shows the five-fold classification employed, together with summary information on the population distribution in each of the ward types. From this table, it is clear that the most common type of ward is one which has typically less than 10 percent Catholic in terms of population or households. Thus, 38 percent of the population, rising to 44 percent of households, live in this type of ward. The next most common ward type is that in which Catholics make up a small but significant minority (≈10-30%). Overall, almost one-quarter of the population (24%), and just over one-quarter of households (28%), live in such wards. The remaining three ward types each account for roughly equal proportions of both population (≈13%) and households (≈9%). Significant differences in distribution emerge according to religion. For example, in population terms, only three percent of the Protestant population (2% of households) live in wards that are more than 50 percent Catholic. In contrast, more than one-third of the Catholic population live in wards with non-Catholic majorities. As chapter seven will demonstrate, this accords rather well with spatial search behaviour.

Table 6.12: Religious Profile by Ward Type for Population and Households in the BUA

POPULATION

% Catholic in Ward	No of wards	Roman Catholic		Protestant & Other		Others in Between		Total	
		No.	%	No.	%	No.	%	No.	%
0 - 9.9	52	5803	3.9	149592	57.1	27070	56.4	182465	38.3
10.0 - 29.9	32	21696	14.6	75636	28.9	18344	27.9	115676	24.3
30.0 - 49.9	12	23194	15.6	27761	10.6	9005	13.7	59960	12.6
50.0 - 89.9	10	38839	26.2	8448	3.2	7136	10.9	54423	11.4
90.0 - 100.0	11	58763	39.6	470	0.2	4211	6.4	63444	13.3
Total	117	148295	100.0	261907	100.0	65766	100.0	475968	100.0

HOUSEHOLDS

% Catholic in Ward	No of wards	Roman Catholic		Protestant & Other		Others in Between		Total	
		No.	%	No.	%	No.	%.	No.	%
0 - 9.9	55	2436	5.2	64244	60.5	11242	44.5	77922	43.8
10.0 - 29.9	34	9219	19.8	31946	30.1	7740	30.6	48905	27.5
30.0 - 49.9	10	6352	13.6	7670	7.2	2718	10.8	16740	9.4
50.0 - 89.9	8	12054	25.9	2101	2.0	2288	9.1	16443	9.2
90.0 - 100.0	10	16496	35.4	165	0.2	1271	5.0	17932	10.1
Total	117	46557	100.0	106126	100.0	25259	100.0	177942	100.0

Source: Population: 1991 Census, BUA Report, Table 8; Households - commissioned table.

Figure 6.9 maps the distribution of wards classified according to the proportion of Roman Catholics within their boundaries. The most dominant feature of the map is the concentration of highly segregated Catholic wards into the west of the urban area, to produce a virtually unbroken wedge that runs from central Belfast west and south-westwards into the adjacent Lisburn district council area[7]. Eight of the 10 wards that comprise west Belfast are 90 percent plus Roman Catholic in composition, and a further three wards in Lisburn district, contiguous with west Belfast, also exceed the 90 percent Catholic threshold. As noted earlier, this collection of Catholic wards in the Lisburn area is where major overspill housing was provided to accommodate the needs of west Belfast beyond the Matthew Stop Line. At the opposite end of the spectrum, there are a number of areas where Catholics make up less than 10 percent of the population.[8] The largest of these areas, comprising around half of all such wards, runs eastward

7 The only "break" occurs in the Beechmount ward which lies in towards the city centre. Here, the Catholic proportion fails to meet the 90% threshold by just 0.5%. The "break" is thus not significant.

8 It is not correct to assume that these wards are 90% plus Protestant. Indeed, even allowing for the addition of the "other" category, just one of the 52 wards classified as having less than 10% Catholic population (Woodvale) is more than 90% Protestant. These wards do have strong Protestant majorities but they are also correlated with above average "none" and "other" religions. Other correlates of non-response include age and gender (Macourt, 1995).

from the central area to the Castlereagh Hills. Two suburban areas are also evident: an area of seven wards which surround the core of Lisburn town, and an area centred on the northern part of the BUA which includes the Protestant public sector estates of Rathcoole, Mossley and Greenisland. Within Belfast, a small ribbon of four wards, which follow the Protestant Shankill Road, bears attention. This is supplemented by two wards where Catholics form less than 10 percent of the population: Blackstaff ward to the south of the Shankill ribbon, and Ballysillan ward to the north. Both are surrounded by much higher concentrations of Roman Catholics.

However, more than 40 percent of wards displays some form of religious plurality. Boal (1982) notes that a degree of ethnic mixing has always existed in Belfast. His analysis showed that in 1972 around 30 percent of all streets in the BUA were "mixed" streets with mixing just as likely for Protestant (29%) and Catholic households (31%), but with the greatest mixing occurring in the better quality owner occupied stock. Whilst the information contained in Table 6.12 is not directly comparable with Boal's analysis, the evidence suggests that there has been a divergence in the extent of mixing by religion. Whilst almost half of all households live in wards that may be described as mixed (i.e. Catholic 10-89.9%), for Catholic households, the figure rises to almost three-fifths (59%), but for Protestants it falls to less than two-fifths (39%). Irrespective of change over time, the conclusion is clear: Catholics are more likely than Protestants to live in "mixed" religion wards. Boal's conclusion that residential mixing was more likely in the owner occupied sector is tested in the next section.

For now it is useful to consider the spatial distribution of these mixed environments. According to whether the analysis is by population (54) or households (52) there are more than 50 wards that may be described as mixed (Table 6.12). For convenience, we stick with population-based figures at this point. Three sub-types are identified: mixed, with small Catholic minorities (32 wards; 24% population; 28% households); mixed, with large Catholic minorities (12 wards; 13% population; 9% households); mixed, with Catholic majorities (10 wards; 11% population; 9% households). From Figure 6.9 it is possible to discern the distribution of these three sub-types of mixing.

In terms of the first of these, mixed areas with small Catholic minorities, four major areas are apparent. The first of these is at Holywood in the north east quadrant of the BUA. This is a former separate town which has been swallowed-up within the BUA. All four wards have Catholic populations between 14 and 24 percent, with corresponding Protestant populations that vary between 58 percent and 68 percent. Interestingly, the "others in between" form a stable

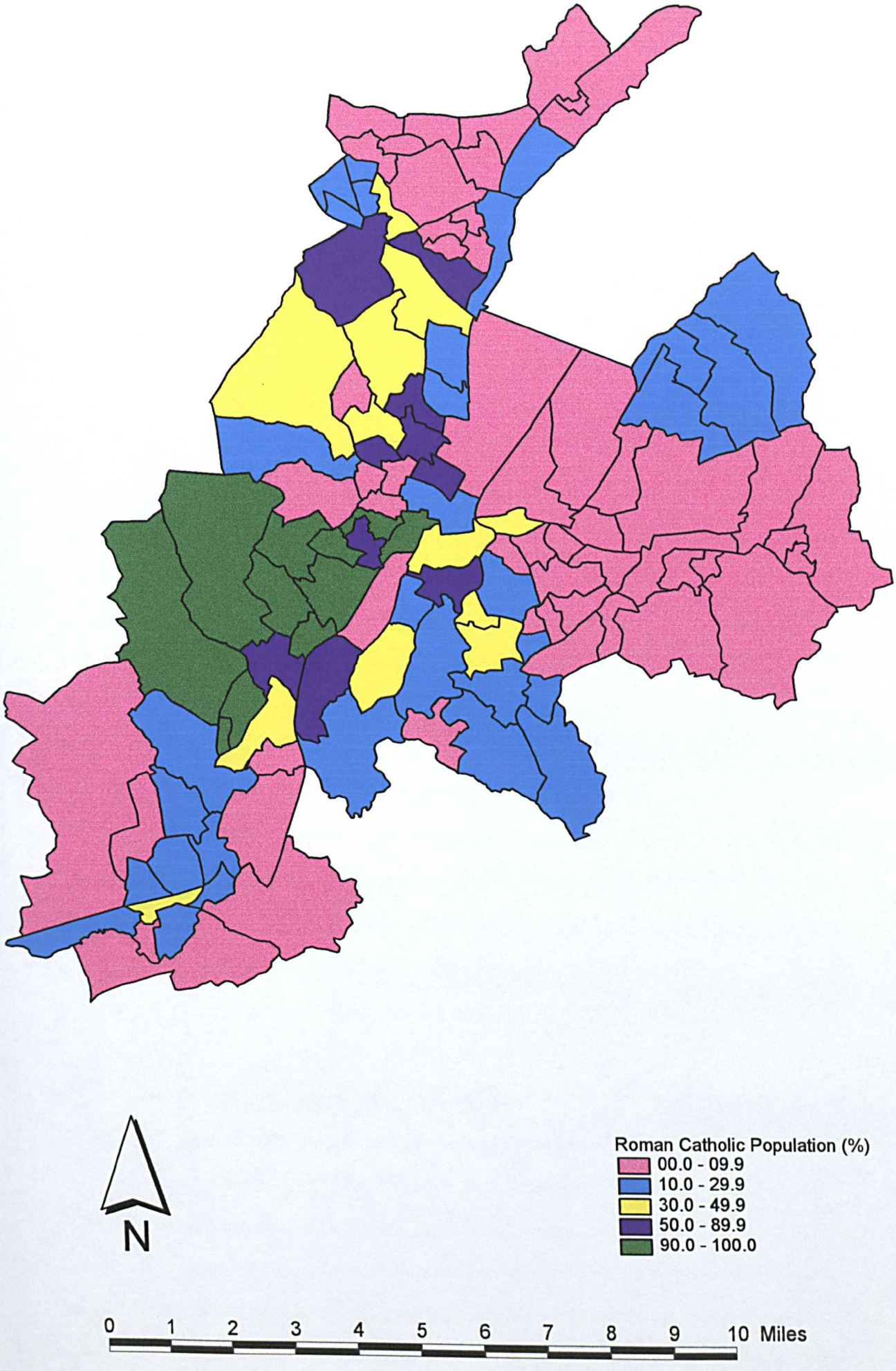

Figure 6.9: The Distribution of the Roman Catholic Population in the BUA by Ward 1991

block of just under 20 percent in each ward. The second area, occurs in the south-east sector of the urban area, primarily in the south Belfast and Castlereagh areas stretching out towards the Carryduff area beyond the BUA stop line. As we shall see later, this area has high levels of home ownership. The area contains the Cairnshill development noted earlier in the chapter. The third zone of mixed religion housing with small Catholic minorities is noted in the Lisburn area. Here, a group of eight wards surround the Lisburn town centre and extend north eastward towards the highly segregated Catholic wards fringing the Belfast boundary. The final area occurs along the north foreshore of Belfast Lough, and includes mainly privately owned dwellings that run in a virtually unbroken strip from the inner parts of Belfast to Jordanstown.

The second and third types of mixed ward, those with large Catholic minorities (i.e. 30-49.9%) or Catholic majorities (i.e. 50-89.9%), are mainly located in north Belfast, a part of the city that has a long history of residential mixing. A group of four wards with large Catholic minorities stands out clearly in the map. This area is bounded to the south-east by four wards with Catholic majorities that approach the 90 percent level (Ardoyne, Chichester Park, New Lodge and Water Works) and to the north by two further wards with Catholic majorities. This association may also be seen in the south-east of the city, where a node of more than 50 percent Catholic population (Botanic) is flanked on two sides by wards with small Catholic minorities (the Markets area to the north, and the Ormeau Road to the south).

Some time has been spent in discussing the distribution of mixed-religion environments mainly because of the connection between mixed religion environments and owner occupation. Before moving to the calculation of formal indices of segregation, it is important to note that the degree of mixing "on the ground" is likely to be considerably less than has been suggested by this ward-based analysis. Many of the "mixed" wards will be internally segregated at street level.

6.4.3 Measuring the Extent of Segregation

It has already been noted in chapter four that there are a wide range of formal indices that have been employed in the investigation of racial and ethnic residential segregation. Of all the methods available, the Dissimilarity Index (DI), is the most-widely applied.

The analysis on the extent of segregation in the BUA focuses on the calculation of Indices of Dissimilarity for the BUA as a whole and for each of the 13 sectors that comprise the urban area, plus the major sectoral groupings of inner and outer Belfast, suburban BUA and Belfast city itself. This calculation exercise is repeated for data collected from the 1981 Census

so that some indication of change over time can be obtained. This is a "feel" rather than a definitive statement on change for two important reasons: 1) the 1981 Census was subject to a non-enumeration problem, particularly in the Catholic community, together with selective refusal on the religion question at rates in excess of those recorded in the 1991 Census; 2) the ward boundaries that applied in 1991 are not the same as those for 1981[13]. The analysis ends with consideration of the relationship between tenure and religious segregation in 1991.

6.4.3.1 Dissimilarity Index Analysis

On the basis of the 117 wards that comprised the BUA in 1991, the population DI value was calculated at 65.5 which indicates that approximately two-thirds of the Catholic community would have to relocate to different wards in order to reproduce the distribution of the non-Catholic population in the BUA. Even allowing for the relative crudity of the ward-based analysis (i.e. 117 wards; mean size 4,068 persons) this is a high level of segregation. However, it is apparent that there are major differences within the BUA that warrant more detailed examination. Table 6.13 shows population DI values for each sector, calculated relative to the population total within the area in question. We can see that, in general, DI values are highest in the inner city sectors (74.6), slightly below average in the outer city sectors (61.8), and are at their lowest levels in the suburban parts of the BUA beyond the city boundary (53.3).[14] The most intense segregation occurs in inner north Belfast, where the index reaches 87.1, and in inner east, where the value is 73.7. In a practical sense, this implies that around three-quarters of the Catholic population in the inner east and seven-eighths in the inner north sector would need to move to other wards in order to match the sector distribution of non-Catholic households. The remaining two sectors of inner Belfast display much more modest segregation levels. The very low level value for inner west Belfast deserves comment (7.1). The wards that comprise this sector have consistently high proportions of Catholics in the population such that the individual ward ratios (Beechmount

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13 The 1981 religion data comes from two separate sources. The data for Belfast comes from the Belfast Report of the 1981 Census. The Census figures are adjusted for non-statement following Compton and Power (1986a; 1986b). The 1981 Religion data was not published at ward level for areas outside the city boundary. Thus, for this part of the BUA, the DI values are taken from Doherty's (1989) study. This study was based on 1km grid squares rather than wards. However, the mean grid population of 2997 compares favourably with mean suburban ward population in 1981 of 3049. Hence, the distortion may not be that serious.

14 It should be noted that the ward sizes vary quite considerably sector by sector as they aim to have similar number of electors as opposed to population. Given the susceptibility of the DI to unit size, this means that, technically, in making sector-by-sector comparisons we are not comparing like with like.

89.5%; Clonard 92.6%; Falls 91.6%) do not differ much from the sector total of 91.3 percent. As the DI is calculated relative to the sector total, the value turns out to be quite small[15]. When the inner city sectors are all combined, the DI value is more realistic.

Table 6.13 also shows the population DI values for 1981. Overall, at the BUA level, the extent of segregation as measured by the Index, increased by 8 percent from 60.4 in 1981 to 65.5 by 1991. This increase was not uniform throughout the area, ranging from a fall of more than 10 full points in the inner south sector to an increase of almost 35 points in the inner east sector of the city. Unlike Keane's (1985) analysis, this study does not find evidence to support the proposition that suburbanisation has had a segregating effect. Indeed, there is virtually no difference in the extent of change in the index values for the inner (+10.7) and the outer sectors (+10.3). Given the role of private sector new build in suburban provision, this is an important finding. Nevertheless, whilst data limitations prevent the calculation of a change figure for the suburban wards beyond the city boundary, it would seem that the direction of change remains

Table 6.13: Dissimilarity Indices by BUA Sector 1981 & 1991

Sector	1981		1991		Change in DI Value 1981-1991
	Mean Ward Size	DI	Mean Ward Size	DI	
Inner North	3948	66.39	4647	87.06	+20.67
Inner East	4483	38.84	4901	73.69	+34.85
Inner South	4053	65.68	5314	55.67	-10.01
Inner West	3449	5.63	5210	7.08	+1.45
All Inner Sectors	4003	63.91	4967	74.62	+10.71
Outer North	6441	35.00	5339	44.82	+9.82
Outer East	6891	8.81	5590	35.87	+27.06
Outer South	6443	18.43	5970	25.33	+6.90
Outer West	8011	11.50	6173	19.94	+8.44
All Outer Sectors	6848	53.03	5708	61.79	+8.76
All Belfast	5789	55.23	5475	65.52	+10.29
Greenisland	1714	NA	1664	5.71	NA
Castlereagh	2353	52.40	2789	57.00	+4.60
Lisburn	3983	44.00	3529	64.40	+20.40
Newtownabbey	3587	41.30	2838	47.09	+5.79
Holywood	2895	19.60	2852	13.79	-5.81
All Suburban BUA	3049	NA	2981	53.28	NA
All BUA	4319	60.40	4068	65.53	+5.13

Sources: 1981: 1981 census, Belfast Report & Doherty (1989). 1991: 1991 Census, BUA Report.

15 As "west Belfast" is, by tradition, defined along religious lines as much as by compass bearings, an element of circular reasoning is inevitable.

towards increased segregation. The basic conclusion is that the degree of religious residential segregation has increased over the decade in question, although there are some areas where the segregation has fallen, with Holywood standing out in this regard.

6.4.3.2 Segregation and Tenure in 1991

Most studies of segregation in Belfast have focused on the overall pattern of separate living; few have sought to explore how the pattern varies between different groups. There are some important exceptions, including Boal *et al.*'s (1976b) investigation of residential decision making in the BUA. This study considered age and class in addition to religion and found that the two most severely segregated groups were low income Roman Catholics and low income Protestants, both of whom were segregated from each other and from the higher income groups within their own communities. The Census does not provide information on income, although tenure may be used as a crude proxy measure. The only other study to consider tenure in the context of segregation in Belfast is Margaret Keane's (1985) analysis which focused on public sector tenants.

As this thesis is concerned with owner occupier residential decision making against the background of residential segregation, it is important to determine the extent to which owner occupiers *per se* are segregated from non-owners, and how this relates to religious segregation. In the previous section, Dissimilarity Indices were calculated using population counts. However, data is not available in order to produce population based DI values for separate tenures at ward level in the BUA. Data was, however, available for households. The restriction of the tenure analysis to households is not really a problem. Indeed, it might reasonably be argued that as households are the residential decision making units, and as the interpretation of DI values implies residential relocation, then DI values should be calculated for households in any case, regardless of convention to the contrary.

Figure 6.10 summarises the results of this household-based tenure and religion analysis. From this we can see that, as expected given the earlier population-based analysis, Catholic households are significantly segregated from non-Catholic households (DI=62.4). In contrast, segregation between home owners and non-home owners is not nearly as pronounced (DI=41.6). More interestingly, perhaps, is the finding that tenure-based segregation is more intense within the Roman Catholic community (49.4) than the non-Catholic community (40.8). This may well be linked to the lower level of home ownership amongst Roman Catholics in

general, and the fact that, with the highly concentrated nature of the Catholic population distribution and the historic emphasis on meeting public sector housing needs in this part of the city, Catholic households may have to move out of the west of the city in order to enter owner occupation. With an Index value of 70.6, Catholic and non-Catholic non-home owners display the greatest level of segregation, implying that more than 70 percent of Catholics in non-owner

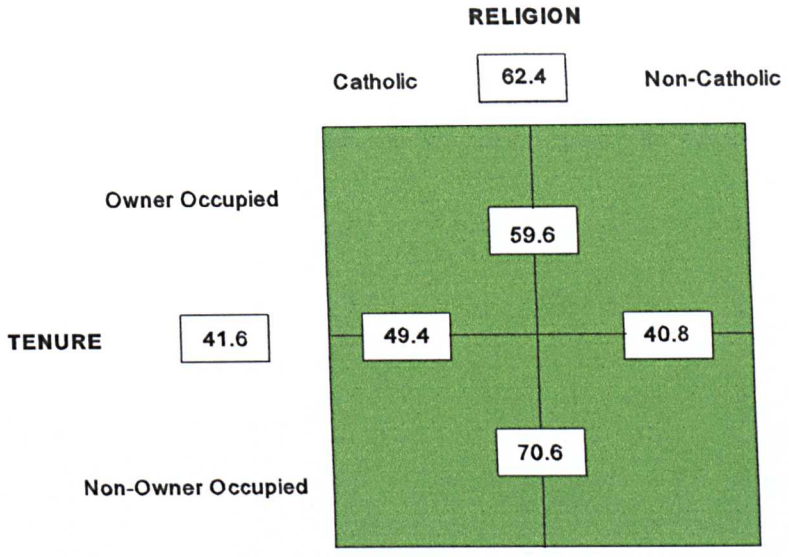

Figure 6.10: Dissimilarity Indices for Tenure & Religion

occupier tenures would need to relocate in order to normalise the patterns of religious distribution within the BUA. This is consistent with Keane's (1985) analysis. The pattern within the owner occupied sector is not quite so intense. Nevertheless, with an Index value of 59.6, segregation between Catholics and non-Catholics in this sector is still very prominent. Overall, this leads to the conclusion that religion is an important factor in understanding the structure of the housing market in the BUA. This issue is explored more fully in the next section.

6.5 Housing

This section draws on information from the 1991 Census (DHSS, 1992a) together with data from the Housing Executive's 1991 House Condition Survey (NIHE, 1993). The section opens by providing a brief overview of the nature of the dwelling stock in the BUA. This is followed by a more in-depth analysis of the characteristics of the owner occupied stock. The section closes

with an effort to identify the existence of sub-markets within the BUA based on the concept of "product groups" (Maclennan *et al*, 1987).

6.5.1 An Overview of the Housing Stock of the BUA

More than 100,000 households in the BUA own their own homes (57%), about one-third rent from the Housing Executive (33%), one household in forty rent from housing associations (3%) and one in fifteen from private landlords (7%). Owner occupation levels are higher in suburban locations and lower in Belfast in general and the inner city sectors in particular. The situation with renting is more complex. Almost half of inner city residents rent from the Executive (48%). However, in the outer Belfast sectors, the proportion renting from the Executive falls to just over one quarter (26%) before rising again in the suburban sectors of the BUA (33%). This pattern reflects the facts that Executive new building has concentrated in the inner city area, primarily on redevelopment sites, whereas the Housing Trust had concentrated its efforts outside the city boundary (see Figures 6.2 & 6.4). The incidence of both housing association and private renting decline from the inner areas towards the suburbs, such that in the outer parts of the BUA beyond the city boundary just five percent of households live in these sectors, compared to one-third who rent from the Executive, and 61 percent who own their own homes (Figure 6.11).

According to the Census, modal dwelling size in the BUA is five rooms, with almost one-third of the total stock recorded as being of this size. Approximately one-fifth of the stock had just four rooms (19%) with less than 10 percent having three or fewer rooms. Most of these smaller properties were private rented flats or bedsits, or housing association bedsit units. At the other end of the spectrum, a further one-quarter of the stock comprised six rooms, with the three-bedrooms, two-reception rooms and one kitchen configuration being the most common (NIHE, 1993). Almost one dwelling in 10 had seven rooms, with a further seven percent having eight rooms or more. Almost without exception, these larger properties were owner occupied. Dwellings with more than seven rooms are rare in the public and social rented sectors (<1% and 2% respectively).

From the 1991 House Condition Survey it is estimated that the dwelling stock of the BUA comprises some 191,000 dwellings, of which 9,250 are vacant (5%). Within the occupied stock, the tenure profile revealed by the survey accords closely with that of the Census at BUA and

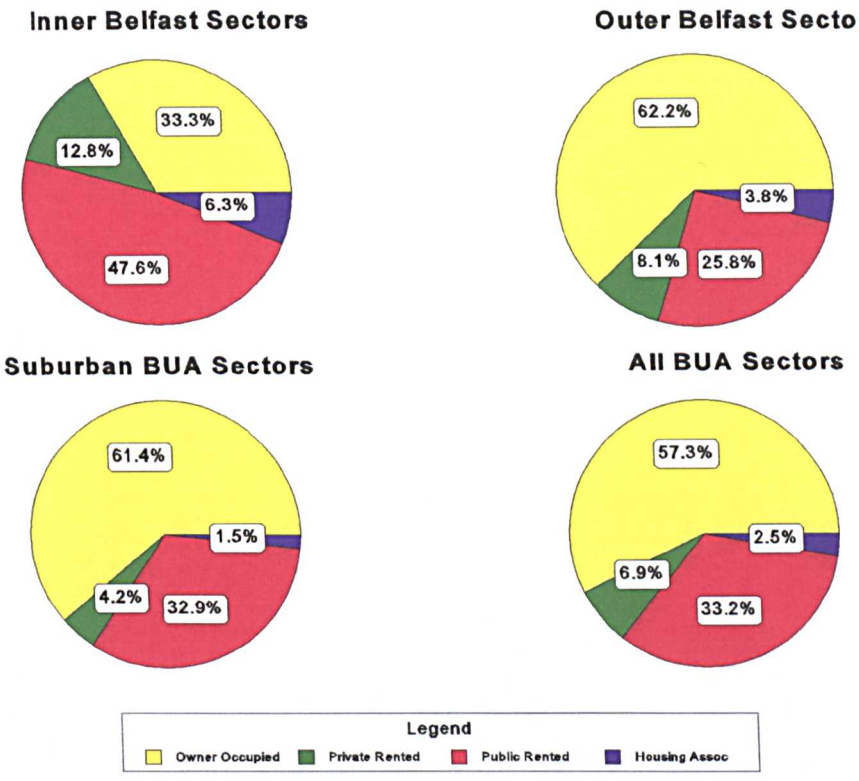

Figure 6.11: Tenure Profile in the BUA

broad location levels[16].The survey indicates that around one-sixth of the stock was built before 1919, with a similar proportion of inter-war construction. Two-thirds were built after the Second World War, including 37 percent built after 1965. Terraced housing accounts for 45 percent of all dwellings in the BUA, with a further quarter being semi-detached houses. Only one dwelling in ten is detached, with a similar proportion being purpose built flats. There are relatively few bungalows in the BUA (7%), this form being much more common in rural areas of the Province (McPeake & Murtagh, 1991). As a result of sustained redevelopment and rehabilitation programmes over the past 25 years, conditions in the city have improved dramatically, such that within the BUA, housing conditions are now better than in Northern Ireland in general (NIHE, 1993). Thus, just over two percent lacked basic amenities, six percent were unfit, and nine percent were in a poor state of repair (Table 6.14). Within the BUA, significant differences are apparent in the profile of the housing stock. For example, the inner city stock has the highest concentrations of rented dwellings, in all three rented tenures. As a result, it has the highest concentrations of pre-1919 dwellings (private rented) and post 1980 dwellings (NIHE & housing

16 The 1991 HCS indicates 58% *households* are owner occupiers (57% Census), 32% rent from the Executive (33% Census), 6% rent from private landlords & others (7% Census) and 3% rent from housing associations (3% Census). This close match generally holds true for each of the three broad sectors: inner, outer and suburban BUA, with the estimates never more than 2 percentage points out, a difference explainable by sample error.

Table 6.14: The Housing Profile of the BUA by Location

Characteristic of the Stock	Inner Sectors %	Outer Sectors %	Suburban BUA %	Total %
Tenure				
Owner occupied	33.0	61.3	61.0	55.8
Housing Executive	41.5	25.6	31.3	30.8
Private Rented	9.8	7.4	2.7	6.1
Housing Association	6.5	1.5	1.6	2.5
Vacant	9.1	4.3	3.3	4.8
		χ^2: 120.69 p<0.001		
Dwelling Age				
Pre 1919	44.8	18.2	3.4	17.6
1919 - 1944	17.8	27.3	7.1	17.7
1945 - 1964	3.4	27.7	39.8	27.8
1965 - 1980	9.1	15.9	36.6	22.6
Post 1980	24.9	10.8	13.1	14.4
		χ^2: 667.96 p<0.001		
Dwelling Type				
Terraced	72.4	44.3	32.9	45.2
Semi-detached	6.0	31.7	29.4	25.9
Detached	0.5	11.7	10.4	9.1
Bungalow	2.2	3.1	13.2	6.8
Converted Flat	6.1	2.2	0.1	2.1
Purpose Built Flat	2.8	7.0	14.1	10.8
		χ^2: 312.72 p<0.001		
Condition				
Lacks basic amenities	4.5	2.5	1.0	2.3
		χ^2: 23.19 p<0.001		
Unfit	9.2	7.9	2.0	5.9
		χ^2: 44.51 p<0.001		
In poor repair	16.0	11.8	13.5	9.3
		χ^2: 191.84 p<0.001		
Weighted Count	36375	80713	73735	190822
Sample Base	345	706	1070	2121

Source: 1991 HCS. Data provided by NIHE.

association). Almost three-quarters of the inner city stock is terraced. The worst conditions are also concentrated in the inner city sectors, with, for example, unfitness levels about 50 percent higher than those for the BUA as a whole.

6.5.2 The Nature and Location of the Owner Occupied Stock

Around one-fifth of the owner occupied stock in the BUA is of pre-1919 construction, a figure that matches the profile of the BUA stock as a whole. In contrast, owner occupied housing constructed in the inter-war and early post war years is over represented when compared to the

total stock, and under-represented in the most recent periods of construction. This reflects the joint effects of the miserly Belfast Corporation building programme through the first six decades of this century and the more vigorous Housing Executive programme in the past 25 years, both of which have been discussed earlier in the chapter. Whereas the most common type of dwelling in the BUA in general is the terraced house (45%), the owner occupied stock is more likely to be semi-detached (39%), although terraced housing is also common (34%). Conditions in the owner occupied stock generally match those in the BUA as a whole. In terms of distribution within the urban area it is apparent that the owner occupied stock is under-represented in the inner city sectors, and over-represented elsewhere. Moreover, as Table 6.15 demonstrates, the profile of the stock differs significantly according to location. Almost 60 percent of the 12,000 owner occupied dwellings in the inner city were built before 1919, with a further 28 percent built in the inter-war period. Very few privately owned dwellings in the inner city were built after the second world war; most of the private inner city stock of this vintage are former Housing Executive properties sold to sitting tenants. Since 1980, as noted earlier in the chapter, there was renewed interest in private sector construction in the city, with the result that almost 1,000 new dwellings were provided in this period, around half of which are apartments. This said, the dominant dwelling form remains the terraced house (83%). In condition terms, the inner city owner occupied stock is much worse than that in any other sector of the urban area, with eight percent lacking basic amenities such as an internal WC, 16 percent unfit for human habitation, and one-quarter in a poor state of repair.

In the outer sectors of Belfast, the stock has a much greater age range, with one-fifth built before 1919, one-third of inter-war construction, one-quarter built between 1945 and 1964, and around one-fifth built since 1960. Similarly, there is also a wider range of dwelling types in the outer sectors, with semi-detached housing being the most common (44%), followed by terraced (32%) and detached housing (19%). We also see a smattering (2%) of bungalows, a form totally absent in the inner city sectors. In condition terms, the outer sector owner occupied stock is considerably better than the inner city stock, but it still falls below average on unfitness (7%) and repair condition (11%).

In the outer sectors beyond the city boundary, the owner occupied stock is significantly younger than in either of the two previous sectors, with just 13 percent built before 1945, 40 percent built between 1945 and 1964, one-third between 1965 and 1980, and 12 percent built

Table 6.15 The Owner Occupied Stock of the BUA by Location

Characteristic	Inner Sectors %	Outer Sectors %	Suburban BUA %	All Owner Occupied %	Total Stock %
Dwelling Age					
Pre 1919	58.0	19.8	4.4	17.6	17.6
1919 - 1944	28.3	32.5	9.0	22.1	17.7
1945 - 1964	4.8	26.8	40.1	29.9	27.8
1965 - 1980	0.9	12.5	34.5	20.5	22.6
Post 1980	7.9	8.4	12.0	9.9	14.4
		χ^2: 393.62 p<0.001			
Dwelling Type					
Terraced	83.1	32.2	22.9	34.0	45.2
Semi-detached	11.0	43.6	42.3	39.4	25.9
Detached	-	18.5	15.5	15.1	9.1
Bungalow	-	2.4	16.4	8.1	6.8
Converted Flat	1.9	1.5	0.1	1.0	2.1
Purpose Built Flat	4.0	1.8	2.8	2.5	10.8
		χ^2: 312.72 p <0.001			
Condition					
Lacks basic amenities	8.2	1.3	0.6	1.8	2.3
		χ^2: 45.27 p <0.001			
Unfit	16.4	7.2	1.7	5.9	5.9
		χ^2: 54.10 p <0.001			
In poor repair	25.4	11.2	3.0	9.4	9.3
		χ^2: 202.44 p<0.001			
Weighted Count	11995	49446	44982	106423	190822
Sample error Base	112	412	627	1151	2121

Source: 1991 HCS. Data provided by NIHE.

after 1980. Differences are also apparent in terms of the types of properties. Although semi-detached houses remain the most common form (42%), 16 percent of the owner occupied stock are bungalows. Indeed, 85 percent of all privately owned bungalows in the BUA are found in this sector, a fact that has obvious significance for households that may actively search for this particular type of accommodation. Not surprisingly given the age profile of the stock, dwelling conditions in the suburban sector are the best in the BUA. As Table 6.15 shows, on the basis of a series of chi-square tests, these differences are all highly significant.

Figure 6.12 maps the distribution of the owner occupied stock at ward level within the BUA. This enables a finer-grained analysis of the location of the stock than the broad sector-based approach taken above. Wards are grouped into quintiles based on the proportion of their stock that is owner occupied. The first quintile, with home ownership levels up to 33.8 percent, is evident in several parts of the BUA, with the largest concentration in the inner city sectors and

the adjacent wards of outer north and west Belfast. The remaining areas are wards which contain large public sector housing estates of both religions. For example, the map picks out the large Catholic (90%+) estates at Twinbrook and Poleglass in the Lisburn district council area immediately adjacent to west Belfast. In Castlereagh district, the three Protestant estates of Cregagh, Tullycarnett and Ballybeen stand out as the only areas of low owner occupation in the district. Similarly, a group of four wards that surround the very large Protestant Rathcoole estate in Newtownabbey are also highlighted in the map.

The second quintile, with home ownership levels from roughly one-third to one-half, again follows a pattern of concentration in the inner sectors of Belfast (7 wards) together with parts of outer Belfast near to the city centre. Outside of Belfast city, the main concentrations are in Lisburn district where a set of four wards with relatively low owner occupation ring the core wards of Lisburn town, where owner occupation levels are higher. A smaller set of two wards with below average owner occupation is also evident at the outer fringe of Castlereagh district in the Dundonald area. This is an area where public sector renting has a long tradition, but where sales to sitting tenants have boosted levels of owner occupation.

The third quintile of wards, with owner occupation levels between roughly half and two-thirds, are concentrated into a number of discrete locations, the most striking of which is outer north Belfast. This part of the BUA contains some seven wards with home ownership levels in this range, forming an almost unbroken block in this part of the city.

The fourth quintile, with home ownership levels between two-thirds and 80 percent, show strong concentrations in outer east and south Belfast, covering areas such as Cherryvalley, Knock, Malone, Stranmillis and Rosetta. Substantial parts of outer Castlereagh and the core areas of Lisburn town also have groups of wards with this level of home ownership. A large wedge of wards with above average home ownership levels are also noticeable along the outer edge of the BUA in Newtownabbey.

The final quintile, with home ownership levels in excess of 80 percent, is mainly a suburban phenomenon, with just six of the 23 wards involved located within the city boundary. Within the city, three clusters are found to the north, east and south. These would have been the traditional suburbs of the city before its expansion in the post-war period. Large parts of Castlereagh and Newtownabbey districts also display very high levels of home ownership, with seven and six wards respectively exceeding the 80 percent threshold. In contrast, just two

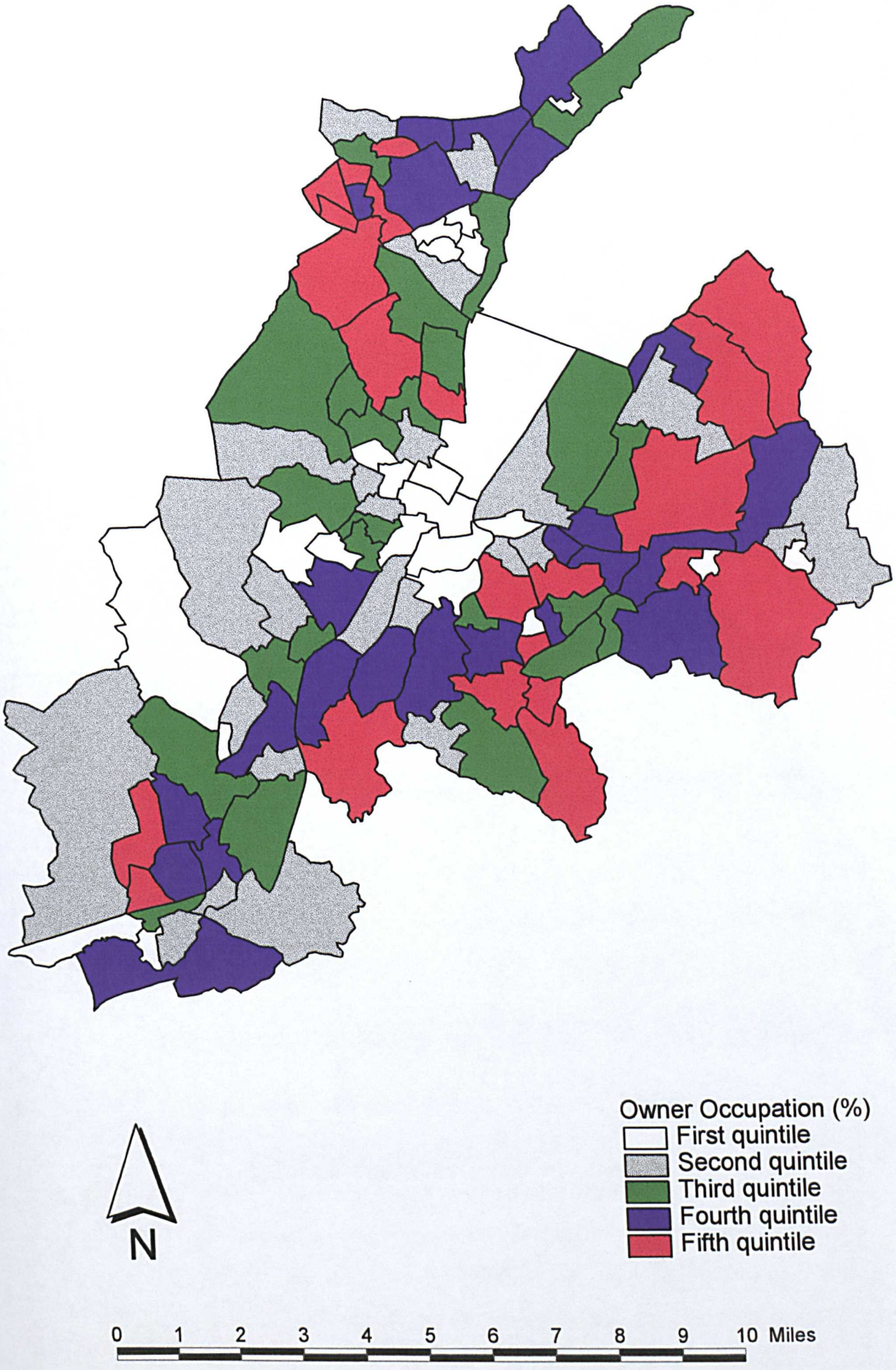

Figure 6.12: The Distribution of the Owner Occupied Stock in the BUA by Ward 1991

Lisburn wards reach this level. The Cultra area of Holywood, one of Northern Ireland's most prestigious housing areas, also stands out as having very high levels of home ownership.

Earlier in the chapter, it was suggested that mixed-religion wards were generally wards with high levels of owners occupation. It is possible to test this proposition from with the information contained in Table 6.16. The table classifies wards according to the home ownership quintile to which they belong. This is then broken down according to whether or not the population religious composition is mixed (i.e., 10-89.9% RC) or segregated (<10% RC; >=90% RC). Within each category, a count is provided of the number of households and the total number of persons. The information in the table confirms the proposition that religiously mixed

Table 6.16: Owner Occupation and Mixed Religion Wards

Quintile Group	Segregation Status	Households		Population	
		No.	%	No.	%
Quintile 1: 0 - 33.8%	Segregated	20409	58.7	56571	61.9
	Mixed	14374	41.3	34816	38.1
Total		34783	100.0	91387	100.0
Quintile 2: 33.9 - 49.3%	Segregated	27468	73.1	69222	72.8
	Mixed	10119	26.9	25876	27.2
Total		37587	100.0	95098	100.0
Quintile 3: 49.4 - 67.0%	Segregated	17896	48.1	45090	44.7
	Mixed	19324	51.9	55752	55.3
Total		37220	100.0	100842	100.0
Quintile 4: 67.1 - 80.5	Segregated	18939	51.4	50279	50.1
	Mixed	17877	48.6	50131	49.9
Total		36816	100.0	100410	100.0
Quintile 5: 80.6%+	Segregated	11142	35.3	24747	28.0
	Mixed	20394	64.7	63484	72.0
Total		31536	100.0	88231	100.0

Source: 1991 Census: Population: BUA Report; Households: Commissioned tables.

environments are associated with owner occupation. Thus, in the first quintile wards where owner occupation is low, we find that just 38 percent of the population live in mixed religion environments; in the fifth quintile, where owner occupation exceeds 80 percent, almost three-quarters of the population are deemed to reside in mixed religion environments. The relationship is not linear in that the lowest level of mixing occurs in the second quintile (27% mixed), but, in general, the evidence supports the assertion that mixed-religion residential environments are generally owner occupied. This also confirms the earlier analysis conducted with the aid of Indices of Dissimilarity.

6.5.3 The Identification of Sub-markets

It has already been noted that the housing market is a non-unitary system best described as comprising a series of distinct sub-systems. The existence of these sub-systems reflects the heterogenous nature of the housing commodity, together with the complex interaction between demand and supply at local levels within the overall system. These interactions, when combined with the fact that household residential search is both time consuming and expensive, mean that there will also be localised problems of excess demand and excess supply; in other words, the system will be characterised by disequilibrium. As a result, for particular locations and at particular times, sub-markets may exist within the overall housing system. The existence of sub-markets is important, not just from a theoretical standpoint, but in a practical sense, particularly when the intention is to investigate how households make their residential choices.

The traditional method to test for the existence of sub-markets relies on the application of hedonic regression techniques to reveal the implicit prices for particular dwelling attributes (e.g., Ball, 1973; Goodman, 1981; Schnare & Struyk, 1976). According to this approach, if the market is operating properly, then implicit attribute prices will be the same in all sub-divisions of the market; systematic differences, if found, are evidence that sub-markets may exist. Maclennan (1982) has advanced this approach by indicating that proof of sub-market existence requires that price differentials should persist over more than a single time period.

The method used to test for the existence of sub-markets within the BUA is closely based on the methods employed by Maclennan *et al.* (1987) in their study of Glasgow. The basic approach is to first classify all 117 BUA wards on the basis of their dwelling stock characteristics into a series of relatively homogeneous "product groups." For each product group, separate hedonic regression equations are estimated and compared against a system-wide equation in order to identify similarities and differences in the implicit attribute prices. Finally, an attempt (rather crude) is made to establish if price differences persist over time.

6.5.3.1 Product Group Formation

In the previous chapter it was argued that the most appropriate method for the classification of wards into product groups is cluster analysis. There are many varieties of cluster analysis. The particular method selected for use in this study is agglomerative hierarchical cluster analysis. Using this approach, to begin with, all 117 wards of the BUA are treated as individual clusters which are successively combined such that, eventually, all wards join to form one cluster. There

are three basic issues that need to be addressed with this type of clustering: 1) the choice of appropriate measures of similarity or difference to be employed; 2) the selection of the criteria for deciding which clusters should be joined; 3) the choice of the "optimal" number of clusters.

In terms of the first issue, Howard (1991) notes that whilst the correct choice of the similarity or dissimilarity measures is extremely important, the selection is dependent upon the nature of the data to be clustered. The method selected for this study is squared Euclidean distance. This method is inappropriate if input variables are measured on different scales[17]. However, in this case, all variables are simple percentage scores that range from zero to 100[18].In respect of the criteria for combining clusters, again there are a variety of options available. Most clustering methods fall into three groups: linkage methods, error sums of squares or variance methods, and centroid methods. All are based on a matrix of distances or similarities between pairs of cases. Given that cluster solutions can depend on the selection of cluster method, most texts advise that several methods are employed and that the resultant agglomeration schedules and dendrograms are compared for consistency and ease of interpretation (e.g. Anderberg, 1973; Dillon & Goldstein, 1984; Howard, 1991; van Ryzin, 1977). Thus, in this analysis, three separate methods were tried, one from each broad type: UPGMA (Un-weighed Pair-Group Method using arithmetic Averages), Ward's method, and the median method.[19] The third issue is actually the most difficult to address. In reality, there is no such thing as an optimal cluster solution. The decision is a balance between the statistical evidence and the extent to which the resultant groupings appear sensible. The standard agglomeration schedule produced by the SPSS cluster procedure shows case-by-case progress in the clustering process. The schedule prints the distance measure, in this case squared Euclidean distance, between each pair or wards that are combined at each stage. Small values indicate small differences in the groups being combined, and vice versa. By careful analysis of the agglomeration schedule it is possible to identify points at which quite different groups are

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17 This drawback can be overcome by standardizing the input variables, although this often results in the loss of valuable information.

18 The data relate to tenure (% owner occupied, Housing Executive, private rented), dwelling type (% terraced, semi-detached, detached, flats/apartments), dwelling age (% <1919, interwar, 1945-1960, post 1960), dwelling size (% four or more bedrooms), and religious composition (% Roman catholic, Protestant,"Others in between"). All data refer to wards.

19 For details of the methods see any of the general texts (e.g. Anderberg, 1973; Howard, 1991).

combined[20]. Figure 6.13 plots the coefficients for each step for the three different clustering methods. Each chart takes the form of a scree slope. There is a fair degree of consistency between each method in terms of the number of clusters, with logical breaks seeming to appear at around the 10, 14 and 20 group levels.

Before selecting one of these break points, it is important to compare the dendrograms produced by each method. The analysis of dendrograms follows a similar line, with the emphasis on two things: First, identifying which units are combined into which groups, and second, judging the scale of difference between the various groups. The SPSS dendrogram output does not print actual distances but re-scales them within the range zero to 25, preserving the ratio of distances between actual steps, but preventing a more meaningful comparison between dendrograms. Howard (1991) provides a method for comparing group composition between two or more dendrograms. This involves the counting of the number of pairs of objects associated in the same group in one dendrogram but not in the other, and vice versa, and summing the two numbers. The smaller the result, the more similar are the dendrograms in group composition. Following this process, it was found that the UPGMA and Ward's methods produced results that were most similar, although the centroid clustering algorithm also produced a dendrogram that was broadly consistent with the other two. Indeed, the 14 group solution from the UPGMA and Ward were remarkably similar to one another, and the 22 groups UPGMA solution was really an extension of Ward's 19 group solution. This high level of consistency augers well for the eventual selection of a single solution. The UPGMA dendrogram is reproduced in Appendix 6.

As indicated above, the choice of a single solution is guided by the "look" of the outcome as well as its statistical properties. By profiling the six possible cluster solutions derived from the UPGMA and Ward's methods according to the original input variables, it is possible to get a picture of the composition of each group. The 22 cluster UPGMA method solution was selected as the most consistent with the objectives of this thesis[21].

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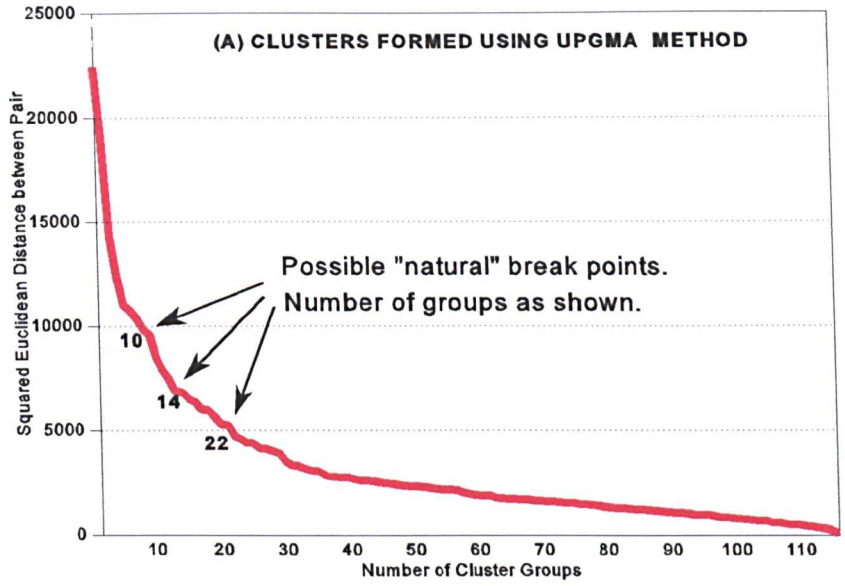
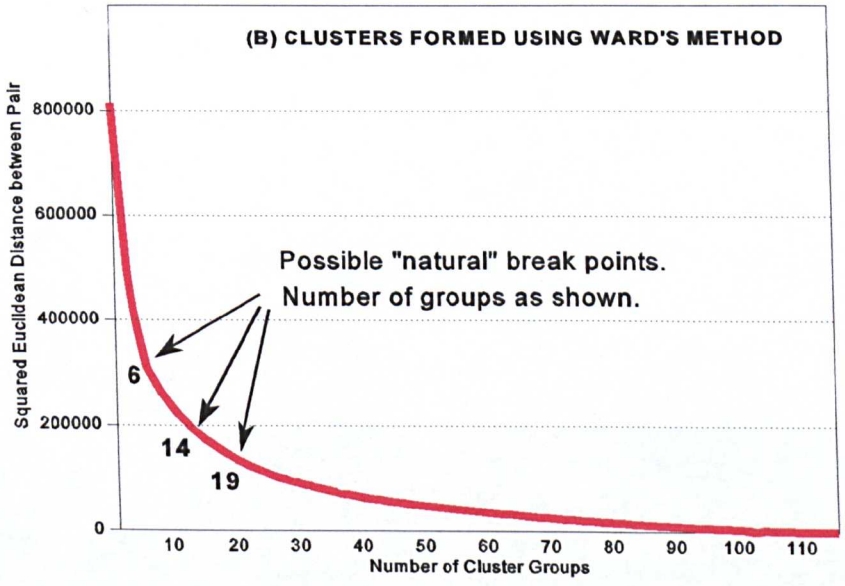
20 One of the problems with the centroid clustering method is that the distance at which clusters are combined can actually decrease from one step to the next. Since clusters merged at later stages are more dissimilar than those merged at earlier stages, this is an undesirable property (Norusis, 1994).

21 Some of the clusters had to be combined at a subsequent stage in order to provide sufficient number of cases for the hedonic equation estimation stage.





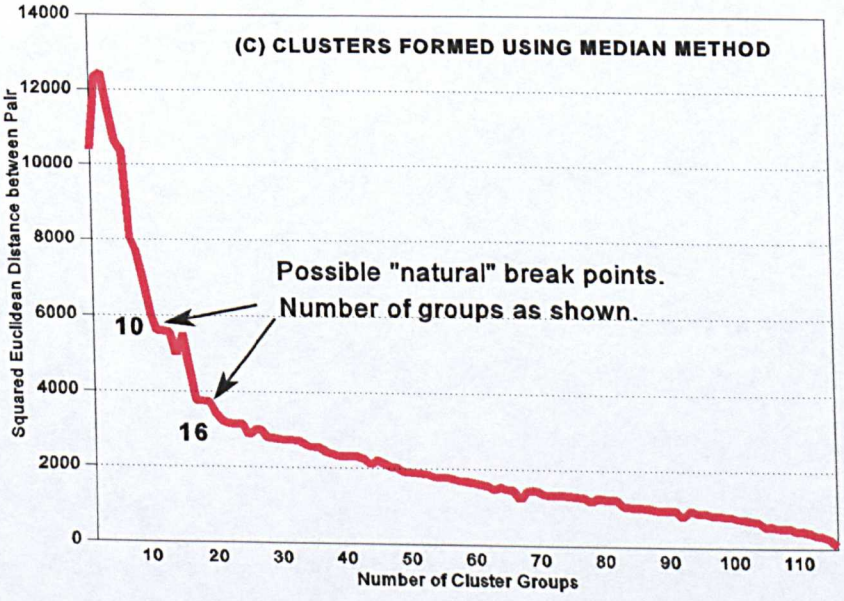


Figure 6.13: Scree Plots for a Variety of Cluster Formation Methods

6.5.3.2 Hedonic Regression Analysis

Over the past two decades, considerable attention has been devoted to the understanding of the relationship between market prices for both rented and owner occupied housing and the attributes that make up the individual housing units. This strand of economic analysis is referred to as hedonic price analysis and its origins lie in the theories of consumer behaviour developed in the 1960s by Lancaster (1966) amongst others. According to Lancaster, households have demands for the underlying characteristics inherent in all traded commodities. The fundamental assumption of the hedonic approach is that by regressing price on a range of attribute variables the implicit prices of these attributes can be revealed. There are many difficulties in such studies (see Maclennan, 1982) not the least of which concerns the functional form for the regression equation and the selection of an appropriate set of attributes. However, in a recent contribution, Rodriguez and Sirmans (1994) write that "Any empirical model can be subject to criticisms regarding the exclusion of particular variables or the functional form employed. The best that an appraiser can do is to use the model believed to most reflect the 'true' model" (p. 601). This is what is attempted in the following paragraphs.

Functional Form and Attribute Selection

In terms of the functional form, two basic approaches are apparent in the literature. The first uses the Box and Cox (1964) technique to search for the "best" functional non-linear form for the regression equation (e.g., Goodman, 1978; 1981; Halvorsen & Pollakowski, 1981; Linnemann, 1980; Pollakowski, 1982). A number of leading urban economists have expressed scepticism about the whole approach. For example, Mayo (1981) has characterised the treatment of functional form as estimating several alternative functional forms as a preliminary to deciding that they all look much the same and picking one for reasons of convenience. More recently, Maclennan and colleagues have written that "...we believe that in this area of research statistical techniques are now running well ahead of the data suitable for their application..." (Maclennan *et al.*, 1987, p.40). The second common approach, which is typically more practical in orientation, is to apply a linear or quasi-linear (e.g. log-linear) functional form (e.g. Can, 1992; Goodman & Mashario, 1984; Graves *et al*, 1988; Murphy, 1989). The second approach is more appealing from the point of view of ease of interpretation. For example, when linear forms are used, the estimated attribute coefficients equate to marginal attribute prices and where log-linear

forms are used, the coefficients represent percentage change in the housing price with a unit change in any of the attributes.

In terms of variable selection, within the theoretical framework provided by Rosen (1974), most analysts have specified hedonic models of the following general form:

$$P = f(S, N, L)$$

Where, P is the market price, S is a vector of structural or physical attributes of the dwelling, N is a vector of neighbourhood attributes, and L is a vector of location attributes. Within this framework, however, scope still exists for a large range of variables to be included in the equation. Various selection strategies have been advocated by Merrill (1980) including the maximization of the adjusted R^2; including only those variables which are statistically significant and have the "right" signs (presumably selected by trial and error); moderating the impact of multicollinearity; and minimizing the reliance on proxy variables. The importance of individual attributes to searchers or purchasers has been largely ignored in the selection of criterion variables in spite of the fact that this limitation has been recognised for some considerable time (Maclennan, 1982). From a practical perspective, statistical sifting techniques of the sort advocated by Merrill (1980) and others offer considerable advantages. From a purist perspective, however, they are unsatisfactory in that they are not underpinned by any formal theoretical position and they fail to be advised by the empirical evidence that is available. In the BUA study, an effort is made to follow a middle course on this issue; whilst the specification of variables is advised by the literature review and by the analysis of the survey data collected as part of this investigation into residential search behaviour, care is also taken to ensure that the data meet the basic requirements of regression analysis.

Table 6.17 summarises the variables initially identified for possible inclusion in the analysis. The selected variables reflect the three-fold classification of attributes commonly employed in hedonic price studies, that is dwelling-related attributes, neighbourhood-related attributes, and location-related attributes. In total, data were available for some 1,770 open-market sales in the first nine months of 1993. Using the survey data as opposed to the sample frame, it would have been possible to construct more household-specific measures of some of the variables. For example, location measures could have been developed that reflected activity patterns within the household (distance to work for each partner and accessibility to schools

etc). There were two reasons for not doing this. First, the achieved sample from the survey would have seriously limited the extent to which individual hedonic equations could have been estimated for separate market segments. Second, by relying on survey as opposed to frame data, re-estimation of the equations in future time periods would be much more costly.

Six dwelling variables were identified: dwelling type, dwelling age, whether dwelling purchased as new or not, dwelling size, garden size, and whether or not the dwelling had a garage on the plot. All of these factors have been employed in previous studies and they regularly feature in studies of search as important criteria.[22] Some of these factors are entered as dichotomous variables or as sets of dummy variables. For example, if there is a garage on the plot, GARPLOT is set to 1, otherwise it remains at zero. For dwelling age a slightly more complex approach is required. Age is classified into three bands (pre 1919, interwar, post war), requiring two dummy variables. The reference group is the post war group. Thus, PRE1919 is set to 1 if the dwelling was built before 1919 and INTERWAR is set to 1 if the dwelling was built between 1919 and 1945. Dwelling type was treated in a similar fashion with three dummy variables (DT1, DT2, DT3) set against apartments as the reference group. Continuous variables are also employed, although some required transformation prior to inclusion. For example, dwelling size was measured in square feet. An analysis of the distribution showed that it was both leptokurtic and highly skewed. Various transformations were tested, with the logarithmic transformation having the best normalising effect. The resultant variable (LOGFLOOR) proved an important predictor of value.

Ten neighbourhood variables were identified. As with dwelling attributes, these were represented by a mix of numeric and non-numeric variables. The visual quality of the neighbourhood, the extent of privacy and the extent of local amenities and services were constructed from a series of other indicators on the sample frame and each was scored on a 25 point scale. These scales were expected to be positively related to price. If the dominant land use in the area was non-residential, LANDUSE was set to 1 and if there were traffic problems in the area TRAFPROB was similarly set to 1; both variables were expected to be negatively related to price. The remaining neighbourhood variables were measured on an interval scale. Two measures of tenure were proposed: the percentage owner occupied (OO_PERC) and the

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22 See chapter seven (7.4) for information on the attributes actually considered important to searchers in the BUA.

Table 6.17: Definition of Hedonic Variables Selected for Possible Inclusion in Hedonic Price Analysis

Category	Variable	Definition
Dwelling Attributes	DT1	Set to 1 if dwelling is terraced house.
	DT2	Set to 1 if dwelling is semi-detached house.
	DT3	Set to 1 if dwelling is detached house.
	PRE1919	Set to 1 if dwelling built before 1919.
	INTERWAR	Set to 1 if dwelling built between 1919 and 1945.
	NEW	Set to 1 if dwelling purchased new.
	LOGFLOOR	Floor space in square feet. Subject to log transformation.
	PLOTSIZE	Set to 1 if garden is large.
	GARPLOT	Set to 1 if the dwelling has a garage on the plot.
Neighbourhood Attributes	VISQUAL	Index of visual quality of the neighbourhood.
	PRIVACY	Index of privacy.
	AMENITY	Index of local amenities and services.
	LANDUSE	Set to 1 if predominant land use of area non-residential.
	TRAFPROB	Set to 1 if area has traffic problems.
	OO_PERC	Percentage owner occupied in the ward where the dwelling is located.
	HE_PERC	Percentage NIHE in the ward where the dwelling is located.
	SQRT_RC	Percentage of Roman Catholic population in ward. Subject to square root transformation.
	DENSITY	Number of dwellings per hectare.
	DEGREE	Deprivation score (signed ch-square score from Robson *et al.*, 1994)
Location Attributes	ZONE1	Set to 1 if located in inner city wards.
	ZONE2	Set to 1 if located in outer Belfast wards.
	DISTCBD	Distance to CBD in km.

percentage Housing Executive (HE_PERC) in the ward of purchase. DENSITY is a simple measure of the number of dwellings per hectare and was calculated from information available in the Census at ward level (DHSS, 1992a). The final neighbourhood measure (DEGREE) is a measure of deprivation. The deprivation score is taken from the recent study by Robson *et al.* (1994) which was examined earlier in this chapter.

The final group of variables relate to location. Broad location referencing was captured used two dummy variables: ZONE1 was set to 1 if the dwelling was located in the inner city wards and ZONE2 was set to 1 if the property was in outer Belfast. In this case, the reference group was suburban BUA. A more precise measure of location was also proposed. DISTCBD records the distance in kilometres from the ward centroid to the Belfast City Hall. This measure was calculated using the ArcView GIS system.

Constructing the Market-Wide Equation

Regression analysis makes some quite restrictive assumptions about the data (Berry, 1993). Three of the most relevant assumptions relate to specification error, normality, and

multicollinearity. Specification error is the easiest to understand but, in practice, it is quite difficult to assess. The assumption, not unreasonably, is that the independent variables should be related to the dependent variable, and that all relevant variables are included. The first part of this is relatively straightforward to assess using the t-value or the beta coefficient output from most standard statistical packages. The second part can be assessed to the extent that many variables are entered but the level of explanation remains low. Deciding what has been left out is much more difficult. In terms of normality, regression analysis works on the assumption that, amongst other things, numeric variables, including the dependant variable, are normally distributed. This can be easily assessed and many transformations are available to normalise errant distributions prior to regression analysis. One useful post analysis test is to graphically display the residuals and look for non-normal patterns. The final assumption that is selected for particular attention is that there should not be perfect multicollinearity in the independent variables; that is, there should be no exact linear relationship between two or more of the independent variables.

The dependent variable employed in this study was the sale price as indicated on the main sample frame list used for the retrospective survey of buyers. The price variable, as with many other studies, was found to be skewed. The scale of skewing suggested than a log or a square root transformation would result in a "more normal" distribution. The square root transformation produced skewness and kurtosis statistics closest to zero. The resultant transformed variable is referred to as SQRSALES. Previous hedonic studies have employed square root transformations of the dependent variable, with Goodman (1978) advocating it as the most appropriate from a theoretical point of view also. As noted above, two of the criterion variables also had to be transformed (floor space and percent Catholic in the ward). The remaining numeric predictors had skewness and kurtosis statistics that fell within the acceptable range either side of zero and were thus acceptable untransformed (Norusis, 1993b).

Multicollinearity is a problem to a greater or lesser extent in most regression studies; it is common to find some relationship between the independent variables. The issue is at what point does "some association" become a problem. Advice on this issue is mixed. For example, Maclennan *et al.* (1987) use a correlation figure of 0.3 as the cut-off whereas a more recent commentator suggests 0.7 (Murphy, 1989). A mid-point figure of 0.5 might be taken as a useful indicator. A different approach is advocated by Lewis-Beck (1995). He offers a check-list of questions about the size of the estimates, their signs, the significance of the terms related to the

overall R^2 value. Through a combination of both approaches seven variables were dropped from the analysis. PRIVACY, AMENITY and LANDUSE were found to be highly correlated with

Table 6.18: BUA Hedonic Equation for 1993

Attributes	B Coefficients	Beta Weights	t-value	Significance of t
DT1	-37.77	-0.311	-9.46	<0.0001
DT2	-21.37	-0.180	-5.45	<0.0001
DT3	8.63	0.064	1.88	0.0598
PRE1919	-10.59	-0.067	-4.30	<0.0001
INTERWAR	-8.63	-0.063	-4.38	<0.0001
NEW	0.44	0.002	0.16	0.8723
LOGFLOOR	190.12	0.362	20.35	<0.0001
PLOTSIZE	7.88	0.061	3.86	0.0001
GARPLOT	17.15	0.147	8.69	<0.0001
VISQUAL	0.54	0.036	1.93	0.0534
TRAFPROB	-8.95	-0.078	-5.52	<0.0001
SQRT_RC	1.67	0.073	5.61	<0.0001
DENSITY	27.59	0.818	5.53	<0.0001
DEGREE	-1.26	-0.284	-18.04	<0.0001
DISTCBD	-4.23	-0.149	-8.34	<0.0001
Constant	-377.87		-14.13	<0.0001
Mult R^2 = 0.86	$\underline{R}^2$ = 0.73	SE = 29.84	F = 317.38	N = 1745

VISQUAL and were less correlated with SQRSALES than was VISQUAL. Thus, following Murphy's (1989) advice, PRIVACY, AMENITY and LANDUSE were dropped. Both tenure variables were highly (negatively) correlated with one another suggesting that one or other should be dropped. But, both HE_PERC (0.67) and OO_PERC (-0.81) were very strongly correlated with DEGREE, the deprivation measure. As a result, both tenure variables were dropped on the basis that tenure was included primarily as a measure of neighbourhood affluence and DEGREE seemed to perform in this role rather better than tenure. Finally, ZONE1 (-0.47) and ZONE2 (0.87) were strongly associated with DISTCBD and were dropped in favour of the single distance measure.

The results of the BUA-wide analysis are summarised in Table 6.18. This takes account of an analysis residuals that suggested the need to remove some outliers (25) from the analysis. Accordingly, where standardised residual values were greater than an absolute value of three the cases were dropped from the equation. A series of before and after diagnostic plots are presented in Appendix 7. Examination of these plots confirms that outlier treatment significantly improved the model in terms of its meeting the normality assumptions and the equality of variance assumptions of regression analysis. The model fit was also improved as a result of this process.

With an adjusted R^2 value of 0.73, the model provides a level of fit consistent with or better than other published studies in the UK (e.g., Dodgson & Topham, 1990; Maclennan *et al.*, 1987; Munro, 1986). Although the objective in this analysis is to provide the baseline against which the equations for separate sub-markets can be compared, it is interesting to consider briefly the direction, magnitude and significance of individual attributes on the sale price for dwellings in the BUA in 1993. Most of the terms are highly significant. Indeed, just NEW turns out to be (spectacularly) not significant, with two further variables (DT3 and VISQUAL) marginally not significant at the 95 percent level of testing. All the remaining variables were significant at the 99.9 percent level of testing or better. Moreover, the signs are much as expected. Thus, being of a terraced (DT1) or semi-detached (DT2) form tends to depress price, whereas being a detached house (DT3) inflates price when compared against apartments. As expected, the larger the dwelling the higher the sale price. With a beta weight of 0.36, dwelling size (LOGFLOOR) is particularly influential. Having a large garden (PLOTSIZE) or a garage on the site (GARPLOT) also leads to inflated prices, as does living in a good quality environment (VISQUAL). Traffic problems (TRAFPROB), deprivation (DEGREE) and distance from the city centre (DISTCBD) serve to depress price. Most interestingly, it would seem that as the percentage of Roman Catholics in the neighbourhood increases (SQRT_RC), so to does the sale price, suggesting the possibility of a price premium for Catholic households and/or mixed-religion residential environments. DENSITY was found to be positively related to price, a result that perhaps runs counter to expectation.

Sub-Market Equations

The next stage in the process of testing for submarket presence is to construct hedonic models for each individual product group identified in the cluster analysis. These are then compared following the approach outlined in Schnare and Struyk (1976)[23]. Although the cluster analysis

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23 Although this approach has been widely applied, it has been criticised, principally in terms of the rather arbitrary methods employed in the original study to delineate potential areas for test purposes. Schnare and Struyk (1976) write: "To test for segmentation, one must experiment with a number of stratifications schemes.." (P.150). In subsequent studies, a variety of methods have been used, but most frequently areas have been defined in simple geographic terms such as inner city versus the suburbs (Goodman, 1978) or on the basis of physical boundaries (Munro, 1986). A more recent study used estate agent delineations, although this is still rather subjective (Michaels & Smith, 1990). In contrast, through the application of cluster methods the BUA study relies on more objective means for area selection. It therefore avoids this basic criticism of the method. Moreover, in a recent analysis of sub-markets, Can (1992) concluded that the Schnare and Struyk method was just as good as more sophisticated methods that he had employed. Accordingly, there was no good reason not to employ the standard Schnare and Struyk approach.

Table 6.19: Hedonic Equations by Product Group in the BUA 1993

Variable	Product Group Number(s)											
	1		2 & 9		3 & 16		4		5 & 21		6		7, 12 & 14	
DT1	-31.50	*	-1.97		NA		-32.28	***	-44.83	***	-38.52	***	-30.64	
DT2	-4.69		-8.88		26.06		-16.62	***	-22.09	**	-23.33	**	9.58	
DT3	5.51		42.11		22.00		NA		25.22	**	6.20		35.97	
PRE1919	-41.44	***	7.27		-20.46		33.01		-9.97	*	-13.11	*	-32.18	*
INTERWAR	-11.12		-5.30		-14.31		-41.60	*	-10.05	**	-1.46		-23.95	
NEW	-29.86		4.48		NA		4.90		-22.86	**	-0.58		19.04	
LOGFLOOR	237.12	***	184.11	***	210.99	**	231.33	***	163.43	***	191.57	***	104.09	*
PLOTSIZE	-0.26		-8.64		-21.26		3.87		18.39	***	-4.54		12.12	
GARPLOT	16.93	*	15.75	**	57.89		13.30	**	18.80	***	15.50	***	10.15	
VISQUAL	2.41		2.43	**	0.38		1.30		-1.13		1.53	**	0.99	
TRAFPROB	-10.36		-2.85		30.74		3.49		-14.77	***	0.41		-12.54	
SQRT_RC	-2.60		6.79	***	144.89	**	11.85	***	4.05	***	-2.53	*	8.76	
DENSITY	130.42		130.61	**	-30.44		203.56	***	394.14	***	49.43	***	827.22	
DEGREE	-2.74		-0.16		NA		0.78		-0.14		-1.59	***	1.80	
DISTCBD	-11.48		-0.14		10.79		-0.05		-7.49	**	-4.16	***	8.42	
Constant	-551.36	***	-468.11	***	-1892.73	**	-556.66	***	-284.06	***	-397.04	***	-272.07	
Multiple R^2	0.84		0.87		0.82		0.93		0.86		0.85		0.94	
$\underline{R}^2$	0.65		0.72		0.55		0.84		0.73		0.71		0.85	
SE	25.71		23.56		27.62		19.48		29.81		24.00		25.47	
F	11.80	***	23.72	***	5.53	***	53.16	***	74.97	***	52.23	***	29.43	***
Durbin-Watson	2.22		1.63		1.9		1.5		1.47		1.91		1.95	
N	89		130		52		136		421		320		76	

Notes:
* Significant at 95% level
** Significant at 99% level
*** Significant at 99.9% Level or better

Table 6.19: Hedonic Equations by Product Group in the BUA 1993 (Continued)

Variable	Product Group Number(s)															
	8		10		11		13, 15, 20 & 22		17 & 19		18		All BUA	
DT1	-14.79	*	-18.03		-3.21		-31.02		-7.23		-6.49		-37.77	***
DT2	NA		-6.00		-1.72		-1.16		-12.15		9.80		-21.37	***
DT3	29.46	***	NA		31.08		59.90		21.22		107.84	**	8.63	
PRE1919	-18.12		-32.42	**	0.58		-8.99		NA		-15.53	*	-10.59	***
INTERWAR	-5.57		-12.58		6.34		-14.21		-2.03		-11.44		-8.63	***
NEW	7.16		NA		-53.09	***	NA		-12.13		NA		0.44	
LOGFLOOR	107.87	***	20.80		218.34	***	219.03	***	245.32	***	122.33	**	190.12	***
PLOTSIZE	14.81	**	13.08		-12.37		NA		2.66		28.06	**	7.88	***
GARPLOT	9.78		9.31		27.12	***	29.55		16.47	*	28.59	**	17.15	***
VISQUAL	2.03		3.26	*	2.26	*	0.06		-0.29		1.13		0.54	
TRAFPROB	-2.74		7.58		0.62		-15.28		-6.62		1.67		-8.95	***
SQRT_RC	-0.48		NA		4.06		-15.23	***	10.91		0.92		1.67	***
DENSITY	1.90		NA		208.00		NA		97.25	***	-111.42	***	27.59	***
DEGREE	-2.09	**	NA		-1.90	***	-2.06	**	7.68	**	-5.28	*	-1.26	***
DISTCBD	-4.18		8.29		-13.48		-7.50		36.62	***	45.44		-4.23	***
Constant	-152.47	*	48.21		-541.89	***	-300.41	***	-657.40	***	-220.80		-317.38	***
Multiple R^2	0.96		0.69		0.87		0.93		0.93		0.79		0.86	
$\underline{R}^2$	0.90		0.33		0.72		0.78		0.81		0.57		0.73	
SE	16.56		25.16		29.08		23.60		21.59		25.64		29.84	
F	59.14	***	3.45	**	26.59	***	23.32	***	17.20		11.45	***	317.38	***
Durbin-Watson	1.98		2.19		1.63		2.17		1.93		1.7		1.31	
N	91		50		146		75		54		111		1745	

Notes: * Significant at 95% level
** Significant at 99% level
*** Significant at 99.9% Level or better

suggested that 22 product groups could be identified within the BUA, the data available for hedonic estimation is rather thin in some of these areas. Consequently, some groups were merged with their closest neighbour or neighbours such that each of the final groups had at least 50 transactions in the first nine months of 1993.[24] Following this merger process, separate hedonic models were estimated for 13 product group areas and the results are compared with each other and against the equation for the BUA as a whole in Table 6.19.

The table shows the B coefficients for each equation and indicates the degree of significance of each coefficient. A visual comparison of the individual product group equations indicates that important differences exist, providing preliminary support for the existence of sub-markets within the BUA. Using the method originally devised by Schnare and Struyk (1976). The basic proposition is that formal evidence of market segmentation can be derived by comparing the standard error associated with the sum of the individual product group regressions (SE^u) against the standard error arising from the global market model (SE^c). The standard error of the unconstrained regressions (SE^u) is a weighted average of the standard errors of the equations estimated from each of the 13 product group zones (SE_1,..., SE_{13}). Adapting, Schnare and Struyk, the SE^u for the BUA sub-markets may be estimated as follows:

$$SE^u = \sqrt{\frac{(n_1 - k_1 - 1)}{\sum (n_j - k_j - 1)} \cdot SE_1^2 + \frac{(n_2 - k_2 - 1)}{\sum (n_j - k_j - 1)} \cdot SE_2^2 + \ldots + \frac{(n_{13} - k_{13} - 1)}{\sum (n_j - k_j - 1)} \cdot SE_n^2}$$

where n_j is the number of cases in the j-*th* product group, and k is the number of predictor variables in the l-*th* product group. In practice, the denominator in each case is derived from the constrained regression equation (SE^c) adjusted to take account of the 15 independent variables used and the numerators are similar except that they relate to the individual product group equations.

In effect, the test provides an indication of the increase in predictive power that arises from estimating a series of more "local" models than from a single model. The theory is that if the unconstrained standard error (SE^u) is less than the standard error for the single system-wide equation (SE^c), then there is evidence of market segmentation. Schnare and Struyk (1976)

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24 The main owner occupied product groups remained largely unaffected by this merger process (i.e. groups 4,5 & 6). The merger process mostly affected high class owner occupation groups (which had to be merged with a larger, slightly lower class group) and public sector groups (which had to be merged in order to produce sufficient numbers of transactions). This situation is unfortunate, but unavoidable given the data that was available.

argue that a difference of at least 10 percent is required before the impact is likely to have an effect on price variability. As Munro (1986) has pointed out, this criterion is purely arbitrary, but in the absence of any more rigorous theoretical basis it is accepted in the BUA study as the means for formally testing if segmentation existed or not. Overall, the single equation model has a regression standard error of 29.84 (SE^c). In contrast, the unconstrained standard error (SE^u) is estimated at 24.24, a reduction of more than 18 percent. This lends support to the conclusion that market segmentation is present in the BUA. Of course, the schema presented is but one of many possible segmentation schema. Nevertheless, the 13-category product group classification appears to be consistent with the existence of discrete sub-markets within the urban area. Before we can safely conclude that this is the case, however, we need to examine the question of whether or not price differential persistent over time[25]. This is the subject of the next section.

6.5.3.3 Price Persistence over Time

As indicated above, data is not available from which to estimate hedonic equations for other periods of time. However, an indication of persistent differences can be obtained through a simple trend-analysis based on data taken from the DOE HPD. The approach is similar to that taken by Maclennan *et al.* (1987) in their study of the Glasgow housing market, the main difference being that in the BUA study prices were estimated over a much longer period than in Glasgow. Within each of the 13 adjusted product group zones, average annual, mix-adjusted prices were estimated for 1986 to 1992. If it is assumed that individual attribute prices in a zone change at the mean rate within the zone it becomes possible to assess whether or not significant price differences persisted over the period in question. Figure 6.14 shows the price trends for each of the 13 product groups. A variety of methods of displaying the product group price trends have been experimented with, including indexing each to 100 in 1988 and indexing each against a BUA "flat line" index for each year. However, the straightforward graphing of the mix-adjusted annual price for each group proved the most readable. Although the graph remains very complex, it is clear that considerable stability has persisted for the majority of the product

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25 One might also move to try and combine some of the individual groups and re-test to see if predictive power is further improved. This task is too large to perform on a comprehensive basis. Moreover, it is not really necessary; the analysis thus far supports the notion of market segmentation on the basis of cluster groupings. The subsequent analysis on price differences will further assist in the evaluation process. However, the true test is the extent to which actual search ad trade-off behaviour matches the product group areas. This issue is examined in chapter seven.

groups over the five years 1988-1992. Three of the groups (PG11, PG7 & PG13) follow an inverted "U-shaped" path, rising in the first part of the period only to fall back to lower than the initial starting position. These are product groups that formed during the period, changing from rising" to "falling" price areas. One group may be described as stable, with a very flat trend line

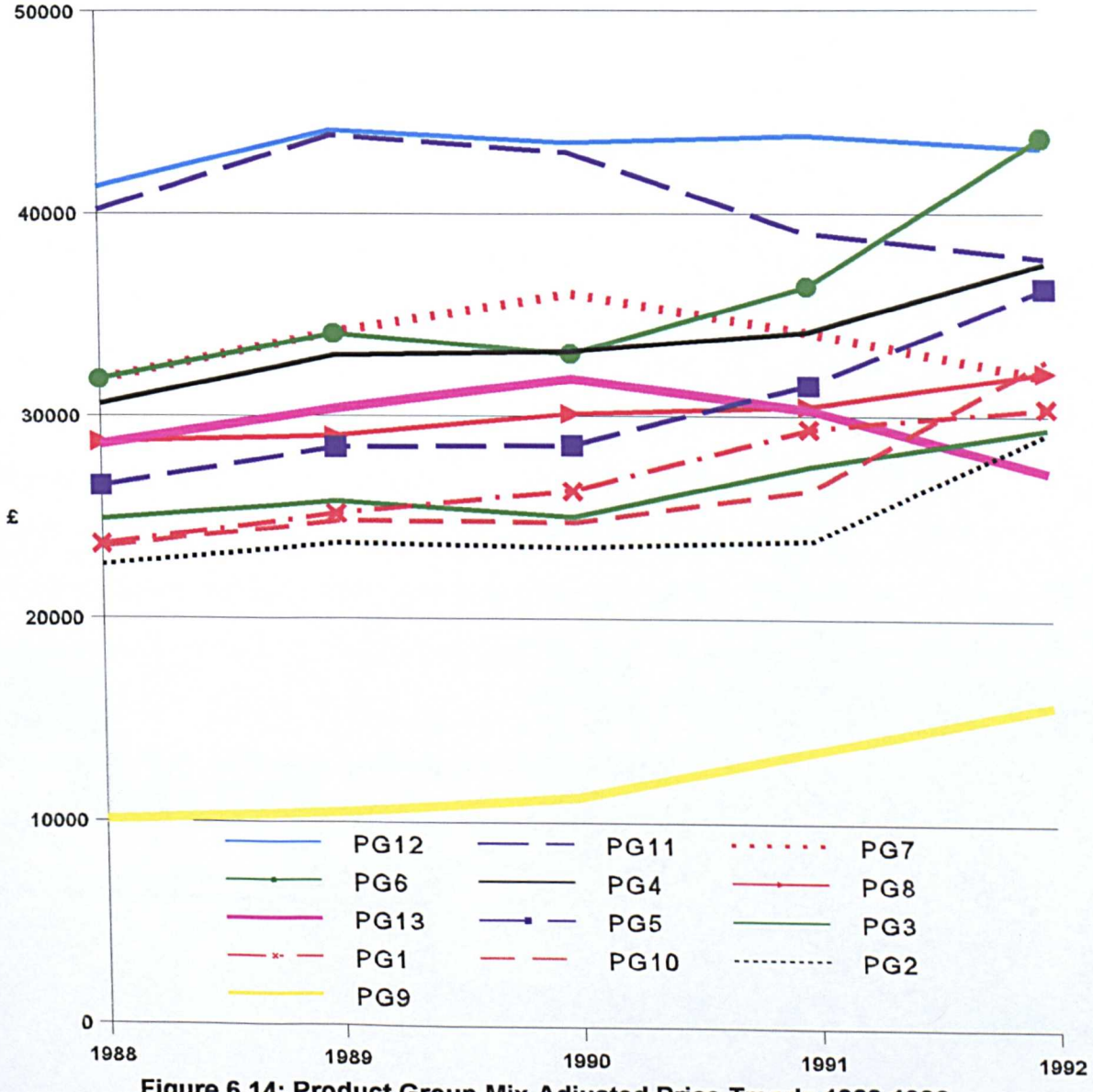

Figure 6.14: Product Group Mix-Adjusted Price Trends 1988-1992

(PG12). This group remaining the top-price group throughout the period, although PG6 converged on PG12 quite markedly towards the end of the period. The remaining groups have all trended upwards in a reasonably consistent manner. Moreover, with the exception of the recently formed PG10, these groups have been in existence for at least three years, and seven have persisted for the full five years. Thus, there is substantial evidence of persistent market segmentation within the BUA. The concept of product groups would thus seem to valuable, at least in the context of this study. As noted above, the extent to which areas defined in this way

accord with actual search behaviour has yet to be determined and, as far as the author is aware, there have been no previous attempts to relate search behaviour to objectively defined market segments of the sort presented in this chapter.

6.6 Conclusions

This chapter has provided an overview of the residential development of the BUA from its earliest years until the present time. Through extensive secondary analysis of census and other data the chapter has painted a detailed picture of the context within which residential decisions within the owner occupied sector are taken. From the analysis, it is clear that the BUA remains one of the most highly segregated urban areas in Europe; the pattern of separate living is very stark with the Catholic population dominant in the west and to a lesser extent in the north of the city with the Protestant population in the south, east and the suburbs. A detailed analysis of the structure of the housing market found evidence of market segmentation. On the basis of cluster techniques, and subsequent hedonic price analysis, 13 separate product group areas were identified. Given the evidence that religious residential segregation is such a dominant feature of the social geography of the city, it is important to examine how households make their housing choices in such an environment. In particular, it is important to determine if the search and mobility behaviour of Catholics and non-Catholics are different from one another and how this behaviour relates to the underlying patterns of segregation on one hand and product group clusters on the other. These questions, and others, are addressed in the next chapter.

Chapter 7
Owner Occupier Residential Mobility and Search Behaviour: An Analysis by Religion

7.1 Introduction

In the previous chapter, it was shown that the Belfast Urban Area is highly segregated on the basis of religion. The overall aim of the thesis is to help develop a better understanding of how households living in such a divided society engage in search for new homes. In chapter eight a number of formal hypotheses concerning religion and search are examined. However, as a prelude to formal hypothesis testing, this chapter explores the extent to which Catholics and non-Catholics differ in their search and mobility behaviours.

The chapter begins with a comparative analysis of the demographic, socio-economic and housing profiles of searchers which serves as a context for the subsequent analyses. This is followed by an examination of aspects of the relocation process, covering such issues as why people move home, where they move to and from, what attributes were important to them in their search for a new home, what their aspirations were, and how well they were met. Attention then shifts to an examination of four key aspects of search behaviour: information acquisition and use, spatial search, search effort and constraints in search. Throughout the chapter, the emphasis is on a bi-variate analysis; this is primarily on the basis of religion but also in terms of the level of segregation, the latter measured in terms of the religious composition of the ward in which survey respondents purchased their new homes.

7.2 A Profile of Home Buyers

The primary data for this thesis is derived from a retrospective survey of 571 households that successfully purchased an owner occupied home during the first nine months of 1993. In this section we aim to provide important background information on the demographic and socio-economic characteristics of these buyers and their current housing circumstances. As well as providing general information on searchers who successfully purchased a owner occupied home in the BUA, this section also examines how the characteristics of buyers differed according to household religion and the level of segregation. This forms a context for the more formal testing of the hypotheses later in the chapter.

7.2.1 The Demographic and Socio-Economic Characteristics of Recent Buyers

Given the focus of this research, a logical starting point is to determine whether there are apparent differences in the demographic and socio-economic characteristics of households of different religion or households living in areas with varying degrees of segregation. This is important because of the weight attached to such factors in explaining the observed patterns of racial residential segregation and search behaviour (chapters 2 and 3). Table 7.1 shows the relationship between the religion of recent buyer households and the religious composition of

Table 7.1: The Relationship Between the Household Religion of Recent Buyers and the Religious Composition of Wards where the Purchase Occurred

Ward Type (% RC)	Religion of the Household		Total
	RC	Other	
	%	%	%
0 - 9.9% RC	8.6	53.7	39.0
10 - 29.9% RC	23.6	30.7	28.4
30 - 49.9% RC	27.4	11.8	16.8
50-89.9% RC	25.5	3.0	10.3
90% + RC	14.9	0.8	5.4
	x^2=193.56 p<0.001		
BASE	186	385	571

the wards in which the purchase occurred. Not surprisingly, perhaps, there is a strong and highly significant relationship between these two variables (x^2=193.56, p <0.00001). However, it is important to note that whereas non-Catholic buyers were concentrated into those wards classified as having less than 10 percent Catholic population (54%), Catholic buyers were not similarly aligned towards those wards with very high percentages of Catholic population. Indeed, the most common ward type for Catholic buyers (27%) was those with a large Catholic minority (i.e., 30-49.9% RC). Less than 15 percent of Catholic buyers bought within the most highly segregated Catholic wards. The main reason for this is clear from the analysis presented in the previous chapter; these wards comprise predominately public rented houses. Yet, it is obvious that Catholic buyers purchased dwellings over a much broader range of ward types than non-Catholic buyers. Indeed, Catholic buyers proportionally exceed non-Catholic buyers in three of the five ward types. This distinction is further elaborated when one considers that almost 60 percent of Catholic buyers purchased in wards where Catholics were in the minority, whereas less than five percent of non-Catholics purchased in wards where they were in the minority.

Table 7.2: Demographic and Socio-Economic Characteristics of Recent Buyers Differentiated by Religion and Degree of Segregation

Characteristic	Religion		Religious Composition of Ward (% RC)					Total
	RC	Other	0-9.9%	10-29.9%	30-49.9%	50-89.9%	90%+	
	%	%	%	%	%	%	%	%
Age HoH								
<= 24	17.7	8.6	7.8	7.1	9.8	22.6	36.0	11.6
25-34	50.8	44.6	44.9	46.4	45.3	57.1	44.9	46.6
35-44	16.8	25.2	24.7	24.4	26.2	10.1	8.2	22.5
45+	14.6	21.6	22.6	20.2	18.7	10.2	10.9	19.4
	x^2=17.27 p<0.001		x^2=40.74 p<0.001					
Family Size								
One	23.9	20.0	22.3	20.4	24.0	19.8	12.0	21.3
Two	24.5	26.9	27.7	28.5	23.5	20.0	21.9	26.1
Three	18.4	19.5	19.9	16.6	17.4	21.7	27.2	19.1
Four	18.3	22.9	20.4	21.8	18.1	24.1	31.3	21.4
Five+	14.8	10.8	9.6	12.7	17.0	14.4	7.6	12.1
	x^2=4.14 p=0.387		x^2=11.83 p=0.756					
Children								
No	52.8	54.7	55.4	57.2	56.2	45.0	39.0	54.1
Yes	47.2	45.3	44.6	42.8	43.8	55.0	61.0	45.9
	x^2=0.19 p=0.665		x^2=5.72 p=0.221					
Household Type								
Lone Adult	21.8	18.2	19.7	19.7	21.9	19.8	6.0	19.4
Childless Couple	21.6	23.8	23.3	26.0	21.2	18.4	21.9	23.1
Family	47.2	44.9	44.0	42.8	43.8	55.0	61.0	45.7
"Grown up"	9.3	13.0	13.0	11.5	13.1	6.8	11.2	11.8
	x^2=2.74 p=0.433		x^2=9.40 p=0.669					
Household Status								
New single	17.0	9.1	13.6	8.4	10.9	14.7	12.0	11.7
New couple	21.9	13.9	14.8	14.6	15.5	17.3	41.2	16.5
Cont. Single	8.0	12.6	10.5	13.2	15.2	6.6	-	11.1
Cont. Couple	53.1	64.4	61.1	63.8	58.3	61.4	46.8	60.7
	x^2=16.48 p<0.001		x^2=22.95 p=0.028					
Buyer Status								
First time	58.8	46.3	48.7	44.4	50.5	60.7	74.4	50.4
Previous owner	41.2	53.7	51.3	55.6	49.5	39.3	25.6	49.6
	x^2=7.80 p=0.005		x^2=12.22 p=0.016					
Economic Status								
Employed	90.2	84.8	84.7	87.9	90.9	87.2	77.9	86.5
Unemployed	4.6	4.2	3.4	4.5	3.3	6.1	10.1	4.3
Inactive	5.1	11.0	11.9	7.6	5.8	6.8	12.0	9.1
	x^2=5.29 pp=0.071		x^2=8.10 p=0.043					
Family Income								
< £15k	32.6	36.2	37.6	25.1	32.3	45.9	55.6	55.0
£15-£25k	40.7	36.8	36.6	43.2	39.0	29.2	35.4	38.0
>£25k	26.7	27.1	25.8	31.7	28.6	24.8	9.0	27.0
	x^2=0.97 p=0.617		x^2=18.81 p=0.016					
BASE	186	385	223	162	96	59	31	571

Tables 7.2, 7.3 and 7.4 summarise the profile of recent buyers in respect of a number of demographic and socio-economic variables. The majority of buyers in the study were aged under 35 years (58%), with most of these in the 25-34 age group (47%). However, just under one-quarter were aged 35-44 and a further one-fifth were older than 44 years. This translates into an average age of 35.9. Around one-fifth of households were single person households (21%), one-quarter had two members (26%), one-fifth had three (19%) or four (21%) members, and just over one in ten comprised five or more members (12%). Although the majority of recent buyers had no children in their households (54%), the mean household size was calculated at 2.82, which compares favourably to 2.85 for all existing owner occupied households in the BUA (DHSS, 1992a). Most recent buyer households were continuing households (72%), although a substantial minority were new households that formed in association with the purchase (28%). Buyers were evenly split between continuing home owners (51%) and first-time home owners (49%). Not surprisingly, the vast majority of household heads were in employment (87%), although four percent were unemployed, and nine percent were classified as inactive. The majority of economically inactive household heads were retired. More than half of respondents

Table 7.3: T-Tests for Differences in Means of Selected Demographic and Socio-Economic Variables by Household Religion

Variable	Religion	Mean Value	T-test statistic	Probability
Age of Head of Household	Roman Catholic	33.5	3.29	0.001
	Other	37.0		
	All	35.9		
Family Size	Roman Catholic	2.83	-.06	0.960
	Other	2.82		
	All	2.82		
Number of Children	Roman Catholic	0.93	-0.90	0.368
	Other	0.84		
	All	0.87		
Number of Employed persons in Household	Roman Catholic	2.64	-0.25	0.800
	Other	2.60		
	All	2.62		

reported household income levels of less than £15,000 per annum (55%), two-fifths reported incomes of between £15,000 and £25,000 (38%), and just over one-quarter had incomes in excess of £25,000 (27%). Data is not available for existing home owners in the BUA, although data for home owners in Northern Ireland as a whole suggests that the recent buyer sample has higher gross household incomes than existing home owners. For example, data extracted from

the government's Continuous Household Survey shows that 18 percent of existing owners have incomes above the £25,000 threshold.[1]

The only significant differences between Catholics and non-Catholics were in terms of the age of the head of household, the status of the household and whether or not the household was a first time buyer. In terms of the first of these variables, the age distribution within the two groups was different at the 99.9 percent level of testing. Thus, in relative terms, twice as many Catholic households as non-Catholics were headed by a person aged under 25 years. At the other end of the age spectrum, non-Catholic households were considerably more likely than Catholic households to be headed by a person aged 45 years or older. Overall, the average age

Table 7.4: One-Way Analysis of Variance Tests for Differences in Means of Selected Demographic and Socio-Economic Variables by Religious Composition of Ward

Variable	% RC in Ward	Mean Value	F-Ratio	Probability
Age of Head of Household	0 - 9.9	37.2	2.95	0.020
	10 - 29.9	36.1		
	30 - 49.9	35.7		
	50 - 89.9	31.7		
	90+	33.3		
Family Size	0 - 9.9	2.70	0.89	0.468
	10 - 29.9	2.83		
	30 - 49.9	2.89		
	50 - 89.9	3.04		
	90+	3.00		
Number of Children	0 - 9.9	0.80	1.11	0.348
	10 - 29.9	0.80		
	30 - 49.9	1.00		
	50 - 89.9	1.00		
	90+	1.05		
Number of Employed persons in Household	0 - 9.9	2.64	0.61	0.653
	10 - 29.9	2.63		
	30 - 49.9	2.64		
	50 - 89.9	2.68		
	90+	2.25		

for Catholic household heads (33.5) was found to be significantly younger than that for non-Catholic heads (37.0). A similar picture emerged in terms of the extent of segregation. The chi-square test shows that the differences were significant at the 99 percent level of testing. Testing differences in means using one-way analysis of variance supports this basic conclusion (Table 7.4). In terms of household status, Catholic buyers were more likely than others to be newly formed households (39% compared to 23%). Similarly, the evidence is that Catholic buyers were more likely to be first-time buyers (59%) than non-Catholic respondents (46%). Both of these

[1] Data provided by Dr. Kevin Sweeney, PPRU, Central Survey Branch.

differences are significant at, or better than, the 99 percent level of testing. Not surprisingly, household status and buyer status both vary significantly with the religious composition of the ward in which the new dwelling was purchased. For example, in terms of buyer status, the proportion of first time buyers increases as the percentage of Catholics in the ward rises. Thus, around three-quarters of buyers in the highly segregated Catholic wards (i.e. 90%+ Catholic) were first-time home owners compared to 44 percent of buyers in the mixed wards having a large Protestant majority (i.e. 10-29.9% Catholic).

7.2.2 The Nature of the Housing Purchased

Almost three-quarters of dwellings purchased in the BUA during the first nine months of 1993 were built after the end of the second world war, compared to 65 percent of all owner occupied dwellings in the study area. More than one-third of dwellings purchased by respondents were of post 1980 construction (36%) compared to just 14 percent of all owner occupied BUA dwellings. The importance of modern housing in the BUA stock is underlined by the observation that more than one-quarter of searchers bought a new dwelling (27%) as opposed to an existing property (73%). This is interesting in that these figures suggest that new construction plays a particularly important role in residential decision making and relocation behaviour of households in the BUA, a role that is greater than is usually suggested in the standard economic literature (e.g., Maclennan, 1982).

Around one-third of buyers bought terraced houses (35%), a similar proportion purchased semi-detached houses (34%), and one-fifth bought detached houses (20%). The remaining 11 percent acquired bungalows and apartments. Compared against the profile of the owner occupied stock as a whole (Table 6.15) indicates that terraced types are under-represented on the market (45%), whereas semi-detached (26%) and detached are over-represented (10%). Dwelling sizes ranged from 250 to 3,500 square feet, with an average of 1,016 square feet. Approximately one-third of dwellings bought in this period were of 850 square feet or smaller (34%), and a similar proportion were sized between 851 and 1000 square feet (35%). One searcher in ten purchased their new home in the inner city, half bought properties in outer Belfast, and the remainder acquired dwellings in suburban areas beyond the city boundary. Most dwellings, irrespective of location, had central heating (91%), although less than half had garages or were regarded as being in very good condition (45%). The average price of a dwelling in the survey was recorded at £39,172, approximately five percent above the actual

Table 7.5: The Housing Characteristics of Recent Buyers Differentiated by Religion and Degree of Segregation

Characteristic	Religion		Religious Composition of Ward (% RC)					Total
	RC	Other	0-9.9%	10-29.9%	30-49.9%	50-89.9%	90%+	
	%	%	%	%	%	%	%	%
Dwelling Age								
Pre 1945	39.9	24.0	25.3	22.5	37.2	41.5	43.6	29.2
1945 - 1980	35.1	34.3	29.2	34.3	42.1	31.7	56.4	34.6
Post 1980	25.1	41.7	45.5	43.1	20.7	26.8	-	36.4
	x^2=20.40 p<0.001		x^2=45.15 p<0.001					
Purchased New								
No	82.7	68.5	63.3	69.5	84.4	88.0	100.0	73.1
Yes	17.3	31.5	36.7	30.5	15.6	12.0	-	26.9
	x^2=12.93 p<0.001		x^2=36.25 p<0.001					
Dwelling Type								
Terraced	36.9	33.5	33.0	29.8	28.0	46.2	70.3	34.6
Semi-detached	33.8	33.7	32.6	29.7	45.9	33.6	26.2	33.8
Detached	18.2	21.3	22.1	27.1	16.2	10.6	3.5	20.3
Other	11.1	11.4	12.4	13.4	9.9	9.6	-	11.3
	x^2=1.01 p=0.798		x^2=38.23 p<0.001					
Dwelling Size								
<851 Sq. ft.	35.7	32.7	38.3	21.6	41.9	24.0	56.4	33.7
851 - 1000 Sq. ft.	29.8	36.8	30.1	44.8	30.2	33.8	27.0	34.5
> 1000 Sq. Ft.	34.5	30.5	31.6	33.6	27.9	42.2	16.6	31.8
	x^2=2.79 p=0.248		x^2=28.84 p<0.001					
Location								
Inner Belfast	13.5	8.6	12.7	-	7.9	32.0	12.0	10.2
Outer Belfast	65.1	42.6	32.0	44.6	83.1	58.0	88.0	49.9
Suburban BUA	21.4	48.8	55.3	55.4	9.0	10.0	-	39.9
	x^2=39.39 p<0.001		x^2=163.35 p<0.001					
Central Heating								
No	5.1	10.4	11.1	10.0	5.9	2.2	6.0	8.7
Yes	94.9	89.6	88.9	90.0	94.1	97.8	94.0	91.3
	x^2=4.41 p=0.036		x^2=26.27 p=0.180					
Dwelling in Very Good Condition								
No	60.2	51.8	51.0	48.4	59.3	64.3	78.8	54.6
Yes	39.8	48.2	49.0	51.6	40.7	35.7	21.2	45.3
	x^2=3.57 p=0.059		x^2=14.07 p=0.007					
Garage								
No	55.4	50.3	50.3	44.1	54.5	58.0	86.0	52.0
Yes	44.6	49.7	49.7	55.9	45.4	42.0	14.0	48.0
	x^2=1.30 p=0.255		x^2=19.70 p<0.001					
Dwelling Price								
< £31,501	40.8	46.1	43.6	31.8	54.6	52.9	68.2	44.3
£31,501 - £44,000	24.6	24.6	25.5	25.1	18.8	30.6	21.9	24.6
>£44,000	34.7	29.4	30.9	43.3	26.5	16.5	9.9	31.1
	x^2=1.93 p=0.382		x^2=32.50 p<0.001					
BASE	186	385	223	162	96	59	31	571

average price for all sales in the period as indicated on the DOE House Price Database. An estimated 44 percent of searchers bought dwellings costing £31,500 or less, one-quarter bought properties between £31,501 and £44,000 (25%), and 31 percent bought dwellings costing more than £44,000. This distribution compares favourably with the sample frame (see chapter five), providing further evidence of the general representativeness of the survey data.

Religious differences in the profile of dwellings purchased were found to be more pronounced than differences in terms of the demographic and socio-economic characteristics of the searcher households (Tables 7.5, 7.6 & 7.7). Five of the nine housing characteristics examined were significantly different for Roman Catholics and those of other religions. In general, Catholic searchers bought older dwellings, primarily within the Belfast city boundary, that were perceived to be in poorer condition than those acquired by non-Catholic households. The location differences are particularly stark; just 21 percent of Catholic buyers bought in the suburban parts of the BUA compared to almost half of non-Catholic buyers (49%). This difference is very highly significant ($p<0.000001$). Nevertheless, Catholics were more likely to have purchased dwellings with central heating (95%) than non-Catholics (90%). Although Catholic searchers were over-represented amongst buyers of terraced housing and under-represented amongst buyers of detached properties, these differences were not significant. No significant differences were found in the size or price of dwellings bought by Catholic and non-Catholic households.

Table 7.6: T-tests for Differences in Means of Selected Housing Variables by Household Religion

Variable	Religion	Mean Value	T-test Statistic	Probability
Floor space (Square Feet)	Roman Catholic	1,011	0.26	0.798
	Other	1,018		
	All	1,016		
Purchase Price (£)	Roman Catholic	41,022	-1.40	0.162
	Other	38,276		
	All	39,172		

In respect of the level of segregation, significant differences were found in eight of the nine characteristics considered. The results show that, for example, dwelling age is positively related to the proportion of the Roman Catholic population in the ward. Thus, in the wards classified as 90 percent or more Catholic, none of the dwellings purchased by respondents were built after 1980. In contrast, 46 percent of dwellings purchased in wards classified as less than

10 percent Catholic were built after this date. Major differences were also apparent in terms of the types of dwellings purchased. Thus, in the 90 percent plus Catholic wards, 70 percent of purchases were terraced houses and less than four percent were detached properties. Detached and semi-detached houses were over represented amongst buyers in the mixed religion wards. Perception of dwelling condition, the presence of a garage, and the purchase price were all negatively related to the proportion of Roman Catholics at ward level. Thus, just 21 percent of buyers in wards classified as 90 percent or more Roman Catholic reported that their homes were in very good condition compared to almost half in wards with less than 10 percent Catholic populations (49%). Similarly, just 14 percent of dwellings in the most segregated Catholic wards had garages compared to 50 percent in the least Catholic wards.

Table 7.7: One-Way Analysis of Variance Tests for Differences in Means of Selected Housing Variables by Religious Composition of Ward

Variable	% RC in Ward	Mean Value	F-Ratio	Probability
Floor Space (Square Feet)	0 - 9.9	1,009	3.83	0.004
	10 - 29.9	1,076		
	30 - 49.9	967		
	50 - 89.9	1,032		
	90+	869		
Purchase Price (£)	0 - 9.9	37,875	6.39	<0.001
	10 - 29.9	45,223		
	30 - 49.9	39,237		
	50 - 89.9	32,265		
	90+	29,711		

7.3 Relocation Behaviour

Traditionally, researchers interested in residential relocation behaviour have focused on why households move and where they move to and from (e.g., Clark, 1986; Clark & Onaka, 1983; Feitelson, 1993; Kendig, 1984; Morrow-Jones, 1988; Waddle, 1992). In brief, the evidence is that reasons typically break down into "forced" moves (e.g., to do with changes in employment) and "adjustment" moves, which are normally related to life-cycle effects (e.g., birth of a child means that a larger house is required etc.). The evidence on spatial aspects of mobility is clear: most intra-urban moves occur over very short distances.

Reasons for movement and spatial aspects of relocation are likely to have important consequences for search behaviour and the subsequent outcomes. For example if, as the American literature on segregation and residential mobility behaviour of blacks suggests, some minority households move because of intimidation or fear, patterns of relocation are likely to

intensify segregation. Similar experiences have been reported for both Catholics and Protestants in Belfast in the early 1970s (see chapter 2). By the same token, if most moves are over short distances and if the existing residential map is highly segregated, as in Belfast, then there will be considerable inertia and the majority of moves may well occur within and between areas with similar religious compositions. This will serve to maintain existing patterns of separate living. Given this context, it is important to examine if there are differences in these aspects of relocation behaviour according to religion and the level of segregation.

7.3.1 Reasons for Relocation

In the residential mobility literature it is common practice to distinguish between different types of moves (e.g, Clark, 1986; Clark & Onaka, 1983; Kendig, 1984). Most of the schema distinguish between voluntary and forced movers. The typology provided by Clark and Onaka (1983) is one of the most comprehensive and is applied in this thesis. A basic division is made between forced and voluntary moves, with voluntary moves further disaggregated into adjustment moves and induced moves. Within this framework, adjustment moves are classified into the three components of the housing bundle: housing unit characteristics, neighbourhood characteristics and accessibility. Induced moves are classified into those with employment and life cycle related reasons. From a survey of comparable research studies, Clark concludes that adjustment related reasons dominate, with employment and life cycle factors of lesser significance (Clark, 1986). Specifically, moves with housing need related reasons make up the majority of adjustment moves, with space, tenure change and cost being the most frequently cited reasons. Accessibility is generally not a major reason, a position substantially at odds with the importance attached to accessibility in the traditional neo-classical economic models of urban structure. Within induced moves, Clark found that life cycle factors dominate, accounting for between 15 and 30 percent of all reasons for moving.

As Table 7.8 demonstrates, this broad picture holds true for recent movers in the BUA[2]. Forced moves make up less than five percent of all moves. Within the BUA, the main contribution to forced movement was intimidation and security fears. This was cited by 19 respondents, representing just over three percent of the total sample but three-quarters of all

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[2] Certain reasons for movement can actually be classified into more than one of the categories. As far as possible, the classification of movement reasons in the BUA study follows the schema advocated by Clark and Onaka (1983), although some judgements had to be made.

forced movers. Catholics and non-Catholics were equally likely to have indicated this as a reason for moving[3]. Other factors in forced movement included illness or disability and previous accommodation being no longer available (eviction and notice to quit).

Table 7.8: Reasons for Moving

Reasons for Moving		Number	%
Forced Moves		25	4.4
Adjustment Moves			
Housing	Space in dwelling	61	10.7
	Quality / design of dwelling	31	5.3
	Cost	39	6.7
	Tenure changes	43	7.6
Neighbourhood	Quality of neighbourhood	68	12.0
	Physical environment	29	5.0
	Social composition	18	3.2
	Public services	15	2.6
Accessibility	Workplace	16	2.7
	Shopping & schools	6	1.0
	Family and friends	23	4.0
Induced Moves			
Employment	Job change	8	1.4
	Retirement	3	0.4
Life-Cycle	Household formation	161	28.2
	Change in marital status	13	2.3
	Change in household size	13	2.3
Totals		571	100.0

As with Clark's (1986) findings, adjustment reasons were the most common, accounting for the majority of all moves (63%). Adjustment moves basically alter the type and quantity of housing consumption. Of the three sub-categories of reasons, those that pertained to the dwelling itself were the most frequently cited accounting for 30 percent of all moves. Within this category, space considerations (number of bedrooms, reception rooms, bathrooms, etc.) were especially important making up 11 percent of all moves. Dwelling quality, which encompasses design, layout, and style, was also found to be an important reason for movement (5%) as was cost (7%). Changes in tenure, in this case from renting to owning, accounted for the remaining moves classified within this category. Neighbourhood-related moves constituted the second most common sub-category within the adjustment classification; some 23 percent of all moves

[3] Thus intimidation and fear is not a major factor in relocation behaviour, but such factors may still be important in search. We return to this point later in the thesis.

were of this type. Neighbourhood-related adjustment moves included those that referred to neighbourhood quality (12%), the nature of the physical environment (5%), the social composition of the neighbourhood (3%) and the provision of public services within the area (3%). The final adjustment category related to accessibility. These reasons accounted for about eight percent of all moves, with accessibility to friends and relatives regarded as the most important (4%), followed by workplace access (3%) and access to shopping and schools (2%).

Induced moves are those that are ascribed to events or decisions affecting household circumstances outside housing considerations. Although similar to adjustment moves, there is a major distinction; reasons that are classified as induced moves are likely to reflect significant and recent changes in housing needs, whereas adjustment moves reflect more long-standing, unmet needs or needs with sources that are not readily identifiable (Clark, 1986). Amongst recent buyers in the BUA, just over one-third of all moves were classified in this way (35%). Employment-related reasons (job change and retirement) accounted for a small minority of such moves (2%) The most significant grouping related to life-cycle changes (33%), and in particular, household formation emerged as the single most common explanation of residential mobility in the BUA (28%).

Table 7.9 shows that there are significant differences between Catholic and non-Catholic households in terms of the main categories of movement (χ^2=16.51; p=0.005). This is in contrast

Table 7.9: Reasons for Movement Differentiated by Religion and Degree of Segregation

Type of Move	Religion		Religious Composition of Ward (% RC)					Total
	RC	Other	0-9.9%	10-29.9%	30-49.9%	50-89.9%	90%+	
	%	%	%	%	%	%	%	%
Forced	4.6	4.4	5.6	5.8	2.4	2.3	-	4.4
Adjustment - Dwelling	27.1	32.0	31.1	34.7	21.8	34.8	21.5	30.4
Adjustment - Neighbourhood	23.6	22.4	19.1	21.6	31.7	24.1	25.3	22.8
Adjustment - Accessibility	3.3	9.9	10.4	7.0	7.5	3.9	-	7.7
Induced - Job	0.4	2.4	0.7	3.5	3.0	-	-	1.8
Induced - Life Cycle	41.0	28.9	33.2	27.4	33.6	34.8	53.2	32.9
	x^2=16.51 p=0.005		x^2=31.38 p=0.05					
BASE	186	385	223	162	96	59	31	571

to Lake's (1981) findings that the reasons for movement amongst black and white home owners were "startlingly identical" (p. 120). In the BUA, non-Catholics were more likely than Catholics to have moved for dwelling (32% compared to 27%) and accessibility (10% compared to 3%) reasons, whereas Catholics were much more likely to have been induced to move for life-cycle reasons (41% compared to 29%). The pattern in terms of the religious composition of the area in which purchase occurred is less clear. Although the chi-square statistic is significant at the 95 percent level of testing, the fact that four of the cells contain no data and that a number of others have relatively few cases suggests that the statistic may be unreliable. Accordingly, it is best to assume that movement type and level of segregation are independent of one another.

In summary, the evidence on reasons for movement suggests that households in the BUA move for very much the same sort of reasons as households elsewhere. Intimidation and fear was reported as a reason for movement by a small proportion of movers. Furthermore, where such problems existed they were equally manifest amongst Catholic and non-Catholic households. Whilst it is true that there are significant differences between the movement reasons of Catholics and non-Catholics, there is no evidence that these differences are related to different outcomes in terms of the level of segregation in the BUA.

7.3.2 Spatial Aspects of Relocation

It is commonly reported in the literature that intra-urban mobility occurs over relatively short distances. This would also appear to be the case for recent movers in the BUA. Conveniently, distances moved fall rather neatly within the following quintile bands: less than half a mile (19%), between half a mile and one mile (22%), between one and two miles (18%), between two and five miles (21%), and more than five miles (21%).[4] A slightly more fine-grained analysis of distances moved is displayed in Figure 7.1.

Significant differences are evident according to a range of household demographic and socio-economic characteristics. Of the standard demographic and socio-economic variables, the age of household head (p=0.24), first time buyer status (p=0.48), and economic status of household head (p=0.37) all tested as being independent of distance moved. In contrast, the remaining variables, which are shown in Table 7.10, were all highly significant, which indicates

[4] For continuing households (72%), the distances are reported relative to the previous address of the household. For new single households (12%), distances relate to the previous address of the individual, which in most cases was the parental home. For new couples (16%), distances relate to the former address of the head of household.

that distances moved reflect differences in the socio-economic composition of the households concerned. In general, the survey data indicates that households with children move over shorter distances than those without children. It also seems that childless couples and households with "grown up" families move over the longest distances. By the same token, newly formed households would appear to relocate over shorter distances than pre-existing households. Higher income households tend to move further than lower income households.

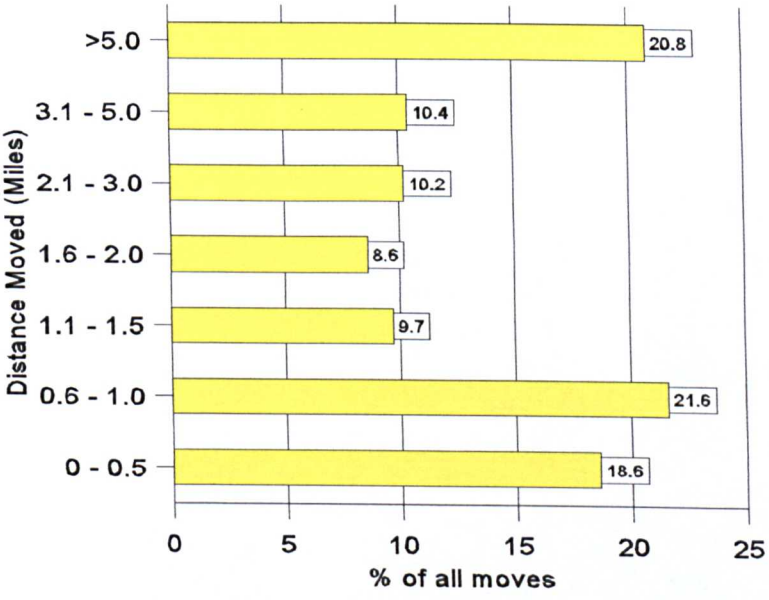

Figure 7.1: Distances Moved

Given the emphasis of this research, the impact of religion and segregation on movement distances is particularly relevant. Movement distance was found to be significantly related to both religion ($p<0.000005$) and degree of segregation ($p=0.00003$). In the case of religion, the evidence is unequivocal; Catholic households move over much shorter distances than their non-Catholic counterparts. For example, almost one-third of Catholics relocated less than half a mile from their previous home, compared to just 12 percent of non-Catholic movers. At the other end of the spectrum, just 12 percent of Catholics moved more than five miles compared to one-quarter of non-Catholics (25%).

The situation with segregation is just as striking. For wards where the Catholic population constituted a majority, relocation occurred over much shorter distances than wards where they were in the minority. For example, 42 percent of moves that ended up in wards classified as 50 - 89.9 percent Catholic occurred over less than half a mile. This concentration rises to 57 percent if the distance increases to one mile. Similarly, 59 percent of households that relocated into the most highly segregated Catholic wards moved over distances of one mile or less. The data suggests that there is a general tendency for the frequency of

Table 7.10: Variations in Distances Moved

Characteristic	Distance Moved in Miles					All
	0 - 0.5	0.6 - 1.0	1.1 - 2.0	2.1 - 5.0	> 5.0	
	Row %	Row %	Row %	Row %	Row %	
Family Size						
One	18.5	17.2	10.7	34.1	19.5	100.0
Two	13.9	26.1	19.8	18.5	21.8	100.0
Three	28.7	11.3	16.6	17.0	31.4	100.0
Four	16.4	25.9	25.3	15.5	16.8	100.0
Five +	25.3	28.7	18.7	16.2	11.1	100.0
			x^2=47.20 p<0.001			
Children						
No	15.8	21.3	15.5	25.1	22.2	100.0
Yes	22.0	22.0	21.6	15.3	19.1	100.0
			x^2=13.10 p=0.011			
Household Type						
Lone Adult	19.3	18.9	11.8	33.0	17.0	100.0
Childless Couple	12.3	25.4	19.2	19.8	23.2	100.0
Family	21.6	22.1	21.7	15.4	19.2	100.0
"Grown up"	18.4	17.0	14.2	22.3	28.1	100.0
			x^2=25.95 p=0.011			
Household Status						
New Single	26.2	14.4	13.8	26.2	19.5	100.0
New Couple	20.8	22.2	21.9	16.1	19.0	100.0
Continuing Single	12.1	22.5	6.1	41.0	18.2	100.0
Continuing Couple	17.8	22.7	20.4	17.1	22.0	100.0
			x^2=30.58 p=0.002			
Family Income						
< £15,000	24.6	25.9	14.7	14.3	20.5	100.0
£15,000 - £25,000	14.1	20.8	19.7	25.2	20.2	100.0
> £25,000	17.3	17.2	21.1	22.4	22.0	100.0
			x^2=18.28 p=0.019			
Religion						
Other	11.8	21.6	19.2	22.2	25.2	100.0
Roman Catholic	32.7	21.7	16.4	17.4	11.8	100.0
			x^2=35.67 p<0.001			
Percent Catholic in Ward						
0 - 9.9	13.1	18.3	16.8	25.1	25.7	100.0
10 - 29.9	12.7	27.2	20.0	17.9	22.3	100.0
30 - 49.9	28.4	14.6	14.5	26.0	16.5	100.0
50 - 89.9	41.6	15.7	23.1	9.9	9.7	100.0
90 +	16.0	42.8	23.2	6.0	12.0	100.0
			x^2=48.89 p<0.001			
All movers (Row %)	18.6	21.6	18.3	20.6	20.8	100.0
BASE	106	124	104	118	119	571

short-distance (ie <=1.0 mile) moves to increase with the percentage of Catholics in the ward. This is interesting because it indicates that buyers in highly segregated Protestant wards (ie. Wards < 10% Catholic) relocated over much greater distances than their Catholic counterparts. Indeed, as Table 7.10 shows, a quarter of buyers in wards with a less than 10 percent Catholic population moved more than five miles compared to just 12 percent of buyers in wards classified as 90% or more Catholic. In terms of relocation behaviour, therefore, it is not the extent of segregation *per se* that is important but the extent of Catholic segregation.

Further insight into religious differences in relocation behaviour may be gleaned from Table 7.11 which shows that movement was concentrated relative to the ward of origin. Fifteen percent of all moves terminated within the ward of origin, and a further 32 percent terminated in wards contiguous with the ward to origin (22% in same sector & 9% in another sector). Some 14 percent of moves were from other wards within the same broad BUA sector and 23 percent

Table 7.11: Spatial Concentration of Relocation Behaviour

Extent of Concentration	Religion		Religious Composition of Ward (% RC)					Total
	RC	Other	0-9.9%	10-29.9%	30-49.9%	50-89.9%	90%+	
	%	%	%	%	%	%	%	%
Within ward of origin	22.6	10.8	12.2	7.8	15.8	23.9	47.2	14.7
Contiguous ward within same sector	25.1	21.1	18.7	22.1	36.6	20.6	9.2	22.4
Non-contiguous but within same sector	8.9	16.3	15.7	17.6	11.5	8.3	-	13.9
Contiguous ward in different sector	11.2	8.3	6.0	13.8	1.6	21.6	8.4	9.2
From elsewhere in the BUA	24.8	22.5	26.3	19.8	24.2	19.5	23.2	23.2
From outside the BUA	7.4	21.1	21.2	18.9	10.3	6.2	12.0	16.6
	x^2=16.51 p=0.005		x^2=31.38 p=0.05					
BASE	186	385	223	162	96	59	31	571

were from another sector. Just 17 percent were from outside the BUA, most of which were from other parts of Northern Ireland (14%). Thus, around 83 percent of owner occupied dwellings purchased in the study period were bought by households that had been previously resident within the BUA. This serves as an indication of the relatively closed nature of the BUA housing market.

Not surprisingly, there are important differences in the relative distribution of moves according to household religion and the religious composition of the ward of destination. The evidence is plain; Catholic households and non-Catholic households display quite different levels of spatial concentration in relocation behaviour, and this difference is highly significant (p=<.000005). A very much greater proportion of Catholic households relocated within the ward of origin (23%) when compared to non-Catholic households (11%). This difference was also apparent for moves from contiguous wards where, once again, Catholic households (36%) were more likely than non-Catholic households (29%) to move in this way. In contrast, non-Catholic households (21%) were much more likely than Catholic households (7%) to have moved from outside of the BUA. This is one of the main reasons for the observed religious difference in distances moved. In terms of segregation, the pattern is also very clear; the extent of intra-ward mobility generally increases with the proportion of the ward population classified as Catholic. Thus, in wards of less than 10 percent Roman Catholic composition, just 12 percent of moves were within the ward of origin. In contrast, in wards of 90 percent or more Roman Catholic composition, almost half of all moves occurred within the ward.

This analysis raises important questions about the extent to which residential mobility is "religion neutral," and therefore the extent to which it serves to maintain existing patterns of separate living. If movers from outside the BUA are excluded, a comparison of the religious composition of origin and destination wards can go some way towards answering these questions. Flows were classified separately for Catholics and non-Catholics as follows: segregation flow (i.e. increased segregation in destination ward), maintenance flow (i.e., same level in origin and destination wards), and a desegregation flow (i.e., reduced segregation in destination ward). The analysis shows that some 40 percent of moves can be regarded as segregating moves, 17 percent were maintenance moves, and 43 percent were desegregating moves. Whilst this produces a net effect of 3 percent desegregation, the basic conclusion is that there is considerable inertia in the current system; very little will change on the basis of owner occupier residential mobility. Thus, the preceding analyses provide clear evidence that segregation is maintained by residential mobility. Moreover, the results underline the fact that Catholic residential mobility is very much more spatially concentrated than the mobility behaviour of non-Catholics which raises the important question about whether search behaviour is similarly concentrated. In the remaining sections of this chapter we turn our attention to the household search behaviour in the BUA.

7.4 Aspirations and Search Criteria

As noted in chapter three, search is often conceptualised as involving two distinct phases: a pre-search or passive search stage, and an active search. Most studies of search concentrate on the active search stage during which households consciously seek out, evaluate and choose between competing alternatives. Whilst this study adopts a similar approach, it is argued that in order to understand active search, one must recognise that certain aspects of pre-search aspirations and behaviour may well impact on more overt search behaviour at a later stage. Specifically, it is suggested that pre-conceptions about what is thought to be important to households before they begin active search and the nature and certainty of their initial aspirations are of particular merit.

7.4.1 Initial Housing Preferences

Previous studies have demonstrated that households usually have some ideas about what features they desire in any new housing (e.g. Rossi, 1955; McQueen, 1983; McHugh, Gober & Reid, 1990; Cadwallader, 1992). Commonly, preferences exist for certain types, ages and sizes of dwelling. Initial preferences of this sort are useful because they may be expected to shape the nature and extent of subsequent housing search behaviour. For example, if the searcher has a preference for an apartment, then areas where detached houses dominate are unlikely to be considered. The extent to which preferences are immutable is, of course, also important. The fact that preferences may evolve as households learn about various alternatives is well recognized in the literature, although rarely modelled in any systematic fashion. In this section the broad structure of pre-search preferences are outlined, together with the extent to which such preferences were actually met. Consideration of the fixed nature of preferences is considered later in this chapter (7.4.4).

Preferences are compared with outcomes in Table 7.12. In terms of dwelling type, searchers in both communities had well-developed preferences with just 19 percent of Catholics and 21 percent of non-Catholics indicating that they had no preferences in this area prior to search. Detached houses were the preferred type by both Catholic (39%) and non-Catholic (31%) households, with semi-detached houses the second most preferred type (25% & 24% respectively), followed by terraced and others (e.g., apartments) as the least preferred. Given the relative similarity in preferences it is not surprising that the chi-square test reveals that house type preferences were independent of religion (p=0.134). When preferences were compared

Table 7.12: Comparing Initial Preferences and Actual Outcomes

Characteristic	Roman Catholic			Non-Roman Catholic			All Households		
	Preferred %	Bought %	Achieved %	Preferred %	Bought %	Achieved %	Preferred %	Bought %	Achieved %
Dwelling Type									
Terraced	11.5	36.9	100.0	12.0	33.5	95.4	11.9	34.6	96.9
Semi-detached	24.7	34.7	68.3	24.0	36.1	87.1	24.2	35.6	80.9
Detached	38.9	21.7	48.9	31.2	27.3	72.1	33.7	25.5	63.4
Other	5.7	6.7	55.4	11.6	3.0	20.0	9.7	4.2	26.8
No preference	19.2	NA	NA	21.1	NA	NA	20.5	NA	NA
Dwelling Age									
Pre 1945	8.8	39.6	75.7	7.6	23.5	76.6	8.1	28.7	76.3
1945 - 1980	12.4	34.3	73.7	9.2	32.9	89.1	10.3	33.3	83.0
Post 1980	5.7	9.1	21.3	12.6	12.2	38.5	10.3	11.2	35.4
New	9.2	17.3	94.6	15.6	31.5	100.0	13.5	26.9	98.8
No preference	64.0	NA	NA	54.8	NA	NA	57.8	NA	NA
No. Bedrooms									
Less than three	18.4	22.5	59.6	17.3	22.6	75.3	17.6	22.6	70.0
Three	47.2	49.5	79.8	44.9	53.0	82.9	47.6	51.9	81.9
Four or more	22.1	27.9	83.1	19.1	24.4	81.7	20.1	25.5	82.2
No preference	12.4	NA	NA	15.8	NA	NA	14.7	NA	NA
No. Reception									
One	0.9	44.6	100.0	-	44.3	*	0.3	44.4	100.0
Two	17.5	46.9	18.7	17.3	45.6	27.9	17.3	16.0	26.1
Three or more	69.2	8.5	11.9	67.8	10.1	14.7	67.7	9.6	13.8
No preference	12.4	NA	NA	15.8	NA	NA	14.7	NA	NA
BASE (All respondents)		186			385			571	

to outcomes, more terraced accommodation was purchased than stated preferences suggested (35% compared to 12%); similarly, more semi-detached dwellings were bought than preferred (36% compared to 24%). In contrast, fewer detached dwellings were acquired (26%) than aspirations indicated (34%). These broad conclusions hold true for both groups and are similar to Sarre, Philips and Skellington's (1989) evidence from a study of minority housing preferences in Bedford. However, the achieved percentage column in Table 7.12 shows that the degree to which preferences were realised differ markedly between the two communities in the BUA[5].

In respect of house type almost all of those who desired terraced housing were able to realise their preferences (97%), with Catholics faring slightly better (100%) than non-Catholics (95%). In terms of semi-detached housing, the great majority of non-Catholic buyers with this preference realised their aspirations (87%), although many fewer Catholic buyers did so (68%).

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5 This is simply a measure of the extent to which households that preferred a particular attribute were able to buy a dwelling which had this attribute. For example, of the 192 respondents that preferred detached housing (33.7%), 122 bought detached housing (63.4%).

Again, amongst searchers who aspired to purchase detached housing, non-Catholics (72%) were more successful than Catholics (49%) in achieving this goal. Interestingly, the majority of households with no pre-search preferences for particular house types ended up buying terraced housing, and the pattern was similar for both communities.

In terms of dwelling age, the most striking observation is that, unlike with house type, most searchers had no particular preferences. This was especially marked amongst Catholic buyers where almost two-thirds had no preference for dwellings of a particular age (64%), and, although the figure for non-Catholic searchers was lower (55%), the majority of this group also had no particular age preferences in mind. This is important because of the significant role played by speculative new build provision in the BUA housing market (see chapter 6). Indeed, as Table 7.13 shows, more than one-quarter of all respondents in the study bought new housing (27%), a figure almost double that suggested by the stated preferences (14%). Interestingly, non-Catholic buyers were much more likely than Catholic buyers to have indicated a preference for new housing (16% compared to 9%) and they were also more likely to acquire a new house (32% compared to 17%). Buyers with no pre-search age preferences were more likely to buy in the older stock. Taking all ages into consideration, there were significant differences in the stated preferences of the two communities on the basis of a chi-square test ($p=0.01$).

Turning to the size of the dwelling, there were no differences in the preferences in relation to the number of bedrooms; both Catholic and non-Catholic buyers had clear preferences for three bedroom dwellings, the most commonly available in the BUA (see chapter 6). Catholic households were slightly more likely to report preferences for larger dwellings although the differences were not significant ($p=0.657$). Generally, households seem to have been able to realise their preferences as regards the number of bedrooms. Indeed, the relationship seems to be monotonic in that as the number of preferred bedrooms increased, so too did the chance of success. The only noticeable difference between the two communities is that Catholic buyers with a preference for small accommodation (60%) were less successful than their non-Catholic counterparts with similar preferences (75%).

The number of reception rooms was the attribute with the greatest disparity between aspiration and realisation. For both communities, more than two-thirds of searchers desired three or more reception rooms; in reality, less than 10 percent were able to realise their preferences. Non-Catholic buyers (15%) fared slightly better than Catholic buyers (12%), but the difference was modest. This is obviously an area where preferences were a little unrealistic.

Table 7.13: Perceived Importance of Location, Neighbourhood and Dwelling Criteria Prior to Active Search

Attribute	Roman Catholic			Non Roman Catholic			All Households			Chi-Square		Tau-c
	Not Important	Quite Important	Very Important	Not Important	Quite Important	Very Important	Not Important	Quite Important	Very Important	Value	Probability	
	Row %	Row %	Row %	Row %	Row %	Row %	Row %	Row %	Row %			
Location												
Access to shopping	27.4	47.5	25.1	21.5	52.6	25.8	23.4	51.0	25.6	2.48	0.29	-0.04
Access to friends & relatives	34.7	40.5	24.8	30.7	41.5	27.8	32.0	41.2	26.8	1.10	0.58	-0.04
Access to medical facilities	38.3	48.0	13.6	30.9	48.0	21.1	33.3	48.0	18.7	5.85	0.05	-0.10
Access HoH work	34.6	43.6	21.8	33.4	38.1	28.4	33.8	39.9	26.3	3.08	0.21	-0.04
Access Partner work	39.6	30.8	29.5	29.7	45.6	24.7	32.9	40.9	26.2	5.81	0.05	-0.04
Access city centre	30.5	53.5	16.0	37.3	41.7	21.0	35.0	45.6	19.4	7.12	0.03	0.02
Access public transport	35.9	41.0	23.0	37.1	40.6	22.2	36.7	40.8	22.5	0.09	0.96	0.01
Access leisure facilities	45.4	43.3	31.0	52.1	35.8	12.2	49.9	38.2	11.9	3.07	0.21	0.05
Access primary schools	52.8	28.2	18.9	48.2	28.6	23.2	49.7	28.2	21.8	1.61	0.45	-0.05
Access secondary school	56.3	31.3	12.4	54.9	27.9	17.2	55.4	29.0	15.6	2.41	0.30	-0.03
Neighbourhood												
Security from burglary	6.1	50.6	43.3	14.6	43.5	41.9	11.8	45.8	42.4	9.08	0.01	0.05
Security for car(s)	14.4	43.1	42.5	17.0	43.8	39.2	16.1	43.6	40.3	0.86	0.64	0.03
Personal safety	3.2	47.8	49.0	10.7	42.7	46.6	8.3	44.4	47.4	9.29	0.01	0.05
Tidy appearance	7.8	48.9	43.3	10.1	41.7	48.2	9.3	44.1	46.6	2.79	0.25	-0.03
Privacy	4.0	43.9	52.2	7.9	39.4	52.7	6.6	40.9	52.5	3.48	0.17	0.01
Environmental quality	15.9	46.9	37.2	19.9	43.5	36.6	18.6	44.6	36.8	1.42	0.49	0.03
Social composition	20.0	47.5	32.6	26.8	45.7	27.5	24.6	46.3	29.1	3.63	0.16	0.08
Religious composition	38.7	30.4	30.9	55.3	27.3	17.3	49.9	28.3	21.8	17.82	0.0001	0.17
Dwelling												
No. of bedrooms	14.8	46.2	39.0	18.2	40.5	41.4	17.1	42.3	40.6	1.96	0.38	-0.00
No. Reception rooms	30.5	49.2	20.4	30.1	39.6	30.2	30.2	42.7	27.0	7.18	0.03	-0.06
Internal condition	13.7	46.5	39.8	7.3	45.7	47.1	9.3	45.9	44.7	7.00	0.03	-0.09
External condition	11.4	44.5	44.1	7.0	44.0	49.0	8.4	44.1	47.4	3.64	0.16	-0.06
Room layout	29.6	45.6	24.8	29.2	42.9	27.9	29.3	43.8	26.9	0.68	0.71	-0.02
Garage	60.1	24.5	15.4	59.4	20.2	20.4	59.6	21.6	18.8	2.80	0.24	-0.02
Off road parking	42.5	31.7	25.7	35.9	30.4	33.7	38.1	30.8	31.1	4.01	0.13	-0.08
Mature garden	60.0	23.1	16.9	59.3	24.6	16.0	59.6	24.1	16.3	0.19	0.91	-0.002
House of character/style	48.5	29.0	22.5	45.6	34.1	20.3	46.5	32.5	21.0	1.50	0.47	-0.01
New house	82.6	8.9	8.5	76.6	10.9	12.5	78.5	10.3	11.2	2.85	0.24	-0.05
DIY potential	61.1	27.6	11.3	58.2	23.4	18.4	59.2	24.7	16.1	5.01	0.08	-0.05
Price	6.8	41.1	52.1	8.4	44.0	47.6	7.9	43.1	49.1	1.18	0.55	-0.04
BASE	186			385			571					

7.4.2 Attributes Considered Important to Households

Apart from broad preferences in respect of house type, age and size, the survey collected information on 30 different possible search criteria broadly organised into housing attributes, neighbourhood attributes and location attributes. Responses were sought from the head of the household and, where appropriate, separately from the partner.

Table 7.13 shows that location attributes were generally of lesser importance than attributes related to the neighbourhood or to the dwelling itself. In terms of location, the majority of households regarded accessibility factors to be "quite important" with the exception of access to leisure facilities and schools, where accessibility was deemed not important by most respondents. In contrast, a wider range of responses were generated in terms of neighbourhood factors. Three attributes, namely personal safety, tidy appearance and privacy, were indicated as "very important" by the majority of recent buyers. Security from burglary, security for cars, environmental quality and the social composition of the neighbourhood were mostly regarded as "quite important". Just one neighbourhood factor - the religious composition of the neighbourhood - was regarded as "not important" by the majority of buyers (50%). The relatively low importance accorded to this factor stands in stark contrast to the overt mobility behaviour reported earlier in the chapter, and, as will be seen presently, it masks important differences within the population.

A similar diversity of responses occurred in terms of dwelling attributes. Of the 12 attributes examined, just two - the external condition of the dwelling and the price - were regarded as "very important" by most buyers (47% & 49% respectively). Four of the attributes - the number of bedrooms, the number of reception rooms, the internal condition and room layout - were typically regarded as "quite important", and the remaining attributes were mostly seen as "not important". Overall, the five most important attributes were privacy (53%), price (49%), personal safety (47%), external dwelling condition (47%), and tidy neighbourhood appearance (47%). In contrast, the five least important (i.e. largest "not important" responses) were having a new house (79%), off street parking (60%), mature garden (60%), DIY potential (59%), and access to secondary schools (55%).

Further information is available from the survey on the general role of price in searching for a new home. It seems that the great majority of households formulated a price range that guided their subsequent search (92%). In the BUA study, the mean minimum price for those with a price range was calculated at £33,167 and the mean maximum price was measured at

£43,013, giving a price range of £9,846, equivalent to 23 percent of the maximum search price limit. Typically, searchers ended up buying within their price range (85%); the mean purchase price of £39,457 represents 92 percent of the mean maximum price ceiling (Table 7.14).

Table 7.14: Pre-Search Price Ranges and Actual Purchase Price

	Roman Catholic	Non-Roman Catholic	All Households
Mean Minimum Price	£33,499	£32,996	£33,167
		t = -0.29 p=0.772	
Mean Maximum Price	£44,511	£42,240	£43,013
		t = -1.02 p=0.310	
Mean Purchase Price	£40,606	£38,866	£39,457
		t = -0.85 p=0.394	
Mean Range	£11,012	£9,244	£9,846
		t = -2.32 p=0.021	
Range as % of max	24.7	21.9	22.9
Purchase price as % of max	91.2	92.0	91.7
BASE (Those with a pre-search price range)	178	345	523

In addition to providing an overall picture of attitudes towards particular attributes, Tables 7.13 and 7.14 also show variations according to religion. As with most of the previous tables in this chapter, the chi-square test provides the basis for judging the significance of religious differences in cross-tabulated tables. Whilst this test provides useful information on the extent to which any two variables are independent of one another, the test says nothing about the strength of any relationship that may or may not be present. When one variable is dichotomous and the other is measured on an ordinal scale, as is the situation with each of the 30 attributes employed in this study, an alternative measure of association is Kendall's Tau[6] (Lewis-Beck, 1995).

Of the 30 attributes examined, all but eight were found to be independent from household religion on the basis of the chi-square tests. This suggests that, for the most part, Catholic and non-Catholic home buyers in the BUA had similar ideas about what was important

6 There are three versions of Tau available (Tau-a, Tau-b, & Tau-c). Tau-a is restricted because it fails to deal with tied pairs and where ties are present (a common event) the statistic is no longer bounded by the desirable +1 -1 limits. Tau-b corrects for tie problem but when tables are not square the +1 -1 limits are violated. Tau-c is an adjusted version of Tau-b which can attain a value within the +1 -1 range for most tables. Thus, this version of Tau is selected for use in this study.

or unimportant in terms of housing attributes. Nevertheless, there were a number of differences which require elaboration. When compared to non-Catholics, Catholic households were less concerned about proximity to medical facilities and access to the city centre, but were more concerned about accessibility to their partner's place of work. Whilst these differences were significant at the 95 percent level of testing, the Tau-c statistic shows that the relationship, in each case, was rather weak.

In terms of neighbourhood factors, Catholic households were more concerned than other households about security from burglary, personal safety and the religious composition of the area. These differences were significant at the 99 percent level of testing. The differences on religious composition of the neighbourhood were particularly marked, with 31 percent of Catholic households citing this a very important consideration compared to just 17 percent of non-Catholic households. The chi-square statistic for this factor was very highly significant ($p=0.0001$), and the tau-c value, at 0.17, was the highest level attained across all 30 attributes. Finally, in respect of dwelling attributes, non-Catholic searchers placed greater value in the number of reception rooms and the internal condition of the dwelling than their Catholic counterparts.

Although Table 7.14 shows that Catholic households were significantly less likely (4%) than non-Catholic households (10%) to begin their search with a pre-specified search price range, in a practical sense the difference is unimportant. For both groups, the overwhelming majority of searchers had a price range in mind. When we consider those cases where ranges were in existence, again there were no differences of any note in the minimum and maximum thresholds set, although the Catholic price range (£11,012) was significantly larger than the non-Catholic price range (£9,244) at the 95 percent level of testing. Furthermore, whilst Catholics (18%) were slightly more likely than non-Catholics (14%) to have purchased beyond their initial maximum threshold, the difference was not significant. Indeed, as Table 7.14 shows, for both groups, on average, the purchase price represented around 91 percent of the individual group maximum threshold.

The basic conclusion, therefore, is that whilst Catholic and non-Catholic search criteria appear broadly similar to one another, there are important differences that may well impact on active search behaviour. The most obvious potential source of impact on search is the very major difference in opinion regarding the importance of neighbourhood religious composition. An indication of the impact of this factor can be gauged from Table 7.15 which compares views

on the importance of the religious composition of the neighbourhood with the household's assessment of the effect of this factor on their actual search behaviour.

This shows that about half of households claimed that religious composition had no impact on their search, about one-quarter claimed that they searched in mixed or mainly in mixed communities (23%), and a further quarter admitted to restricting their search to areas

Table 7.15: The Relationship Between Importance of Religious Composition of Neighbourhood and Search Behaviour

Importance of religious composition of neighbourhood	Impact of Religious Composition of Neighbourhood on search					Totals	Statistics
	Only searched areas of same religion as self	Mainly searched areas of same religion as self	Only searched in mixed religion areas	Mainly searched in mixed religion areas	No effect		
Catholic Households	%	%	%	%	%	%	χ^2 = 95.92 P<0.001
Not important	1.8	18.0	17.5	25.9	78.8	38.7	
Quite Important	25.4	33.3	40.9	57.5	15.0	30.4	Tau-c =
Very Important	72.8	48.7	41.6	16.6	6.2	30.9	-0.61
BASE	29	19	44	25	68	186	
(Row %)	(15.8)	(10.4)	(23.4)	(13.7)	(36.8)	(100.0)	
Non-Catholic Households	%	%	%	%	%	%	χ^2 = 141.82 P<0.001
Not important	18.3	43.1	23.4	44.1	75.0	55.3	
Quite Important	25.1	43.8	38.6	47.9	20.4	27.3	Tau-c =
Very Important	56.7	13.1	38.1	8.0	4.6	17.3	-0.43
BASE	66	40	31	32	216	385	
(Row %)	(17.1)	(10.4)	(8.0)	(8.3)	(56.2)	(100.0)	
All Households	%	%	%	%	%	%	χ^2 = 230.92 P<0.001
Not important	13.2	34.9	19.9	36.0	75.9	49.9	
Quite Important	25.2	40.4	40.0	52.2	19.1	28.3	Tau-c =
Very Important	61.7	24.7	40.1	11.8	5.0	21.8	-0.50
BASE	95	59	74	57	285	571	
(Row %)	(16.7)	(10.4)	(13.0)	(10.0)	(10.0)	(100.0)	

where the religious composition was 100 percent their own religion, or mainly in such areas (27%). Interestingly, many fewer Catholic (37%) than non-Catholic households (56%) indicated that religion had had no impact on their search. Given that Catholic households were more affected by religious composition, it is important to determine how this was manifested in search behaviour. From Table 7.15 it may be seen that Catholic households (37%) were much more likely than non-Catholic households (17%) to have concentrated their search into the two mixed categories. This is consistent with the reported differences in residential mobility behaviour of

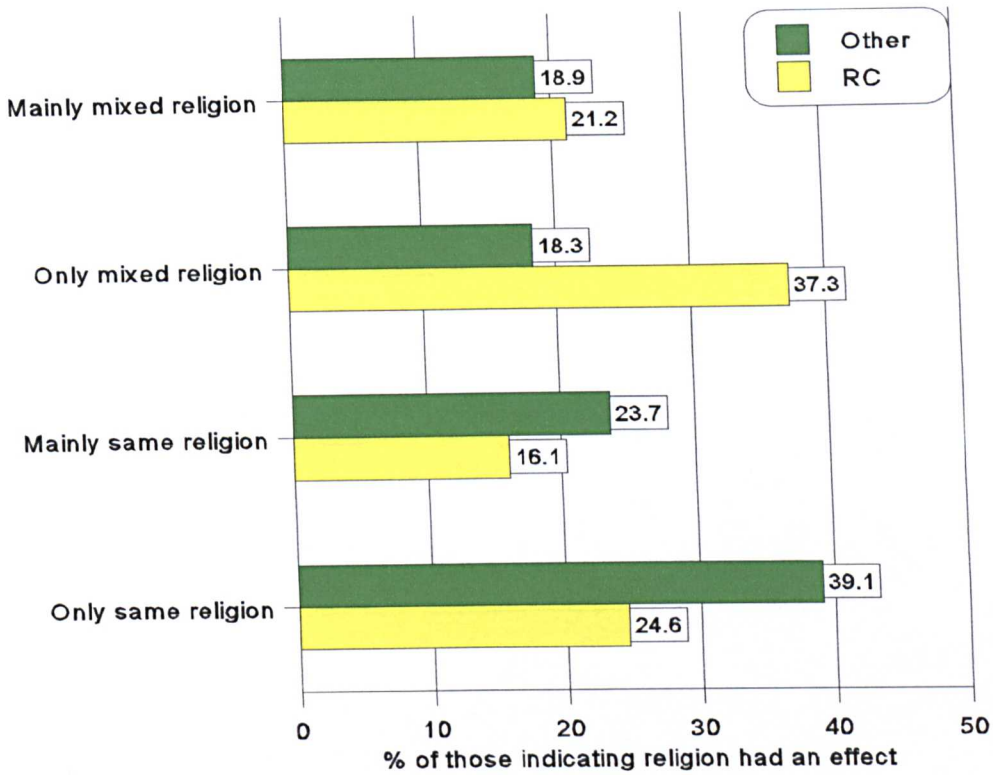

Figure 7.2: Search Concentration by Religion

the two communities that was discussed earlier in this chapter. When those claiming that religion had no effect are excluded from the calculations, the picture becomes much sharper (Figure 7.2).

It was noted earlier that Catholics were more likely (31%) than non-Catholics (17%) to report that religion was a very important consideration. Interestingly, this importance had a differential impact on search within the two communities. Thus, 37 percent of Catholic households with this opinion concentrated their search exclusively in Catholic areas; For non-Catholics, the figure was 56 percent. Similarly, almost one-third of Catholic households with this view only searched mixed areas compared to just 18 percent of non-Catholic households. Thus, whilst Catholics place greater importance on religion than non-Catholics, proportionately fewer Catholic households than non-Catholics translate this into a same religion search focus. This may suggest that Catholic home buyers in the BUA were more tolerant of mixed religion communities than their non-Catholic counterparts, and many actually sought out such communities in the course of their search.

Given that religious composition does appear to be a consideration in household search in the BUA, it is legitimate to ask how households know or discover the religious composition of any particular area. The most frequently cited method was "common knowledge" (79%), a fact

that reinforces Poole and Boal's assertion that Belfast households had a keen awareness of the religious geography of the city in which they lived (Poole & Boal, 1973).

This high level of common knowledge is further underlined by the fact that half of the survey respondents claimed to know people who lived in the areas in which they searched (50%), and almost one-third noted that they already lived or had previously lived in the areas involved (32%). Other ways in which the religious composition of areas was ascertained included press coverage (17%), the nature of schools and institutions present (12%), graffiti (6%) and other visual cues such as street signs in Irish, painted kerb stones and wall murals (5%). Examples of some of the more recognisable visual cues are shown in Plates 3 and 4. Although there are some differences between Catholic and non-Catholic households, broadly similar methods were employed by both groups (Table 7.16).

Table 7.16: Sources and Methods Used to Determine Religious Composition of Areas

Source / Method	Roman Catholic	Non-Roman Catholic	All Households	Chi-Square	Probability
	%	%	%		
Composition is common knowledge	75.0	83.9	78.7	3.28	0.070
Street signs and other visual cues	10.4	1.7	5.3	10.53	0.001
Schools & institutions	13.5	11.4	12.3	0.30	0.580
Press coverage of the area	4.9	8.3	16.9	1.25	0.260
Know people in area	41.4	55.2	49.5	5.27	0.022
Graffiti	7.7	5.4	6.4	0.60	0.437
Live or used to live in the area	23.8	37.2	31.7	5.73	0.017
BASE	118	168	286		

7.4.3 Conflict Within Households

Although the emphasis within this chapter is on differences between households, particularly in terms of religion, it is clear that potential exists for differences within households. Indeed, in chapter four it was suggested that where conflict was present search would be more protracted but cover fewer properties than would be the case where conflict was not present. The survey questionnaire was specifically designed to record certain key information separately for each

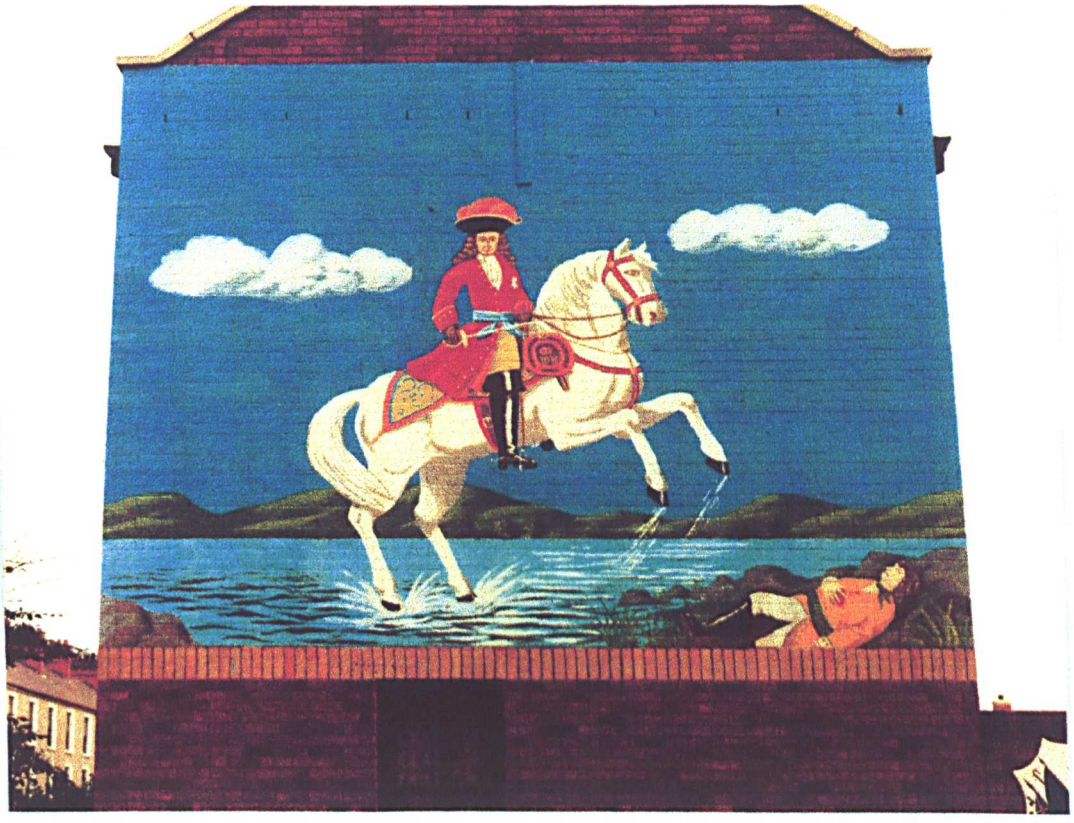

Plate 7.1: An Obvious Visual Cue on the Religious Composition of a Neighbourhood

Plate 7.2: A Slightly More Subtle Visual Cue

partner (where applicable).In a research sense, this is a paired sample problem. Specifically, the aim is to test if the head of household's responses on each attribute were different from the partner's responses on the same attributes. As the data were measured on an ordinal scale, the appropriate test procedure is the Wilcoxon-Signed-Rank Test. This is a nonparametric (i.e. distribution free) procedure that is used with two related samples to test the hypothesis that the distributions of the two variables are the same. The results of a series of such tests for the 441 couples in the survey are presented in Table 7.17.[7]

The table displays the results broken down according to whether or not the household was newly formed as a couple. Two values are presented in each column against each attribute: Z, the standard-score value, and p, the probability level associated with the score.[8] Taking the sample of couples as a whole, there were significant differences between the head of household and the partner in respect of all but seven of the attributes at the 95 percent level of testing. In most cases, the differences were significant at the 99.9 percent level. The seven attributes where no differences existed were access to the city centre (almost significant), access to leisure facilities, security from burglary, religious composition of the neighbourhood, the number of bedrooms, external dwelling condition and having a house of character or style.

In terms of location attributes, partners accorded greater priority to access to shopping, friends and relatives, medical facilities, their own place of work, public transport, and primary schools. Similarly, in respect of neighbourhood factors, partners gave greater weight to almost all of the factors than was the case for heads of household. The situation with dwelling attributes was more mixed. Partners tended to emphasise internal orientated features such as reception rooms, internal condition, room layout and style. In contrast, heads of household emphasised external orientated features such as external condition, the availability and size of the garage, and off road parking.

In addition to these general observations, two other points about Table 7.15 are worth highlighting. Firstly, there are fewer significant differences between heads of households and partners in new households (18) when compared to continuing households (21), which suggests

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7 It should be noted that data was obtained separately for each partner for each of 29 attributes (price was excluded).

8 Although the great majority of couples agreed over the relative importance of individual attributes, some differences were apparent. Where disagreement was present a "+" or a "-" sign is used to indicate the partner's view relative to the head of household's view. Generally, where differences exist, the partner regards the attribute as more important than the head of household (21 attributes).

Table 7.17: Within Household Differences in the Assessment of what is Important in Search - Wilcoxon-Signed-Rank Test Results

	New Households			Continuing Households			All Households		
Attribute	Z	p		Z	p		Z	p	
Location									
Access to shopping	-2.40	0.016	+	-4.58	<0.001	+	-4.97	<0.001	+
Access to friends & relatives	-2.03	0.043	+	-3.15	0.002	+	-3.69	<0.001	+
Access to medical facilities	-2.00	0.045	+	-3.74	<0.001	+	-4.44	<0.001	+
Access HoH work	-2.52	0.012	-	-3.29	0.001	-	-3.64	<0.001	-
Access Partner work	-3.06	0.002	+	-2.95	0.003	+	-3.99	<0.001	+
Access city centre	-0.21	0.831	-	-1.66	0.098	+	-1.95	0.052	+
Access public transport	-3.72	<0.001	+	-5.28	<0.001	+	-6.70	<0.001	+
Access leisure facilities	-3.18	0.002	-	-2.21	0.027	-	-2.74	0.006	-
Access primary schools	-1.46	0.144	+	-5.33	<0.001	+	-4.63	<0.001	+
Access secondary school	-1.94	0.054	-	-1.65	0.098	+	-0.30	0.763	+
Neighbourhood									
Security from burglary	-0.63	0.529	+	-1.58	0.115	-	-0.51	0.613	-
Security for car(s)	-2.61	0.009	+	-2.89	0.004	+	-4.09	<0.001	+
Personal safety	-3.46	<0.001	+	-3.24	0.001	+	-4.29	<0.001	+
Tidy appearance	-4.29	<0.001	+	-4.32	<0.001	+	-5.53	<0.001	+
Privacy	-3.78	<0.001	+	-3.52	<0.001	+	-4.46	<0.001	+
Environmental quality	-1.34	0.181	+	-1.85	0.060	+	-2.06	0.039	+
Social composition	-2.79	0.005	+	-4.77	<0.001	+	-4.14	<0.001	+
Religious composition	-0.36	0.723	+	0.00	1.000	=	-0.23	0.821	-
Dwelling									
No. of bedrooms	-1.83	0.067	+	-0.01	0.995	+	-1.44	0.150	+
No. Reception rooms	-3.92	<0.001	+	-5.38	<0.001	+	-7.24	<0.001	+
Internal condition	-2.95	0.003	+	-3.08	0.002	+	-5.49	<0.001	+
External condition	-2.31	0.021	-	-1.78	0.076	-	-1.79	0.073	-
Room layout	-3.89	<0.001	+	-5.68	<0.001	+	-7.76	<0.001	+
Garage	-1.43	0.154	-	-3.73	<0.001	-	-3.39	<0.001	-
Off road parking	-3.02	0.002	-	-4.02	<0.001	-	-4.08	<0.001	-
Mature garden	-2.68	0.007	+	-3.48	<0.001	+	-4.20	<0.001	+
House of character/style	-1.25	0.210	-	-1.92	0.054	-	-1.31	0.191	-
New house	-0.77	0.441	+	-2.54	0.011	+	-2.80	0.005	+
DIY potential	-1.09	0.276	+	-3.18	0.002	+	-3.94	<0.001	+
BASE	94			346			441		

that conflict levels were less for new households. Second, whilst the overall pattern remains broadly similar for new and continuing households, there are a number of points of departure that are interesting. For example, in new households there was no significant difference in views over the two education attributes; in contrast, in continuing households, access to primary schools emerged as a point of potential conflict with the partner according greater importance to this attribute. This may reflect a life cycle effect but, in any event, it is indicative of potential conflict within the household.

Overall, there seems to be sufficient evidence to suggest that scope for conflict exists within households over the attributes that were considered important in search and hence the criteria that might be used to evaluate the different alternatives considered. The extent of conflict was measured by incrementing a flag variable by one for every occasion in which the two partners varied in their views over what was important. This results in a rather crude scale with a potential range of 0-29. The distribution is shown graphically in Figure 7.3. It is apparent that

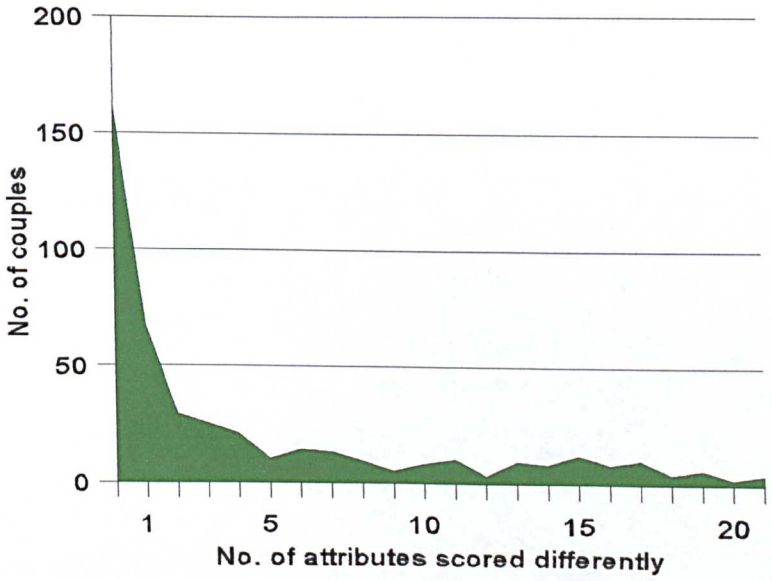

Figure 7.3: Differences in Attribute Importance within Households

some 37 percent of all couples (161), were in perfect accord; there were no differences on any of the 29 attributes for which separate head of household and partner views were sought. The attitudes of 15 percent of couples differed on just one attribute, seven percent differed on two, six percent on three and five percent on four attributes. At the other end of the scale, just under one percent of couples (4) differed on 21 attributes. No couples differed on more than 21 attributes. It is worth noting that the distribution itself is asymptotic, a point to which we return in the next chapter.

With the exception of buyer status and income, the presence of conflict was not related to the demographic and socio-economic characteristics of the households concerned. Not surprisingly perhaps, given the information contained in Table 7.17, first time buyer couples were less likely to experience conflict than existing buyers ($p=0.005$). The situation with income is less clear cut, with conflict levels highest in the middle-income category and lower at both ends of the spectrum ($p=0.02$).

7.4.4 Spatial Preferences Prior to Active Search

The literature on residential search indicates that households begin their search with strong spatial preferences. This is also true in the BUA. Just 10 percent of searchers had no spatial preferences at the outset of their search, one third had several areas in mind, and 59 percent had a single, specific area in mind. These results are remarkably similar to those in an earlier study in Glasgow (Munro & Lamont, 1985). With such strong preconceptions, it should not be surprising that studies of search frequently discuss the highly spatially focused nature of active residential search behaviour. Many potential areas are discounted in the passive stage of search.

In terms of religion, Catholic and non-Catholic searchers had similarly developed ideas about where they wanted to live before their search began. Thus, just eight percent of non-Catholic households and 11 percent of Catholic households began their search with no spatial preferences in mind, a difference that was not significant ($\chi^2 = 1.40$, $p=0.497$). Differences were noted, however, in both the structure of preferences and the extent to which preferences were subsequently realised (Table 7.18).

As regards spatial preferences, few households expressed preferences for searching in Greenisland (<4%), Holywood (<5%) or Castlereagh (<8%). In each case, there were no differences between the preferences of Catholics and non-Catholics. Preferences for Newtownabbey and Lisburn were more positive (17% and 22% respectively). Preferences for Newtownabbey were similar for both groups, whereas for Lisburn, non-Catholics were more favourably disposed to search in that area than Catholics. Overall, however, it is apparent that the majority of households had strong preferences for particular parts of Belfast as opposed to the suburban parts of the BUA. Almost two-thirds of respondents indicated preferences for areas within the city (63%), rising to 82 percent for Catholic households, a difference found to be highly significant. In contrast, non-Catholic (14%) households were twice as likely as Catholic households (7%) to express a preference for areas outside the BUA altogether, a difference significant at the 99 percent level of testing. Within Belfast, Catholic households favoured the north (45%), south (28%) and, to a lesser extent, the west of the city (20%). In contrast, non-Catholic households favoured the east of the city (27%) and south Belfast (18%).

Purchase locations were similar to initial preferences, although some differences were evident. For example, fewer searchers were able to buy within Belfast (57%) than initially preferred to live within the city (63%), with the main disparity being in the south. Generally,

Table 7.18: Preferred Search Area and Location of Eventual Purchase

Area		Roman Catholic	Non-Roman Catholic	All Households	Chi-Square	Probability
		%	%	%		
Greenisland	Preferred	2.8	4.3	3.8	0.67	0.411
	Achieved	1.1	3.7	2.8	3.03	0.080
Newtownabbey	Preferred	17.6	17.3	17.4	0.01	0.939
	Achieved	14.4	17.7	15.6	0.92	0.335
Holywood	Preferred	4.1	4.7	4.8	1.07	0.789
	Achieved	5.4	3.6	4.2	1.04	0.309
Castlereagh	Preferred	6.5	7.9	7.4	0.32	0.569
	Achieved	4.3	12.5	9.7	9.08	0.003
Lisburn	Preferred	15.1	26.2	21.5	8.33	0.003
	Achieved	14.4	24.9	21.3	8.00	0.005
North Belfast	Preferred	44.6	12.7	22.9	64.53	<0.001
	Achieved	43.4	12.8	22.8	67.18	<0.001
East Belfast	Preferred	5.6	26.8	20.0	31.53	<0.001
	Achieved	5.7	27.7	20.5	37.17	<0.001
South Belfast	Preferred	27.4	17.9	20.9	6.18	0.012
	Achieved	26.4	14.8	18.6	11.30	<0.001
West Belfast	Preferred	20.3	3.1	8.6	42.33	<0.001
	Achieved	18.5	3.5	8.4	36.78	<0.001
Belfast Total	Preferred	81.9	54.5	63.4	40.50	<0.001
	Achieved	77.3	47.4	57.2	45.78	<0.001
Outside BUA	Preferred	6.5	14.3	11.8	6.58	0.010
	Achieved	6.0	15.4	12.3	10.11	0.001
BASE (those with spatial preferences)		166	353	517		

Catholic and non-Catholic searchers ended up buying in their preferred search areas. This said, some pressure points are worth highlighting. Thus, Catholic searchers with a preference for Newtownabbey were less successful than their non-Catholic counterparts in realising their preferences. This was also evident in Castlereagh, where almost twice as many non-Catholics bought homes than might been expected given initial preferences. In contrast, in Holywood, Catholic searchers were more successful in achieving their pre-search spatial aspirations. Overall, however, pre-search spatial aspirations were very influential in dictating where households searched and moved to.

7.4.5 Uncertainty in Pre-Search Aspirations

Uncertainty is an important concept in studies of consumer search behaviour. In chapter three it was argued that studies of housing search have neglected uncertainty as an explanatory factor

in spite of the fact that search is often portrayed as a means of reducing uncertainty. In this study, a variety of measures of uncertainty were developed (Table 7.19). Overall, more than one-quarter of households indicated that they knew exactly what they wanted from their search (29%), a further 42 percent had well-developed ideas, 27 percent claimed to have some ideas, and just two percent claimed that they began their search with no clear ideas about what they wanted[9]. Generally, Roman Catholic households had more clearly developed ideas about their search than non-Catholic households. Thus, one-third of Catholics reported that they knew exactly what they wanted compared to just 26 percent of non-Catholics. At the opposite end of the spectrum, just 22 percent of Catholics reported that they had "some/no ideas" compared to 32 percent of non-Catholics. These differences were significant at better than the 95 percent level of testing (p=0.043).

Table 7.19: Uncertainty in Search

Measure	Roman Catholic	Non-Roman Catholic	All Households
	%	%	%
What wanted from search			
Knew exactly	33.4	26.6	28.9
Well developed ideas	44.3	41.4	42.3
Some / no ideas	22.3	31.9	28.8
		χ^2 = 6.30 p=0.043	
Initial ideas were...			
Very well defined	33.5	24.5	27.4
Quite well defined	41.1	54.2	49.9
Neither well nor poorly defined	11.5	13.3	12.7
Quite / very poorly defined	13.9	8.1	10.0
		χ^2 = 12.6 p=0.005	
Changed mind over what was important			
No	72.0	80.8	81.0
Yes	28.0	19.2	19.0
		χ^2 = 5.6 p=0.018	
BASE (All respondents)	186	385	571

Catholic buyers were also more likely than non-Catholic buyers to report that their initial aspirations were very well defined (34% compared to 25%), a finding consistent with the fact that Catholics had more clearly developed ideas about what they wanted from their search. However, perhaps paradoxically, Catholic searchers (28%) were more likely than non-Catholic searchers (19%) to report that they had changed their minds during search. This suggests that

9 Because of the small numbers involved, the last two categories are combined.

in the subsequent multivariate analysis of search behaviour, separate measures are required for uncertainty and "fixity" of pre-search ideas.

7.5 Active Search

Active search is usually taken to refer to the period of conscious and deliberate effort to find a new home. Three aspects of active search have been emphasised in the literature: information acquisition and use, spatial search behaviour, and search effort. Taken together these aspects of search provide a detailed picture of search behaviour. In this section the aim is to provide a basic understanding of the dimensions of these separate but related components of active search behaviour. As in the previous sections, the emphasis is placed on differences and similarities according to religion and the level of segregation. However, in light of the other relationships embodied within the conceptual model of search set out in chapter four, this section also considers constraints, problems and satisfaction with search outcome.

7.5.1 Information Acquisition and Use in Residential Search

The housing market provides a good example of a decision-making environment in which there are numerous channels of information, each of which varies in terms of cost, accuracy and timeliness. In this study the primary interest is focused on uncovering what channels were used and how they differed according to the religion of the searcher. In chapter four it was hypothesised that minority searchers relied more heavily on informal, non-market sources of information and that this reliance may be an explanation of spatially highly focused search and continued residential segregation. Personal contacts in the form of friends and relatives and, perhaps less so, work colleagues, may provide information mainly about vacancies in areas where the Catholic population is dominant. Catholic households relying on such contacts may then find it easier to find suitable housing in such neighbourhoods.[10]

Information channels can be broadly grouped into two categories: market sources and non-market sources. Within the BUA, market sources were the most frequently employed, with more than 90 percent of buyers indicating that they had used such sources. In contrast, less than 80 percent of searchers used non-market sources. Overall, the most common source of

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10 It is also possible that reliance on market sources such as estate agents may also lead to segregated outcomes if agents treat Catholic and non-Catholic household differently. In chapter three such "steering" behaviour was discussed in the context of racial search in the American cities. Steering is not examined in this thesis.

Table 7.20: Differences in Information Use

Channel	Religion		Religious Composition of Ward (% RC)					Total
	RC	Other	0-9.9%	10-29.9%	30-49.9%	50-89.9%	90%+	
	%	%	%	%	%	%	%	%
Market Sources								
Newspaper adverts	46.3	28.6	26.9	40.6	38.3	19.4	72.3	34.4
	χ^2=17.33 p<0.001		χ^2=34.38 p<0.001					
Property Magazines	73.4	63.0	58.4	66.7	79.4	61.6	89.9	66.4
	χ^2=6.05 p=0.014		χ^2=21.86 p<0.001					
Estate Agent	80.6	74.0	69.8	76.7	89.2	70.6	89.9	76.2
	χ^2=2.97 p=0.084		χ^2=18.22 p=0.001					
Show Houses	29.0	33.7	37.3	38.5	18.2	26.7	16.1	32.2
	χ^2=1.29 p=0.257		χ^2=18.68 p<0.001					
Lenders	7.6	7.7	9.9	6.1	5.2	11.9	-	7.7
	χ^2=0.002 p=0.961		χ^2=6.94 p=0.139					
Any Market Source	91.6	91.2	88.5	95.6	94.2	83.3	95.9	91.4
	χ^2=0.02 p=0.879		χ^2=12.63 p=0.013					
Non-Market Sources								
Driving Around	58.1	46.5	41.1	56.9	59.3	50.2	53.2	50.3
	χ^2=6.70 p=0.010		χ^2=13.56 p=0.009					
Relatives	16.5	9.7	8.4	10.7	19.1	14.1	16.1	11.9
	χ^2=5.58 p=0.018		χ^2=8.50 p=0.075					
Friends	37.5	16.2	16.9	15.1	25.8	26.3	96.0	23.1
	χ^2=31.98 p<0.001		χ^2=103.54 p<0.001					
Work Colleagues	61.7	41.1	38.1	39.9	68.3	45.8	100.0	47.8
	χ^2=21.32 p<0.001		χ^2=62.38 p<0.001					
Journey to work	13.8	11.3	12.3	10.6	17.1	13.9	-	12.1
	χ^2=0.77 p=0.384		χ^2=7.00 p=0.136					
Other journeys	32.1	25.3	23.8	26.7	39.3	30.5	16.0	27.5
	χ^2=2.96 p=0.085		χ^2=10.57 p=0.032					
Previous Knowledge	32.1	20.8	19.2	13.6	38.2	21.6	82.0	24.4
	χ^2=8.70 p=0.003		χ^2=79.23 p<0.001					
Other source	2.5	3.1	3.1	3.2	4.7	-	-	2.9
	χ^2=0.13 p=0.717		χ^2=3.88 p=0.422					
Any non-market	87.7	75.4	74.7	76.9	86.6	82.2	100.0	79.4
	χ^2=11.60 p<0.001		χ^2=15.02 p=0.005					
BASE	186	385	223	162	96	59	31	571

search information was estate agents (76%) closely followed by property magazines (66%). These are both market sources. The third most common source was "driving around" (50%), followed by information from work colleagues (48%), newspaper advertisements (34%), and visiting show houses (32%). Less use was made of friends (23%), relatives (12%), and journey to work (12%).

Significant differences were found between Catholic and non-Catholic searchers. Table 7.20 analyses the sources in terms of household religious difference and level of segregation and Table 7.21 shows how the extent of channel usage varied according to the same factors. In terms of usage of particular sources, there were significant differences between Catholic and non-Catholic searchers for eight of the 13 sources examined. In all cases where significant differences existed, Catholic searchers used more of the information channels concerned, thus supporting hypothesis H4. For both groups, the most commonly used source of information was estate agents, although Catholics (81%) made greater use of this channel than non-Catholics (74%), a result consistent with the US evidence on racial differences in search. Property magazines constituted the second most common source for both groups, with 73 percent of Catholic searchers and 63 percent of non-Catholic searchers using this channel. Again, the difference is highly significant. A difference was noted in terms of the third most frequently used source. For Catholics, the third most common source was information from work colleagues (62%), whereas for non-Catholics the third most common source was driving around (47%).

In summary, Catholic searchers made greater use of the following sources: newspaper advertisements, estate agents, property magazines, driving around, relatives, friends, work colleagues, and previous knowledge. When the sources were grouped into market and non-market sources, there was no difference in the propensity of Catholic and non-Catholic searchers to use market sources (92% compared to 91%). However, there was a significant difference in terms of the use of non-market sources. Catholic searchers (88%) were more likely to have employed non-market sources than non-Catholic searchers (75%), a difference significant at better than the 99.9 percent level of testing.

Before discussing how channel selection varied according to the extent of segregation, it is worth noting where Catholic and non-Catholic searchers did not differ in their use of information. No differences were found in terms of show house visits, information from lenders, journey to work, other non-work-related journeys, and other, more minor sources. The most interesting similarity concerns show house visits. It has already been reported that Catholic

Table 7.21: Differences in Mean Number of Channels Used

	Mean	Test Statistics
Religion		
Roman Catholic	4.30	T-test
Non-Roman Catholic	3.41	t = -5.06 p<0.001
Segregation (%RC)		
0 - 9.9	3.29	One-Way ANOVA
10 - 29.9	3.66	
30 - 49.9	4.34	F=10.49
50 - 89.9	3.49	p <0.001
90+	5.31	

buyers were significantly under-represented in the new build market. Given this difference, the finding that Catholic and non-Catholic searchers were equally likely to have visited show houses is an important finding.

In terms of the level of segregation, for all but three channels, source usage and degree of segregation were found to be related. Unfortunately, in few cases is the relationship between channel selection and segregation clear cut. As an aid to interpretation, the information is presented graphically in Figure 7.4. The upper graph shows the market sources. From this it is clear that, in general, use of agents, newspaper advertisements and property magazines increased with the degree of segregation. In contrast, the propensity to visit show houses and information from lenders generally decreased with the level of segregation in the ward of purchase. In terms of non-market sources, with the exception of relatives, which is rather flat in distribution terms, and journey to work, which trends downwards, non-market source usage was positively related to the degree of segregation. Indeed, if we relate non-market source use during search to the nature of the mobility flows involved (as defined in 7.3.2), it can be seen that 92 percent of households in the Catholic segregating flow used non-market information compared to 86 percent in the Catholic desegregating flow. It is also worth noting that usage of many of the channels, both market and non-market, had a secondary peak in the mixed religion areas. This might imply that information search intensifies amongst buyers in such areas as well as for buyers in highly segregated Catholic areas. In general, information usage is lower in areas where Catholics are in the minority.

Access to particular sources is just one aspect of information use; as important, if not more important, is the value of information gained. In keeping with previous studies of information use in search (e.g., Cronin, 1982), respondents were asked to rate the usefulness

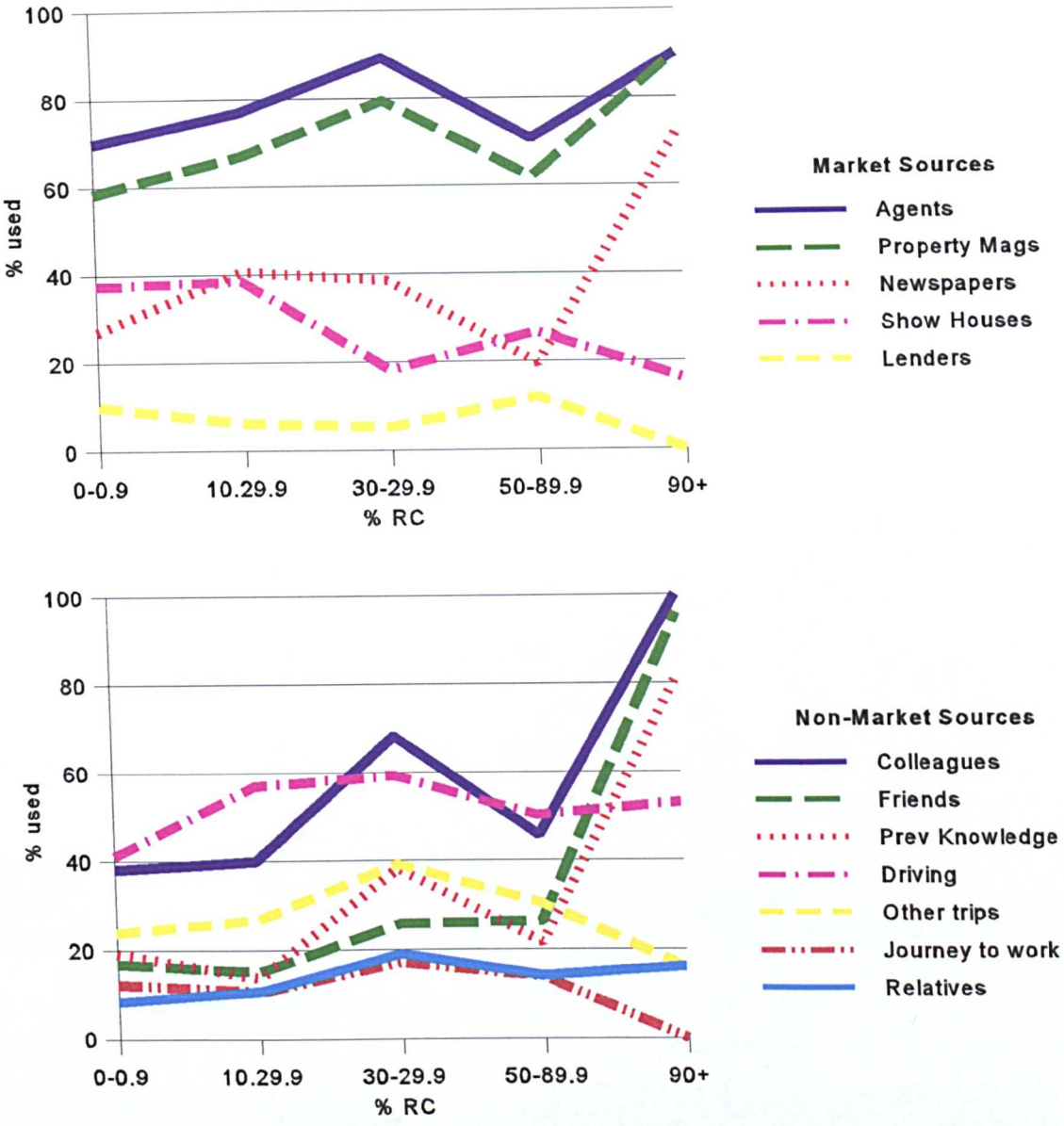

Figure 7.4: Information Channel Selection and Extent of Segregation

of the information from the major channels. There were large differences in the relative importance attached to channels by each of the two communities in the BUA. Table 7.22 confirms the place of informal, non-market channels in Catholic owner occupier search. Friends (66%), colleagues (56%) and relatives (51%) emerged as the most important information channels for Catholic searchers. In contrast, show houses (61%) were the most highly regarded source for non-Catholic searchers, followed by property magazines (51%) and work colleagues (50%). Many of these differences are highly significant. For example, non-Catholics placed much greater value on property magazines than Catholics (p=0.002) whereas Catholic searchers though more highly of information from friends than did non-Catholics (p=0.002).

Table 7.22 Perceived Importance of Selected Information Channels by Religion

Channel	Roman Catholic			Non-Roman Catholic			All Households			
	Very Helpful	Quite Helpful	Not Helpful	Very Helpful	Quite Helpful	Not Helpful	Very Helpful	Quite Helpful	Not Helpful	No. using source
	%	%	%	%	%	%	%	%	%	
Newspaper Ads	13.1	67.0	19.9	12.0	64.6	23.5	12.5	65.6	21.9	193
				$\chi^2 = 0.36$ p = 0.835						
Property Mags	33.8	60.0	6.3	50.8	40.7	8.5	35.4	56.9	7.7	379
				$\chi^2 = 12.98$ p = 0.002						
Estate Agents	12.7	53.3	34.0	12.6	55.4	32.1	12.6	54.7	32.7	435
				$\chi^2 = 0.20$ p = 0.905						
Show Houses	38.8	52.7	8.4	61.1	32.3	6.6	54.6	38.3	7.1	184
				$\chi^2 = 7.79$ p = 0.020						
Driving Around	37.4	51.3	11.1	37.5	58.0	4.5	37.5	55.6	6.9	287
				$\chi^2 = 4.75$ p = 0.093						
Relatives	50.9	34.9	14.2	33.7	26.9	39.5	47.4	24.5	28.0	68
				$\chi^2 = 5.37$ p = 0.068						
Friends	65.9	28.8	5.3	36.0	57.9	6.1	54.9	39.4	5.7	132
				$\chi^2 = 12.29$ p = 0.002						
Colleagues	56.4	39.8	3.8	50.0	44.5	5.5	52.7	42.5	4.8	273
				$\chi^2 = 1.24$ p = 0.537						

In summary, there were significant differences in the information channels employed by Catholic and non-Catholic searches in the BUA. Catholic searchers made greater use of non-market sources than non-Catholic searchers and the information obtained through such channels was more highly regarded than that form market sources. In general, the propensity to use non-market sources increased with the percentage of Catholics in the ward of purchase and was especially common amongst Catholic households that moved from lower to higher levels of segregation. This suggests that information channel selection and use may be related to segregated outcomes. However, in order to more fully explore this possible connection between search and segregation we must consider spatial search behaviour itself.

7.5.2 Spatial Search Behaviour in the BUA

Space is an important dimension of the dwelling bundle. In the traditional property market, dwellings cannot be purchased in isolation from their neighbourhood and location attributes. As

noted in chapter three, despite the indivisibility of housing from spatial considerations, relatively few empirical studies have examined spatial search behaviour in any detail. In this section two aspects of spatial search are selected for attention. The first issue relates to the spatial extent of Roman Catholic search. Specifically, in this section, an effort is made to identify those areas within the BUA where Catholics, non-Catholics and both groups search. The second issue has a more methodological focus in that spatial search activity is related to the product groups identified in chapter six. The extent to which spatial search matches product group distribution is regarded as a useful means of validating the existence of product groups in the BUA.

7.5.2.1 Religion and Spatial Search

Obtaining reliable information on where households actually searched is difficult (Mackett & Johnson, 1985). Ideally, data should be collected in the course of search, possibly through the use of a diary instrument. Unfortunately, this was not possible for this study, and the only data available, therefore, comes from the retrospective survey of recent buyers. Spatial search data were collected in two stages. First, show cards and a detailed map was used to elicit information from households on those parts of the BUA where they had actually inspected dwellings. These were coded into "community districts" on the basis of an existing Housing Executive classification. The second stage involved the compilation of individual address information. As noted in chapter five, it was thought unreliable to ask respondents to recall addresses for all dwellings considered in the course of search; instead, data capture focused on a maximum of three addresses. Spatial analysis was further facilitated by the fact that the household's previous address together with their current address were also available. Each address was ward coded.

In terms of "community districts", Table 7.23 shows that 61 percent of searchers concentrated their spatial search into just one area, with a further quarter inspecting dwellings in two areas, 10 percent in three areas, and five percent in more than three areas. This is consistent with the general search literature; the majority of households search in a small number of areas. When religion is considered, it is clear that Catholic households searched in fewer areas than non-Catholic households, a finding consistent with the earlier analysis that Catholics move over shorter distances (7.3.2). Fully three-quarters of Catholics examined dwellings in just one area compared to just over half of non-Catholics (54%). At the opposite end of the scale, three times more non-Catholics (6%) than Catholics (2%) examined dwellings in four or more areas. Overall, Catholic households inspected dwellings in an average of 1.4 areas

compared to a non-Catholic mean of 1.7, a difference that is highly significant (t=3.81, p<0.001). This provides strong support for hypothesis H3.

Table 7.23: The Extent of Spatial Search by Religion and Degree of Segregation

No. of Community Districts in which dwellings were inspected	Religion		Religious Composition of Ward (% RC)					Total
	RC	Other	0-9.9%	10-29.9%	30-49.9%	50-89.9%	90%+	
	%	%	%	%	%	%	%	%
One	74.6	54.3	53.7	59.7	64.3	71.1	89.9	60.9
Two	13.5	29.5	29.9	22.9	24.0	17.2	6.0	24.3
Three	9.6	9.9	10.5	10.9	9.2	8.1	4.1	9.8
Four Plus	2.2	6.3	5.9	6.5	2.5	3.6	-	5.0
	x^2=25.88 p<0.001		x^2=21.52 p=0.043					
Mean	1.39	1.73	1.71	1.69	1.57	1.44	1.14	1.62
	t=3.81 p<0.001		F=2.96 p=0.020					
BASE	186	385	223	162	96	59	31	571

The situation with the extent of segregation is equally striking: The proportion of searchers that searched in just one area increased steadily from 54 percent in areas classified as less than 10 percent Catholic to 90 percent in areas classified as 90 percent or more Catholic. As a consequence, mean values decreased from a maximum of 1.71 in the less than 10 percent Catholic wards to a minimum of 1.1 in wards that were highly Catholic in composition. Both the chi-square test for the cross tabulated data and the one-way-ANOVA test for the means indicated that the extent of spatial search and the degree of segregation were not independent of one another at better than the 95 percent level of significance. Again, this supports hypothesis H3.

On the basis of the individual address data, analysis revealed that of the 117 wards in the BUA, just three wards (3%) were not searched by any households. This category comprised Tullycarnett ward in east Belfast, St. Annes ward in North Belfast and Falls ward in west Belfast. The common link is a very high level (mean 90%) of Housing Executive accommodation in the ward which most likely accounts for the general lack of search activity. Overall, therefore, 114 wards in the BUA were searched by at least one of the 571 survey respondents. By relating the number of Catholic searchers per ward to the total number of searches per ward it was possible

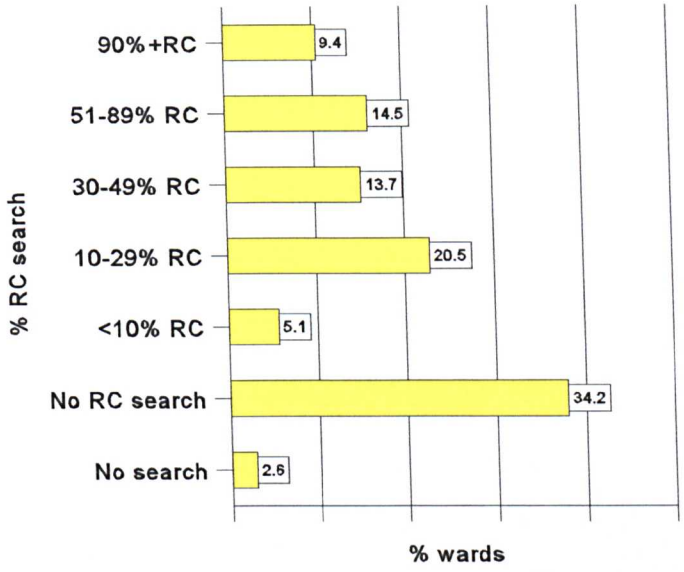

Figure 7.5: Ward Classification on the Basis of Roman Catholic Search

to construct an index of Catholic spatial search concentration. This ranged from 0, where no Catholic households searched to 100 where all of the searchers in the ward were Catholics. For convenience, the index was grouped into seven bands based on the categorisation used in the earlier analysis of religion (Figure 7.5). This shows that some 36 percent of wards in the BUA were not searched by Catholics and, there were a further five percent of wards where Catholic inspections made up less than 10 percent of inspections. Around one-fifth of BUA wards had between 10 and 29 percent of inspections made by Catholics and just over one in ten had between 30 and 49 percent of inspections from Catholic. Thus, in just 28 of the 117 BUA wards (24%) the majority of searchers were Catholics. It is worth noting that almost one tenth of BUA wards were searched almost exclusively by Catholic households. This latter category included the wards of Ardoyne, Beechmount, Clonard, Falls Park, New Lodge, Twinbrook and Whiterock, each of which boasts a Catholic population of more than 90 percent. The distribution of wards classified according to the extent of Catholic search is mapped in Figure 7.6.

At this point it is worth considering those factors that might explain this pattern of spatial search. The most obvious influences are the underlying distribution of the Catholic population on the one hand and the owner occupied stock on the other. A comparison of these distributions with Figure 7.6 suggests religion provides the better match. More definitive evidence in support of this conclusion is presented in Table 7.24 which shows how the mean values for the Catholic population and the owner occupied stock varied according to the extent of Catholic search. In general, the results indicate a strong and direct relationship between the religious composition of the ward and the extent of Catholic search within that ward ($p<0.001$) whereas no relationship

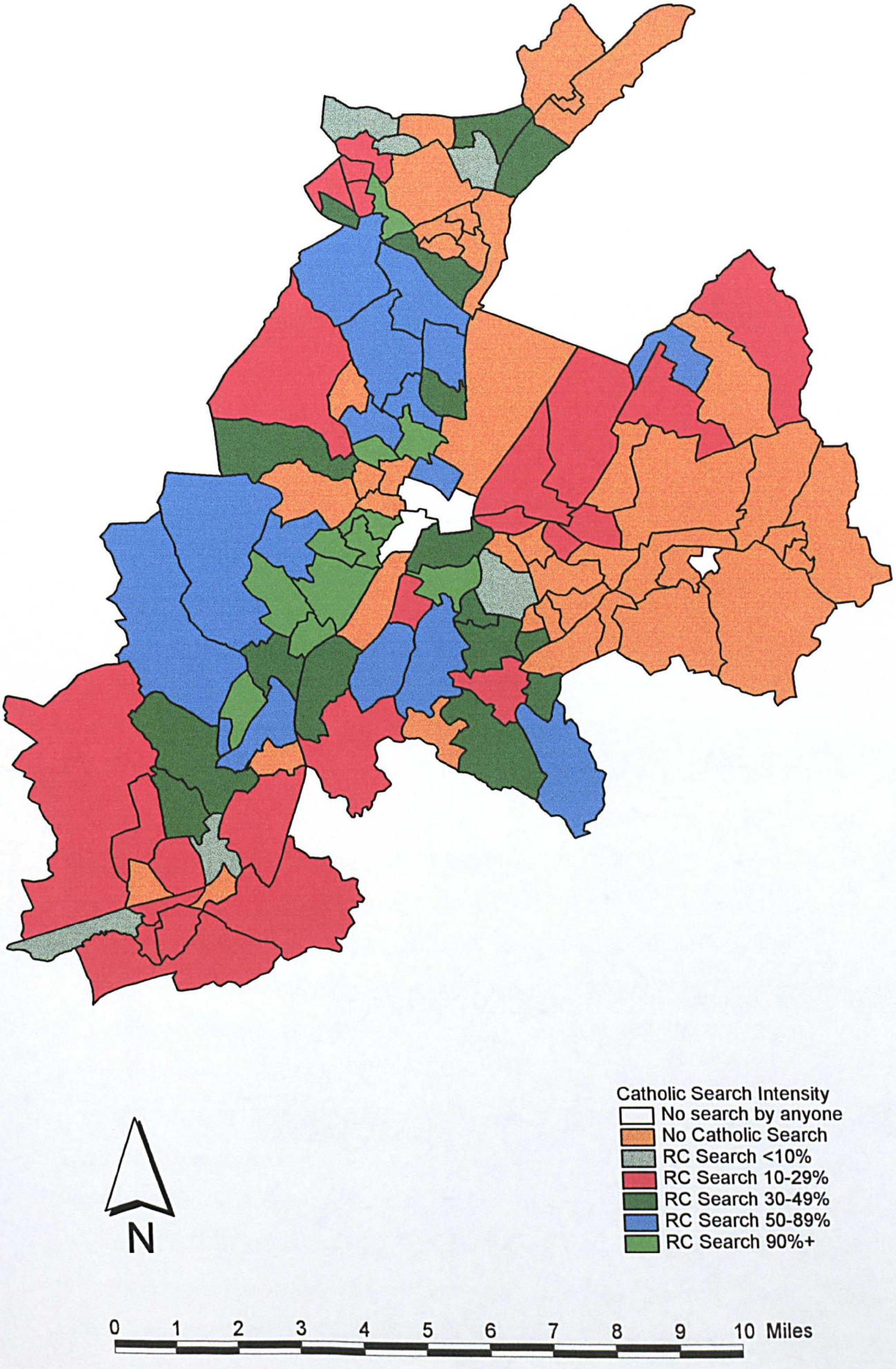

Figure 7.6: The Spatial Extent of Roman Catholic Search

was apparent between Catholic search and the level of home ownership in the wards concerned (p=0.528).

Table 7.24: The Association Between Catholic Search, Religion and Tenure

Ward Classification	Ward Profile		BASE (No. of wards in BUA where search occurred)
	Roman Catholic	Owner Occupied	
	Mean %	Mean %	Mean No.
No Catholic search	3.8	54.8	40
<10% Catholic search	12.2	60.8	6
10-25% Catholic search	14.0	63.1	24
26-50% Catholic search	30.0	64.6	16
51-75% Catholic search	51.9	61.4	17
>90% Catholic search	83.3	52.3	11
One-Way-ANOVA results	F=60.62 p<0.001	F=0.83 p=0.528	114

Returning to Figure 7.6, it seems that there is an east - west division in the pattern of spatial search. Catholic search is concentrated in the north and west of the city, and is virtually absent in the eastern side of the BUA. This matches very closely the spatial preferences discussed earlier in this chapter. Of particular interest, however, is the distribution of those areas where Catholics appear to search in greater numbers than expected. For example, the map shows that there is a pronounced tongue of Catholic search activity in the south-east of the city. This is an area where Catholics already live but in rather modest numbers.

By comparing the distribution of the Catholic population and the pattern of spatial search it is possible to classify wards according to whether or not Catholics searched them in the "expected" numbers, in less than expected numbers or in greater than expected numbers. The results are displayed in Figure 7.7. This indicates that Catholic households are searching in greater than expected numbers in three main areas: 1) the south-east of the urban area, around Newtownbreda and Four Winds, both of which are areas of significant new private sector construction; 2) north Belfast, an area previously noted as being quite well mixed; 3) to the south of the BUA in the suburban parts of Lisburn, effectively representing an extension of west Belfast. The presence of Catholic search in such areas is, as yet, not matched by actual mobility

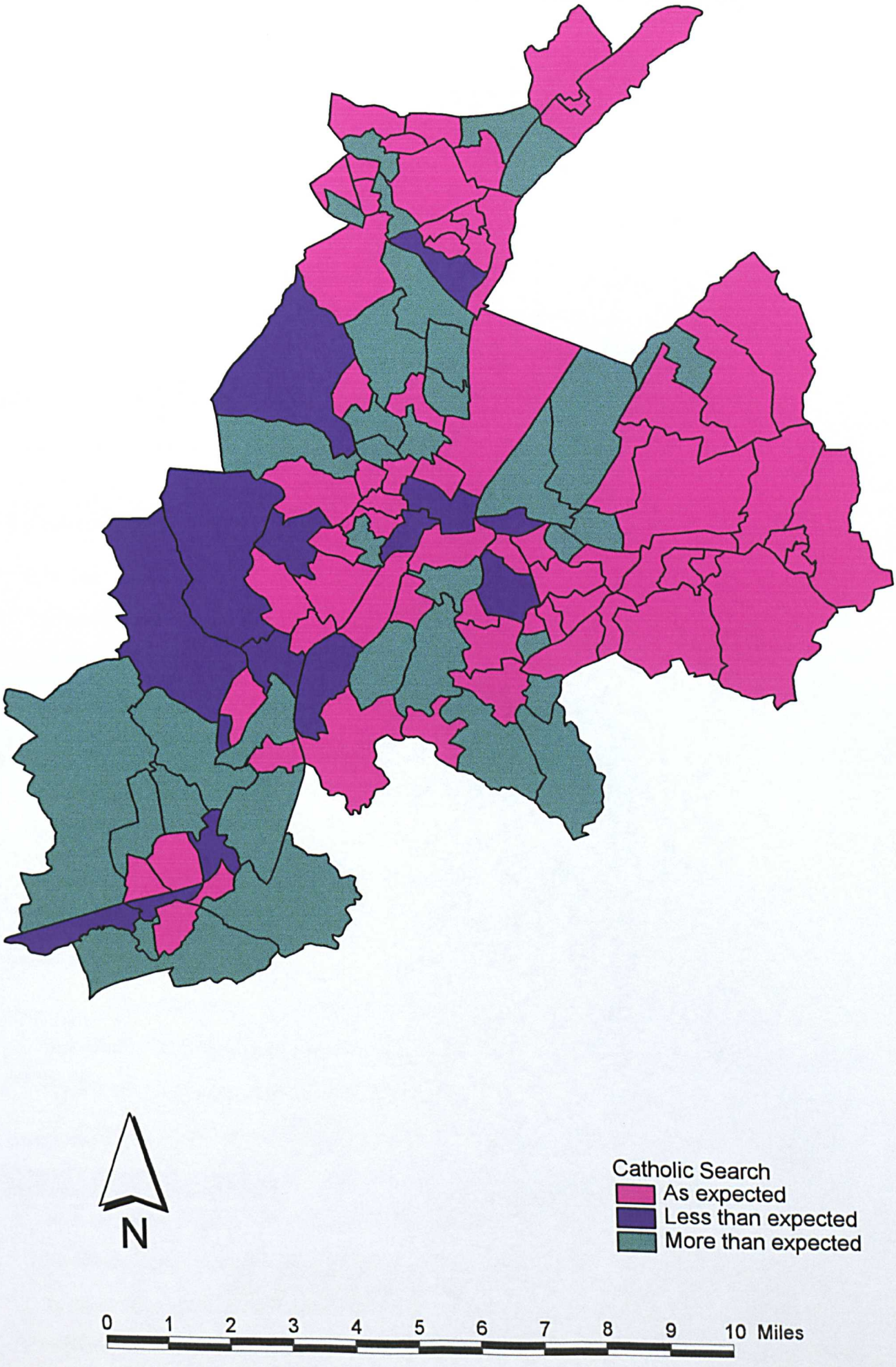

Figure 7.7: Comparing Actual and Expected Levels of Catholic Spatial Search

behaviour. Nonetheless, this would tend to suggest that in future such mobility flows might be possible. This may also indicate some prospect that segregation levels might actually reduce.

7.5.2.2 Product Groups and Spatial Search

It was noted above that some 61 percent of searchers examined vacancies in just one area. This means that data are available from 223 searchers where search occurred in more than one area. This provides an opportunity to test the extent to which household search occurs within objectively defined product group areas. Previous tests of submarket existence have usually relied on comparisons of the individual terms of a series of individual product group or submarket equations. However, perhaps the ultimate test is the degree of match between product group areas and actual search behaviour.

For each of the 223 households that engaged in multiple area search in the BUA , it was possible to code search addresses on the basis of product group membership. Overall, more than two-thirds of such households were found to search within the predicted product group and nowhere else (68%). An additional 12 percent searched mainly within the predicted group (i.e. 2 out of 3 dwellings were in the predicted group). The remaining 20 percent failed to search within their predicted product group. Perfect fits are never found in social science research data; the question then is whether or not the degree of match noted here is good enough to warrant support for the approach. Given that regression equations are commonly considered good if the adjusted R^2 value is in and around the 0.7 level, then having 68 percent of inspections properly predicted and another 12 percent more or less correctly predicted would suggest that the technique does have value.

One of the interesting issues that emerges from this is to determine what characterises mismatch; if there are factors that are associated with failure to predict where search occurs then it might be possible to encompass these factors into the original product group specification. Because of the small sample size involved (223), the three-way classification of match was reduced to a simple yes/no dichotomy. This was cross-tabulated against the nine standard demographic and socio-economic variables (including religion) and the ten standard dwelling-related variables (including religious composition of ward). Just three variables - household religion, dwelling age and location - were found to be significant. The presence of significant differences in terms of dwelling age ($p=0.042$) and location ($p=0.0005$) suggests that some scope exists for improving the manner in which product groups were originally defined.

The presence of a significant difference in terms of religion (p=0.0002), however, has a different implication. As this was the only household-related factor found to discriminate between households on the extent to which search occurred within product group areas, the implication is that Catholic household spatial search is different from that of non-Catholics. It also implies that product groups should have been constructed on a finer scale than wards.

7.5.3 Search Effort

Most studies of search attempt some quantification of search effort. Three measures are particularly common: search duration, the number of dwellings inspected, and the number of areas searched (e.g., Hemple, 1970; Clark, 1981; Clark & Smith, 1982).[11] An obvious omission concerns the number of information channels employed in search. It was noted earlier in the chapter that the households tend to employ several channels. It could reasonably be argued that the use of a greater number of channels is an indication of greater search effort. Taken together these four measures provide a comprehensive picture of search effort. Two of the measures of search effort have already been examined to a certain extent: information channel use (7.5.1) and the number of areas searched (7.5.2). In the following paragraphs the remaining measures of search effort are analysed, although for ease of comparison some information on the number of channels employed and the number of areas searched is repeated and additional information is provided. As has been the case throughout this chapter, the primary analytical focus is religion. Specifically, in this section the aim is to examine the hypotheses that Catholics will search for longer than non-Catholics (H1) but examine no more dwellings (H2).

Search duration was measured as the number of weeks between the time that the household decided to move home to the time at which their offer on the house that they eventually purchased was accepted. This is interpreted as the period of active search. The number of dwellings inspected was defined in terms of the number of dwellings visited in person and viewed internally and externally. Dwellings identified and rejected without personal visits were excluded. In overall terms, recent home buyers in the BUA searched for an average of just under 22 weeks, examined around 9 dwellings typically in one or two areas, and in the course of search they used several different information channels (Table 7.25).

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11 Few studies of residential search have moved beyond these simple measures of effort, the most notable being Barrett's (1976) study in which he developed an index of search intensity. Even this measure was simply a combination of duration and the number of dwellings inspected

Table 7.25: The Level of Search Effort by Religion and Degree of Segregation

Measure of Search Effort	Religion		Religious Composition of Ward (% RC)					Total
	RC	Other	0-9.9%	10-29.9%	30-49.9%	50-89.9%	90%+	
	%	%	%	%	%	%	%	%
Search Duration (wks)								
0 - 4	15.0	20.4	23.7	15.4	15.3	18.5	10.1	18.6
5 - 12	14.7	22.7	24.3	21.7	10.9	17.8	14.6	20.1
13 - 26	39.1	40.7	34.8	41.7	51.8	32.8	49.1	40.2
27 - 52	22.3	12.5	13.6	16.9	16.8	15.4	22.1	15.7
>52	8.8	3.8	3.7	4.4	5.2	15.4	4.0	5.4
	χ^2=19.42 p<0.001		χ^2=33.13 p=0.007					
Mean	25.3	19.9	19.1	22.0	22.9	29.2	20.2	21.7
	t=-2.36 p=0.01		F=1.69 p=0.149					
No. Dwellings Viewed								
1	20.0	29.4	34.6	22.5	16.4	35.3	-	26.3
2	13.4	18.3	19.2	17.6	10.3	19.4	8.6	16.7
3 - 5	15.8	20.6	15.9	23.0	26.6	11.5	10.9	19.0
6 - 10	17.9	12.5	12.5	11.8	20.9	7.6	31.3	14.2
11 - 20	16.0	11.3	10.2	11.9	13.4	14.5	31.1	12.8
>20	17.0	8.0	7.5	13.2	12.3	11.7	18.0	11.0
	χ^2=21.50 p<0.001		χ^2=59.78 p<0.001					
Mean	11.7	6.9	6.13	8.8	11.3	9.1	13.8	8.5
	t=-4.34 p<0.001		F=4.86 p<0.001					
No. Areas Searched								
1	74.6	54.3	53.7	59.7	64.3	71.1	89.9	60.9
2	13.5	29.5	29.9	22.9	24.0	17.2	6.0	24.3
3	9.6	9.9	10.5	10.9	9.2	8.1	4.1	9.8
4	2.2	3.6	4.6	2.8	1.1	3.6	-	3.1
5+	-	2.7	1.4	3.7	1.5	-	-	1.8
	χ^2=27.49 p<0.001		χ^2=26.40 p=0.049					
Mean	1.39	1.73	1.71	1.70	1.57	1.44	1.14	1.62
	t=-4.32 p<0.001		F=2.93 p=0.021					
No. Channels Used								
1	13.6	17.2	18.3	14.9	8.7	31.3	-	16.0
2	7.7	19.0	22.3	12.6	12.3	9.1	-	15.3
3	16.0	22.4	18.5	26.6	22.7	13.9	6.0	20.4
4	19.1	13.8	16.0	15.1	12.5	13.2	27.7	15.5
5	11.1	12.7	12.2	11.8	10.4	12.7	18.0	12.2
6	14.6	7.7	6.7	9.5	12.5	11.3	25.3	9.9
7+	17.9	7.2	6.0	9.6	20.9	8.5	22.9	10.7
	χ^2=35.99 p<0.001		χ^2=74.47 p<0.001					
Mean	4.30	3.41	3.29	3.66	4.34	3.49	5.31	3.71
	t=-4.84 p<0.001		F=10.49 p<0.001					
BASE	186	385	223	162	96	59	31	571

Whilst convenient to focus on mean values, it was argued in chapter three that this tends to disguise the large variation in search effort that actually occurs. Thus, although the mean search duration was calculated at 21.7 weeks, a figure consistent with Hemple's (1970) study in New England and Barrett's (1976) study in Toronto, the range of responses was very large. Indeed, owner occupier search duration in the BUA ranged from one week or less (5%) to a stated maximum of 373 weeks (0.1%). Around one searcher in ten searched for 2 weeks or less, and one quarter searched for nine weeks or less. At the opposite end of the scale, one-fifth of households searched for more than six months and five percent searched for more than one year.

Similar variability was observed in terms of the number of dwellings inspected. Whilst owner occupied searchers in the BUA examined an average of 8.5 dwellings, this ranged from a minimum (also mode) value of just one (26%) to a claimed maximum value of 110 dwellings (0.1%). Forty three percent of searchers examined two dwellings or less, and more than three-quarters examined 10 or fewer dwellings. In contrast, just 11 percent examined more than 20 dwellings. Clearly, both duration of search and the number of dwellings inspected were skewed towards the lower end of the scale, an observation consistent with most other empirical studies of search behaviour. One of the implications of this skewed distribution is that some form of transformation will be necessary before these variables can be employed in a multivariate model of search. This problem is discussed in some detail in chapter eight.

In terms of religious differences in search effort, the earlier analysis indicated that Catholic buyers had searched in fewer areas but had employed a wider range of information channels than non-Catholic buyers. Table 7.25 confirms these earlier findings and it also enables an examination of the hypotheses that pertain to search duration and the number of dwellings inspected.

Turning first to search duration, it is apparent that Catholic buyers searched for much longer than non Catholic buyers. For example, 30 percent of Catholic households searched for less than three months (0-12 weeks) compared to 43 percent of non-Catholic buyers; similarly, 31 percent of Catholic buyers searched for more than six months (27 weeks or more) compared to just 16 percent of non-Catholic buyers. These differences are significant at better than the 99.9 percent level of testing ($p=0.00065$). Comparing the mean values of the two groups provides further evidence of the scale of difference: Catholic households, on average, searched for 25.3 weeks compared to an average of 19.9 weeks for non-Catholics. A T-test for difference

in means confirms this result to be highly significant. On the basis of these results the hypothesised relationship between religion and search duration appears to be correct.

In terms of the number of dwellings inspected, following the literature on racial differences in search in the United States it had been hypothesised that Catholic households would examine no more dwellings than non-Catholic households. This did not prove to be the case. The bivariate analysis of religion and search duration indicates that Catholic searchers examine significantly more dwellings than their non-Catholic counterparts. The evidence shows that whereas just one-fifth of Catholic searchers examined only one dwelling, 29 percent of non-Catholics exhibited this level of search effort. At the opposite end of the scale, 17 percent of Catholic searchers inspected more than 20 dwellings compared to just eight percent of non-Catholics. Like search duration, these differences are highly significant (p=0.00065). Comparison of the mean values confirms this finding: Catholic households examined an average of 11.7 vacancies compared to just 6.9 for non-Catholic households, a result significant at better than the 99.9 percent level of testing.

7.5.4 Constraints, Problems and Satisfaction With Outcome

Contemporary literature on residential decision making emphasises that households face constraints and problems in the course of their relocation behaviour. Constraints are also likely to exert an important influence on search. In this study, respondents were asked about a range of constraints and problems encountered during search. These were grouped into four categories as follows: problems with deciding which property to buy (28%), feeling unsafe or discriminated against in a neighbourhood of search (20%), problems with a general lack of time (8%) or cost (24%), and problems that related to competition from other searchers (19%). On the outcome side, almost two-thirds of respondents (62%) indicated that the outcome of their search was about as they had expected.[12] In contrast, 38 percent believed that their search outcome was better than expected. Not surprisingly, then, satisfaction with the recently acquired dwelling was high with 57 percent indicating that they were very happy with their new home (Table 7.26).

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12 This figure includes 4% who indicated that search outcome was worse than expected. Because of the small numbers it was judged appropriate to combine this response with the "as expected" response.

In terms of problems and constraints encountered in search, there were few differences between Catholic and non-Catholic households. With the exception of deciding which dwelling to purchase, Catholic and non-Catholic households were equally likely to have experienced or not-experienced particular problems. The situation in terms of the level of segregation is less clear cut. Significant differences were found in terms of dwelling problems, safety problems, and

Table 7.26: Constraints, Problems and Satisfaction with Search Outcome by Religion and Degree of Segregation

Characteristic	Religion		Religious Composition of Ward (% RC)					Total
	RC	Other	0-9.9%	10-29.9%	30-49.9%	50-89.9%	90%+	
	%	%	%	%	%	%	%	%
Dwelling Problem								
No	61.4	77.1	78.5	73.1	69.0	52.0	67.0	72.0
Yes	38.6	22.9	21.5	26.9	31.0	48.0	33.0	28.0
	x^2=15.40 p<0.001		x^2=17.29 p=0.001					
Safety Problem								
No	76.8	81.0	85.4	76.7	73.6	64.8	100.0	79.6
Yes	23.2	19.0	14.6	23.3	26.4	35.2	-	20.4
	x^2=1.40 p=0.237		x^2=23.47 p<0.001					
Lack of Time								
No	93.4	91.2	90.4	94.0	93.0	91.1	89.9	91.9
Yes	6.6	8.8	9.6	6.0	7.0	8.9	10.1	8.1
	x^2=0.82 p=0.365		x^2=1.99 p=0.737					
Lack of Money								
No	74.1	76.4	78.8	77.9	64.9	67.7	89.1	65.6
Yes	25.9	23.6	21.2	22.1	35.1	32.3	10.9	24.4
	x^2=0.36 p=0.551		x^2=12.73 p=0.012					
Searcher Competition								
No	80.7	80.8	81.0	79.1	76.9	86.6	89.1	80.8
Yes	19.3	19.2	19.0	20.9	23.1	13.4	10.9	19.2
	x^2<0.01 p=0.978		x^2=3.89 p=0.421					
Search Outcome								
As/worse expected	52.5	66.9	70.5	53.6	59.0	65.7	50.9	62.2
Better than exp'ed	47.5	33.1	29.5	46.6	41.0	34.3	49.1	37.8
	x^2=11.20 p<0.001		x^2=14.03 p=0.007					
Satisfied with Purchase								
< Very satisfied	38.5	44.8	50.5	33.5	44.7	43.8	27.3	42.7
Very satisfied	61.5	55.2	49.5	66.5	55.3	56.2	72.7	57.3
	x^2=2.01 p=0.155		x^2=14.31 p=0.006					
BASE	186	385	223	162	96	59	31	571

financial constraints. In terms of the first of these, the incidence of problems generally increased with the concentration of Catholics in the ward of purchase. However, once past the 90 percent threshold, the frequency of problems declined again. This threshold effect is also noticeable in terms of perceived neighbourhood safety. The incidence of such problems increased up to the 90 percent Catholic population threshold, but were totally absent beyond this level. The reason for this is obvious from the earlier analysis on spatial search (7.5.2.1; Table 7.23); the vast majority (89%) of households that purchased in such highly segregated Catholic wards only searched in such wards and the risk of feeling threatened or discriminated against would thus have been much lower, if not non-existent. The situation with lack of money as a constraint is somewhat different. Here, the relationship between this constraint and the level of segregation is such that the problem was most acute for buyers in mixed religion areas. Thus, roughly one-third of buyers in wards classified as 30-49 percent Catholic or 50-89 percent Catholic experienced this problem; in contrast, just one-fifth of buyers in ward with less than 30 percent Catholic population and one-tenth in wards of 90 percent or more Catholic had this problem.

Search outcome and satisfaction are important attributes in the investigation of search behaviour. Earlier in the thesis it was argued that studies of residential search behaviour have failed to take account of such factors. Yet, it is not unreasonable to suggest, as is the case in this study, that greater search effort may be reflected in greater levels of satisfaction. This is akin to the concept of payoff - searchers put in extra effort but reap extra benefits in return. Thus, in attempting to understand religious differences in search these (and many other) factors may act as confounding variables if differences exist between them according to religion. Indeed, Table 7.25 shows that Catholic households were more likely than non-Catholic households to report that search outcomes were better than they had expected and they were also more satisfied with the dwelling that they had purchased, although only the first difference was significant. In terms of segregation, both attitudes to search outcome and satisfaction with the new home appear to be related to the level of the Catholic community in the ward of purchase.

7.6 Conclusions

This chapter began with the proposition that there would be significant variations in Catholic and non-Catholic intraurban search and mobility behaviour within the BUA and that such variations would reflect differences that were apparent between black and white households in the United States. In particular, it was hypothesised that, when compared to non-Catholic households,

Catholics would search for longer periods (H1), examine no more vacancies (H2), focus on a more restricted range of areas (H3) use more information channels (H4), and be more likely to move to Catholic areas (H5). The analysis presented in this chapter supports these hypotheses with the important exception that Catholic households were found to have examined significantly more vacancies than non-Catholic searchers.

However, as noted throughout the chapter there were significant differences between Catholics and non-Catholics in terms of factors other than religion. Given this evidence, it is appropriate to enquire about the extent to which Catholic and non-Catholic differences in search behaviour might reflect some of these other differences. In other words, it is legitimate to enquire about the true extent of any independent religion effect on search behaviour. In the next chapter, this issue is addressed through multivariate analyses using regression and other techniques.

Chapter 8
A Multivariate Analysis of Search Behaviour

8.1 Introduction

In the previous chapter, considerable differences in search behaviour were reported for Catholic and non-Catholic households and these differences were largely as expected from the racial model of search. Although this evidence is important, and is the first evidence of its sort for Belfast, it remains an insufficient basis on which to assess the role of religion in owner occupier residential search. This is because the material presented thus far has relied primarily on bivariate analyses of search and relocation behaviour with religion as the main criterion variable.

As noted in chapter three bivariate analysis has been the mainstay of many academic studies of search behaviour. Although this type of work is an important aspect of preliminary data analysis and has made a contribution to the understanding of how search varies between groups, it has its limitations. For example, when multivariate techniques are applied individual variables significantly related to search behaviour in a bivariate sense often fade into insignificance when considered alongside other factors (Newman, 1977). In recognition of this problem, some researchers have moved beyond the bivariate analyses to consider a multivariate approach. Most of these studies take the form of multiple linear models that regress various measures of search behaviour on a range of independent household, dwelling and search activity-related factors (e.g. Clark & Smith, 1982). Although this represents a major advance on bivariate approach, most of these studies have failed to model the interrelationship between the various dependant and independent variables. Moreover, racial and ethnic factors are rarely considered within these more analytical investigations.

Even where multivariate approaches to the study of residential search behaviour have been adopted, such models have been conceptually simple and many theoretically important variables have been omitted from the analyses. For example, although for many years studies of housing search have portrayed search as a process of risk and uncertainty reduction (e.g. Hemple, 1969, Silk, 1971) variables that measure these things are rarely considered in empirical investigations of residential search behaviour. The same is true for issues such knowledge, experience, and market factors; these are often talked about but rarely studied in any systematic fashion.

As suggested in chapter four, a proper understanding of owner occupier search within a segregated housing market is facilitated by the construction of a comprehensive multivariate

path model. Within such a framework it is possible to isolate the *independent* effects of individual criterion variables, such as religion, and to assess their relative importance in explaining search behaviour and search outcomes.

The aim of this chapter is to construct such a model. The process is incremental, beginning with a brief review of variables and their hypothesised bi-variate association with the search variables. Most of these variables have been introduced in the previous chapter but some are new. This is followed by an exploratory data analysis of the dependant and independent variables to develop a better understanding of their characteristics and assessing their suitability for inclusion in the later multivariate analyses. Where necessary, some variables are recoded or transformed to ensure their suitability. The finalised variables are then subject to bi-variate analyses with each of dependent variables as a primer for the more comprehensive multivariate modelling later in the chapter. This multivariate modelling occurs in two stages. In the first stage, separate multivariate regression models for each of the five dependant variables are estimated and tested. Each model is estimated solely as a function of the independent variables. None of the dependent variables are included as independent predictors in any of the regression models at this stage. In the second stage, however, the individual models are stitched together in a multivariate path model in which the separate direct, indirect, and total effects of each of the independent variables are identified and assessed. These effects are discussed in some detail, with particular emphasis on the effect of household religion.

8.2 The Conceptual Framework and Variables Hypothesised to Impact on Search

Chapter four set out a conceptual framework of search behaviour in which some 30 explanatory variables were organised within eight categories as follows: market environment, situational factors, potential payoff, knowledge and experience, individual differences, religion, conflict and conflict resolution, and costs of search. The framework is summarised in Table 8.1. The relationships are as suggested in chapter four.

The nature of most of the independent variables is obvious from the table and some have already been discussed in earlier chapters. However, several variables require further elaboration before the exploratory analysis is conducted. In the market environment category, SETSIZE and SALETIME require further explanation.

SETSIZE was designed as a measure of the feasible set for each searcher. The measure was constructed from a combination of survey data and the DOE House Price Data

Table 8.1: Variables possibly Associated with Search Behaviour

Category	Variables	Description	Hypothesised Effect				
			Search Duration	No of Dwgs	No of Areas	No of Channels	% RC in ward
Market Environment	SETSIZE	Number of sales within searcher's stated price range during first nine months of 1993.	+	+	+	+	
	SALETIME	Time taken to sell previous home (weeks).	+	+	+		
	COMPETE (0-1)	Set to 1 where searcher found properties sold before could view or were sold when wanted to revisit.	+	+	+	+	+
	PGMATCH (0-1)	Set to 1 where search occurred outside the product group of purchase.	+	+	+	+	
	NONMARK (0-1)	Set to 1 if searcher used non-market sources.	+	+	+	+	+
	AGENT (0-1)	Set to 1 if searcher used agent.	-	+	+	+	+
Situational Factors	DWGNEW (0-1)	Set to 1 if dwelling newly constructed.	-	-	+	+	-
	DWGSIZE	Dwelling floor space in square feet.	+	-		+	
	DWGPRICE	Dwelling purchase price in £.	+	-		+	
	SAFETY (0-1)	Set to 1 if searcher encountered a neighbourhood where felt unsafe or discriminated against (chapter 7)	+	+	+	+	+
	ECONMOVE (0-1)	Set to 1 if searcher moved home because of job-related reasons.	-	+	-	-	
	WARDMOVE (0-1)	Set to 1 if searcher moved within same ward of from an adjacent ward.	-	-	-	-	+
	RC_PREV	Percentage Roman Catholic population of previous ward location.	+	-/=	-	+	+
Potential Payoff	SATISFY (1-5)	Satisfaction with home measured on five point satisfaction scale (1-very dissatisfied; 5-very satisfied).	+	+	+	+	
	OUTCOME (1-3)	Satisfaction with search outcome measured on three point scale (1-Worse than expected; 3-better).	+	+	+	+	
	DISCOUNT	Difference between advertised offer price and purchase price (£).	+	+	+	+	
Knowledge & Experience	FTB (0-1)	Set to 1 if searcher was a first time buyer.	+	+	+	+	+
	RMOVE (0-1)	Set to 1 if the searcher had lived at previous address less than 30 months (i.e. recent mover).	-	-	+		
	CERTAIN (1-5)	Extent of pre-search certainty measured on five point scale (1-very certain; 5-very uncertain).	+	+	+	+	
Individual Differences	HOHAGE	Age of Head of Household (Years).	-	-	-	-	-
	HOHEDUC	Education level of Head of Household (No. Years in full time education).	-	-	-	+	
	FSIZE	Family size.	+	-	+		
	PCHILD (0-1)	Set to 1 where school-aged children present in family.	+	-	-	-	+
	FINCOME (1-13)	Gross family annual income recorded on 13 point scale (1-<£3,000; 13->£60,000).	+	+	+		-
Religion	RC_HHLD (0-1)	Set to 1 if household self-classified as Roman Catholic.	+	-/=	-	+	+
Conflict & Conflict Resolution	CMIND (0-1)	Set to 1 if searcher admitted to changing mind about fundamental issues during search.	+	+	+	+	
	DWELPROB (0-1)	Set to 1 if searcher admitted had problems in deciding which (if any) dwelling to buy.	+	+	+	+	
	CONFLICT	Extent of difference between HoH and partner over what is important in new home.	+	-	-	+	
Costs of Search	LACKTIME (0-1)	Set to 1 if searcher expressed presence of time pressures in search.	-	-	-	+	
	LACKCASH (0-1)	Set to 1 if searcher experienced financial problems in course of search.	+	-	-	-	+

analysed in chapter six. As noted earlier, each respondent was required to suggest the price range of dwellings that they had in mind at the outset of their search. Most searchers (92%) had a pre-search price range in mind. By applying these threshold values to the DOE data set it was possible to calculate the total number of sales within each individual's stated search price range. For reasons of consistency, this was calculated over the period January-September, 1993, the same period covered by the sample of buyers. For the eight percent of households without price ranges, mean values for SETSIZE were imputed on the basis of an analysis of variations in SETSIZE according to selected dwelling (price band & dwelling type) and household (age HoH, religion) characteristics.

SALETIME is a measure that attempts to represent the fact that many searchers are also sellers in that they have to complete the sale of a previous dwelling before completing the purchase of a new home. Continuing home owners were asked a range of questions about the sale of their previous home, including the time taken from placing the dwelling "on the market" to accepting an offer. As with search duration, SALETIME is recorded in weeks.

Just one of the situational factors - SAFETY - requires some further discussion. As search proceeds searchers may be expected to visit a number of different areas, some of which may be less well known to them than others. Survey respondents were asked about a range of constraints that they may or may not have experienced during their search. One of the potential problems was perceived neighbourhood safety which was classified on a simple three point scale (Big Problem - Bit of a Problem - No Problem). Similarly, respondents were asked specifically about the presence or perceived risk of discrimination in particular areas, something that was seen as important in US studies of search in a segregated housing market (chapter two). SAFETY was set to one if either of these problems were reported as a "big problem" by respondents.

It is a long established view that one of the main reasons that buyers engage in search prior to purchase is to reduce uncertainty about the decision to some sort of acceptable level. Some households will have a store of existing knowledge upon which they may be able to call. RMOVE is designed as measure of the currency or redundancy in such knowledge. If the household had recent search experience, then this might be logically expected to reduce the need for further search. However, if the length of residence in their previous home was more than a few years, then one might reasonably argue that there is little usable prior knowledge. The choice of a length of residence threshold is, therefore, quite important. Unfortunately, there

is no benchmark to apply. Conventional wisdom, backed by limited empirical observation (e.g. Coles, 1989; Evans, 1995; Maclennan & Wood, 1982), suggests that typical British owner occupied households move home once every seven years. For the sake of convenience, we might assume that after, say, half of this period (42 months) usable prior knowledge has deteriorated to a point where it is of limited value. Vacancy data obviously has a considerably shorter "shelf-life" than area data. Nevertheless, the fact that chapter six demonstrates that sub-markets can be created or destroyed over relatively short periods is evidence of the fact that area characteristics can change quite quickly and that previously generated search data on neighbourhoods can also become redundant quite quickly. Consequently, RMOVE was set to one where length of residence at the previous address was less than 42 months. First time buyers and former home owners with more than 42 months residence at their previous address were set to zero[1].

As noted earlier, respondents were asked a series of questions about problems that they had encountered in the course of their search. One of these questions related to difficulty in deciding which, if any, dwelling to purchase. As with the neighbourhood safety measure, responses were ranged from "Big problem" to "No problem". The data were re-coded into a dichotomous variable which was set to one if respondents reported that deciding which dwelling to buy had been a "big problem" (DWELPROB). This measure was seen as an indicator of general conflict in the sense that searchers had problems "making up their minds".

A more specific measure of conflict was also employed. Unlike every other empirical study of residential search reviewed in chapter three, the BUA study sought separate responses from the HoH and the partner (if applicable) for certain key questions on the relative importance of particular dwelling, neighbourhood and locational attributes in governing the search process. Details of the structure of the CONFLICT variable and the extent of the differences between household members were presented in chapter seven (7.4.3).

8.3 Exploratory Data Analysis

Exploratory data analysis is important in helping researchers get a "feel" for their data; it can also help judge the suitability of particular variables for particular types of analysis. Everitt and

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1 Care needs to be exercised in this type of coding strategy. By treating first time buyers in the same fashion as long standing continuing home owners there is a possible risk of introducing multicollinearity into the independent variables. As will be seen later, a similar approach is taken with the CONFLICT variable. Multicollinearity is discussed in some detail in subsequent sections.

Dunn (1983) indicate that it is easy to overlook this important stage in the process and rush headlong into the use of sophisticated analytical methods. This should be avoided. Accordingly, in this section the emphasis is placed on the 30 independent variables and five dependent variables noted in Table 8.1. The analysis is organised into three parts. In the first part, the distributions and appropriate summary statistics for each of the variables are presented and the variables are adjusted as necessary. In the second part, the bivariate relationships implied in Table 8.1 are considered through an analysis on how the mean values vary. In the final section, the correlation matrix is explored in order to confirm the direction and scale of the relationships that emerge from the bivariate analysis of means and also to provide basic information on the numeric criterion variables.

8.3.1 Variable Examination and Transformation

Table 8.2 presents summary statistics on all 35 variables in their raw state (i.e. dependent & independent). It is clear that some of the numeric variables require adjustment before they can be used in multivariate regression models. In addition, modifications are also required for those variables measured on an ordinal scale. Table 8.3 shows the situation after the necessary modifications were completed.

Fifteen numeric variables (5 dependant, 10 independent) were originally proposed. As noted in chapter six, numeric variables for use in regression analysis should be normally distributed. To determine normality, each variable was plotted and the resultant graphs were examined. Although useful, visual inspection is never sufficient on its own, rarely revealing the underlying theoretical distribution of a variable (Lewis-Beck, 1995). The use of the skewness statistic provides a more reliable method of judging normality; when the statistic is zero, the distribution is perfectly normal. In practice, this is seldom achieved. Whilst there are no theoretical limits to this statistic, some guidance on what is acceptable is available in the statistical literature. For example, Bourque and Clarke (1992) suggest that the skewness figure should fall within the range -0.8 to +0.8. Norusis (1993b) suggests the slightly wider range of -1 to +1.

On the basis of these guidelines only N_CHANS and FSIZE were deemed satisfactory in their original state; the 13 remaining numeric variables required some form of adjustment. Logarithmic (7) and square root (3) transformations were employed to normalise the distributions of the offending variables. Transformed variables were renamed in such as way as to make

clear which transformation was employed. With the exception LOGAREAS, all transformed numeric variables fell within the "rule-of-thumb" of 0.8 either side of zero.

Table 8.2: Variable Statistics Prior to Transformation

Category	Variables	Numeric & Non-Numeric Variables		Numeric Variables Only	
		Mean	Standard Deviation	Median	Skewness
Dependent Variables	DURATION	21.70	27.16	15.00	5.56
	N_INSP	8.48	12.33	3.00	3.04
	N_AREAS	1.62	1.01	1.00	2.59
	N_CHANS	3.71	2.02	3.00	0.52
	REL_WARD	24.99	26.18	14.72	1.35
Market Environment	SETSIZE	624.49	422.20	540.00	1.23
	SALETIME	12.17	14.62	8.00	2.46
	COMPETE (0-1)	0.19	0.39		
	PGMATCH (0-1)	0.13	0.33		
	NONMARK (0-1)	0.79	0.40		
	AGENT (0-1)	0.76	0.43		
Situational Factors	DWGNEW (0-1)	0.27	0.44		
	DWGSIZE	1015.91	317.48	950.00	1.92
	DWGPRICE	39171.68	21977.71	34500.00	1.72
	SAFETY (0-1)	0.20	0.40		
	ECONMOVE (0-1)	0.13	0.33		
	WARDMOVE (0-1)	0.46	0.50		
	RC_PREV	23.78	28.58	12.89	1.23
Potential Payoff	SATISFY (1-5)	1.49	0.64		
	OUTCOME (1-3)	1.67	0.56		
	DISCOUNT	267.88	1792.73	100.00	1.27
Knowledge & Experience	FTB (0-1)	0.50	0.50		
	RMOVE (0-1)	0.22	0.42		
	CERTAIN (1-5)	2.06	0.91		
Individual Differences	HOHAGE	35.86	11.81	32.00	1.33
	HOHEDUC	13.90	3.00	13.00	1.21
	FSIZE	2.82	1.45	3.00	0.64
	PCHILD (0-1)	0.46	0.50		
	FINCOME (1-13)	6.38	2.17		
Religion	RC_HHLD (0-1)	0.33	0.47		
Conflict & Conflict Resolution	CMIND (0-1)	0.22	0.42		
	DWELPROB (0-1)	0.28	0.45		
	CONFLICT	4.25	6.24	2.00	1.56
Costs of Search	LACKTIME (0-1)	0.08	0.27		
	LACKCASH (0-1)	0.24	0.43		

Three of the numeric variables were not subjected to standard transformations for various reasons. SALETIME records the time taken to sell a previous home. However, approximately half of respondents in the survey were first time buyers. As such, they had no previous homes to sell. This raises the question of how to teat them in the SALETIME variable.

If the cases are set to missing, there are likely to be problems with the subsequent multivariate analysis. An alternative is to set them to zero. This, however, results in an asymptotic distribution which cannot be normalised. Thus, it was decided to create a new dichotomous variable (STIME) which was set to one if searchers took longer 12 weeks to sell their previous home (the average for continuing home owners). First time buyers and those taking less than 12 weeks to sell were set to zero.

Table 8.3: Variable Statistics After Transformation

Category	Variables	Numeric & Non-Numeric Variables		Numeric Variables Only	
		Mean	Standard Deviation	Median	Skewness
Dependent Variables	LOGTIME	1.11	0.47	1.18	-0.48
	LOGINSP	0.60	0.52	0.48	0.48
	LOGAREAS	0.15	0.21	0.00	1.00
	N_CHANS	3.71	2.02	3.00	0.52
	SQRT_RC	4.23	2.55	3.84	0.51
Market Environment	SQRTSET	23.52	8.45	23.23	0.18
	STIME (0-1)	0.19	0.39		
	COMPETE (0-1)	0.19	0.39		
	PGMATCH (0-1)	0.13	0.33		
	NONMARK (0-1)	0.79	0.40		
	AGENT (0-1)	0.76	0.43		
Situational Factors	DWGNEW (0-1)	0.27	0.44		
	LOGFLOOR	2.99	0.12	2.98	0.68
	LOGPRICE	4.53	0.25	4.53	-0.62
	SAFETY (0-1)	0.20	0.40		
	ECONMOVE (0-1)	0.13	0.33		
	WARDMOVE (0-1)	0.46	0.50		
	SQRTPREV	3.84	3.04	3.59	0.41
Potential Payoff	SATISFY (0-1)	0.57	0.50		
	OUTCOME (0-1)	0.38	0.49		
	DISCB (0-1)	0.37	0.48		
Knowledge & Experience	FTB (0-1)	0.50	0.50		
	RMOVE (0-1)	0.22	0.42		
	UNCERT (0-1)	0.73	0.45		
Individual Differences	LOGAGE	1.54	0.13	1.50	0.66
	LOGEDUC	1.11	0.09	1.11	0.70
	FSIZE	2.82	1.45	3.00	0.64
	PCHILD (0-1)	0.46	0.50		
	INCOME (0-1)	0.44	0.50		
Religion	RC_HHLD (0-1)	0.33	0.47		
Conflict & Conflict Resolution	CMIND (0-1)	0.22	0.42		
	DWELPROB (0-1)	0.28	0.45		
	EVALPROB (0-1)	0.49	0.50		
Costs of Search	LACKTIME (0-1)	0.08	0.27		
	LACKCASH (0-1)	0.24	0.43		

CONFLICT was treated in a similar fashion. As suggested in chapter seven, CONFLICT was found to be asymptotic. This is an important variable that measured the extent to which partners disagreed over the evaluation criteria to be applied in search. In order to make use of the data, a new dichotomous variable (EVALPROB) was created. EVALPROB was set to one if there was any difference between the HoH and the partner (i.e. CONFLICT > zero). Where there was no conflict or where the household was a single-person household EVALPROB was set to zero.

DISCOUNT was treated slightly differently. Where households payed less than the asking price, DISCOUNT had a positive value and where they paid more the value was negative. Because values ranged either side of zero (-£5,200 to +£11,300), the mean value was quite small: on average, searchers paid £268 more than the asking price. In order to simplify the analysis, a new variable was created (DISCB) and set to one when the household paid less than the asking price (37%). This serves as a simple flag of positive bargaining outcome.

The usual approach with ordinal variables destined for use in regression analysis is to create a series of dummy variables. However, given that the main objective of this chapter is to construct a path model with multiple dependent variables, an alternative strategy was followed in which the ordinal variables were simply dichotomised. Two of the variables - SATISFY and OUTCOME - had previously been dichotomised for use in chapter seven. SATISFY was set to one if the household was very satisfied (57%) with their new dwelling and to zero for all other responses. Similarly, OUTCOME was set to one if the household believed that the outcome of search was better than had been expected (38%) and to zero for all other responses.

Chapter seven also reported on pre-search certainty (CERTAIN). It was shown that 27 percent of households were very certain about what they wanted from search, 50 percent were quite certain, 13 percent had some ideas, and 10 percent had little idea. For analytical purposes, a new dichotomous variable (UNCERT) was computed and set to one if households were less than very certain (73%). All other cases were set to zero.

The final ordinal variable referred to gross household income. This was originally recorded on a 13 point scale following the bands used in the Northern Ireland Family Expenditure Survey (e.g. PPRU, 1994). Table 8.2 suggests that the "typical" recent buyer household in the BUA has an annual gross income in the band £15,000 to £25,000. For purposes of the subsequent regression analysis, the mid-point £20,000 was taken as a threshold value and INCOME was set to one if gross annual household income exceeded this

threshold (33%). As the remaining variables were already dichotomous, no adjustments were necessary.

8.3.2 Bivariate Analysis of Means

In this section, the five dependent variables are analysed in conjunction with each of the 23 dichotomous criterion variables noted in Table 8.3. The analysis involves an examination of how the mean values of the dependant variables vary according to each of the criterion variables.

Differences in means are tested using a series of one-tail t-tests on the basis that the direction of difference was indicated in advance. Following Lewis-Beck (1995), the results are presented separately for the untransformed (Table 8.4) and transformed dependent variables (Table 8.5). In both tables the criterion variables are transformed. Two questions arise from the information presented in these tables. First, what does the analysis tell us about the strength and direction of the relationships in light of what had been indicated in Table 8.1. Second, how were these relationships changed as a result of transforming the dependant variables?

Table 8.4 provides the answer to the first question. Within the market environment category, most of the dichotomous criterion variables acted as expected from Table 8.1. Only two relationships were contrary to expectations. It had been expected that use of estate agents would be negatively related to search duration; in reality, AGENT was found to be positively (and significantly) related to search duration. Similarly, competition from other searchers had been expected to be greatest in Catholic areas; the data indicates that this is not the case, although the relationship is not significant.

The potential payoff variables all behaved as expected. Significant positive relationships were found between DURATION, N_INSP and N_CHANS and each of the criterion variables. Although OUTCOME and DISCB acted in the right direction, just SATISFY was significantly related to N_AREAS.

The conflict and conflict resolution and cost variables also acted as expected. The results from the EVALPROB variable are especially interesting. As hypothesised, where conflicts existed between the HoH and the partner, search occurred over a significantly longer period (28 weeks compared to 16 weeks), but fewer dwellings were inspected (6.5 compared to 10.4). The remaining variable categories produced more mixed results.

In the situational factors category, SAFETY is the only variable that performs fully as hypothesised with very significant increases in search duration, the number of dwellings

inspected, the number of areas searched and the number of channels employed where safety problems or discrimination was encountered. DWGNEW performed as expected in terms of the

Table 8.4: Bivariate Analysis of Means (Untransformed Dependent Variables)

Criterion Variables		Dependant Variables (Mean Values - Untransformed)									
Name		DURATION		N_INSP		N_AREAS		N_CHANS		REL_WARD	
STIME	0	20.2	**	8.4		1.5		3.7		25.6	
	1	28.2		8.7		1.8		3.5		22.4	
COMPETE	0	21.0		7.1	***	1.5	***	3.5	***	25.7	
	1	24.8		14.3		2.1		4.7		22.0	
PGMATCH	0	21.5		7.5	***	1.4	***	3.6	***	25.2	
	1	26.2		15.3		2.9		4.6		23.6	
NONMARK	0	18.2		2.0	***	1.3	***	1.8	***	17.7	***
	1	22.6		10.2		1.7		4.2		26.9	
AGENT	0	18.0	*	4.3	***	1.4	***	2.0	***	20.8	*
	1	22.9		9.8		1.7		4.2		26.3	
DWGNEW	0	21.3		9.5	***	1.6		3.8	**	29.1	***
	1	22.8		5.8		1.7		3.3		13.7	
SAFETY	0	18.0	***	7.7	***	1.4	***	3.5	***	24.5	
	1	36.3		11.7		2.5		4.6		27.0	
ECONMOVE	0	22.1		8.4		1.6		3.7		25.8	*
	1	18.8		8.9		1.6		3.5		19.5	
WARDMOVE	0	19.8	*	8.4		1.8	***	3.6		20.4	***
	1	23.9		8.6		1.5		3.8		30.3	
SATISFY	0	17.1	***	7.0	**	1.5	*	3.4	**	22.5	*
	1	25.2		9.6		1.7		3.9		26.8	
OUTCOME	0	20.1	*	7.6	**	1.6		3.6	*	23.3	*
	1	24.4		9.9		1.6		3.9		27.7	
DISCB	0	15.0	***	7.2	***	1.6		3.6	**	24.3	
	1	33.0		10.7		1.7		4.0		26.1	
FTB	0	22.1		7.1		1.6		3.5	**	20.9	***
	1	21.3		9.8		1.6		3.9		29.0	
RMOVE	0	22.8	**	8.6		1.7		3.7		25.1	
	1	17.9		7.8		1.5		3.6		24.5	
UNCERT	0	12.8	***	6.2	***	1.4	***	3.5	*	31.8	***
	1	25.1		9.3		1.7		3.8		23.3	
PCHILD	0	19.7	*	9.2		1.7		3.7		23.4	
	1	24.0		7.5		1.6		3.7		26.9	
INCOME	0	20.2		8.6	*	1.5	*	3.6	*	26.9	**
	1	23.6		8.3		1.7		3.9		22.4	
RC_HHLD	0	20.0	**	6.9	***	1.7	**	3.4	**	14.3	***
	1	25.3		11.7		1.4		4.3		47.0	
CMIND	0	21.3		6.5	***	1.5	***	3.4	***	24.7	
	1	23.0		15.3		2.2		4.7		25.9	
DWELPROB	0	18.4	***	5.3	***	1.5	***	3.5	***	22.6	***
	1	30.1		16.7		2.0		4.3		31.1	
EVALPROB	0	15.8	***	10.4	***	1.6		3.5	***	23.7	
	1	27.8		6.5		1.6		3.9		26.2	
LACKTIME	0	23.4	***	8.8	***	1.7	***	3.8		25.0	
	1	1.9		4.5		1.2		3.0		24.6	
LACKCASH	0	21.0		8.9		1.6	***	3.6		25.0	
	1	23.7		7.2		1.8		4.0		24.8	

Table 8.5: Bivariate Analysis of Means (Transformed Dependent Variables)

Criterion Variables		Dependant Variables (Mean Values - Untransformed)									
Name		LOGTIME		LOGINSP		LOGAREAS		N_CHANS		SQRT_RC	
STIME	0	1.09	**	0.60		0.14	*	3.7		4.33	
	1	1.20		0.60		0.18		3.5		4.15	
COMPETE	0	1.08	***	0.53	***	0.13	***	3.5	***	4.33	
	1	1.23		0.89		0.25		4.7		4.16	
PGMATCH	0	1.09	***	0.56	***	0.11	***	3.6	***	4.32	
	1	1.25		0.93		0.43		4.6		4.16	
NONMARK	0	1.05	*	0.20	**	0.09	**	1.8	***	3.37	***
	1	1.13		0.71		0.17		4.2		4.48	
AGENT	0	1.02	**	0.36	***	0.10	***	2.0	***	3.74	***
	1	1.13		0.67		0.17		4.2		4.47	
DWGNEW	0	1.15	***	0.65	***	0.15		3.8	**	4.66	***
	1	1.01		0.48		0.16		3.3		3.30	
SAFETY	0	1.07	***	0.55	***	0.11	***	3.5	***	4.21	*
	1	1.28		0.80		0.31		4.6		4.64	
ECONMOVE	0	1.11		0.60		0.15		3.7		4.38	*
	1	1.08		0.64		0.14		3.5		3.76	
WARDMOVE	0	1.08	*	0.61		0.18	***	3.6		3.85	**
	1	1.15		0.59		0.11		3.8		4.82	
SATISFY	0	0.95	***	0.49	***	0.14	*	3.4	**	4.02	**
	1	1.23		0.68		0.17		3.9		4.50	
OUTCOME	0	1.08	*	0.56	***	0.16		3.6	*	4.08	***
	1	1.16		0.68		0.14		3.9		4.65	
DISCB	0	0.98	***	0.54	***	0.14		3.6	**	4.27	
	1	1.32		0.71		0.17		4.0		4.34	
FTB	0	1.07	*	0.53	***	0.15		3.5	**	3.99	***
	1	1.15		0.67		0.16		3.9		4.60	
RMOVE	0	1.12		0.61		0.16		3.7		4.28	
	1	1.07		0.58		0.13		3.6		4.35	
UNCERT	0	0.84	***	0.51	***	0.09	***	3.5	*	4.81	***
	1	1.21		0.63		0.18		3.8		4.10	
PCHILD	0	1.21		0.64	*	0.16		3.7		4.17	
	1	1.10		0.56		0.15		3.7		4.45	
INCOME	0	1.08	*	0.60		0.14	*	3.6	*	4.34	
	1	1.15		0.61		0.17		3.9		4.25	
RC_HHLD	0	1.07	***	0.53	***	0.18	***	3.4	**	3.25	***
	1	1.20		0.75		0.10		4.3		6.46	
CMIND	0	1.09	*	0.52	***	0.12	***	3.4	***	4.23	
	1	1.18		0.90		0.26		4.7		4.54	
DWELPROB	0	1.05	***	0.48	***	0.12	***	3.5	***	4.06	
	1	1.27		0.91		0.22		4.3		4.92	
EVALPROB	0	0.97	***	0.61	***	0.15		3.5	***	4.16	***
	1	1.26		0.54		0.16		3.9		4.43	
LACKTIME	0	1.19	***	0.62	***	0.16	***	3.8		4.30	
	1	0.20		0.37		0.04		3.0		4.26	
LACKCASH	0	1.09	**	0.61		0.14	***	3.6		4.27	
	1	1.19		0.57		0.20		4.0		4.39	

number of dwellings inspected, the number of areas searched, and the religious composition of the purchase ward. However, in contrast to expectations, the data suggest that buyers of new dwellings searched longer than buyers of existing properties, and that they used fewer

information channels. ECONMOVE also displays mixed results with its impact on DURATION, N_INSP and N_CHANS in the expected direction but not significant, and its impact on N_AREAS in the opposite direction and also not significant. With the exception of its impact on N_AREAS and REL_WARD, the WARDMOVE variable does not act as expected. The results suggest that households that moved within or to an adjacent ward actually searched longer, examined more vacancies, and used more information channels than households that moved over a greater distance.

In the knowledge and experience group, UNCERT behaved as expected but FTB and RMOVE acted only partially as expected. For example, first time buyers were found to search for shorter periods than continuing home owners. Although this is opposite to the expected direction, the relationship is not significant. The results with the individual differences and religion variables were also somewhat mixed, although they were broadly supportive of the pre-determined relationships. Thus, as expected, the presence of school-aged children (PCHILD) was found or to be positively related or to DURATION, and negatively related to N_INSP and N_AREAS. However, no differences were found in information use. The situation with religion has already been discussed in chapter seven; basically, the relationships are as expected except for the fact that Catholics viewed significantly more dwellings than non-Catholics, a finding inconsistent with the racial model of search behaviour. LACKTIME and LACKCASH seemed to behave as anticipated in terms of DURATION, N_INSP and N_AREAS, but the relationships with N_CHANS and REL_WARD were not as expected.

The second question is easier to answer. In the analysis of the untransformed dependant variables, 72 relationships were significant. Following transformation, the number of significant relationships increased to 80, suggesting that transformation improved the strength of the association between the variables concerned[2]. However, not all of the change was in this direction. Thus, there were 12 new significant relationships in Table 8.5 that were not significant in Table 8.4 and, at the same time, there were four significant relationships in Table 8.4 that ceased to be significant in Table 8.5. Apart from changing the number of significant relationships, the extent of significance changed amongst certain variables. The majority of these changes (8) were in favour of an increased level of significance in the transformed table, although two pairings experienced a reduction in significance. Overall, therefore, the

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2 Some of the significant relationships have "incorrect" signs when compared against Table 8.1.

transformations seem to have improved the number and strength of significant relationships between the dependent variables and the hypothesised dichotomous criterion variables.

8.3.3 The Correlation Matrix

Thus far the bivariate analysis has focused on the dichotomous criterion variables and the numeric dependent variables. A more complete picture can be obtained from the bivariate correlation matrix. The matrix is too large to be reproduced within the body of the text and so is presented in Appendix 8. Containing over 1,200 cells, the matrix is also very complex. In order to make some sense of this very large matrix, this section has two objectives: First, to summarise the relationships between the numeric criterion variables and the dependent variables in context with the previously considered dichotomous variables; Second, to provide an initial assessment of the risk of multicollinearity with the independent variables.

Table 8.6 contains an extract from the correlation matrix which is based on the transformed variables. This shows the correlation coefficients between each dependent variable and each numeric independent variable. Although coefficients are presented for the full 30 independent variables, in order to avoid repetition, the narrative concentrates on the numeric predictors only. With the exception of LOGEDUC, each of numeric independent variables behaves as suggested in Table 8.1.

Both SQRTSET and LOGAGE behaved fully as expected. In terms of the former, the relationships were positive with each dependent variable; with the latter, the relationships were uniformly negative. LOGFLOOR acted mainly as predicted, except that it was negatively related to N_CHANS, not positively as had been anticipated. Relationships were also rather weak. Similarly, whilst LOGPRICE and LOGSIZE both behaved as expected, none of the relationships were significant. SQRTPREV behaved generally as expected, except that its relationship with LOGINSP was positive.

Turning to the second objective, an examination of the full correlation matrix shows that amongst the independent variables, of 450 possible pairings, just 16 have coefficients that exceed 0.3, including only four that exceed 0.5. As noted in chapter six, advice on the size of a correlation coefficient necessary to judge the presence of significant collinearity is mixed[3].

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[3] Attempts to detect collinearity do not rely exclusively on a visual inspection of the correlation matrix. The most preferred approach is to regress each independent variable in the equation in all other independent variables and to judge the scale of the problem from the resultant R^2 values; if any are close to 1.00, then there is a high degree of multicollinearity. Most statistical packages

Table 8.6: Correlations Between Dependent and Independent Variables

Category	Criterion Variables	Dependent Variables				
		LOGTIME	LOGINSP	LOGAREAS	N_CHANS	SQRT_RC
Dependent Variables	LOGTIME	1.0000	0.2373	0.1144	0.1738	0.1278
	LOGINSP	0.2373	1.0000	0.4108	0.5924	0.1965
	LOGAREAS	0.1144	0.4108	1.0000	0.2768	-0.1475
	N_CHANS	0.1738	0.5924	0.27868	1.0000	0.2061
	SQRT_RC	0.1278	0.1965	-0.1475	0.2061	1.0000
Market Environment	SQRTSET	0.1844	0.1888	0.1037	0.1318	0.2462
	STIME (0-1)	0.0924	-0.0031	0.0681	-0.0401	-0.0270
	COMPETE (0-1)	0.1213	0.2742	0.2320	0.2320	-0.0271
	PGMATCH (0-1)	0.1090	0.2367	0.5040	0.1607	-0.0202
	NONMARK (0-1)	0.0709	0.3935	0.1645	0.4909	0.1447
	AGENT (0-1)	0.1000	0.2597	0.1415	0.4651	0.1209
Situational Factors	DWGNEW (0-1)	-0.1320	-0.1471	0.0213	-0.1144	-0.2363
	LOGFLOOR	0.0052	-0.1376	0.0458	-0.0373	-0.0417
	LOGPRICE	0.0483	-0.0508	0.0449	0.0496	-0.0015
	SAFETY (0-1)	0.1764	-0.1954	0.3844	0.2136	0.0688
	ECONMOVE (0-1)	-0.0220	0.0302	-0.0272	-0.0375	-0.0816
	WARDMOVE (0-1)	0.0671	-0.0082	-0.1817	0.0509	0.1896
	SQRTPREV	0.0384	0.1333	-0.1560	0.1617	0.6075
Potential Payoff	SATISFY (0-1)	0.3002	0.1815	0.0727	0.1397	0.0944
	OUTCOME (0-1)	0.0802	0.1084	-0.0238	0.0787	0.1085
	DISCB (0-1)	0.3522	0.1578	0.0539	0.0992	0.0128
Knowledge & Experience	FTB (0-1)	0.0878	0.1384	0.0355	0.0915	0.1202
	RMOVE (0-1)	-0.0426	-0.0270	-0.0501	-0.0097	0.0100
	UNCERT (0-1)	0.3478	0.1121	0.1792	0.0776	-0.1247
Individual Differences	LOGAGE	-0.0507	-0.1285	-0.1119	-0.0955	-0.1655
	LOGEDUC	0.0629	0.1162	0.0057	0.0967	0.1023
	FSIZE	0.0002	-0.0693	0.0494	0.0818	0.0587
	PCHILD (0-1)	-0.0064	-0.0845	-0.0257	-0.0103	0.0556
	INCOME (0-1)	0.0685	0.0068	0.0814	0.0695	-0.0184
Religion	RC_HHLD (0-1)	0.1266	0.1925	-0.1762	0.2074	0.5900
Conflict & Conflict Resolution	CMIND (0-1)	0.0782	0.3134	0.2826	0.2518	0.0521
	DWELPROB (0-1)	0.2037	0.3699	0.2151	0.1960	0.1517
	EVALPROB (0-1)	0.3050	-0.1134	0.0249	0.1112	0.0538
Costs of Search	LACKTIME (0-1)	-0.5704	-0.1333	-0.1481	-0.1010	-0.0036
	LACKCASH (0-1)	0.0940	-0.0383	0.1247	0.0822	0.0199

Nevertheless, the relatively small number of pairings with moderately sized correlation coefficients gives no cause for concern. Only one pairing would seem to point towards collinearity; with a coefficient of 0.75, family size (LOGSIZE) is strongly correlated with the presence of school-aged children (PCHILD). It should be noted that whilst perfect collinearity violates the assumptions of regression analysis, a high degree of collinearity does not (Berry &

provide some indication of this as part of their standard or optional regression output. As shall be demonstrated in the next section, SPSS provides a "tolerance" estimate as an option. From this figure it is possible to work back to the individual R^2 value for each independent variable and judge the extent of multicollinearity more precisely. Further details are discussed below.

Feldman, 1985). Nevertheless, it is an undesirable property to have in any social sciences data set.

There are several strategies for dealing with multicollinearity, but the most commonly applied is to simply drop the offending variable (Lewis-Beck, 1995). This is a risky strategy. If each variable in the original equation reflects a distinct theoretical argument, as should be the case, then dropping a variable implies that the revised equation was incorrectly specified. However, if it can be argued that the original model itself was incorrectly specified, then dropping the variable will actually improve the model. In this case, it is argued that LOGSIZE and PCHILD are basically two indicators of the same underlying concept and so dropping one or the other does not constitute a problem. A detailed examination of the correlation matrix showed that PCHILD performed more consistently than LOGSIZE so LOGSIZE was dropped from subsequent analyses.

Other pairings of note are the positive relationship between household religion and religious composition of previous ward (0.64), dwelling size and dwelling price (0.62), income and dwelling price (0.53) and dwelling size and family size (0.42). Interesting negative correlations include first time buyer status and dwelling price (-0.41) and first time buyer status and head of household age (-0.48). Each of these is logical and consistent with expectations.

Earlier in the chapter it was noted that certain coding decisions may have risked problems of multicollinearity. In particular, STIME and EVALPROB were highlighted for particular attention. It is true that the correlation between STIME and FTB is quite high (0.49). However, this still falls (just) within the threshold of acceptability noted in chapter six. In terms of EVALPROB, the treatment of single person households in the same fashion as couples without conflict introduces a positive relationship with household size. However, with a correlation coefficient of 0.38, this is not regarded as problematic.

Overall, the tentative conclusion is that multicollinearity is not a problem in this data set with the possible exception of the link between PCHILD and LOGSIZE. Moreover, the coding scheme used for certain variables did not introduce problems of multicollinearity. However, as indicated above, further diagnostic tests are performed as part of the regression estimation procedure discussed in the next section.

8.4 Regression Analysis

Thus far the analysis has demonstrated the presence of numerous significant relationships between various criterion variables and the five dependent variables. However, as Newman (1977) observed, there is a tendency for significant relationships detected through bivariate analyses to evaporate when multivariate tools are brought to bear. Such tools are necessary, however, if the independent effects of any particular predictor are to be assessed.

In this section, multiple regression analysis is used to construct and estimate separate models for each of the five dependent search variables. The results are presented in two sections. In the first section, there is a general discussion about regression diagnostics, outlining the key assumptions of regression analysis and indicating how these assumption are tested in this thesis. In the second section, for each of the five dependent search variables, separate regression equations are estimated, tested and discussed.

8.4.1 Regression Diagnostics

There is little point in estimating a series of regression models and building these into a full path model of search behaviour if the underlying assumptions of regression analysis are violated. The basic assumptions of regression analysis are summarised in Table 8.7. Preventing some of these violations is best done through the design process. However, some cannot be designed out; as such, it is necessary to test for violations in the basic assumptions that may exist and advice is available in the literature on how this might be done (Berry, 1993; Berry & Feldman, 1985; Lewis-Beck, 1995; Schroeder, Sjoquist & Stephan, 1986; Norusis, 1993b).

The advice in the literature suggests that meeting the requirements of the first two basic assumptions relies on pre-data collection work rather than any specific steps in the analytical stages of the research. In effect, avoiding specification error and measurement error problems depends substantially on adequate research design, theory formulation, prior research and research implementation. In chapter five detailed information was presented on the "quality approach" taken in the design and implementation of the empirical research that forms the core of this thesis. The literature reviews and hypotheses formulation stages of the thesis (chapters 2-4) cover the theory formulation and prior research requirements. Once the regression models have been estimated, some indication of specification problems may be obtained from poor fit statistics or "good fit" statistics with no individual significant terms.

Perfect collinearity exists when one independent variable has a coefficient of determination of 1.0 when regressed on all the remaining independent variables. SPSS, in common with many other statistical packages, produces a "tolerance" estimate which can be used to assess the extent of collinearity. This "tolerance" measure is calculated as follows:

$$1 - R_I^2$$

where R_i is the multiple correlation coefficient when the *I*-th variable is predicted from the other independent variables. If the tolerance of the variable is small, it is almost a linear combination of the other independent variables. In addition to relying on "smallness", Lewis-Beck (1995) suggests that the highest R^2 for an independent variable regression should be lower than the R^2 for the model itself.

Detecting violations in the final set of assumptions involves the inspection and analysis of residuals. Residuals are what is left over after the model has been fitted to the data. True errors are assumed to be independent normal values with a mean of zero and a constant variance. If the model is appropriate to the data, the observed residuals, which are estimates of the true errors, should have similar characteristics (Norusis, 1993b). The first assumption that error terms should have a mean of zero can largely be ignored as equations with an intercept term will always be constrained such that the mean of the residuals will be zero.

The second assumption, that the error term is homoscedastic, is most likely to be violated in cross-sectional survey data of the type employed in this thesis. Thus, it is important to understand how to detect this problem. To do this we need to understand what the assumption actually means; homoscedasticity means that the error variance is constant across the values of the independent variables. Where the variance is not constant, the error term is said to be heteroscedastic. Detection of heteroscedasticity relies on either the visual or formal inspection of the relationship between the variance of the residuals and one or more of the independent variables (Berry, 1993). If the spread of the residuals increases or decreases with values of the dependent variable then variances may be unequal.

The third assumption related to the error term is that of no autocorrelation. This is primarily, but not exclusively, a problem for time series data. Its presence can be detected using a standard test known as the Durbin-Watson test. If the test statistic falls within the range 1.5-2.5 the problem is not serious, although the ideal situation is for the test statistic to equal 2.0. The fourth assumption that the error term is not correlated with any of the independent

Table 8.7: Regression Assumptions and Means of Testing for Violations

Assumptions	Testing for violations
I No specification error: • Y is dependent • The independent variables $X_1,\ldots, X_n$ do in fact influence Y. • The form of the relationship between Y and $(X_1,\ldots, X_n)$ is linear.	First two points essentially relate to the research design, theory formulation and prior research. These guide the inclusion of particular variables. Third point likewise relates to theory. However, transformations available to linearise the relationship.
II No measurement error: • The variables are quantitative. • The variables are measured accurately.	In practice, will always be some measurement error. All variables are quantitative (or dummies which are ok). Research design and implementation to minimise measurement problems.
III No perfect collinearity.	Always some correlation but must be "perfect" to violate assumption. Examination of correlation matrix for unexpectedly high relationships. Calculation of R^2 for each independent variable predicted from all remaining independent variables. Comparison of independent variable R^2 with the regression model R^2 - latter should always exceed the former.
IV The error term is "well behaved": • It has a zero mean. • It is homoscedastic (i.e. error variance is constant across the independent variables). • It is not autocorrelated. • It is not correlated with any of the independent variables. • It is normally distributed.	Essentially an analysis of residuals: Can effectively ignore this as equations with constants constrained to have errors with mean of zero. Most pertinent for cross-sectional survey data; plot residuals against each independent variable. Mostly a problem in time series data; use Durbin-Watson test with acceptable range 1.5-2.5. Assess from plots of residuals against each independent variable. Histogram of regression residuals with superimposed normal distribution; normal probability plot.

variables can be detected through the plots used to test for heteroscedasticity; in this case, however, it is pattern of residuals that is of interest.

The final assumption, that the error terms are normally distributed, can be assessed by plotting them in histogram form and by plotting the observed cumulative distribution of residuals against the expected cumulative distribution; if the line is straight or nearly straight, then the distribution is normal. It should be noted, however, that the last assumption is not necessary in order that regression estimates are unbiased; normality does, however, guarantee proper application of the significance tests.

For each of the regression equations estimated in the following section of this chapter, the plots and test statistics recommended in Table 8.7 were produced and scrutinized for possible violations of assumptions. The statistics are shown in the relevant tables. However, because of the sheer volume of plots, only the histograms and cumulative probability plots for each equation are presented in this thesis (Appendix 9). Nevertheless, in the following section the analysis of potential assumption violations and the necessary corrective measures are outlined prior to the discussion of the results for each equation.

All of the regression tables take the same format; in addition to presenting information necessary for diagnostic testing, the tables provide details on the partial regression coefficients (B), the beta coefficients, the tolerance estimate, the T value and the significance of T. Some of these terms may need further explanation. The partial regression coefficients (B) are effectively the multipliers that apply to the individual regression terms. More specifically, the B values indicate the expected change in Y for a unit change in X. Where the dependent variable is measured in log form, as is the case with three of the equations presented below, the partial regression coefficients can be interpreted as the approximate percentage change in the value of the dependent variable. However, as the absolute values of the B coefficients depend upon the measurement units involved, they cannot be taken as an indication of the relative importance of individual variables. This is why the beta coefficients are used. These are the coefficients of the independent variables when all are expressed in standardised Z-score format. The nature of the tolerance figures was discussed above. The T value and the significance of T test the hypothesis that the variable coefficient in question is zero. A small value (e.g. <0.05) leads to the rejection of this null hypothesis; i.e. the term is significant.

Model fit is judged by reference to the R^2 value, otherwise known as the coefficient of determination. However, the sample R^2 value tends to over-estimate how well the model fits the

population and most applications of multiple regression use a modified version of R^2 which is referred to in the tables as $\check{R}^2$ (Norusis, 1993b). In addition to the $\check{R}^2$ value, the analysis of variance output is used to assess the overall fit of the equation. The degree of fit is tested using an F-test. Formally, the F-test tests the hypothesis that the $R^2_{pop}= 0$, a small value leading to the rejection of the null hypothesis. The Durbin-Watson test statistic, a measure of autocorrelation, is also included on each table.

8.4.2 Individual Regression Models

Five measures of search were proposed: search duration, the number of dwellings inspected, the number of areas searched, the number of channels employed, and the percentage of Roman Catholics in the population of the ward of eventual purchase. As noted above, the first three are direct measures of search effort, the fourth is a measure of search strategy, and the fifth is a measure of search outcome. Taken together these five variables present a broad picture of owner occupier residential search behaviour in the BUA. In the following sub-sections, regression models are estimated for each of the dependent variables. For each equation, only those terms thought likely to impact on search are included (Table 8.1). The discussion of each equation begins with a consideration of regression diagnostics and ends with an examination of model results.

8.4.2.1 Search Duration

Regression Diagnostics

Search duration was measured in terms of the number of weeks of active search. As noted earlier, the variable was subject to a logarithmic transformation in order to normalise the distribution. Log transformations have been successfully applied in other regression studies of search duration (e.g. Lake, 1981). The full 29 background variables were hypothesised to impact on search duration in some way.[4]

Formal tests for the presence of collinearity showed that there were no significant problems. The highest R^2 for an independent variable regressed on all remaining independent variables was found with FTB (0.524). As this was less than the unadjusted R^2 for the model (0.532), it is safe to assume no collinearity problems exist (Lewis-Beck, 1995). Examination of

[4] In fact, all 30 criterion variables were hypothesised to impact on search duration but family size (LOGSIZE) was dropped because of possible collinearity problems (8.3.3).

the residual plots did not indicate the presence of any significant heteroscedasticity or relationships between the error term and any of the independent variables. The histogram of the regression standardized residuals conforms closely with the normal distribution and the normal probability plot is approximately straight as expected. The Durbin-Watson statistic has a value of 2.08, close to the ideal 2.0. Taken together, there is no evidence that the regression assumptions have been violated.

Results

Table 8.8 summarises the results for the search duration regression model. For convenience, the independent variables are organised into their respective categories as indicated in the conceptual model of search which was set out in chapter four.

The market environment variables appear to have exerted relatively little influence on the duration of search; none of the six variables are significant at the 95 percent level of testing. Nonetheless, all variables have the expected signs, an indication of a well specified model. The size of the feasible set, sale time for the previous home, competition from other searchers in the market, searching outside the product group of purchase, and the use of non-market information sources all lead to increased search duration. Although far from significant, the use of an agent is negatively related to search duration. This is opposite to the direction reported from the bivariate analysis but consistent with the direction indicated in Table 8.1.

Situational factors were more important determinants of search duration, with SAFETY significant at the 95 percent level of testing, and four other variables significant at the 90 percent level (NEW, LOGPRICE, WARDMOVE, and SQRTPREV). The results on SAFETY are particularly important; a feeling of being unsafe in an area or a feeling of being discriminated against in an area where search occurred increases search duration by more than 10 percent, all other things being equal.

Of the variables significant at the slightly lower level of testing, NEW and LOGPRICE behaved as expected. Thus, households purchasing a new home searched for less time (approximately 6%) than buyers of existing dwellings and an increase in one standard price unit translates into a seven percent increase in search duration. The two remaining variables that were significant at the 90 percent level (WARDMOVE & SQRTPREV), however, had opposite signs to those expected. Moving within or from an adjacent ward was expected to reduce search duration. In fact, it seemed to increase search time. There are several possible explanations for

this. One is that households have very clearly defined spatial preferences which may mean that they have to wait longer for a suitable vacancy to arise; Maclennan (1992) refers to this as

Table 8.8: Regression Model - Search Duration

Category	Independent Variable	B	Beta	Tolerance	T	Sig T
Market Environment	SQRTSET	0.003	0.049	0.76	1.46	0.144
	STIME (0-1)	0.050	0.041	0.69	1.17	0.244
	COMPETE (0-1)	0.051	0.042	0.81	1.29	0.197
	PGMATCH (0-1)	0.007	0.005	0.89	0.16	0.872
	NONMARK (0-1)	0.030	0.026	0.90	0.83	0.405
	AGENT (0-1)	-0.006	-0.005	0.92	-0.18	0.857
Situational Factors	DWGNEW (0-1)	-0.067	-0.063	0.71	-1.81	0.071
	LOGFLOOR	0.052	0.013	0.51	0.32	0.748
	LOGPRICE	0.152	0.079	0.41	1.74	0.088
	SAFETY (0-1)	0.120	0.102	0.82	3.14	0.002
	ECONMOVE (0-1)	0.060	0.042	0.86	1.34	0.189
	WARDMOVE (0-1)	0.059	0.062	0.82	1.92	0.056
	SQRTPREV	-0.011	-0.075	0.54	1.88	0.061
Potential Payoff	SATISFY (0-1)	0.122	0.128	0.77	3.81	<0.001
	OUTCOME (0-1)	-0.037	-0.038	0.84	-1.20	0.232
	DISCB (0-1)	0.224	0.228	0.89	7.33	<0.001
Knowledge & Experience	FTB (0-1)	0.055	0.059	0.48	1.38	0.170
	RMOVE (0-1)	-0.055	-0.058	0.87	-1.54	0.124
	UNCERT (0-1)	0.170	0.160	0.79	4.83	<0.001
Individual Differences	LOGAGE	0.128	0.035	0.63	0.93	0.350
	LOGEDUC	0.281	0.052	0.73	1.50	0.133
	PCHILD (0-1)	-0.015	-0.016	0.74	0.47	0.641
	INCOME (0-1)	0.012	0.013	0.66	0.36	0.721
Religion	RC_HHLD (0-1)	0.119	0.118	0.51	2.95	0.003
Conflict & Conflict Resolution	CMIND (0-1)	-0.095	-0.084	0.75	-2.45	0.015
	DWELPROB (0-1)	0.091	0.087	0.82	2.67	0.008
	EVALPROB (0-1)	0.148	0.156	0.85	4.90	<0.001
Costs of Search	LACKTIME (0-1)	-0.695	-0.400	0.75	-11.80	<0.001
	LACKCASH (0-1)	-0.007	-0.007	0.81	-0.20	0.841
Constant		-0.681			-1.22	0.224
Statistics	R^2 = 0.53	SE 0.33	F	21.25	DW	2.08
	$\bar{R}^2$ = 0.51		Sig. F	p<0.001	N	571

"sticky preferences". An alternative explanation is that households had a more wide ranging spatial search but failed to find something suitable and ended up close to their original address. In other words, search was unable to overcome existing place attachment but an effort was made nonetheless. The regression models for the number of dwellings seen and the number of areas searched may throw some light on this issue. On the basis of the racial model of search, it had been hypothesised that households moving from wards where the Catholic community was dominant would search for longer periods than those moving from wards where

Catholics were less prominent. The evidence does not support this proposition; As the Catholic proportion in the previous ward increased, search duration fell. In fact, a standard unit increase in the Catholic population resulted in a seven percent fall in search duration. Of the remaining variables in this grouping, LOGFLOOR behaves as expected (positively related to search duration) but ECONMOVE does not. Neither are significant at the 90 percent level of testing.

The evidence presented in Table 8.8 lends considerable support to the cost-benefit framework that underlies the basic conceptual model. Post purchase satisfaction (SATISFY) and purchase price discounts (DISCB) were both highly significant determinants of search duration. Households that were very satisfied with their newly purchased home searched for around 13 percent longer than other households, other things being equal. Moreover, households that were able to secure a discount on the purchase price searched for more than 20 percent longer than those who were unable to secure such discounts. Both findings are as indicated in Table 8.1. Contrary to expectations, OUTCOME was found to be negatively related to search duration, although the effect was not significant. Taken together, however, these variables demonstrate that extra search is strongly related to extra benefits.

In the knowledge and experience category, all three variables have the expected signs, although only UNCERT is significant. Being a first time buyer typically increases search duration by about six percent whereas being a recent mover reduces search time by a similar amount. The first time buyer results are particularly interesting. The earlier bivariate analysis suggested that first time buyers searched for longer than continuing home owners, a result contrary to expectations. However, when other factors are controlled for in the regression equation, first time buyers are seen to search for longer than others, although the effect is not significant. Pre-search uncertainty was much more important in determining search duration. Households that were uncertain about what they wanted typically searched for 16 percent longer than households with well developed ideas.

Perhaps surprisingly, individual differences between searchers exerted little effect on search duration. Of the four variables tested, only INCOME had the expected sign and none of the variables came close to significance (the best was LOG_EDUC at 13%). This reflects the fact that the previous research on these factors has been equivocal; there are no clear-cut effects of age, education, the presence of children, and income on search duration. This contrasts markedly with religion. When all other variables are controlled for, Catholic households

searched for around 12 percent longer than non-Catholics, a finding that supports hypothesis H1 i.e. that Catholics search for longer than non-Catholics, all other things being equal.

In the conflict and conflict resolution grouping, the results are fascinating. As anticipated, conflict within the household over what attributes were important resulted in significantly longer search (EVALPROB). Where such conflicts existed, households searched for 16 percent longer than households where there were no conflicts. Having problems in deciding which, if any, dwelling to purchase (DWELPROB) also increased search times, but to a lesser extent (9%). However, changing your mind over what was required did not lead to longer search as had been expected; search durations were typically nine percent less for "mind changers" than those who remained fixed in their views. It may be that those that changed their minds became more realistic and shortened their search accordingly.

In the final category, lack of time very strongly reduced search duration (40%) as did a lack of money, although the latter relationship was not significant. LACKTIME was highly significant.

Overall, the model fit is good, with an adjusted $\check{R}^2$ value of 0.51. This means that more than half of the variation in search duration can be accounted for by the model. The fit compares very favourably to R^2 values of 0.13 in Lakes's (1981) study and 0.28 in Clark & Smith's (1982) investigation. Twenty variables had the correct signs, and only one of the incorrectly signed variables was significant. Overall, nine criterion variables were significant at the 95 percent level of testing (or better) with a further four at the 90 percent level.

8.4.2.2 The Number of Dwellings Inspected

Regression Diagnostics

The dependent variable records the number of dwellings inspected. To be counted, the searcher had to inspect the dwelling internally; inspections that involved only the exterior of the dwelling were excluded. As noted earlier, the variable was subject to a logarithmic transformation in order to normalise the distribution. Lake's (1981) investigation of the number of dwellings inspected was similarly transformed. In common with the duration of search, the number of dwellings inspected was hypothesised to be a function of all 29 criterion variables.

Following the same procedure used with search duration, formal tests for the presence of collinearity showed that there were no significant problems. The highest R^2 for an independent variable regressed on all remaining independent variables was found with

LOGFLOOR (0.487). As this was less than the unadjusted R^2 for the model (0.50), it is safe to assume that no significant collinearity problems exist with this data (Lewis-Beck, 1995). Examination of the residual plots did not indicate the presence of any significant heteroscedasticity or relationships between the error term and any of the independent variables. Moreover, both the histogram of the regression standardized residuals and the normal probability plot are approximately as expected for normally distributed errors. At 1.71, the Durbin-Watson statistic is also acceptable. Taken together, there is no evidence that the regression assumptions have been violated.

Results

Table 8.9 summarises the results for the regression model of the number of dwellings inspected. As with the previous model, explanatory variables are grouped to reflect the categories originally specified in the conceptual model of search (Chapter 4).

Unlike with search duration, market environment variables were very influential in determining the number of dwellings inspected by owner occupier searchers in the BUA. Of the six variables included in the model, four were significant at the 99 percent level of testing (COMPETE, PGMATCH, NONMARK & AGENT). Although the remaining two variables were not significant, all six variables had the correct signs. The largest effect occurs with the use of non-market information which boosts the number of inspections by a factor of more than 30 percent, all other things being equal. Use of estate agents and competition from other searchers in the market also lead to around a 20 percent increase in viewing activity. Households that searched outside the product group of purchase also examined more (11%) dwellings than those who searched exclusively within the same product group.

Situational factors were much less important predictors. Of the seven variables in this category, just one is significant (ECONMOVE). For job movers, the combination of shorter search times but more intensive examination of vacancies is indicative of highly efficient search. Of the remaining variables, three have the correct signs (DWGNEW, LOGFLOOR & LOGPRICE). Thus, buyers of new houses examine fewer vacancies than buyers of existing dwellings; buyers of larger properties examine fewer dwellings than buyers of smaller dwellings; similarly, dwelling price is negatively related to the number of vacancies seen. In Table 8.1 it was suggested that both WARDMOVE and SQRTPREV would be negatively related to the

number of dwellings inspected; in fact, the opposite was found to be the case, although the results were far from significant.

In terms of potential payoff, as anticipated, post-purchase satisfaction (SATISFY) and the presence of purchase price discounts (DISCB) were both strongly and positively related to the number of vacancies inspected. Buyers that were very satisfied with their home examined 14 percent more dwellings than those who were less than very satisfied, and buyers that negotiated a discount on the purchase price also examined more vacancies than those who paid or exceeded the asking price. As with the search duration model, the OUTCOME variable did not perform as expected; not only was the variable not significant but it also had the wrong sign. The failure of this variable to behave as hypothesised in both equations raises the possibility of mis-specification.

Reflecting their lack of experience, first time buyers (FTB) typically examined five percent more dwellings than continuing home owners, although the effect was not significant. In contrast, recent movers (RMOVE) examined some six percent fewer dwellings than non-recent movers, all other things being equal. Although this difference is not quite significant, it is in the expected direction, supporting the earlier bivariate analysis. However, pre-search uncertainty did not behave as anticipated; uncertain searchers were hypothesised to examine more dwellings than searchers whose aspirations were more clearly defined. This proposition is not supported by the data.

In terms of individual differences, none of the variables proved to be significant. However, the age of head of household and the presence of pre-school-aged children in the households were both found to be negatively related to the number of dwellings seen as had been described in the conceptual model. Education (LOG_EDUC) and income (INCOME) were not so well behaved; both had opposite to predicted signs. Unlike with search duration, household religion was not found to be a significant influence on the number of dwellings inspected. This is an important result. The earlier bivariate analyses showed that Catholic households examined significantly more vacancies than non-Catholic households, a finding that ran counter to the evidence on the search behaviour of racial minorities in the United States. When all of the background variables are controlled in the regression equation the effect remains positive but it ceases to be significant. Thus, in contrast to the earlier bivariate analysis, the regression results support hypothesis H2 that Catholic households examine fewer or comparable numbers of dwellings to non-Catholics.

Table 8.9: Regression Model - Number of Dwellings Viewed

Category	Independent Variable	B	Beta	Tolerance	T	Sig T
Market Environment	SQRTSET	0.0003	0.006	0.76	0.19	0.853
	STIME (0-1)	0.023	0.173	0.69	0.47	0.636
	COMPETE (0-1)	0.250	0.190	0.81	5.64	<0.001
	PGMATCH (0-1)	0.172	0.110	0.88	3.40	<0.001
	NONMARK (0-1)	0.387	0.302	0.90	9.44	<0.001
	AGENT (0-1)	0.239	0.197	0.92	6.32	<0.001
Situational Factors	DWGNEW (0-1)	-0.019	-0.017	0.71	-0.46	0.646
	LOGFLOOR	-0.242	-0.056	0.51	-1.31	0.190
	LOGPRICE	-0.003	-0.001	0.41	-0.03	0.977
	SAFETY (0-1)	0.041	0.032	0.82	0.95	0.342
	ECONMOVE (0-1)	0.100	0.064	0.86	1.96	0.050
	WARDMOVE (0-1)	0.006	0.006	0.82	0.17	0.866
	SQRTPREV	0.004	0.024	0.54	0.60	0.552
Potential Payoff	SATISFY (0-1)	0.147	0.141	0.77	4.06	<0.001
	OUTCOME (0-1)	-0.010	-0.009	0.83	-0.27	0.785
	DISCB (0-1)	0.150	0.140	0.89	4.35	<0.001
Knowledge & Experience	FTB (0-1)	0.047	0.045	0.48	1.03	0.305
	RMOVE (0-1)	-0.078	-0.062	0.87	-1.92	0.055
	UNCERT (0-1)	-0.005	-0.004	0.78	-0.12	0.903
Individual Differences	LOGAGE	-.0196	-0.049	0.62	-1.27	0.205
	LOGEDUC	0.221	0.037	0.73	1.05	0.295
	PCHILD (0-1)	-0.035	-0.033	0.74	-0.94	0.345
	INCOME (0-1)	-0.029	-0.027	0.66	-0.74	0.463
Religion	RC_HHLD (0-1)	0.047	0.042	0.54	1.04	0.301
Conflict & Conflict Resolution	CMIND (0-1)	0.172	0.138	0.75	3.92	<0.001
	DWELPROB (0-1)	0.270	0.234	0.82	6.99	<0.001
	EVALPROB (0-1)	-0.145	-0.141	0.85	-4.27	<0.001
Costs of Search	LACKTIME (0-1)	-0.018	-0.009	0.75	-0.27	0.787
	LACKCASH (0-1)	-0.220	-0.182	0.81	-5.41	<0.001
Constant		0.670			1.06	0.289
Statistics	R^2 = 0.50	SE 0.38	F	18.70	DW	1.71
	$\bar{R}^2$ = 0.47		Sig. F	p<0.001	N	571

Unlike with search duration, changing your mind over what was required does lead to an increase in viewing activity (CMIND). Indeed, households that changed their minds examined some 14 percent more dwellings than those that did not. This implies that "mind changers" intensified their search effort following a change in their minds. In a similar vein, households that had problems in choosing between dwellings (DWELPROB) typically examined almost one-quarter more dwellings than those without such difficulties. In contrast, conflict within the household serves to reduce the number of dwellings considered by around 14 percent (CONFLICT). In summary, all three conflict and conflict resolution variables performed as expected and each was highly significant.

The final category of criterion variables relates to costs, both financial and temporal. As expected, both LACKTIME and LACKCASH were negatively related to the number of dwellings seen, but just LACKCASH was significant. A lack of money depressed the number of dwellings considered by a factor of 20 percent, all other variables held constant.

Overall, the model fit was quite good with an adjusted $\check{R}^2$ of 0.47, considerably better than the 0.15 reported by Lake (1981) and the 0.20 reported by Clark and Smith (1982). Moreover, of the 29 criterion variables, 11 were significant at the 95 percent level of testing or better, and just six had incorrect signs.

8.4.2.3 The Number of Areas Searched

Regression Diagnostics

The dependent variable is the number of "community districts" searched by the household. As noted with the previous equations, the dependent variable was subject to a logarithmic transformation in order to normalise its distribution. On the basis of the conceptual model set out in chapter four, the extent of spatial search was estimated on the basis of 27 criterion variables.

Table 8.10 shows the tolerance figures are generally high; just two variables - SQRTPREV and RC_HHLD - had tolerance figures of less than 0.6. Following Lewis-Beck (1995), the highest R^2 for an independent variable regressed on all the remaining independent variables is estimated by subtracting the lowest tolerance figure from 1. This produces a figure of 0.45 which is lower than the R^2 for the model as a whole. Consequently, collinearity is not regarded as a significant problem. Examination of the residual plots indicates that the variance of the error term is reasonably constant and no discernable relationships were found to exist between the error terms and any particular independent variable. The Durbin-Watson test for autocorrelation produces a test statistic of 2.13 which is within the acceptable range (Murphy, 1989). However, the histogram of regression standardised residuals and the normal probability plot shows that there is some departure from the expected normal distribution. Although this is unfortunate, as Berry (1993) notes, non-normal distributions do not mean that the regression estimates are biased. Overall, therefore, the regression assumptions are adequately met.

Results

Table 8.10 summarises the regression model. As with the previous models, the criterion variables are grouped in accord with the conceptual framework discussed in chapter four.

Market environment variables proved to be important predictors of the extent of spatial search behaviour in the BUA. Of the six variables in this category, five were significant at the 95 percent level of testing, although one variable (STIME) had the wrong sign. The greatest effect was from the PGMATCH variable; households that searched outside the product group of purchase searched almost 40 percent more areas than those that searched and purchased within the same product group area. This is not surprising given that, as noted in the previous chapter, some 61 percent of households searched in just one community district. If households considered dwellings outside of their product group of purchase, then it is likely that this would have involved a more extensive spatial search effort. Large effects are also noted when the household was in competition with other households (12% increase) and where non market information (11%) or estate agents (8%) were used. All three effects were as expected. Sale time for the previous home was expected to be positively related to the number of areas searched. The data supports this proposition; households that took longer than average to sell their previous home also tended to search in more areas than those that sold their previous homes more quickly. The final variable in this category - SQRTSET - was found to be positively related to the extent of search, again as had been anticipated, but the relationship was not significant.

In terms of situational factors, five variables were included in the regression equation. All five had the correct signs, but only two were significant (SAFETY and WARDMOVE). The largest effect is observed with the SAFETY variable. Where the household encountered an area that they felt was unsafe or where discrimination might be present, this lead to significantly more extensive spatial search. In fact, such households typically searched in 23 percent more areas than households that did not encounter such problems. Moving for job-related reasons and moving within or from an adjacent ward were thought likely to reduce spatial search. This was found to be the case, although the job-movement relationship was not significant. In line with the racial model of search, it was believed that the extent of the Catholic population in the previous ward would be negatively related to spatial search. The evidence in the model supports this view, although the relationship is not significant. Finally, the model also shows that buyers of new dwellings searched more areas than buyers of existing properties, all other things being equal.

Potential payoff was regarded as an important influence on the extent of search. As suggested in Table 8.1, post-purchase satisfaction and a positive bargaining outcome were

found to be positively related to the number of areas searched, although the relationships were not statistically significant. As was the case with the previous models, the OUTCOME variable did not behave as expected. When the other variables are controlled for, satisfaction with search outcome was negatively related to the number of areas searched, not positively related as had been anticipated. However, the relationship was not significant.

Table 8.10: Regression Model - Number of Areas Searched

Category	Independent Variable	B	Beta	Tolerance	T	Sig T
Market Environment	SQRTSET	0.0005	0.021	0.82	0.63	0.527
	STIME (0-1)	0.043	0.081	0.82	2.17	0.031
	COMPETE (0-1)	0.062	0.117	0.82	3.44	<0.001
	PGMATCH (0-1)	0.242	0.385	0.89	11.75	<0.001
	NONMARK (0-1)	0.055	0.107	0.92	3.31	0.001
	AGENT (0-1)	0.039	0.079	0.93	2.47	0.014
Situational Factors	DWGNEW (0-1)	0.024	0.050	0.77	1.44	0.152
	SAFETY (0-1)	0.117	0.226	0.82	6.63	<0.001
	ECONMOVE (0-1)	-0.028	-0.046	0.86	-1.37	0.172
	WARDMOVE (0-1)	-0.036	-0.085	0.87	-2.52	0.012
	SQRTPREV	-0.0009	-0.142	0.55	-0.34	0.735
Potential Payoff	SATISFY (0-1)	0.015	0.036	0.78	1.02	0.307
	OUTCOME (0-1)	-0.021	-0.049	0.84	-1.47	0.143
	DISCB (0-1)	0.004	0.009	0.91	0.27	0.791
Knowledge & Experience	FTB (0-1)	0.012	0.029	0.51	0.67	0.504
	RMOVE (0-1)	-0.020	-0.040	0.88	-1.22	0.223
	UNCERT (0-1)	0.0008	-0.001	0.79	-0.05	-0.958
Individual Differences	LOGAGE	-0.208	-0.129	0.74	-3.29	<0.001
	LOGEDUC	-0.147	-0.061	0.79	-1.77	0.078
	PCHILD (0-1)	-0.018	-0.043	0.84	-1.24	0.217
	INCOME (0-1)	0.026	0.061	0.76	1.70	0.089
Religion	RC_HHLD (0-1)	-0.102	-0.229	0.55	-5.48	<0.001
Conflict & Conflict Resolution	CMIND (0-1)	0.049	0.098	0.76	2.77	0.006
	DWELPROB (0-1)	0.038	0.082	0.82	2.40	0.017
	EVALPROB (0-1)	0.004	0.009	0.87	0.26	0.793
Costs of Search	LACKTIME (0-1)	-0.034	-0.045	0.76	-1.27	0.205
	LACKCASH (0-1)	-0.011	-0.022	0.81	-0.65	0.519
Constant		0.504			3.23	0.001
Statistics	R^2 = 0.48	SE 0.153	F	18.74	DW	2.13
	$\bar{R}^2$ = 0.46		Sig. F	<0.001	N	571

Of the three measures of knowledge and uncertainty, two (FTB & UNCERT) had the correct signs but were not significant. Recent movers (RMOVE), however, had the wrong sign and was also not significant. Consequently, it seems that whilst knowledge and experience variables are important determinants of other aspects of search behaviour, they do not impact on the number of areas searched.

All four variables that measured individual differences between searchers had the correct signs, although only LOG_AGE was significant. Thus, a standard unit increase in head of household age resulted in a 13 percent reduction in the dependent variable, all other things being equal. The number of years that the head of household spent in full time education (LOG_EDUC) and the presence of pre-school aged children in the household (PCHILD) also served to reduce the number of areas searched but, as noted above, these effects were not significant. Household income was found to be positively related to the number of areas searched, but again the effect was not significant.

In contrast to the standard measures of individual differences, household religion was found to be very significantly related to the number of areas searched. As predicted, when all the background variables are controlled for, there remains a significant independent effect of religion on the number of areas searched. Specifically, Catholic households searched significantly (23%) fewer areas than non-Catholic households, thus supporting hypothesis H3.

As expected, when a household changes its mind (CMIND) over what is required from the search, more areas are searched (10%). Similarly, a household that experienced problems in deciding which, if any, dwelling to purchase (DWELPROB), searched more areas (8%) than a household that had no such problems. However, conflict within the household between the partner and the head of household over what criteria were important was not negatively related to the number of areas searched as had been expected, but the relationship was not significant.

The final category of variables in the original conceptual model related to the costs of search. Both a lack of time (LACKTIME) and a lack of finance (LACKCASH) were expected to reduce spatial search. The data support these propositions, although in neither case is the relationship statistically significant.

Overall, the model fit is quite good with an adjusted $\check{R}^2$ of 0.46 which means that almost half of the variability in the number of areas searched is explained by the model. This is significantly better than the 0.18 in Lake's (1981) study and the 0.29 in Clark and Smith's (1982) study. Moreover, of the 27 criterion variables employed, 24 had the correct signs, 11 were significant at the 95 percent level of testing or better, with a further two significant at the 90 percent level.

8.4.2.4 The Number of Information Channels Employed

Regression Diagnostics

Although there were some differences between partners in channel usage, the dependent variable for this model was determined on the basis of whether or not the head of the household or the partner used the particular channel. As noted earlier, this variable's distribution was approximately normal and so no transformation was necessary. The intensity of channel use was estimated as a function of some 26 independent variables.

As with the previous models, the regression assumptions all seem to be adequately met. Most variables have tolerance values in excess of 0.75, with the lowest value of 0.55 recorded for RC_HHLD. This is significantly higher than the 0.1 suggested by Norusis (1995) as the point at which multicollinearity becomes a problem. The data also meet Lewis-Beck's (1995) rule-of-thumb that the maximum R^2 for an independent variable regressed on all other independent variables (0.45 for RC_HHLD) should be less than the R^2 for the model itself (0.53). Examination of the regression residual plots revealed no problems of heteroscedasticity or relationships between the error term and any particular independent variable. In addition, the histogram of the regression standardised residuals and the normal probability plot confirm that the errors are approximately normally distributed. Accordingly, the data appear robust enough for the regression model of information channel usage to be reliability estimated.

Results

The results of the regression analysis are summarised in Table 8.11. As with the previous models, the independent variables are categorised according to the structure of the conceptual model outlined in chapter four.

Market environment factors proved to be important determinants of the intensity of information channel usage. Of the five variables within this category, three were significant at the 99.9 percent level of testing or better, and four had the predicted signs. Not unexpectedly, use of non-market sources and use of estate agents were both positively related to the overall number of channels used. Market competition was also important. Where searchers were in competition with other households, information channel use increased by some 12 percent, all other things being equal. Searching outside the product group of purchase was also positively related to channel usage as expected, but the relationship was not significant. In contrast, the

size of the feasible set (SQRTSET) was negatively related to channel usage rather than positively related as had been hypothesised. Nevertheless, this relationship was not significant.

Situational factors were less important. Of the seven factors considered, just one (SAFETY) was significant. Where households felt unsafe or felt that there was the risk of discrimination, information channel use increased. This is consistent with the evidence on search duration, the number of dwellings inspected, and the number of areas searched. Although none of the remaining variables were significant, four (DWGNEW, LOGPRICE, ECONMOVE & SQRTPREV) had the correct signs. Thus, purchase of a new dwelling, dwelling price and the percentage of Catholics in the previous ward were positively related to channel use and job-related mobility was negatively related to channel usage. Contrary to expectations, movers within or from adjacent wards used more information channels than buyers who moved over greater distances, and dwelling size was negatively related to channel use.

As with the previous models, the OUTCOME measure of payoff proved to be unimportant as an explanatory factor. However, post purchase satisfaction (SATISFY) was strongly and positively related to intensity of information channel usage as had been indicated in Table 8.1. Similarly, information channel usage was higher amongst households that secured a discount on the initial asking price compared to households that met or exceeded the asking price. Both relationships were highly significant.

As expected, first time buyers (FTB) were more intensive information users than other households, a finding consistent with the view that households with less experience need to engage in more search activity. Being a first time buyer increased information channel use by some eight percent when compared to non-first time buyers, all other things being equal. Pre-search uncertainty was expected to increase information use. However, when all other variables are controlled for, the relationship was negative and not significant.

In respect of individual differences, none of the hypothesised variables were significant, although two (LOG_EDUC & PCHILD) had the correct signs. Thus, increased years of full time education resulted in increased information use and the presence of children in the household was associated with reduced information use. In contrast, age of head of household (LOGAGE) was unexpectedly found to be positively related to channel use. Household religion was not a significant determinant of information channel use, although the direction of the effect was as expected. Thus, Catholic households did tend to make use of more information channels than non-Catholic households.

Table 8.11: Regression Model - Number of Information Channels Employed

Category	Independent Variable	B	Beta	Tolerance	T	Sig T
Market Environment	SQRTSET	-0.012	-0.050	0.76	-1.49	0.136
	COMPETE (0-1)	0.590	0.115	0.82	3.54	<0.001
	PGMATCH (0-1)	0.228	0.037	0.89	1.20	0.236
	NONMARK (0-1)	2.159	0.432	0.91	14.00	<0.001
	AGENT (0-1)	1.956	0.413	0.94	13.62	<0.001
Situational Factors	DWGNEW (0-1)	0.053	0.012	0.73	0.34	0.737
	LOGFLOOR	-0.092	-0.005	0.52	-0.13	0.895
	LOGPRICE	0.333	0.041	0.44	0.92	0.357
	SAFETY (0-1)	0.369	0.074	0.83	2.28	0.023
	ECONMOVE (0-1)	-0.119	-0.020	0.91	-0.64	0.524
	WARDMOVE (0-1)	0.127	0.032	0.83	0.98	0.328
	SQRTPREV	0.006	0.026	0.55	0.26	0.797
Potential Payoff	SATISFY (0-1)	0.358	0.088	0.77	2.63	0.009
	OUTCOME (0-1)	-0.948	-0.023	0.84	-0.71	0.478
	DISCB (0-1)	0.341	0.082	0.92	2.66	0.008
Knowledge & Experience	FTB (0-1)	0.327	0.081	0.55	2.06	0.040
	UNCERT (0-1)	-0.118	-0.026	0.79	-0.79	0.430
Individual Differences	LOGAGE	0.028	0.002	0.63	0.05	0.962
	LOGEDUC	0.886	0.038	0.75	1.12	0.260
	PCHILD (0-1)	-0.076	-0.018	0.75	-0.56	0.578
Religion	RC_HHLD (0-1)	0.271	0.063	0.55	1.59	0.114
Conflict & Conflict Resolution	CMIND (0-1)	0.504	0.104	0.75	3.06	0.002
	DWELPROB (0-1)	0.241	0.053	0.83	1.66	0.097
	EVALPROB (0-1)	0.191	0.047	0.86	1.48	0.138
Costs of Search	LACKTIME (0-1)	0.098	0.013	0.76	0.39	0.695
	LACKCASH (0-1)	-0.005	-0.001	0.83	-0.03	0.974
Constant		-2.508			-1.10	0.273
Statistics	R^2 = 0.53	SE 1.416	F	23.76	DW	1.73
	$\bar{R}^2$ = 0.51		Sig. F	<0.001	N	571

The three conflict and conflict resolution factors all had the expected signs, although just CMIND was significant at the 95 percent level of testing. Changing your mind over what is required from search resulted in a 10 percent increase in channel usage. Having problems in deciding which, if any, property to purchase was also positively related to channel use (DWELPROB). Households experiencing such problems used five percent more channels that those without these problems, a result that is significant at the 90 percent level. Conflict within the household, however, had no effect on channel use (EVALPROB).

The final category of variables relates to the cost of search. It had been suggested that households with a time constraint would make greater use of available channels in order to help locate a suitable property more quickly. This data supports this proposition in general, although

the effect is not significant. Similarly, households with cost constraints were expected to use fewer channels because of the costs involved. Again, the data supports this general proposition, although the effect is not statistically significant.

Overall, the model fit is acceptable with an adjusted $\check{R}^2$ of 0.51. This means that more than half of the variation in the dependent variable is explained by the model. However, of the 26 criterion variables employed, just eight were significant at the 95 percent level of testing. This points towards possible specification problems. Nevertheless, just six of the variables had incorrect signs which would tend to support the view that the model specification is not that bad.

8.4.2.5 The Percentage Catholic in the Ward of Purchase

Regression Diagnostics

In this model, the dependent variable is the percentage of Catholics in the population of the ward of purchase as indicated in the 1991 Census (DHSS, 1992b). As the distribution is skewed, a square root transformation was performed in order to introduce a more normal distribution. Of the five individual regression models this is the most simple with just 13 criterion variables.

In terms of basic regression assumptions, the data meet the requirements in terms of no multicollinearity. The maximum R^2 for an independent variable is 0.44, which is less than the 0.47 for the model as a whole. Moreover, variable tolerances are typically greater than 0.7 and are well away from the danger zone of 0.1 (Norusis, 1995). Similarity, the error term is well behaved. Visual inspection of the regression residual plots indicates no major problems of heteroscedasticity or the presence of relationships between the error term and any of the independent variables. There is, however, a slight problem with autocorrelation. The Durbin-Watson test statistic is calculated at 1.18, which is outside the normally acceptable range of 1.5-2.5 (Murphy, 1989). This situation probably arises from the fact that variables from two different time periods are included in the model (SQRTPREV and SQRT_RC). Whilst autocorrelation is undesirable, it does not mean that the model is biased (Berry, 1993). Consequently, it was decided to estimate the model but to draw attention to the fact that autocorrelation probably exists in the data used to estimate this model.

Results

The results of the regression analysis are set out in Table 8.12. As has been the practice with the previous regression models, the explanatory variables are grouped within the categories

originally defined in chapter four. Unlike the previous models, however, not all of the categories are represented; there were no criterion variables from the potential payoff and the conflict and conflict resolution categories.

Three market environment factors were employed as determinants of the religious composition of the ward of purchase as follows: competition with other searchers (+), use of non-market information (+) and use of estate agents (+). With the exception of COMPETE, the relationships were as predicted. The model indicates that competition with other searchers (COMPETE) is significantly and negatively related to the proportion of the ward's population classified as Catholic. Thus, where competition exists, the proportion of Catholics in the ward is lower by seven percent, all other things being equal. This implies that competition for housing in Catholic areas is less prevalent than in non-Catholic areas and it runs counter to the US evidence on racial segregation. Use of estate agents is associated with an increase in the proportion of the ward's population that is classified as Catholic, although the relationship just fails to reach significance at the 95 percent level of testing. Nevertheless, this result is consistent with the literature which shows that minorities rely heavily on estate agents. However, use of non-market information, although having the correct sign, was found not to be significant.

Situational factors were regarded as likely to have the greatest impact on the dependent variable. Three of the four variables behaved as expected in that they had the correct signs. The purchase of a new dwelling was strongly, negatively related to the level of the Catholic population in the ward of purchase ($p=0.0003$) whereas the level of the Catholic population in the ward of origin was strongly, positively related to the dependent variable ($p<0.00005$). Buyers of new homes typically ended up in wards with Catholic population levels some 12 percent below those of buyers of existing property. This reflects the over-representation of non-Catholics amongst the buyers of such properties and the fact that new houses are over-represented in areas where Catholics are in the minority (see chapter six). As anticipated, SAFETY was positively related to the level of Catholic population in the purchase ward, but the relationship was not significant. In contrast, WARDMOVE had the wrong sign and was not significant. It had been suggested in Table 8.1 that first time buyers would be associated with wards with lower levels of Catholics in the population. This was found to be the case, although the relationship was not significant.

Similarly, none of the individual differences variables proved to be significant, but all three had the anticipated signs. Only PCHILD comes close to significance at the 95 percent

Table 8.12: Regression Model - Percentage Catholic Population in Ward of Purchase

Category	Independent Variable	B	Beta	Tolerance	T	Sig T
Market Environment	COMPETE (0-1)	-0.491	-0.076	0.87	-2.30	0.021
	NONMARK (0-1)	0.263	0.042	0.95	1.32	0.185
	AGENT (0-1)	0.353	0.059	0.96	1.88	0.061
Situational Factors	DWGNEW (0-1)	-0.702	-0.122	0.81	-3.59	<0.001
	SAFETY (0-1)	0.269	0.042	0.93	1.33	0.182
	WARDMOVE (0-1)	-0.052	-0.010	0.86	-0.31	0.757
	SQRTPREV	0.325	0.386	0.56	9.41	<0.001
Knowledge & Experience	FTB (0-1)	0.113	0.022	0.63	0.57	0.567
Individual Differences	LOGAGE	-0.628	-0.031	0.67	-0.85	0.398
	PCHILD (0-1)	0.318	0.062	0.85	1.87	0.062
	INCOME	-0.126	-0.025	0.82	-0.72	0.469
Religion	RC_HHLD (0-1)	1.713	0.315	0.60	7.97	<0.001
Costs of Search	LACKCASH (0-1)	-0.014	-0.002	0.85	-0.07	0.941
Constant		3.047			2.44	0.014
Statistics	R^2 = 0.48	SE 1.868	F	36.39	DW	1.18
	$\check{R}^2$ = 0.47		Sig. F	<0.001	N	571

level of testing (p=0.06). In contrast, household religion was highly significant; Catholic searchers were strongly associated with "Catholic wards", the strength of the relationship indicated by a beta coefficient of 0.32. This provides strong support for hypothesis H5. Finally, financial constraints were thought likely to be positively related to ward religious composition. This was not the case.

Overall, model fit was quite good with an R^2 value of 0.48, similar to that reported in the previous models. Of the 13 terms included, 10 had the correct signs. However, just four were significant at the 95 percent level of testing, with a further two significant at the lower 90 percent level. This suggests that some important variables have been omitted.

8.4.2.6 The Regression Evidence - Summary

The analysis presented in the preceding sections provides considerable support for the basic proposition that underlies this research, namely that there are significant differences in the search behaviour of Catholics and non-Catholics in the BUA and that Catholic search behaviour displays strong parallels with black search behaviour in the US. In particular, the evidence shows that when a myriad of background factors are controlled for Catholics search for longer

than non-Catholics (H1 supported) and they search in fewer areas than non-Catholics (H3 supported). Interestingly, the earlier finding that Catholics examined more dwellings than non-Catholics, a result that ran counter to the racial model of search, proved to be insignificant when the background variables were considered in conjunction with religion (H2 supported). No differences were found in the scale of information use (H4 not supported), but previous ward religious composition and household religion were found to be significantly related to purchase ward religious composition (H5 supported). In the next section, the individual regression models are stitched together into a comprehensive path model of search behaviour. This enables the relationships between the dependent variables to be considered in addition to the relationships between the dependent and independent variables.

8.5 A Path Model of Owner Occupier Search Behaviour in the BUA

8.5.1 Path Analysis

Berry (1984) notes that the most common strategy in social science research is the specification of single-equation models and the estimation of the equation coefficients using sample data mostly from non-experimental studies[5]. In such an approach, one variable is conceptualised as dependent upon a series of explanatory or independent variables. The separate regression models discussed in the previous section are of this type. However, it is clear that for many empirical investigations, single-equation models are inadequate. In search behaviour, for example, the dependent variables themselves are likely to be strongly inter-related. Moreover, independent variables may impact both directly and indirectly on the dependent variables. Such effects are neglected in single equation models. One solution is to specify and estimate a multi-equation model which embraces a range of dependent variables and independent variables.

Path analysis is commonly used to construct such multi-equation models and it is regarded as particularly appropriate when one is interested in the direct and indirect effects between constituent variables (Cadwallader, 1989). As an approach, path analysis has a long history with Wright's (1934) biometrics research regarded as a seminal contribution in the field, although the technique was popularised in the sociological literature during the 1970s (e.g. Blaylock, 1971; Duncan, 1975).

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5 Economists have a long tradition of multiple and simultaneous equation models.

Path analysis is basically concerned with estimating the magnitude of the linkages between variables and using these estimates to provide information on the underlying causal processes. Dillon and Goldstein (1984) note that although path analysis has often been maligned, this criticism has been misdirected. Path analysis does not aim to determine cause and effect; it simply uses the cause and effect framework as a guide to the investigation of associations between different sets of variables which have been *a priori* hypothesised as related to one another. Variables that cause other variables and whose variability is assumed to be determined by other causes outside the model are referred to as exogenous. Since the relationship between exogenous variables is not under consideration in path analysis, no effort is made to explain their inter-correlations, although some studies do show the correlations between such variables. On the other hand, variables whose variation is explained by the exogenous variables in the model are called endogenous. One of the main outputs of path analysis is the path diagram (Cadwallader, 1992). In these diagrams, straight lines with single arrows are drawn from exogenous to endogenous variables indicating the presence of a hypothesised casual link. Where correlations are to be indicated, double-headed arrows drawn on curved lines are normally used. Numerical values - referred to as path coefficients - can be assigned to each arrow. These coefficients indicate the strength of the association between the variables concerned. In simple path models the path coefficients are equivalent to the beta coefficients in regression analysis. In the case of two-headed arrows, the path coefficients are simply the zero-order correlation coefficients. Path diagrams usually also provide an indication of the residual term for each of the equations. This is simply the square root of the unexplained variation in the dependent variable and it is shown as a single-headed arrow pointing in to the dependent variable but not connected to any independent variable. Observable variables are usually shown as boxes with latent variables shown as circles.[6]

Path models are defined as recursive models. In a recursive model, all specified causal effects are unidirectional, that is, no two variables are reciprocally related, and the dependent variables are ordered in a sequence such that each dependent variable depends only on explanatory variables and previous dependent variables[7]. Under the standard conditions, path-

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6 As there are no latent variables in this study, circles are used to depict the endogenous variables. This is simply because it is easier to draw the path diagram in this way given the restriction to A4-sized paper.

7 For a discussion of the full range of assumptions see Dillon and Goldstein (1984).

analytic models can be estimated using normal Ordinary Least Squares (OLS) regression procedures. Where non-recursive models are specified, as with many economic simultaneous equation models, other techniques such as two-stage-least-squares and maximum likelihood estimation must be used.

In order to estimate the coefficients of the structural equations that make up the model, the classic approach is to incrementally build the model endogenous variable by endogenous variable. An alternative method is to use the LISREL (Linear Structural Relations) approach (Jöreskog & Sörbom, 1993a). The LISREL approach was developed primarily for use with unobserved or latent variables although various LISREL sub-models have been designed specifically for use with directly observed variables. One such sub-model, sub-model two, can be used for the estimation of path models. The advantage of using LISREL to estimate such a model as opposed to using standard regression techniques is that all of the equations are estimated simultaneously and, therefore, more quickly.

The main point of constructing the path diagram and estimating the path coefficients is that the analyst can decompose the correlation coefficient between any two related variables into a number of different components. Some may be meaningful in a theoretical sense, whereas others may not. One way to decompose the correlation coefficient into its various components is to use the following expression:

$$r_{ij} = P_{ij}\, r_{jq}$$

where i and j represent two variables in the system, and the index q runs over all variables from which paths lead directly to X_i, or, in other words, those variables having a direct impact on X_i. Cadwallader (1992) describes this expression as the basic theorem of path analysis. It states that the correlation between two variables can be decomposed into the sum of simple and compound paths, where a compound path is equal to the product of the simple paths that comprise it. Cadwallader notes that in analysing paths, there are three basic rules that must be followed. First, no path can pass through the same variable more than once. Second, no path can go back along an arrow having started forward on a different arrow. Third, a path can go in either direction along a two headed arrow, but only one such arrow can be used in any single path.

Following these rules, correlations can be decomposed into four components of association as follows: direct effects, indirect effects that are mediated by an intervening

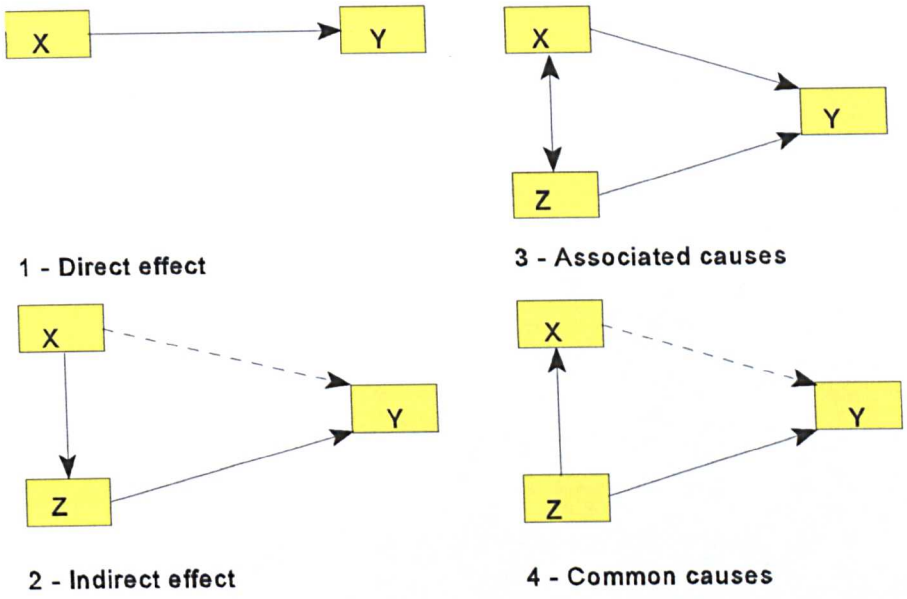

Figure 8.1: The Components of Association between X and Y

variable, an effect due to associated causes or some unanalysed correlation, and an effect due to common causes or spurious correlation (Figure 8.1). In the first illustration, the path from X to Y is the only path present and, in such circumstances, the path coefficient would be equivalent to the correlation coefficient. In the second illustration, there is a direct effect between Z and Y and an indirect effect between X and Y (i.e. through Z). In the third illustration, both X and Z are associated causes of Y. This means that the correlation coefficient between, say, X and Y draws on the direct path from X to Y and part of the path from Z to Y. The final illustration shows that Z is a common cause of both X and Y. Thus, in addition to having a direct effect on Y, Z also has an indirect effect through X. Cadwallader (1992) notes that it is important to distinguish between total association and total effect. The total association between any two variables is the sum of the four components of association noted in Figure 8.1 and it represents the zero-order correlation coefficient between the variables. The total effect is the sum of the direct and indirect effects where the indirect effects are transmitted by variables which mediate between the cause and effect of interest. Importantly, it is not normally possible to calculate the size of the indirect effect by subtracting the direct effect from the zero-order correlation coefficient (Cadwallader , 1992, p. 85).

Although path analysis offers a number of important advantages over multiple regression analysis (eg. an explicitly causal framework and information on direct and indirect effects), there are some drawbacks. The most serious drawback is that the model itself excludes reciprocal

relationships (ie. It is recursive rather than non-recursive). Estimation of such relationships requires a different approach. There is also some controversy over the use of standardised versus non-standardised coefficients although most studies, this one included, rely on the standardised coefficients (Asher, 1983). Path analysis has also been criticised on the basis of its susceptibility to multicollinearity. Multicollinearity is a problem in regression analysis as noted earlier, but within a path framework this problem is both more common and more severe. Finally, path analysis frequently suffers from problems of over identification. Whenever linkages or paths are omitted from a model, the resultant system of equations is said to be over identified, ie. there are more equations than unknowns. The problem then is how to select the subset of equations for solving the unknowns.

8.5.2 Model Building Strategy

There are three basic approaches to the task of model construction. First, the researcher specifies a single model and this model is tested using the empirical data available. Following this test, the model is either accepted or rejected. This is referred to as strictly confirmatory model building and is perhaps the purest form of social science model building. Second, the researcher develops several competing models and, on the basis of the analysis of a single set of empirical data, one of the models is selected as the "best" or most appropriate. This is the alternative models strategy. Third, the researcher specifies a tentative initial model. This model is successively tested, modified, re-tested until an acceptable model is derived. This is the model generation strategy and it typically aims to produce a model which fits the data well in a statistical sense and which makes sense from a theoretical point of view. Jöreskog and Sörbom (1993) note that whilst strictly confirmatory approaches are desirable, they are rare in practice. Similarly, they note that few researchers specify competing models *a priori.* Accordingly, in practice the model generation strategy is the most common approach in social science research.

In this thesis, the selection of an appropriate model building approach is dictated by the overall aim of the research, the basic research proposition, the specific hypotheses (5), and the manner in which the supporting relationships were set out. In chapter one it was noted that the basic aim was to develop a better understanding of owner occupier residential search in the BUA. The main proposition that guided the research was that Catholic household search in the BUA would mirror black household search in segregated cities in the United States. In particular, it was hypothesised that Catholics would search for longer, search in fewer areas, use more

information, and examine no more vacancies than non-Catholic households. However, it was argued that in order to isolate the effect of religion it was necessary to couch religion within a more comprehensive behavioural framework of search. Thus, in chapter four a series of additional correlates of search were specified and their anticipated relationships were set out. In effect, this was a tentative initial model of search; it was not the objective of this study to formally test the model (this would have meant testing almost three dozen relationships). Rather, the model provided the framework for the testing of the five specific research hypotheses that pertained to the effect of religion.

If the details in Table 8.1 were used as a specification for the model, it would adopt a highly complex, non-recursive format not suitable for estimation using path analysis. Moreover, some of the equations could not be identified and therefore estimated in any meaningful fashion. Thus, the strictly confirmatory approach would not work. In addition, as only one, rather tentative model was "specified" the competing models approach is also inappropriate. Consequently, the model generation strategy is deemed most appropriate for the task in hand.

In following the model generation approach, a number of "ground rules" were initially established. First, the model would be specified as a recursive model; no reciprocal paths would be specified. Second, the starting point would be determined from the results of the earlier individual regression models. Thus, the exogenous to endogenous paths, referred to as the gamma relationships in LISREL, are defined by reference to those variables found to be significant in the earlier regression analysis. Third, relationships between the dependent variables would be ordered in such a manner as to comply with the requirements of a recursive approach. Following the discussion in 4.3.1, the model was conceived such that searching longer lead to more dwellings being viewed and more areas being searched; searching in more areas lead to more dwellings being viewed; using more information channels lead to more dwellings being viewed, more areas being searched, and an increased concentration of Catholics in the purchase ward; and more Catholics in the purchase ward was associated with fewer areas being searched. Clearly, a variety of possible configurations are possible so this initial model was left open for adaption during the course of the model building exercise. Fourth, the aim is to establish a parsimonious model in which all the included terms are significant at the 95 percent level of testing. All non-significant terms were dropped from the analysis.

LISREL 8 for Windows was used in this investigation (Jöreskog & Sörbom, 1993b). This implementation of the LISREL system provides a raft of diagnostic statistics with which to judge

model fit. These statistics are produced in recognition of the fact that many possible models can be generated from most social sciences data sets. Statistical considerations are not the only, or indeed the most important, consideration in model evaluation. Again, it is stressed that this analysis is guided by the original conceptual model of search behaviour. However, the various fit statistics are useful in the search for a parsimonious model which is consistent with the overall hypothesised model. In other words, the goal is to find a model that fits the data well statistically, but which makes sense and is consistent with the overall approach of the study.

At each stage model acceptability was judged at three different levels: the overall "look" of the model in terms of how well it matched up against the literature review and the expected associations set out in chapter four, the overall model fit, and the detailed fit on an individual term-by-term basis. In regard to the overall "look", parameter estimates were checked in terms of their signs and significance according to the underlying theory of the model. The individual equation R^2 values were also examined as an indication of general acceptability and possible specification problems (e.g. low R^2 values might indicate that important terms are omitted).

Overall statistical fit was judged using the model chi-square statistic. Formally, the statistic tests the model against the alternative that the covariance matrix of the observed variables is unconstrained. If the probability value is very small (say <0.05), the model is rejected i.e. poor fit. Jöreskog & Sörbom (1993b) note that in practice it is more useful to regard the chi-square statistic as a measure of "badness" of fit rather than a test statistic: a small value indicates a good fit and a large value indicates a poor fit. The aim is to have as small a value as possible given the degrees of freedom in the model. Whilst useful as an overall measure of fit, the chi-square statistic has an important limitation: adding terms always leads to a reduction in the chi-square value so there is a tendency to add parameters willy nilly in order to reduce the value of the statistic. Furthermore, as Jöreskog & Sörbom (1993b) note, the use of the chi-square statistic is based on the assumption that the model holds exactly in the population and this is often an unreasonable assumption in most empirical research. Given these limitations, overall model fit was judged using two alternative measures of fit advocated by Browne and Cudeck (1993): the Root Mean Square Error of Approximation (RMSEA) and the Expected Cross Validation Index (ECVI) which is a measure of the discrepancy between the fitted covariance matrix in the analysed sample and the expected covariance matrix in another sample of the same size. The rules of thumb that are recommended are that the RMSEA indicator should have a value of less than 0.05 and the ECVI statistic for the model should be less than

the ECVI for the saturated model. A number of other measures are also available, some of which are discussed later in the chapter.

If any of these overall measures indicate a poor fit, then individual model parameters are examined in detail. LISREL provides a range of outputs that can be used to identify possible sources of poor fit the most useful of which is the Modification Index which is estimated for each parameter in the model. Each such index measures how much chi-square is expected to decrease if this particular parameter is set free and the model is re-estimated. The modification index is roughly equivalent to the difference in chi-square between two competing models in which one parameter is fixed or constrained in one model and free in the other, all other parameters being estimated in both models (Jöreskog & Sörbom, 1993b). By identifying the parameter with the largest index value, it is possible to isolate the variable a change in whose status will generate the greatest increase in model fit. However, parameters should only be set free if they can be properly interpreted. Thus, only those parameters which were originally expected to impact on the specific endogenous variables were treated in this way.

8.5.3 The Final Model

The causal model that emerged as the end product of this model building process and which will be subject to path analysis may be represented by the following set of structural equations:

i) $Y_1 = b_{1,10} X_{10} + b_{1,14} X_{14} + b_{1,16} X_{16} + b_{1,19} X_{19} + b_{1,21} X_{21} + b_{1,24} X_{24} + b_{1,25} X_{25} + b_{1,26} X_{26} + b_{1,27} X_{27} + b_{1,28} X_{28} + e_1$

ii) $Y_2 = b_{2,1} Y_1 + b_{2,3} Y_3 + b_{2,4} Y_4 + b_{2,5} Y_5 + b_{2,3} X_3 + b_{2,5} X_5 + b_{2,7} X_7 + b_{2,8} X_8 + b_{2,10} X_{10} + b_{2,11} X_{11} + b_{2,14} X_{14} + b_{2,16} X_{16} + b_{2,25} X_{25} + b_{2,26} X_{26} + b_{2,27} X_{27} + b_{2,29} X_{29} + e_2$

iii) $Y_3 = b_{3,4} Y_4 + b_{3,2} X_2 + b_{3,3} X_3 + b_{3,4} X_4 + b_{3,7} X_7 + b_{3,10} X_{10} + b_{3,12} X_{12} + b_{3,20} X_{20} + b_{3,24} X_{24} + b_{3,26} X_{26} + b_{3,28} X_{28} + e_3$

iv) $Y_4 = b_{4,3} X_3 + b_{4,5} X_5 + b_{4,6} X_6 + b_{4,10} X_{10} + b_{4,14} X_{14} + b_{4,16} X_{16} + b_{4,24} X_{24} + b_{4,25} X_{25} + e_4$

v) $Y_5 = b_{5,4} Y_4 + b_{5,3} X_3 + b_{5,7} X_7 + b_{5,13} X_{13} + b_{5,22} X_{22} + b_{5,24} X_{24} + e_5$

where Y_1 to Y_5 are the five endogenous measures of search, X_2 to X_{25} are the various exogenous criterion variables found to be significantly related to the measures of search, $b_{1,10}$ to $b_{5,24}$ are the path coefficients for the respective paths, and e_1 to e_5 represent the disturbance terms, or residual path coefficients. Figure 8.2 summarises the results of the path analysis[8]. It

[8] It should be noted that the model building process outlined above was designed to produce a model that was consistent with the conceptual model outlined in chapter four but which contained only significant paths. This means that there are many other paths, some of which are significant

can be seen that the model is recursive with no reciprocal paths. For reasons of simplicity, only the causal paths are shown; there are no correlation links shown between the exogenous variables, although these exist as was noted in the earlier analysis of the correlation matrix. The scale of the path coefficients is indicated by the thickness and arrow style of the paths; in general, the thicker the line, the greater the effect. The actual values of the coefficients are reproduced in Table 8.13. Before discussing these results, however, it is appropriate to first discuss the overall fit of the final model.

8.5.3.1 Model Fit

Overall model fit is good. Browne and Cudeck's (1993) RMSEA measure has the value of 0.033 for the model, with the recommended 90 percent confidence intervals of 0.024 and 0.043. As both the point value and the upper bound of the confidence interval fall within the prescribed 0.05 limit, this is indicative of a "close fit". Similar results are obtained from the ECVI measure. This indicator, which is derived from statistical information theory, is compared to the saturated model and to the "independence" model. The "independence" model is the model in which all the terms are uncorrelated. The ECVI value for the model is calculated at 2.12, which is less than the 2.20 for the saturated model. Indeed, the 90 percent confidence limit for the model ECVI ranges from 2.07 to 2.20, providing further support for the conclusion that the model fits reasonably well and closely approximates the population.

LISREL 8 also provides additional test output in the form of the Normed Fit Index (NFI) and the Non-Normed Fit Index (NNFI). These compare the model fit as measured by the chi-square value against the "independence" model. The indices should fall in the range 0 - 1 with values close to 1 supposed to indicate good fit. However, as the independence model often has very large chi-square values, the indices usually end up close to 1 in any event. This is the case for the search model which has a NFI of 0.97 and a NNFI of 0.93. Alternative indices that take account of parsimony have been suggested. On the basis of the Parsimony Normed Fit Index (James, Mulaik & Brett, 1982) and the Parsimony Goodness-of-Fit Index (Mulaik *et al.*, 1989) the model does not perform quite so well with index values of 0.18 and 0.19 respectively. This suggests that the model probably has too many terms, a situation that resulted from the deliberate decision to include all the significant terms in the model. One possible approach to

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at a lower level (e.g. 90%) which have be omitted from the model. This was done in order to simplify the process interpretation of the path diagram, but it can be regarded as a weakness. It is also worth remembering that the choice of a 95 percent significance level for path inclusion was based on common practice; it has no magical properties. Moreover, the significance level does not say anything about the strength of the relationship implied between two variables; it simply indicates the amount of risk associated with the assumption that the relationship exists in the population under investigation.

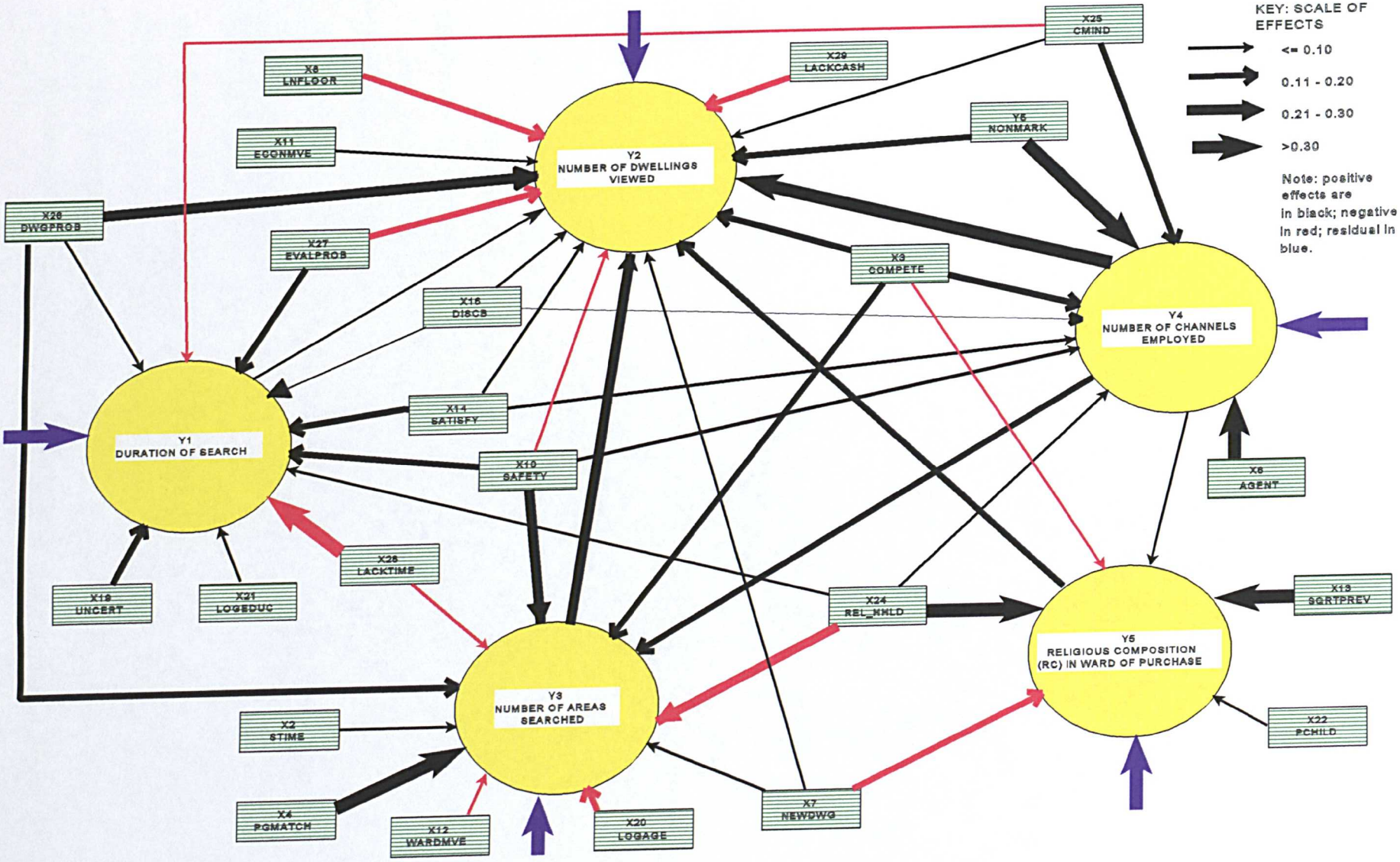

Figure 6: A Path Model of Owner Occupier Search Behaviour

improve the parsimonious nature of the model would be to increase the significance level such that only parameters significant at (say) the 99 percent level of testing would be retained in the model. This was not done because it was felt that some of the most interesting relationships would disappear from the model, but it remains an option.

In summary, the various measures of overall fit indicate that the model fits the data well and approximates closely to the population, although there is a tendency for the model to be over-specified. Further evidence of this can be gleaned from the modification indices that are produced as part of the LISREL estimation procedure. To be close to significance in the model, an excluded parameter should have an index value in excess of 3.84, the critical value for chi-square at the 95 percent level of testing. An examination of the modification indices for the final model shows that none of the indices exceed this threshold and most have values of less than 2.0. Individual equation fits, as indicated by the squared multiple correlation coefficients, are similar to those achieved with the individual models presented in the previous section in the case of search duration (R^2=0.51), the number of areas searched (R^2=0.47), the number of channels employed (R^2=0.52), and the religious composition of the purchase ward (R^2=0.47). For the number of dwellings inspected, the fit was considerably improved (R^2=0.60).

8.5.3.2 Discussion of Results

The model presented in Figure 8.2, therefore, appears to fit the data sufficiently well to warrant a discussion of the results implied in the path diagram. The discussion proceeds in two stages beginning with an examination of the relationships between the endogenous variables and ending with an assessment of the impacts of the exogenous variables.

Focusing first on the endogenous variables - the duration of search (Y1), the number of dwellings inspected (Y2), the number of areas searched (Y3), the number of information channels employed (Y4), and the percentage of Catholics in the ward of purchase (Y5) - it can be seen that Y1, Y3, Y4, and Y5 are significantly and positively related to Y2. In addition, Y4 is significantly and positively related to Y3 and Y5. None of the other possible relationships between the endogenous variables were significant, although many combinations were tested. The relationships that are shown in Figure 8.2 have the virtue that they are logically related to one another. Thus, searching for longer, searching in more areas, and using more information leads to more dwellings being inspected. Use of more information also leads to more areas being searched and it is also associated with a greater concentration of Catholics in the purchase ward, a finding consistent with the underlying research proposition. The effect of

religious composition on purchase ward may appear to run counter to expectations given the underlying racial model; it implies that the greater the concentration of Catholics in the purchase ward, the more dwellings are inspected. However, it may be that increased levels of inspection are related to the behaviour of non-Catholics as opposed to Catholics. If true, there should be a negative association between household religion and Y2; as we shall see presently, the relationship between these variables is not significant.

Within the endogenous variables, the strongest relationship is seen between Y4 and Y2. Thus, an increase in one standard unit of channels employed in search results in a 0.37 increase in one standard unit of dwellings inspected. Through Y3 and Y5, Y4 also has a significant indirect effect on Y2 such that, overall, the total effect is 0.42. Consequently, the availability of information, its accessibility and accuracy are likely to be very important influences on search behaviour in general, and search effort in particular. A tentative conclusion, therefore, might be that the more information-rich the housing market, the more effort required to search successfully in that market.

The next largest effect between endogenous variables occurs between Y3 and Y2. Here, the path diagram shows that a one standard unit increase in the number of areas searched produces an increase of roughly one-quarter of a standard unit number of dwellings inspected. Again this is quite logical; the more areas searched, the more dwellings inspected. Of the remaining endogenous relationships the path between Y4 and Y3 is the strongest. This indicates that a one standard unit increase in the number of channels used in search results in a 16 percent of a standard unit increase in the number of areas searched. Again, this finding is consistent with the literature review presented earlier in the thesis; the more information used, the more extensive the search. However, there are no significant relationships between information use and search duration.

Before considering the effects of the exogenous variables, it is worth noting that some of the paths between endogenous variables envisaged in Figure 4.2 did not emerge as significant and others which had not been foreseen did emerge as important. In terms of the former, no significant relationships were found between Y1 and Y3, or between Y5 and Y3. In terms of the latter, the link between Y5 and Y2 was not originally included, but emerged through an analysis of the LISREL modification indices.

Turning to the exogenous variables, most of the original 29 variables employed in the separate regression analyses earlier in this chapter are included in the path diagram; in fact, just six of the 29 had no significant relationships with any of the endogenous variables. Some of the

Table 8.13: Path Coefficients for Significant Variables

Causal Variable		Endogenous Variables									
		LOGTIME (Y1)		LOGINSP (Y2)		LOGAREAS (Y3)		N_CHANS (Y4)		SQRT_RC (Y5)	
	Name	Path coef.	T-Value	Path coef.	T-Value	Path coef.	T-Value	Path coef.	T-Value	Path coef.	T-Value
Y1	LOGTIME			0.10	3.07						
Y3	LOGAREAS			0.24	7.69						
Y4	N_CHANS			0.37	10.72	0.16	4.82			0.08	2.39
Y5	SQRT_RC			0.12	4.11						
X2	STIME					0.08	2.35				
X3	COMPETE			0.13	4.38	0.14	4.13	0.12	3.90	-0.07	-2.00
X4	PGMATCH					0.40	12.23				
X5	NONMARK			0.12	3.84			0.43	13.98		
X6	AGENT							0.41	13.62		
X7	NEWDWG			0.07	2.04	0.10	2.87			-0.14	-4.32
X8	LOGFLOOR			-0.12	-4.06						
X10	SAFETY	0.11	3.57	-0.06	-2.11	0.22	6.60	0.08	2.63		
X11	ECONMOVE			0.06	2.31						
X12	WARDMVE					-0.08	-2.61				
X13	SQRTPREV									0.38	9.48
X14	SATISFY	0.12	3.73	0.07	2.32			0.10	3.21		
X16	DISCB	0.23	7.46	0.09	2.94			0.08	2.65		
X19	UNCERT	0.16	4.68								
X20	LOGAGE					-0.11	-3.19				
X21	LOGEDUC	0.07	2.22								
X22	PCHILD									0.06	2.01
X24	RC_HHLD	0.09	2.95			-0.24	-7.23	0.09	3.12	0.32	7.89
X25	CMIND	-0.07	-2.02	0.09	2.85			0.12	3.81		
X26	DWELPROB	0.09	2.63	0.21	6.38	0.12	3.39				
X27	EVALPROB	0.17	5.47	-0.18	-6.25						
X28	LACKTIME	-0.42	-12.47			-0.07	-2.19				
X29	LACKCASH			-0.18	-6.08						

23 significant exogenous variables proved to be important as common causes. Three variables - X3 (COMPETE), X10 (SAFETY) and X24 (RC_HHLD) - had significant links with four of the five endogenous variables (none had links to Y1). A further five variables were significantly related to three endogenous variables - X7 (DWGNEW), X14 (SATISFY), X16 (DISCB), X25

(CMIND), AND X26 (DWELPROB). Interestingly, with the exception of household religion, these important common causes reflect factors outside of the household itself. Thus, none are drawn from the knowledge and experience or individual differences group of variables which were set out in the conceptual model of search behaviour. In contrast, the potential payoff, conflict and conflict resolution, and religion categories are well-represented (5 of the 8 variables are from these categories). Two of the major common cause variables are from the situational factors group and the remainder is from the market environment category. This illustrates the utility of the basic framework adopted in this study. As noted in chapter three, most previous studies of search have focused on correlates that fall within the individual differences group (e.g. age, income, family size etc.). Many of these earlier studies may, therefore, have missed some of the significant background effects on search behaviour.

Given the emphasis within this thesis on household religion, it is appropriate to consider the effects of this variable before moving to the other exogenous factors. As hypothesised, Catholic households search significantly longer than non-Catholics, although the relationship is not as strong as that reported for the individual regression model (Table 8.8). The path analysis indicates that being a Roman Catholic increases search duration by almost 10 percent of a standard deviation unit. As noted earlier, as none of the other endogenous variables have causal links to search duration, there are no indirect effects from religion on the time spent in search.

According to the racial model, Catholics should also inspect no more dwellings than non-Catholics. The earlier bivariate analysis indicated that this was not the case; Catholics were shown to examine significantly more dwellings than non-Catholics. However, as had been found in the study of consumer search behaviour, when multivariate methods were applied, the picture changed. Thus, the regression analysis revealed that, whilst the relationship was positive, the effect was not statistically significant (Table 8.9). The more comprehensive path model confirms these earlier findings: there is no significant direct association between household religion and the number of dwellings inspected, and the indirect effect through Y1 and Y4 is also not significant. Thus, this supports hypothesis H2 that Catholics will examine fewer or similar numbers of dwellings (but not more) than non-Catholics.

As hypothesised, household religion was found to be significantly related to the number of areas searched. Catholics searched in significantly fewer neighbourhoods than non-Catholics. The direct effect between the two variables has a path coefficient of -0.24, a result significant at the 97 percent level of testing. However, as is common in path analysis, the indirect effect

through Y4 (channel usage) runs in the opposite direction, reducing the overall effect to -0.22. Nevertheless, this is still significant and supports hypothesis H3.

Again, as hypothesised, household religion was positively and significantly related to the extent of information channel usage. This is an interesting result because the individual regression model of channel use did not report a significant religion effect (Table 8.11). Within the context of the wider path model, however, the effect emerges as significant. Catholics are seen to be more extensive users of information, providing further support for the basic research proposition in general, and support for hypothesis H4 in particular.

It was also hypothesised that household religion would be related to the religious composition of the ward of purchase. The results on this from the path model are clear: There is a very large direct effect (0.32) between household religion (REL_HHLD) and Y5. Thus, being a Roman Catholic leads to an increase of some 32 percent of one standard unit measure of the proportion of the population in the purchase ward that is classified as Catholic. In addition, there is a modest indirect effect (0.01) through Y4, giving a total effect of 0.33. This provides strong support for hypothesis H5.

The effects of the neighbourhood safety and discrimination variables are also related to religion. Studies of racial search behaviour report that the presence of discrimination, for example, leads to greater search effort. This was also found to be the case in the BUA. Where a household searches in an area where it feels unsafe or in risk of discrimination, search is longer, more information channels are used and more areas are searched. The impact on the number of dwellings inspected is interesting. The direct effect is negative (-0.06). However, there is a much larger indirect effect through Y1, Y3 and Y4 amounting to 0.10. Overall, the total effect of SAFETY on the number of dwellings inspected is positive (0.03).

Like religion and neighbourhood safety, market competition influenced four of the five endogenous variables. Competition was found to be positively related to the number of dwellings inspected, the number of areas searched, and the number of channels employed, but negatively related to the presence of Catholics in the ward of purchase. The latter finding is particularly pertinent as it implies that competition is less of a problem in Catholic areas than elsewhere. This result is significant because it implies that competition should not be a problem in Catholic areas and, consequently, Catholic households should not have to pay a premium for access as is often the case for blacks in many US cities. As with SAFETY, there is a large positive indirect effect between COMPETE and Y2 (0.08) which means that the total effect increases to 0.21. Consequently, the presence of market competition generally leads to an

increase of about one-fifth of a standard unit number of dwellings inspected. The indirect effect of COMPETE on the number of areas searched, by contrast, is much smaller (0.02). Indirect effects on the religion of the purchase ward are modestly positive (0.01) which serves to ameliorate the overall negative effect.

It was noted earlier that five of the exogenous variables were important common cause variables in that they were significantly related to three endogenous variables. The first of these, DWGNEW, was found to be positively related to both the number of areas searched (0.10) and the number of dwellings inspected (0.07), but negatively related to the presence of Catholics in the ward of purchase (-0.14). Indirect effects lead to a modest increase to 0.08 for the total effect on Y2, with the remaining endogenous variables unaffected. Thus, it appears that buyers of new dwellings engage in spatially more extensive search, primarily in non-Catholic areas, and, at the same time, more dwellings are inspected than is the case with buyers of existing properties.

The basic conceptual model of search was set up within a cost-benefit framework. The path model results shows that when direct and indirect effects are taken into consideration, post-purchase satisfaction (SATISFY), a measure of potential payoff, influences all five endogenous variables. The direct effects are with search duration (0.12), the number of channels employed (0.10), and the number of dwellings inspected (0.07). Indirect effects increase the total effects on the number of dwellings inspected to 0.12, and introduce effects on areas searched (0.02) and the level of Catholics in the purchase ward (0.01). Thus, it seems search effort and dwelling satisfaction are associated as is implied in the basic cost-benefit framework. Further evidence of this effect is seen when one considers DISCB. Like SATISFY, DISCB was specified as a measure of search payoff. It was found to be directly and positively related to search duration (0.23), with lesser but still positive effects on the number of dwellings inspected (0.09) and the number of channels employed (0.08). There is also a sizeable indirect effect on the number of dwellings viewed (through Y1 and Y4) such that the total effect on Y2 increases to 0.14. Minor indirect effects are also seen between DISCB and Y3 and Y5. Again, the interpretation is that benefits of search, in this case a bargaining discount, are strongly associated with increased search effort.

Changing ones mind about what was regarded as important was thought to be one possible explanation of observed search behaviour in the BUA. The path diagram indicates that changing one's mind lead to an increase in the number of dwellings inspected (0.09), and increase in the use of information (0.12) but a decrease in search duration (0.07). When indirect effects are taken into account, the impact on the number of dwellings seen is extended to 0.12.

The results imply that households which change their views over what is important are perhaps adopting a more realistic stance, and they engage in a more intensive period of search in which more information channels are used to identify more dwellings but over a shorter period of time.

The last of the major common cause variables was DWELPROB. This variable was flagged when a household admitted (post hoc) that it had had problems in deciding which, if any, dwelling to purchase. Not surprisingly, therefore, this variable was found to be associated with households with the most extensive search, both spatially and in terms of the numbers of dwellings involved, and those households with longer search durations. Indirect effects operate to reinforce this pattern. Looking at this from a slightly different perspective, a household with such problems had searched for 0.09 standard units longer, examined one-quarter standard units more dwellings (0.25), and searched in 0.12 standard unit more areas than households without such problems.

A number of the other results are also worth highlighting. The effect of conflict within the household is especially interesting (EVALPROB). The direct effects indicate that households where there is conflict between the Head and the partner examine many fewer dwellings (-0.18) but take much longer (0.17) time than households without conflicts. Conflict over the evaluative criteria thus lead to highly inefficient search. Some of the results are a little surprising. For example, whilst use of an estate agent (AGENT) lead to a large increase in the number of information channels employed (0.41), there was no significant direct effect on the number of dwellings inspected, but there was a very large indirect effect (0.17) mediated through Y4 and Y3. In contrast, there was a significant direct effect between non market usage (NONMARK) and number of dwellings inspected (0.12), and an even larger indirect effect (0.18). There were also large indirect effects on the number of areas searched from both these variables. In terms of total effects, however, use of non market sources is particularly influential in determining the number of dwellings inspected. In fact, *ceteris paribus*, households that used such sources inspected 30 percent standard unit more dwellings than households that did not use the sources. This effect is much greater than that from agents (0.17), further reinforcing the importance of informal sources in housing market search. Unlike in the earlier regression analysis, there was no direct (or indirect) effect from AGENT on search duration. Moreover, neither information source had a direct effect on the religious composition of the purchase ward, although both had modest indirect effects. This tends to suggest that information sources employed by Catholics and non-Catholics are not as spatially biased as is the case in the US.

Most of the remaining direct effects are fairly un-remarkable. Thus, in terms of search duration, significant positive direct effects were seen from UNCERT and LOGEDUC, with LACKTIME exerting a major negative effect as expected. Negative effects were recorded between LACKCASH and LOGFLOOR and the number of dwellings inspected, whereas ECONMOVE was positive in its impact. STIME and PGMATCH were positively related to the number of areas searched, whereas WARDMOVE and LOGAGE were negatively related. Finally, not surprisingly, the presence of school aged children in the family was positively related to the extent of the Catholic population in the purchase ward. Similarly, the level of the Catholic population in the previous ward was an important predictor of the Catholic population in the current ward (0.38).

In some ways the indirect effects pertaining to these variables that we have just discussed are more interesting. For example, although there is no direct effect between LACKTIME and Y2, there is a significant indirect effect that serves to reduce the number of dwellings seen by 0.06 standard units. Also, the presence of school-aged children in the household operates via Y5 to depress the number of dwellings inspected (-0.02), and the effect is significant at the 99 percent level of testing. In contrast, the level of the Catholic population in the previous ward serves to indirectly increase the number of dwellings inspected (0.05), an effect that is similarly significant at the 99 percent level.

8.6 Summary and Conclusions

This chapter began by suggesting that in order to adequately identify and evaluate the independent effect of religion on search behaviour it was necessary to move beyond the traditional bivariate analyses that dominate the housing search literature. Following an exploratory analysis of the data, some 30 independent and five dependent variables were prepared for analysis, first within a simple bivariate framework, and second within a multivariate framework.

The bivariate analysis provided a wealth of information on the association between the dependent and independent variables. In terms of religion, Roman Catholics were seen to search longer, examine more dwellings, search in fewer areas, use more information channels and be more likely to have moved to Catholic areas than non-Catholic households. With the important exception of the number of dwellings seen, these differences were as hypothesised. Whilst quick and simple, bivariate analysis suffers from a major weakness; if the criterion variable, in this case household religion, varies in any systematic fashion with other possible

criterion variables, then the observed differences may not accurately represent actual differences in the population.

To compensate for this, individual regression models were estimated for each of the five measures of search behaviour. By controlling for up to 29 criterion variables, it was possible to isolate the independent effect of religion on search. This analysis confirmed that there are significant differences in the search behaviour of Catholics and non-Catholics in the BUA and that Catholic search behaviour displays strong parallels with black search behaviour in the US. In particular, the evidence shows that, after controlling for other factors, Catholics search for longer than non-Catholics, they search in fewer areas, and they are more likely to end up in Catholic wards. Interestingly, the earlier finding that Catholics examined more dwellings than non-Catholics, a result that ran counter to the racial model of search, proved to be insignificant when the background variables were considered. No differences were found in the scale of information use.

In the final section of the chapter, the individual regression models were extended through path analysis such that the relationships between the dependent variables could also be modelled. This analysis provides conclusive evidence that Catholic searchers for owner occupied dwellings in the BUA behave in a similar fashion to black searchers in segregated cities in the United States. Direct support is found for all five hypotheses. After controlling for a wide range of background factors, household religion maintains an important independent effect on search behaviour in the city. Catholics are found to employ more information channels in their search which extends over a longer period but is focused into a more restricted spatial area than that for non-Catholics. At the same time, religion is found to be directly associated with the religious composition of the ward of purchase; Catholics gravitate to Catholic areas and non-Catholics to non-Catholic areas. Finally, no significant differences are found in the number of dwellings inspected.

Aside from religion, the analysis presented in this chapter indicates that market competition, safety, dwelling age, post purchase satisfaction, bargaining outcome, change of mind, and problems over selecting dwellings were all important influences on a range of aspects of search behaviour. Overall, there is considerable support for the basic analytical framework adopted in this study. There are a variety of influences on search behaviour and, with the exception of religion, the most important tend not to be related to the household itself. Factors such as market conditions, and conflict and conflict resolution are especially important. This implies that many former studies of residential search behaviour, by focusing on the

characteristics of the household and the nature of the housing purchased, may have missed some of the most influential factors in explaining search behaviour.

Chapter 9
SUMMARY AND CONCLUSIONS

9.1 Introduction

Racial and ethnic residential segregation are persistent features of urban areas throughout the world. This study focused on the search behaviour of owner occupier households in the Belfast Urban Area, one of the most segregated housing markets in the world (Keane, 1990). Although division within the study area is notionally on the basis of religion, most commentators now recognise that religion is simply an indicator of ethnic identity and that religious residential segregation reflects the underlying ethnic tensions that have dominated social relations in many parts of the Province for more than 200 years.

The study was initiated under the premise that household search behaviour was important in the context of a spatially segregated housing market, and is a research area that has been neglected at least as far as Belfast is concerned. The overall aim of the research was to develop a better understanding of how owner occupied households made their housing choices against such a segregated background. Whilst the results will primarily be of interest within the context of Northern Ireland, the pervasive nature and ethnic residential segregation may mean that the results will be of interest elsewhere.

9.2 Research Proposition, Hypotheses and Analytical Approach

It was argued in chapter two that religious residential segregation in Belfast has more in common with the patterns of racial segregation in many US cities than it has with the patterns in other European cities. The two characteristics that mark the Belfast situation as unique within Europe and which point towards the American comparison are the relative size and proportion of the groups involved, and the long history of ethnic residential segregation.

As the patterns of segregation are similar, it is possible that processes that create or maintain separate living are also similar. One of the processes that is regarded as influential is residential mobility. For many years, the literature has recognised the two-way relationship between mobility and urban form and, at the same time, it has acknowledged that residential decision making is inherently conservative in nature. The US evidence is that racial search and mobility behaviour supports the existing patterns of separate living. This sets up the basic proposition for this study; namely, Catholic searchers in the BUA will exhibit search behaviour similar to that of black households in comparably segregated urban areas in the United States.

The literature on racial differences in search suggests that black household search is less efficient and more costly than that of whites. In particular, blacks are seen to search for

longer than whites, during which time they view a similar number or fewer dwellings, but over a more restricted range of areas. In terms of information use, the evidence is that black households make extensive use of existing information channels. In particular, informal sources such as friends and relatives, which serve to reinforce the localized nature of search, and estate agents are important sources of information for minority searchers. The evidence is also clear that black households tend to end up in black areas.

Following from the basic proposition, and the empirical evidence briefly outlined above, five hypotheses were set out as follows:

H1: *Roman Catholic households will search for longer periods than non-Catholic households, all other things being equal .*

H2: *Roman Catholic households will examine a similar number or fewer vacancies (but no more) than Non-Catholic households.*

H3: *Roman Catholic households will search over fewer areas than non-Catholic households.*

H4: *Roman Catholic households will make more extensive use of existing information channels, and will rely more heavily than non-Catholics on non-market sources and estate agents.*

H5: *Roman Catholic household religion will be positively related to the Catholic population composition in the ward of purchase.*

The first three hypotheses reflect search effort, the fourth relates to search strategy, and the final hypothesis refers to search outcome. Taken together, they cover the key aspects of search behaviour.

In order to test these hypotheses, they were set within a conceptual model of search that recognised that search behaviour was influenced by a variety of factors. By relying on a simple bivariate approach, the effect of confounding variables would be ignored and the true effect of religion would remain unknown. The conceptual model adopted in this thesis was based on recent studies of consumer search behaviour (Beatty & Smith, 1987; Punj & Staelin, 1983; Srinivasan & Ratchford, 1991; Urbany, Dickson & Wilkie, 1989). It represents an advance on previous studies of residential search behaviour in two respects. First, it draws on a much wider range of factors than previously applied in the context of residential search. Eight categories of variables were identified as follows: market environment, situational factors, potential payoff, knowledge and experience, individual differences, religion, conflict and conflict resolution, and costs of search. Second, in recognition of the fact that the different aspects of search behaviour are jointly determined, the framework allowed the inter-relationships between the dependent variables themselves to be modelled.

Data analysis and model construction proceeded in an incremental fashion. The data were first subject to extensive exploratory analysis as a prelude to more formal statistical modelling. The preliminary investigation was conducted on a bivariate basis. This was followed by the construction and estimation of a multivariate regression model for each of the five measures of search behaviour. In the final stage, through path analysis, the individual models were extended to the include relationships between the dependent variables.

9.3 Summary of Main Findings

The findings of the research are summarised in two sections. In the first section, the findings that relate specifically to religious differences in search and mobility behaviour are outlined. This includes those findings that pertain to the hypotheses noted above. In the second section, a number of more general findings are also presented. These help to locate this study within the general literature on residential search.

9.3.1 Differences in Search and Mobility Behaviour by Religion

Pre-Search Behaviour

The pre-search aspirations of Catholic and non-Catholic households were remarkably similar. Both groups had identical preference orderings of dwelling type, number of bedrooms and number of reception rooms. The only major difference was apparent in terms of dwelling age although the majority of both groups had no particular preferences in terms of age. Important differences were, however, found in terms of preference realisation. In particular, Catholics preferring semi-detached or detached houses, houses built after 1980, or dwellings with two bedrooms, fared less well than their non-Catholic counterparts with similar preferences.

For the most part, Catholics and non-Catholics had similar views over what search criteria were important in their new homes. The most significant difference concerned attitudes towards the religious composition of the neighbourhood. Catholic households were very much more concerned about this aspect than other households. The data, however, suggests that for Catholics, this concern translated itself into a focus on mixed-religion areas, whereas, for non-Catholics, it was associated with a search that was predominantly focused in non-Catholic areas. This leads to the tentative conclusion that Catholic home owners were more tolerant of mixed-religion areas than their non-Catholic counterparts, and they may actively seek out such areas in their search. It should be remembered, however, that high levels of Catholicism at ward level (i.e. 90%+) were associated with public sector renting, not home ownership.

Active Search Behaviour

Three aspects of active search were emphasised within this thesis: information acquisition and use, spatial search behaviour, and search effort. As noted above, specific hypotheses were set up that reflect these aspects of active search behaviour.

In terms of information, it was hypothesised that Catholic searchers would make greater use of information in general, and would rely particularly on informal channels and estate agents. Bivariate analysis confirmed that Catholics used significantly more information channels than non-Catholics and they also made significantly greater use of informal channels such as friends and relatives, but no differences were found in terms of estate agent use. When other possible correlates of information use were controlled for through path analysis, the independent effect of religion on the volume of information use was confirmed. These findings are supportive of hypothesis H4.

It is quite possible that this reliance on informal sources, such as friends and relatives, may promote continued segregation on the basis that ones personal contacts may be drawn from areas where the religious composition of the population is comparable with the area of origin. This being the case, vacancies identified in this way may be religiously biased. Some tentative evidence to this effect was found in that 92 percent of households that were found to have moved from an area of lower segregation to an area of higher segregation used non-market information sources. Use of non-market information channels increased with the extent of Catholic segregation, further supporting the connection between religion and channel usage.

In terms of spatial search behaviour, it had been hypothesised that Catholic households would search over a more restricted spatial field (H2). This was found to be the case. Although both groups tended to search in just one area, the extent of spatial concentration was much more pronounced for Catholics. Fully three-quarters of Catholic households searched in just one area compared to just over half (54%) of non-Catholics. The relationship between the number of areas searched and the religious composition of the purchase ward is equally striking. Thus, the proportion of households that searched in just one area rose from 54 percent for those buying in wards of less than 10 percent Catholic population to 90 percent in wards classified as 90 percent or more Catholic.

Of the 117 wards in the BUA, just three wards were not searched by any households. However, of the remaining 114 wards, some 36 percent were not searched by Catholic households, and there were a further 6 percent of wards where Catholic searchers made up less than one tenth of all searches in the ward. In just 29 wards (25%), Catholic searchers were in

the majority. The basic pattern of Catholic search was strongly related to the underlying distribution of the Catholic population and it was not related to the distribution of the owner occupied stock *per se*. This again indicates that spatial search is strongly influenced by religious considerations. Thus, whilst Catholics were more likely than non-Catholics to search in mixed religion areas, careful analysis of the distribution of such areas indicates that they were predominately adjacent or close to existing, much more intense concentrations of the Catholic population. There were a number of exceptions where Catholic search did extend into areas where the Catholic population represented a small minority. Three areas stand out: south-east Belfast, along the Saintfield Road, north Belfast and Glengormley, and south Belfast around the University and the Malone area. As yet, the observed mobility behaviour of Catholics lags behind this pattern of search. Nonetheless, this is hopeful for future de-segregation.

In terms of search effort, it had been hypothesised that Catholics would search for longer, but in fewer areas, and during this search, they would not examine any more dwellings than non-Catholics. It has already been shown that Catholics searched in fewer areas. The evidence on search duration is also clear cut. Catholics (25.3 weeks) do indeed search for significantly longer than non-Catholics (19.9 weeks). The evidence on the number of dwellings inspected is less clear cut. The simple bivariate analysis indicated that Catholics (11.7) examined significantly more dwellings than non-Catholics (6.9), a result contrary to expectations. However, when other correlates were controlled within a regression, and later, within a path analytic framework, this difference ceased to be significant.

Thus, the empirical data analysis supports each of the five hypotheses. Catholic search is longer, more spatially restricted, more information intensive, and, at the same time, it does not involve any more dwellings than that for non-Catholics. In conclusion, the basic research proposition that underpins this thesis proves to be valid; that is, Catholic households in the BUA engage in search behaviour that mirrors black household search in segregated settings in the United States.

Mobility Behaviour

Given that the study was based on a retrospective sample of recent house buyers, searchers interviewed in the project all ended up moving to a new home (As noted later, this focus on movers is an important limitation of the research). This afforded an opportunity to analyse the mobility behaviour of households according to their religious affiliation.

Not surprisingly, perhaps, given the differences in search behaviour between Catholics and non-Catholics, mobility behaviour also differed in a number of important respects, two of which are worth highlighting:

i) Catholics moved home for different reasons to non-Catholics. Life cycle reasons were much more influential in explaining Catholic mobility whereas non-Catholics primarily moved for reasons of housing adjustment. This reflects the fact that Catholic buyers were significantly younger, more likely to be newly formed households, and more likely to be first time buyers than non-Catholics. Importantly, few movers were classified as forced moves (4%), and Catholics and non-Catholics were equally likely to have been forced to move because of intimidation or fears over their personal safety.

ii) Catholic households, particularly those purchasing in wards with Catholic majorities, moved over much shorter distances than other households. Thus, one-third of Catholics relocated over less than half a mile compared to just 12 percent of non-Catholics. The more spatially concentrated nature of Catholic mobility is further underlined by the finding that almost 60 percent of Catholics moved within the ward of origin or form an adjacent ward, compared to 40 percent of non-Catholics.

Two further findings in terms of mobility behaviour merit consideration:

i) Because of the arithmetic associated with minority-majority analysis, Catholic buyers were more likely than non-Catholic buyers to have purchased in mixed religion wards. Almost 60 percent of Catholic buyers purchased in wards where they were in the minority. In contrast, less than five percent of non-Catholic buyers purchased in wards where they were in the minority. More than three-quarters of Catholics purchased in wards with a Catholic population somewhere between 10 and 89 percent Catholic (a common definition of "mixed" in Belfast). In contrast, less than half of non-Catholic buyers purchased in such wards (45%).

ii) In spite of this, the religious composition of the ward of origin was the single most important determinant of the religious composition of the ward of purchase. Thus, some 40 percent of residential moves within the BUA were classified as segregating, 17 percent were classified as maintenance moves, and 43 percent were de-segregating. The basic conclusion, therefore, is that there is considerable inertia in the system and that the existing patterns of religious residential segregation will change little as a result of owner occupier residential mobility. One caveat is that if Catholic spatial search in

areas outside the Catholic heartland is followed by overt mobility behaviour, the patterns may change more rapidly.

9.3.2 Other Findings of General Interest

In addition to findings that relate specifically to religion, the research presented in this thesis has generated results that may be of general interest to scholars engaged in the study of residential search behaviour. Before discussing these other findings, it is useful to place the impact of religion within the context of other influencing factors.

Religion in Context

The path analysis confirmed that religion was one of the most important common causes of search behaviour. In addition to religion, however, variables that measured competition from other searchers and neighbourhood safety and discrimination were equally important influences on search in that they, with religion, were significantly related to four of the five dependent variables. A further five variables were significantly related to three dependent variables; these measured aspects of dwelling age, post purchase satisfaction, bargaining outcome, uncertainty over what was wanted from search, and having problems picking between alternatives. Five of these eight major factors fall within three of the basic categories of variables: potential payoff, conflict and conflict resolution, and household. Two of the major common cause variables are from the situational factors group and the remainder are from the market environment category.

This illustrates the utility of the framework adopted in this study. Most previous studies of search have focused on correlates that fall within the individual differences group (e.g. age, income, family size etc.) or the situational factors group (e.g price, dwelling size etc.). The results presented in this thesis indicate that, with the important exception of religion, these categories are not the most influential. This reinforces the earlier conclusion that many former studies may, therefore, have missed some of the significant background effects on search behaviour. Some of the most interesting effects are discussed in the next sub-section.

Other Correlates of Search Behaviour

As noted above, the conceptual model of search provided the framework within which the religion hypotheses were tested. Within this framework, it was possible to control for a range of other factors previously shown or suspected to influence search behaviour, and thereby identify the independent effect of religion. As a by-product of this process, detailed information on other,

non-religion correlates of search behaviour were produced. Some of the most interesting results are summarised below:

i) Where competition from other searchers in the market place existed, households ended up having to inspect more dwellings, in more areas and, in order to do so, more information channels were employed. Competition, therefore, lead to extended search. This is, perhaps, a little surprising. One might expect that competition would lead to more efficient search. However, it demonstrates both the importance and limitations of information in the housing market. For example, dwellings were frequently sold before they appeared in the monthly property magazines, thus placing a premium on regular visits to estate agents (to view listings etc.) and the more informal, non-market channels. The importance of competition in the BUA housing market is understandable given that, unlike in most of the rest of the UK, the owner occupied market remained buoyant throughout the study period.

ii) Interestingly, market competition was found to be negatively related to the proportion of Catholics in the ward. This implies that demand for owner occupation is negatively related to the proportion of Catholics in the population. At first sight this would seem to run counter to conventional wisdom that Catholic housing need is greater than non-Catholic housing need. On closer examination, the result is quite logical. Competition for owner occupied housing in areas where the Catholic population level is high probably reflects the fact that such areas are distinguished by similarly high levels of public sector rented housing and deprivation. They are not the sort of areas that contain many owner occupied houses and nor are they generally the sort of areas that would appeal to prospective or existing home owners. We have already noted that Catholic households that purchased in 1993 tended to search in mixed religion environments.

iii) Dwelling age emerged as an important effect on search. Households that purchased a new dwelling tended to search in more areas and inspect more dwellings than buyers of existing dwellings. Catholic households were less likely than non-Catholics to buy new dwellings, but both groups were equally likely to have visited show houses, one of the main means by which new houses were found. Differential access may imply that supply problems exist in areas deemed suitable by Catholic households. However, the results also indicated that Catholic households were less likely than non-Catholics to have had pre-conceptions about the age of the dwelling that they wanted. Moreover, where preferences existed, Catholics were less likely than others to have expressed a

preference for new housing. The relative difference in access to new houses is unfortunate because new house provision, in suitably neutral locations, may have encouraged the creation of more integrated neighbourhoods.

iv) Post purchase satisfaction, whilst generally high for all buyers, was nonetheless higher amongst those who had engaged in the greatest amount of search effort. This lends considerable support to the basic cost-benefit framework of the conceptual model. The implications is that by searching longer, viewing more dwellings, using more information, searching in more areas, the result of search will ultimately be better for the household concerned. This provides a major incentive to search and it may also be useful as a marketing aid for key actors such as estate agents.

v) Bargaining outcome was also an important correlate of search. The longer the search, the more information channels employed and the more dwellings inspected, the more likely that the purchase price was less than the offer price. This type of search payoff may reflect particular search strategies. For example, households may deliberately hold off purchase in search of a bargain. Alternatively, households may be subject to constraints that dictate such a strategy. Whatever the case, this result is important in that it further supports the notion that searchers will search for as long as they perceive the benefits outweigh the costs.

vi) On the question of costs, time constraints were powerful negative influences on search duration and on the number of areas searched, but not on the number of dwellings inspected or on information use. The implication is that households with such constraints were efficient in their search; they examined a comparable number of dwellings to other buyers, but in a more restricted range of areas and in a shorter time period. Overall, time was a greater constraint than finance. Financial constraints served to reduce the number of dwellings seen, but had no other effect. In other words, the search behaviour of households with financial constrains was inefficient; they examined fewer dwellings but took as long as other searchers who inspected more dwellings.

vii) The literature commonly characterises search as a learning or discovery process. The results presented in this thesis support this view. Households were found to frequently change their minds over what was important to them in search. Such changes directly affected search behaviour. It was found that "mind changers" inspected more dwellings and used more information than those who remained fixed in their views. In contrast, "mind changers" searched for a shorter time, which suggests that they may have

become more realistic in their expectations and, as a result, the intensity of their search was increased (i.e. more dwellings over a shorter period).

viii) The market research literature suggests that households frequently experience choice uncertainty in search (Urbany, Dickson & Wilkie, 1989). The research presented in this thesis finds similar evidence. Some households were found to have problems in deciding which, if any, dwelling to purchase. Where this happened, households had usually engaged in extensive search activity. This is somewhat akin to the concept of being "spoiled for choice". So many dwellings had been inspected, in so many areas, using a wide variety of information that evaluation of the alternatives and the selection of a purchase option, became exceedingly difficult. It was frequently easier to continue than to terminate search.

ix) Another dimension of uncertainty relates to the evaluation criteria to be employed for this task. A weakness of previous studies of residential search is that decisions are assumed to be made by households; the process of bargaining that may occur between household members is ignored. This study took a small step in the direction of rectifying this problem by seeking responses separately for each partner (where applicable) on a series of selected questions. This was specifically to determine if partners had different ideas over what criteria were important and, if so, how this influenced their search behaviour. In partnered households, around 60 percent had important differences in search criteria. Interestingly, where such conflicts existed, households searched for longer but examined many fewer dwellings than for households where no such conflicts were found. This result is intuitively appealing and, as far as the author is aware, similar results have never before been reported.

x) This study began with the view that housing markets are best conceptualised as comprising a series of sub-markets. Using a modified version of the methods devised by Maclennan *et al.* (1987) the BUA housing market was sub-divided into a series of homogeneous product group areas based on a cluster analysis of the dwelling, neighbourhood, and location attributes at ward level. The results suggested that 13 identifiable product groups existed within the urban area. Unlike in most previous studies, this investigation extended the work on sub-markets by making the link between such objectively defined areas and actual search behaviour. Two-thirds of households searched within areas that were classified as falling within the same submarket (product group) categories. An additional 12 percent mainly searched within the same product

groups. Overall, therefore, around 80 percent of multiple area searchers focused their search activity within areas defined as part of the same product group.

xi) Searching outside of the purchase product group was associated with search over a wider spatial area and with more dwellings being inspected. Consequently, households restricting their search within a single product group tended to examine fewer dwellings in a more restricted range of areas.

9.4 Limitations and Extensions of the Research

All research has some limitations. Whilst a number of limitations may be resolved by doing something differently, it is often the case that the limitations can be addressed by extending the research in some way. In this section, the main limitations of the research are discussed, and a number of extensions are suggested.

In this study the main limitation is the reliance on cross-sectional survey data generated by interviewing a sample of recent buyers. There are two basic problems here: the use of a retrospective instrument and the focus on recent movers which are, by definition, successful searchers. Search is a dynamic process that does not lend itself particularly well to retrospective survey type analysis. As noted in chapter five, the use of a retrospective survey approach was largely dictated by questions of resources and data availability. Although the focus on buyers is the "industry standard", it is undesirable in that an important domain of study - failed searchers - is excluded from analysis.

One solution to both of these problems, is to supplement the retrospective survey with some form of longitudinal analysis based on diary-type data collection methods. Such an approach might help improve the data collection problems experienced in the survey. In particular, aspects of spatial search behaviour might be more fully documented using such an instrument. Moreover, use of a diary might enable greater emphasis to be placed on learning aspects, and on the more precise identification of how information is used at different stages in the search process. The diary has the additional advantage in that data would still be available on failed searchers and it would then be possible to see if successful searchers (i.e. buyers) and failed searchers exhibit similar search behaviour. Being able to examine the search experiences of failed searchers might also offer additional insight into the patterns of religious residential segregation in the BUA. The use of a diary-type approach is not without problems of its own, including issues such as recruitment and fall out, in addition to the sorts of problems normally associated with postal surveys (e.g. who completes it). Nevertheless, this is likely to be a fruitful

area of future work. Appendix 10 includes a draft diary instrument as an example of the sort of information that could be collected.[1]

Second, in analytical terms, the use of almost 30 predictor variables in the path model might be seen as a limitation in that there is the risk of over-specification. If we recall that the variables were designed as indicators of other dimensions of influence (e.g. conflict, uncertainty, knowledge, individual differences etc.), then an alternative might have been to approach the estimation of the final search model from a slightly different perspective. Instead of using observed variables, it might have been possible to conceptualise the model on the basis of latent variables. LISREL 8 could have been used to estimate such latent variables, although a different conceptual approach and data collection might have been required. The fact that the path model successfully explains more than half of the variation in each of the endogenous search variables suggests that the framework is quite good. Use of latent variables represents a natural extension to this analysis. It may also simplify the interpretation and discussion of the results. As part of this process, a non-recursive model framework could also be developed in which reciprocal relationships could be tested.

Third, the focus on owner occupied households may be regarded by some who read this thesis as a limitation. There were good reasons for the choice of owner occupation (see chapter one), but the extension of the study to include tenants would represent a positive step. Relatively few previous studies have examined public sector housing search, with the work of Ford and Smith (Ford & Smith, 1981; Smith & Ford, 1985) and Clapham and Kintrea (Clapham & Kintrea, 1984; Kintrea & Clapham, 1986) standing out as notable exceptions. It is certainly true that no previous studies in Northern Ireland have examined such issues.

Fourth, the results indicate that religious composition is an important attribute in housing choice. Moreover, there is the suggestion that the importance of this attribute, and perhaps the way in which it is used, may differ according to the religion of the household. The study could be extended to consider more fully the impact of the religious composition of the neighbourhood. One way in which this may be done is through the application of conjoint analysis (Louviere, 1988a; 1988b; van de Vyvere, 1994) or decision plan network analysis (Goetgeluk, Hooimeijer & Dieleman, 1992; Park & Lutz, 1982), both of which have been applied in the study of housing choice, although not in the United Kingdom. Both techniques would allow an analysis of how religious composition was traded-off against other attributes of the housing bundle. With conjoint

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1 This instrument was designed by the author for use in this thesis. However, resource and time constraints precluded its use.

analysis it would also be possible to test preferences for hypothetical choice options that may currently not exist in the BUA. For example, one could examine attitudes towards certain types of mixed neighbourhoods.

9.5 Closing Remarks

This study breaks new ground in the methods used to investigate residential search behaviour. Three aspects are worth noting: the use of a broadly-based conceptual model to guide the analysis, the collection of data separately for selected individuals within the household, and the use of path analysis as major analytical tool.

The formal conceptual model of search was informed by research previously undertaken in the filed of consumer behaviour. It was based on a cost-benefit framework in which searchers were conceived to continue to expend effort as long as the benefits of search were believed to outweigh the costs. Concepts of uncertainty, previous knowledge and experience, and market effects supplemented the more usual factors related to the household and the dwelling itself. The results indicate that the framework captured most of the major influences on search behaviour. Interestingly, some of the most powerful predictors of search behaviour were factors outside of the traditional household and product categories. This implies that studies that draw their explanatory factors primarily from these categories alone may well miss important influences on search behaviour.

The study also makes a contribution by showing how separate data collection from the head of household and the partner can help improve understanding of how search operates. At the micro level. The results indicate that differences within households can exceed those between households. The conflict index developed in this study was rather crude; However, it marks an advance on previous studies that had ignored the possible influences of conflict on search. Partners and heads of households were found to place different values on individual aspects of the residential bundle and these differences had a marked effect on the efficiency of search.

A further methodological contribution of the study stems from the application of path analytic techniques to the investigation of residential search behaviour. This technique allowed the independent effect of any particular criterion variable to be assessed. More importantly, however, the approach acknowledges that the multiple indicators of search behaviour are, in fact, jointly determined during search. As a result of including such effects in the analysis, the explanatory power of the individual regression models and the overall path model exceeded that

of earlier studies. R^2 values typically ranged from 0.50 to 0.60 compared to values of typically 0.30 or less in previous studies of residential search (e.g. Clark & Smith, 1982; Lake, 1981).

Finally, this study makes a contribution by providing the first evidence on how owner occupiers search for housing in the Belfast Urban Area. Religious composition of the neighbourhood and household religion are both seen as major independent influences on search, both in the passive and active stages. Many aspects of search behaviour vary according to religion. Most significantly, the study supports the proposition that Catholic search behaviour in Belfast mirrors black search behaviour in segregated settings in the United States. When compared to other households, Catholic households employ a wider range of information channels in their search. Moreover, their search is more spatially confined but is extended over a longer duration. In spite of the longer time taken, no more dwellings are actually inspected. Consequently, Catholic search is notionally less efficient than that of non-Catholic households.

The main reason for this may well be Catholic reluctance to move too far from their centres of strength within the city. It is already well known that segregation can perform an important defensive role in which minority cultures are nurtured and maintained. Given this reluctance, it is not really surprising that Catholic households will have to search longer than non-Catholics; with very restrictive spatial search, the opportunity set will be smaller and, on average, searchers will have to wait longer for suitable vacancies to arise. Hence, longer search will not mean that more dwellings are viewed; this does happen with non-Catholics, but not Catholics. These findings also provide a clue as to how segregation levels may begin to be broken down. It is clear that there are product group areas within the urban area that are similar to those in predominately Catholic areas (i.e. differing mainly on religion) and, as noted earlier, there is evidence of Catholic search in these areas. However, for patterns to change, this search activity has got to be followed by overt relocation behaviour. The path model shows that by searching in more areas more dwellings are inspected. This should mean that the potential vacancy set for Catholics could be dramatically expanded. The extent to which this will be possible in a post-cease-fire Northern Ireland remains an unanswered question.

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APPENDICIES

APPENDIX 1: FOCUS GROUP INTERVIEW GUIDE

House Hunting Experiences

PURPOSE

The purpose of the groups was to explore the experiences, perceptions, attitudes and perspectives of households that had recent house hunting experience in the Belfast Urban Area. The key objective was to develop our understanding of house hunting behaviour as a means to improve the deign of a major study on search and choice in Belfast.

INTRODUCTION

Good afternoon. Welcome to our session and thankyou for taking the time to join our discussion of house hunting activity. My name is John McPeake and I will be serving as moderator in this group session. I am assisted by Lynne Reavie who will mainly be taking notes but who may also take part in the discussion at times.

We are attempting to obtain information about your recent house hunting experiences in order to help us design a major research project on housing search and choice behaviour. This project is scheduled for later in the year.

You were selected because you all have certain things in common, but most importantly because you are actively engaged in search or have recently bought a new house. In this sense, you are representative of searchers in general. I would stress, however, that it is not our intention to generalize from this session alone. Rather, we want to get a deeper feel for how households approach the task of housing search. This will help us to structure of main research programme in a more effective manner, and help to make it relevant to searchers such as your selves.

Over the next hour or so we will be discussing several aspects of your search and choice behaviour. There are, of course, no right answers but rather differing points of view. Please feel free to share your views even if it differs from what others have said.

Before we begin, let me set out some ground rules. We are tape-recording this session so please speak up and only one person should talk at once. Don't be intimidated by the tape recorder. This is just to ensure that we don't miss anything that is important and it means that we don't have to hold up the discussion in order to take detailed notes. We will be on a first name basis - name tags are provided. This is just to help the flow of the discussion. We will not refer to individual names when we come to write up the findings. You may be assured of complete confidentiality.

Well, lets begin. We will start by finding out a little bit more about each of you by going round room one at a time. Tell us what stage you have reached in your house hunting. If you have bought a new home tell us little about it ?

INTERVIEW GUIDE

1 OK. Lets talk about the way in which you organised your search for your new home. What factors influenced you?

Probe location factors (how did you pick particular areas for search?)
dwelling factors (age, price, layout etc)
what was the most important?

2 We have talked about the factors that influenced your search. But, who decided what factors were important and which were not?

Probes what was the role of individuals partners?
and what about other family members?
how were conflicts resolved?

3 How did you start looking for a new home? What information did you collect? Where did it come from?

If not raised, probe following sources (prop mags, estate agents leaflets/lists, friends/relatives, driving around, newspapers, colleagues, personal inspection, previous knowledge)

Probes were all sources accurate and reliable?
which were the most useful?

4 How did you decide to view certain properties and not others?

Probes what information sources were used?
did you revisit properties in order to help you decide?

5 Some people experience constraints or problems in the course of search. Can you tell me what sort of problems you might have had?

Probes Was it difficult to sell your previous home?
What about raising the finance?
Were you able to find properties that met your requirements?

6 Did you have to compromise your initial requirements?

Probes At what stage?
What sort of compromises?

7 One thing we haven't mentioned - to what extent would you say that religion influenced your choice?

Probes Did you restrict your search to certain areas?
Were there areas that you felt unsafe in?

8 Is there anything else that you'd like to raise about your house hunting that we haven't talked about?

Housing Executive

The Belfast Urban Area Housing Search and Choice Study

Recent Movers Questionnaire

NON-RESPONSE SHEET

If refused (8), occupied no reply (2), vacant (3) complete the following details on the dwelling:

(i) **Dwelling Type**

Detached house 1
Semi detached house 2
End of terrace house 3
Mid terrace house 4
Purpose built flat 5
Maisonette 6
Converted flat 7
Something else (specify) 8

_____ |_|_|

(ii) **Number of Floors**

One 1
Two 2
Three 3
More than three (write in) ..... |_|_|

(iii) **Approximate age**

Pre 1919 1
1919 - 1944 2
1945 - 1964 3
1965 - 1980 4
Post 1980 5
Brand new 6

IF VACANT

(iv) **Possible reasons for vacancy**
(Check with neighbours)

Buyer not yet moved in 1
Buyer moved on 2
Unable to say 3
Other reason (Specify) 4

_____ |_|_|

_____

(v) **Other observations**

CONFIDENTIAL

BELFAST URBAN AREA HOUSING SEARCH AND CHOICE STUDY

Routing & Instructions

SAMPLE DETAILS

Schedule Number |_|_|_|_|

Sample Code |_|_|_|

House / Flat Number |_|_|_|_|

Street |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|

Town |_|_|_|_|_|_|_|_|_|_|_|_|_|_|

Postcode |_|_|_|_|_|_|_|_|

District and Ward Code *(Office Coded)* |_|_|_|_|

Community District *(Office Coded)* |_|_|

Religion Code *(Office Coded)* |_|

SURVEY RECORD

Interviewer Name: |_____| |_|_|

Call No.	Call Date	Call Time	Call Result
1			
2			
3			
4			

Start Time: |_|_| |_|_|

End Time |_|_| |_|_|

Data Collected 1

Occupied, No reply 2

Vacant 3

Unable to locate address 4

Non-eligible address 5

Other (specify)

_____ 6

Refused 8

---------- non response sheet ----------

INTRODUCTION

Good morning / afternoon / evening. My name is _____. I work for Price Waterhouse (SHOW ID). We have been engaged by the Housing Executive to conduct a survey of households that have recently moved their home in the Greater Belfast Area. The survey, which is about the way in which people make their housing choices, will be used to help the Executive better understand the operation of the private housing market. Your address was picked at random from estate agent property magazines and lists.I wonder if you would mind answering some questions for me? The survey is confidential and your help would be much appreciated.

Agreed ..... 1 → Q1

Did not agree ..... 2 → End

Q1 First, can I check that your household moved into this house/flat sometime during 1993 ?

Yes	1	→ Q2
No	2	→ (B)

(B) What year did you move in ?

Before 1992	1	→ End
1992	2	→ Section A
1994	3	→ Section A
Don't Know	7	→ End

SECTION A - HOUSEHOLD DETAILS

In this section I will ask you some questions about the people that live at this address. I am interested in basic information like age, sex and whether they are working at present or not. I do not require to know the names of anyone living here.

This information is very important and will influence the overall success of the project. It is used to help us understand how housing search and choice behaviour varies between different groups in the population. It also allows us to compare the Belfast results with research in other cities. The information is absolutely confidential. It will not be passed on to any other bodies. You will not be identifiable in the results.

→ Q2

Q2 (INTERVIEWER INSTRUCTIONS - ASK QUESTIONS IN FOLLOWING SEQUENCE....)

(A) How many people live at this address ? (RECORD TOTAL NUMBER)

(BEGIN WITH THE HEAD OF HOUSEHOLD)

(B) What age was (PERSON) on their last birthday ?

(C) ...and what sex is this person ?

(D) (IF NOT HOH)...and how are they related to the Head of the Household ?

(E) What is their marital status (that is, are they single, married, co-habiting, separated, divorced or widowed) ?

(F) ...and is he/she in paid employment at the present time ? (PROBE)

(G) What age did he/she leave full time education ?

(H) ...and, what is their highest educational qualification ?

REPEAT B-H FOR EACH PERSON IN HOUSEHOLD

Person		HOH	2	3	4	5	6	7	8
Age									
Sex	M	1	1	1	1	1	1	1	1
	F	2	2	2	2	2	2	2	2
Relation to HoH	HoH	1							
	Partner		2	2	2	2	2	2	2
	Son		3	3	3	3	3	3	3
	Daughter		4	4	4	4	4	4	4
	Parent		5	5	5	5	5	5	5
	Other relative		6	6	6	6	6	6	6
	Other non-relative		7	7	7	7	7	7	7
Marital Status	Single	1	1	1	1	1	1	1	1
	Married	2	2	2	2	2	2	2	2
	Co-Habiting	3	3	3	3	3	3	3	3
	Separated	4	4	4	4	4	4	4	4
	Divorced	5	5	5	5	5	5	5	5
	Windowed	6	6	6	6	6	6	6	6
Econ Status	Full time work	1	1	1	1	1	1	1	1
	Part time work	2	2	2	2	2	2	2	2
	Short-term unemployed	3	3	3	3	3	3	3	3
	Long-term unemployed	4	4	4	4	4	4	4	4
	Wholly retired	5	5	5	5	5	5	5	5
	Student	6	6	6	6	6	6	6	6
	Perm Sick/Disabled	7	7	7	7	7	7	7	7
	Keeping house	8	8	8	8	8	8	8	8
	ET / YTP	0	0	0	0	0	0	0	0
Age Left FT Education									
Highest Qualification	None	1	1	1	1	1	1	1	1
	Junior / Leaving Cert	2	2	2	2	2	2	2	2
	GCSE / O Level / CSE	3	3	3	3	3	3	3	3
	A Level / B Tec	4	4	4	4	4	4	4	4
	Degree	5	5	5	5	5	5	5	5
	Post Graduate	6	6	6	6	6	6	6	6
	Craft Qualification	7	7	7	7	7	7	7	7
	Other	8	8	8	8	8	8	8	8

INTERVIEWER TO CODE THE FOLLOWING:

Person Code of respondent |_|

Number of persons in household |_|_|

Others present (codes) |_|_|_|_|_|_| → Q3

OFFICE USE ONLY: Code following:

Number of pre-school children (0-4) |_|

Number of school-age children (5-15) |_|

Number of adults (16 - pension age) |_|

Number of pensioners |_|

Number in full-time employment |_|

Number in full & part-time employment |_|

Household Type |_|

Life Cycle Stage |_|

SECTION B - RESIDENTIAL HISTORY

Q3 This section is about your previous home. We are interested in former renting households, first-time buyers, and households that have previously owned their own home. I will ask you about where you lived before and what sort of a property this was.

CHECK: Single person household

Yes (SINGLE) ..... 1 → (A)
No (COUPLE) ..... 2 → (B)

(A) Did you live somewhere else as a single person household before moving here ?

Yes (CONTINUING SINGLE) ..... 1 → Q7
No (NEW SINGLE) ..... 2 → Q4

(B) Did you live somewhere else as a couple before moving here ?

Yes (CONTINUING COUPLE) ..... 1 → Q7
No (NEW COUPLE) ..... 2 → Q5

New Single Households

Q4 Where did you live before moving here ? (full address if possible)

House / Flat Number |_|_|_|_|
Street |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
Town |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
Postcode |_|_|_|_|_|_|_|_|
District and Ward Code *(Office Coded)* |_|_|_|_|
Community District *(Office Coded)* |_|_|
Religion Code *(Office Coded)* |_|

→ (A)

(A) Approximately how far is this from your current home ?

SHOW CARD 1

Half a mile or less 1
Over 0.5 miles but less than 1 mile 2
Over 1 mile but less than 1.5 miles 3
Over 1.5 miles but less than 2 miles 4
Between 2 and 3 miles 5
Over 3 miles but less than 5 miles 6
5 or more miles 7
Unable to say 77

→ (B)

(B) At this previous address were you ...

(RUNNING PROMPT)

..living with parents 1
..renting from the Housing Executive 2
..renting from a Housing Association 3
..renting private furnished accommodation 4
..renting private unfurnished accommodation 5
..living in house owned outright 6
..buying a house with a mortgage 7
..or, living in some other way 8

→ (C)

(C) ...and at this previous address were you ...

(RUNNING PROMPT)

..living with a previous husband/wife 1
..co-Habiting with a previous partner 2
.. sharing with others (non-parents) 3
..or, were you living in some other way 4

→Sect D p.17

New Couples

Q5 Where did the HoH live before moving here ? (PROMPT FOR FULL ADDRESS)

House / Flat Number |_|_|_|_|
Street |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
Town |_|_|_|_|_|_|_|_|_|_|_|_|
Postcode |_|_|_|_|_|_|_|
District and Ward Code *(Office Coded)* |_|_|_|_|
Community District *(Office Coded)* |_|_|
Religion Code *(Office Coded)* |_|

→ (A)

(A) Approximately how far is this from your current home ?

SHOW CARD 1

Half a mile or less 1
Over 0.5 miles but less than 1 mile 2
Over 1 mile but less than 1.5 miles 3
Over 1.5 miles but less than 2 miles 4
Between 2 and 3 miles 5
Over 3 miles but less than 5 miles 6
5 or more miles 7
Unable to say 77

→ (B)

(B) At this previous address were you ...

(RUNNING PROMPT)

..living with parents 1
..renting from the Housing Executive 2
..renting from a Housing Association 3
..renting private furnished accommodation 4
..renting private unfurnished accommodation 5
..living in house owned outright 6
..buying a house with a mortgage 7
..or, living in some other way 8

→ (C)

(C) At this previous address were you ...

..living with a previous husband/wife 1
..co-Habiting with a previous partner 2
..sharing with others (non-parents) 3
..or, living in some other way 4

→ Q6

Q6 Where did you/your spouse/partner live before moving here ? (PROMPT FOR FULL ADDRESS)

House / Flat Number |_|_|_|_|
Street |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
Town |_|_|_|_|_|_|_|_|_|_|_|_|
Postcode |_|_|_|_|_|_|_|
District and Ward Code *(Office Coded)* |_|_|_|_|
Community District *(Office Coded)* |_|_|
Religion Code *(Office Coded)* |_|

→ (A)

(A) Approximately how far is this from your current home ?

SHOW CARD 1

Half a mile or less 1
Over 0.5 miles but less than 1 mile 2
Over 1 mile but less than 1.5 miles 3
Over 1.5 miles but less than 2 miles 4
Between 2 and 3 miles 5
Over 3 miles but less than 5 miles 6
5 or more miles 7
Unable to say 77

→ (B)

(B) At this previous address were you ...

(RUNNING PROMPT)

..living with parents 1
..renting from the Housing Executive 2
..renting from a Housing Association 3
..renting private furnished accommodation 4
..renting private unfurnished accommodation 5
..living in house owned outright 6
..buying a house with a mortgage 7
..living in some other way 8

→ (C)

(C) At this address were you ...

(RUNNING PROMPT)

..living with a previous husband/wife 1
..co-Habiting with a previous partner 2
..sharing with others (non-parents) 3
..or, living in some other way 4

→Sect D p.17

Continuing Households

Q7 Where did you live before moving here ? (PROMPT FOR FULL ADDRESS)

House / Flat Number |_|_|_|_|
Street |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
Town |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
Postcode |_|_|_|_|_|_|_|_|
District and Ward Code *(Office Coded)* |_|_|_|_|
Community District *(Office Coded)* |_|_|
Religion Code *(Office Coded)* |_|

→ (A)

(A) Approximately how far is this from your current home ?

SHOW CARD 1

Half a mile or less 1
Over 0.5 miles but less than 1 mile 2
Over 1 mile but less than 1.5 miles 3
Over 1.5 miles but less than 2 miles 4
Between 2 and 3 miles 5
Over 3 miles but less than 5 miles 6
5 or more miles 7
Unable to say 77

→ Q8

Q8 I now want to ask you some details about your previous home. Please tell me, what type of property was this ?

(A) Was it..

(RUNNING PROMPT)

.. a detached house 1
.. a semi-detached house 2
.. an end-of-terrace house 3
.. a mid-terrace house 4
.. a purpose-built flat 5
.. a maisonette 6
.. a flat in a converted building 7
.. or was it something else (SPECIFY) 8

_____ |_|_|

→ (B)

(B) ... and how many floors did it have ?

One 1
Two 2
Three 3
More than three (write in) |_|_|

→ (C)

(C) How many bedrooms did this property have ?

One 1
Two 2
Three 3
Four 4
More than four (write in number) |_|_|

→ (D)

(D) ... and how many reception rooms ?
(PROMPT: e.g., living rooms, sitting rooms, family rooms, dining rooms, lounges etc.)

One 1
Two 2
Three 3
Four 4
More than four (write in number) |_|_|

→ (E)

(E) Did it have (READ OUT EACH FEATURE IN TURN) ...

	Yes	No
a fitted kitchen	1	2
on-suite facilities	1	2
a second bathroom	1	2
a utility room	1	2

→ (F)

(F) Overall, what was the approximate floor area of this house / flat ?
(WRITE IN SQUARE FEET - 7777 FOR DON'T KNOW. RIGHT JUSTIFY). |_|_|_|_|

→ Q9

Q9 Was your previous home centrally heated ? (PROBE FOR EXTENT OF CENTRAL HEATING)

Yes, full central heating (all/most rooms) 1
Yes, partial central heating (at least half rooms) 2
Yes, partial central heating (less than half rooms) 3
No 4
Don't Know 7

→ Q10

Q10 Please look at this card and tell me which description best fits the condition of your previous home when you left it ?

SHOW CARD 2

in very good condition 1
in quite good condition 2
neither good nor poor condition 3
in quite poor condition 4
in very poor condition 5

→ Q11

Q11 Did you have a garden at your previous home ?

Yes	1	→ (A)
No	2	→ Q12

(A) How would you describe the size of the garden at your previous house compared to this house ?

Smaller than this house	1	
About the same size	2	
Bigger than this house	3	

→ (B)

(B) How would you describe the appearance of the garden at your previous house compared to other houses in that area ?

Better than average for the area	1	
About the same as the other houses	2	
Not as good as the other houses in the area	3	

→ Q12

Q12 Was there parking provision at your previous home ?

(A)	a garage	Yes, detached	1
		Yes, integral	2
		No	3

→ (B)

(B)	off-street parking (i.e. on plot)	Yes	1
		No	2

→ Q13

Q13 Please look at this card and tell me in which of these periods was your previous home built ?

SHOW CARD 3

Before 1919	(Say, more than 75 years old)	1
1919 - 1944	(Say, 50 - 75 years old)	2
1945 - 1964	(Say, 25 - 50 years old)	3
1965 - 1980	(Say, 12 - 25 years old)	4
After 1980	(Say, up to 12 years old)	5
Unable to say		7

→ Q14

Q14 Was your previous home newly built when you moved into it ?

Yes	1	→ Q15
No	2	→ Q15

Q15 How long did you live at your previous home ? Tell in years and months..

(A) (PROMPT: Be as precise as you can)

Years	|_|_|	
Months	|_|_|	→ Q16

IF UNABLE TO COMPLETE (A), ASK (B).

(B) Can you give me a best guess from the details on this card (SHOW CARD) ?

SHOW CARD 4

Under 1 year	1	
1 and < 3 years	2	
3 and < 5 years	3	
5 and < 7 years	4	
7 and < 10 years	5	
10 years or more	6	
Don't Know	7	→ Q16

Q16 Did your household own or rent your previous home? (PROBE FOR DETAILS)

Owned outright	1	→ Q17
Owned with mortgage	2	→ Q17
Owned through Co-Ownership scheme	3	→ Q17
Rented from Housing Executive	4	→Sect D p.17
Rented from Housing Association	5	→Sect D p.17
Rented private furnished accommodation	6	→Sect D p.17
Rented private unfurnished accommodation	7	→Sect D p.17
House with job	8	→Sect D p.17
Shared with another family / household	9	→Sect D p.17

FORMER HOME OWNERS ONLY

Q17 From whom did you buy your **previous** house / flat ?

SHOW CARD 5

Bought from Housing Executive as sitting tenant	1	→ Q18
Bought from Housing Association as sitting tenant	2	→ Q18
Bought from former tenant purchaser	3	→ Q18
Bought from previous owner	4	→Sect C p.10
Bought new from builder / developer / agent	5	→Sect C. p.10
Bought refurbished from builder / developer / agent	6	→Sect C p. 10
Bought from Building Society / Bank	7	→Sect C p.10
Bought from private landlord	8	→Sect C p.10
Built yourself / had built under your supervision	9	→Sect C p.10
Didn't buy - inherited	10	→Sect C p.10
Other source (SPECIFY) _____	11	→Sect C p.10
Don't Know	77	→Sect C p.10

Former sitting tenant buyers

Q18 How long were you a tenant before you bought your previous home ?

(PROBE: Tell me in years and months) Years |_|_|

Months |_|_|

→ (A)

(A) How long did you live in the house / flat after buying it and before moving to this house ?

(PROBE: Tell me in years and months) Years |_|_|

Months |_|_|

→ (B)

(B) Let me just check. You lived in your previous home (SAY TIME) as a tenant and (SAY TIME) as an owner, so you lived there (SAY TIME) altogether.

(CHECK AND CORRECT AS NECESSARY) → Q19

Q19 Did you get a discount when you bought your previous home ?

Yes	1	→ (A)
No	2	→Sect C p.10

(A) How much discount did you get ?
(PROBE FOR ABSOLUTE AMOUNT AND % OF MARKET VALUATION)

(RIGHT JUSTIFY) % discount |_|_|

£ discount |_|_|_|_|_|

→ (B)

(B) What was the full purchase price of the dwelling (before discount) ?

(RIGHT JUSTIFY) full purchase price (£) |_|_|_|_|_|

→ (C)

(C) And how much did you actually have to pay ?

(RIGHT JUSTIFY) price you had to pay (£) |_|_|_|_|_| → Sect C

SECTION C - SELLING YOUR PREVIOUS HOME

FORMER HOME OWNERS ONLY

In this section we are interested in exploring how you went about selling your previous home. We are interested in how you set your selling price, how you managed the viewing process, how you found your potential buyers, what negotiations occurred over the selling price, and how long the whole process took. We are also interested in how the selling of your previous home influenced the search for and choice of your current home.

Q20 Did you sell your previous home privately or through the services of a third party ?

Sold privately ..... 1 → Q21
Used a third party (e.g. estate agent) ..... 2 → Q24

Private Sales

Q21 Why did you sell your previous house privately?
(indicate all that apply)

SHOW CARD 6

	Yes	No	
Had tried other ways without success	1	2	→ (A)
Had previous experience of private sale	1	2	→ Q22
Knew of others who had sold in this way	1	2	→ Q22
Thought that it would be easy	1	2	→ Q22
Thought it would produce quick sale	1	2	→ Q22
Thought it would be cheapest way	1	2	→ Q22
Thought it would produce best price	1	2	→ Q22
Didn't think of any other way	1	2	→ Q22
Some other reason (specify)	1	2	→ Q22

_____
_____

(A) Did you try ... (RECORD ALL THAT APPLY)

(RUNNING PROMPT)

	Yes	No
.. a private auction	1	2
.. a third party (e.g. Estate Agent)	1	2
.. or, some other way (SPECIFY)	1	2

_____
_____

→ (B)

(B) What was wrong with this/these approach(s) ? Was it that you were...

(RUNNING PROMPT)

	Yes	No
.. unable to find suitable buyers	1	2
.. unable to get acceptable price	1	2
..or, was it something else (SPECIFY)	1	2

_____

_____

→ Q22

Q22 I am interested in how you attracted potential buyers. Did you... (RECORD ALL THAT APPLY)

(RUNNING PROMPT)

	Yes	No
.. erect a "For Sale" sign	1	2
.. advertise in a local paper (not Belfast Telegraph)	1	2
.. advertise in the Belfast Telegraph	1	2
..or, do something else ? (SPECIFY)	1	2

_____

_____

→ Q23

Q23 Overall, do you think that you made the right decision when you decided to sell your previous home privately rather than through the services of a third party ?

Yes	1 → Q26
No	2 → (A)

(A) Why do you say that ?

_____ |_|_|

_____ |_|_| → Q26

Third Party Sales

Q24 In selling your previous home, did you use the services of ...

(RUNNING PROMPT)
(CHECK- if lawyer, check that respondent used lawyer to sell home, not just for legal aspects such as conveyancing etc.)

.. estate agency	1
.. a lawyer / solicitor	2
.. an auctioneer / auction house	3
.. or some other third party (SPECIFY)	4

_____

_____ → (A)

(A) Please look at this card and tell me if any of these factors prompted you to use a third party to sell your previous home ?

SHOE CARD 7

	Yes	No	
Had tried other ways without success	1	2	→ (B)
Had previous experience of this method	1	2	→ (D)
Most obvious method	1	2	→ (D)
Didn't think of any other way	1	2	→ (D)
Some other reason (SPECIFY)	1	2	→ (D)

_____

_____ → (D)

(B) What other method(s) had you tried ? (PROBE FULLY)

Private Sale	1	2
Other (specify)	1	2

_____

_____ → (C)

(C) What was wrong with this/these approach(s) ? Was it that you were...

(RUNNING PROMPT)	Yes	No
.. unable to find suitable buyers	1	2
.. unable to get acceptable price	1	2
..or, was it something else (SPECIFY)	1	2

_____

_____ → (D)

(D) What was the name and address of the agent / lawyer/ solicitor / auctioneer that arranged your sale ? (PROMPT FOR FULL ADDRESS)

Name |_____| |_|_|

Address

Number |_|_|_|_|_|

Street |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|

Town |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|

Postcode |_|_|_|_|_|_|_|_|

District and Ward Code (Office Coded) |_|_|_|_|_|

Community District |_|_|

Religion Code |_| → Q25

Q25 Please look at this list (SHOW CARD 9) and tell me which of the reasons influenced you to pick this particular agent / lawyer/ solicitor / auctioneer ?

SHOW CARD 8

	Yes	No
Used this agent / lawyer / solicitor / auctioneer before	1	2
Convenient location	1	2
Was recommended by friend/colleague	1	2
Got a good deal	1	2
Liked the "look" of them	1	2
Was buying this house through them	1	2
Had a good property magazine	1	2
Most likely to produce best price	1	2
Most likely to produce quick sale	1	2
Only agent / lawyer / solicitor / auctioneer in area	1	2
Picked from "Yellow Pages"	1	2
Other (specify)		

_____

_____ → (A)

(A) Overall, do you think that you made the right decision when you decided to sell your previous home through the services of a third party rather than privately ?

Yes	1 → (C)
No	2 → (B)

(B) Can you give me TWO reasons for saying that ?

_____ |_|_|

_____ |_|_| → (C)

(C) How satisfied were you with the particular agent that you used ? Would you say you were...

.. very satisfied	1	→ Q26
.. quite satisfied	2	→ Q26
.. neither satisfied nor dissatisfied	3	→ Q26
.. quite dissatisfied	4	→ (D)
.. or, very dissatisfied ?	5	→ (D)
Don't Know	7	→ Q26

(D) What were the TWO things that you were most dissatisfied with ? (PROBE FOR TWO)

_____ |_|_|

_____ |_|_| → Q26

Q26 What price did you set for the sale of the house ?

(RIGHT JUSTIFY) £ |_|_|_|_|_|_| → (A)

(A) What price did you actually sell at ?

(RIGHT JUSTIFY) £ |_|_|_|_|_|_| → (B)

(B) How satisfied were you with the price that you got ? Would you say you were ...

.. very satisfied	1	
.. quite satisfied	2	
.. neither satisfied nor dissatisfied	3	
.. quite dissatisfied	4	
.. or, very dissatisfied ?	5	
Don't know	7	→ (C)

(C) Including all fees, advertising and related costs, approximately how much did it cost you to sell your previous home ?

(PROMPT WITH BANDS)

Under £300	1	→ (D)
Between £300 and £500	2	→ (D)
Between £501 and £750	3	→ (D)
Over £750	4	→ (D)
Don't Know	7	→ Q27

(D) Can you recall the exact amount ?

(RIGHT JUSTIFY) £ |_|_|_|_| → Q27

Q27 Approximately how many viewers came to view your dwelling ?

One	1	→ (B)
Between two and five	2	→ (A)
Between six and ten	3	→ (A)
Between ten and fifteen	4	→ (A)
More than fifteen	5	→ (A)
Don't Know	7	→ (B)

(A) Can you recall the actual number of viewers ?

Number of viewers |_|_| → (B)

(B) Did any of your viewers visit your home on more than one occasion ?

Yes	1	
No	2	
Don't Know	7	→ Q28

Q28 How many of your viewers made offers on the dwelling ?

One	1	→ (B)
Two	2	→ (C)
Three	3	→ (C)
Four	4	→ (C)
Five or more	5	→ (C)
Don't Know	7	→ (A)

(A) Did you have more than one offer ?

Yes	1	→ (C)
No	2	→ (B)

(B) Let me just check. You sold your previous home to your first bidder ?

Confirmed	1	→ Q29
Not Confirmed (CORRECT ERROR)	2	→ Q28

(C) Did your bidders bid against one another ? (PROBE)

Yes, two or more bidders were in competition	1	→ (D)
No, the bids came at different times	2	→ (E)
Competing bids and bids at different times	3	→ (D)

(D) Was the bidder who bought your previous home in competition with others at the time ?

Yes	1	→ (E)
No	2	→ (E)

(E) Did you accept more than one offer (i.e. at different times) ?

Yes	1	→ (F)
No	2	→ Q29

(F) How many previous offers were accepted but failed to produce a sale ?

One	1	→ (H)
Two	2	→ (H)
Three	3	→ (H)
Four	4	→ (H)
Five or more	5	→ (G)
Don't Know	7	→ Q29

(G) Can you say exactly how many ?

Number |_|_| → (H)

(H) I want to ask you about why previous offers did not result in a sale. For each offer, please look at the card and tell me why a sale did not occur. I want to start with the most recent offer and work backwards....

For the (MOST RECENT/ NEXT MOST RECENT etc) offer, which of these reasons apply ?

SHOW CARD 9

Previous Offers	1 (Oldest →)	2	3	4	5
Bidder didn't like survey result	1	1	1	1	1
Bidder unable to raise the mortgage	2	2	2	2	2
Bidder changed their mind	3	3	3	3	3
Legal problems with the contract	4	4	4	4	4
Bidder unable to sell own home	5	5	5	5	5
Bidder's own buyer dropped out	6	6	6	6	6
You changed your mind	7	7	7	7	7
Don't know what happened	8	8	8	8	8
Other reason	9	9	9	9	9

→ Q29

Q29 Approximately how long did it take to sell your home (i.e., from "For Sale" sign to accepting final offer) ?

(PROBE FOR WEEKS AND DAYS)

|_____|

Weeks |_|_|

Days |_|_|

→ Q30

Preparing to Sell

Q30 Which of the following things did you do in order to make your house more appealing / easier to sell ? (SHOW CARD 11). Only include those things specifically done to enhance saleability.

SHOW CARD 10

	Yes	No
Carried out major repairs or improvements	1	2
Carried out minor repairs or improvements	1	2
Re-painted the external woodwork	1	2
Tidied the garden	1	2
Extensively re-decorated inside the house	1	2
Did some internal re-decoration	1	2
Some other work (Specify)	1	2
_____		
_____		

If NO work done, go to Q31.

If any work done, go to (A)

(A) Approximately how much did you spend on this work ?

(PROBE WITH BANDS)

Nothing (any materials were already to hand)	1 → Q31
Less than £50	2 → Q31
Between £50 and £100	3 → Q31
More than £100 and less than £250	5 → Q31
More than £250 and less than £500	6 → Q31
More than £500 and less than £1000	7 -. Q31
More than £1000	8 → (B)

(B) Can you be more precise ?

£ |_|_|_|_| → Q31

Q31 Some people use ploys to help make their house more attractive to a potential buyer. Can you tell me if you did any of the following things whenever a potential buyer was due to call ? (CARD 12)

(RECORD ALL THAT APPLY, THEN FOLLOW INDICATED ROUTING)

	Yes	No	
Generally tidied / hoovered the house	1	2	→ (B)
Lit a fire in order to create an "atmosphere"	1	2	→ (B)
Put out some flowers around the house	1	2	→ (B)
Arranged for the children to be elsewhere	1	2	→ (B)
SHOW CARD 11 Washed the windows	1	2	→ (B)
Offered the potential buyer drinks / tea/ coffee	1	2	→ (B)
Set out particular magazines or books in a prominent position	1	2	→ (A)
Something else (SPECIFY)	1	2	→ (B)

_____

_____ → (B)

(A) What did you have in mind here ?

_____

_____ |_|_|

_____ |_|_| → (B)

(B) How did you manage the viewing ? Did you normally ...

(RUNNING PROMPT)

.. take the potential buyer on a detailed tour 1
.. take the potential buyer on a brief tour and let them get on with it 2
.. let the potential buyer do his/her own thing 3
.., or did you take some other approach (SPECIFY) 4

_____

_____ → (C)

(C) During the viewing did you actively ...(READ OUT EACH OPTION)

	Yes	No
Try to steer them towards the "best" features of your house	1	2
Try to keep them away from the "worst" features of your house	1	2

→ (D)

(D) Did you change your approach as you became more experienced ?

Yes ..... 1 → (E)
No ..... 2 → (F)

(E) How did you change ? (PROBE FULLY)

_____

_____ |_|_|

_____ |_|_| → (F)

(F) Please look at this card and tell me what stage were you at in the search for your **current** house when you sold your **previous** house (i.e. had bid accepted) ?

SHOW CARD 12

Had not started any search activity ..... 1 →Sect D p.17
Had begun search but not visited any properties ..... 2 →Sect D p.17
Had begun search and visited a few (<=3) properties .... 3 → (G)
Had searched quite widely (4-10 visits) ..... 4 → (G)
Had searched extensively (>10 visits) ..... 5 → (G)
Unable to say ..... 7 → (G)

(G) Had you viewed your CURRENT house before you had sold your PREVIOUS house ?

Yes ..... 1 → (H)
No ..... 2 →Sect D p.17

(H) Had you decided to buy your CURRENT house at this stage ?

Yes ..... 1 → (I)
No ..... 2 →Sect D p.17

(I) Did you bid on your CURRENT house before selling your PREVIOUS home ?

Yes ..... 1 →Sect D p.17
No ..... 2 →Sect D p.17

SECTION D - YOUR CURRENT HOME

So far in the interview we have talked about your previous home. I now want to focus on your current home. In this section I will also ask you some questions about this general location and how it compares to where you used to live.

→ Q32

Q32 First, can you tell me when you moved into this house/flat ? (PROBE EXACT DATE)

Day |_|_|
Month |_|_|
Year |_|_| → (A)

(A) I would describe this as (SAY TYPE), is this correct ? (CONFIRM)

Type

A detached house 1
A semi-detached house 2
An end-of-terrace house 3
A mid-terrace house 4
A purpose-built flat 5
A maisonette 6
A flat in a converted building 7
Something else (SPECIFY) 8

→ (B)

(B) Is it a chalet type ?

Yes 1
No 2

→ (C)

(C) ... and how many floors are there ?

One 1
Two 2
Three 3
More than three (write in) ..... |_|_|

→ (D)

(D) How many bedrooms does this property have ?

One 1
Two 2
Three 3
Four 4
More than four (write in number) ..... |_|_|

→ (E)

(E) How many reception rooms does this property have ?
(PROMPT: e.g., living rooms, sitting rooms, family rooms, dining rooms, lounges etc.)

One	1	
Two	2	
Three	3	
Four	4	
More than four (write in number)	|_|_|	→ (F)

(F) Does it have... (ASK EACH ITEM)

	Yes	No	
a fitted kitchen	1	2	
on-suite facilities	1	2	
a second bathroom	1	2	
a utility room	1	2	→ (G)

(G) Overall, what is the approximate floor area of this house / flat ?
(write in square feet - 9999 for don't know. Right justify). |_|_|_|_| → Q33

Q33 Is this house / flat centrally heated ? (PROBE FOR EXTENT OF CENTRAL HEATING)

Yes, full central heating (all/most rooms)	1	
Yes, partial central heating (at least half rooms)	2	
Yes, partial central heating (less than half rooms)	3	
No	4	
Don't Know	7	→ Q34

Q34 How would you describe the condition of this dwelling when you first bought it ? Was it ...

(RUNNING PROMPT)

.. in very good condition	1	
.. in quite good condition	2	
.. either good nor poor condition	3	
.. in quite poor condition	4	
or, in very poor condition	5	→ Q35

Q35 Does your home have a garden ?

Yes	1	→ Q36
No	2	→ Q36

Q36 Is there provision for parking here ? Do you have a garage ?

(A) (PROBE)

Yes, detached	1	
Yes, integral	2	
No	3	→ (B)

(B) ...and what about off-street parking (i.e. on plot)

Yes	1	→ Q37
No	2	→ Q37

Q37 Please look at this card and tell me in which of these periods was your present home built ?

SHOW CARD 13

Before 1919	(Say, more than 75 years old)	1	→ Q38
1919 - 1944	(Say, 50 - 75 years old)	2	→ Q38
1945 - 1964	(Say, 25 - 50 years old)	3	→ Q38
1965 - 1980	(Say, 12 - 25 years old)	4	→ Q38
After 1980	(Say, up to 12 years old)	5	→ (A)
Unable to say		7	→ (A)

(A) Was the house / flat newly built when you moved into it ?

Yes	1	→ Q38
No	2	→ Q38

Q38 Overall, how happy are you with this house / flat ? Would you say that you are...

.. very happy	1	→ (A)
.. quite happy	2	→ (A)
.. neither happy nor unhappy	3	→ Q39
.. quite unhappy	4	→ (B)
.. or, very unhappy	5	→ (B)
Don't Know	7	→ Q39

(A) What three aspects of the house / flat do you particularly like ?
(RECORD VERBATIM)

_____ |_|_|
_____ |_|_|
_____ |_|_|
_____ → Q39

(B) What three aspects of the house / flat do you particularly dislike ?
(RECORD VERBATIM)

_____ |_|_|
_____ |_|_|
_____ |_|_|
_____ → Q39

Neighbourhoods

Q39 What would you call this neighbourhood ?

|_____| |_|_| → (A)

(A) What are the three main features of (NAME THE NEIGHBOURHOOD) that make it different from other areas in Greater Belfast ? (RECORD VERBATIM)

_____ |_|_|
_____ |_|_|
_____ |_|_|
_____ → (B)

(B) Can you roughly describe the boundaries of (NAME THE NEIGHBOURHOOD) ?

Yes (or "think so") ..... 1 → (C)
No (or "don't know") ..... 2 → Q40

(C) RECORD VERBATIM

_____
_____
_____
_____
_____
_____
_____ → Q40

FOR OFFICE USE: CODE NEIGHBOURHOOD SPATIAL REFERENCES

District/Ward Code |_|_|_|_|
Postcode Sector BT |_|_| |_|
Community District Code |_|_|_|_|

Q40 Let me just check. Earlier in the interview you told me that you had / had not lived elsewhere as a household.

(CHECK PAGE 4 AND CODE ACCORDINGLY)

New household ..... 1 → (A)
Continuing household ..... 2 → (B)

(A) ... in that case, I just need to ask you about your views on this neighbourhood and its general location. → Q41 (Col A only)

(B) ... in that case, I need to ask you about your views on this neighbourhood, its general location and how its compare with the previous place that you lived. → Q41 (Col A & B)

Q41 I am going to read you out a list of concerns that people sometimes have about the areas in which they live. For each item, please say which of the descriptions on this card (GIVE CARD 14) comes closest to your own view.

(1 Very Satisfied, 2 Quite Satisfied, 3 Neither, 4 Quite Dissatisfied, 5 Very Dissatisfied, 7 DK)

SHOW CARD 14

	A Current Area	B Previous Area
Level of rubbish or litter	1 2 3 4 5 7	1 2 3 4 5 7
General appearance of area	1 2 3 4 5 7	1 2 3 4 5 7
Condition of paths and paving	1 2 3 4 5 7	1 2 3 4 5 7
Street lighting	1 2 3 4 5 7	1 2 3 4 5 7
Security from burglary	1 2 3 4 5 7	1 2 3 4 5 7
Security for your car(s)	1 2 3 4 5 7	1 2 3 4 5 7
Your personal safety	1 2 3 4 5 7	1 2 3 4 5 7
Level of vandalism	1 2 3 4 5 7	1 2 3 4 5 7
Extent of general graffiti	1 2 3 4 5 7	1 2 3 4 5 7
Extent of political graffiti	1 2 3 4 5 7	1 2 3 4 5 7
Control of dogs	1 2 3 4 5 7	1 2 3 4 5 7
Dog or cat dirt	1 2 3 4 5 7	1 2 3 4 5 7
Close neighbours	1 2 3 4 5 7	1 2 3 4 5 7

Level of privacy	1	2	3	4	5	7	1	2	3	4	5	7	
Level of noise (all sources)	1	2	3	4	5	7	1	2	3	4	5	7	
Environmental quality/maturity	1	2	3	4	5	7	1	2	3	4	5	7	
Social composition	1	2	3	4	5	7	1	2	3	4	5	7	
Religious composition	1	2	3	4	5	7	1	2	3	4	5	7	
Overall neighbourhood satisfaction	1	2	3	4	5	7	1	2	3	4	5	7	→ (A)

(A) I now want to widen the focus to consider the general location of this neighbourhood. Using the same card, tell me how satisfied or dissatisfied you are with the general location of this neighbourhood (and your previous neighbourhood) in terms of the accessibility to the following facilities.

	A Current Area						B Previous Area						
Shopping facilities	1	2	3	4	5	7	1	2	3	4	5	7	
Friends / relatives	1	2	3	4	5	7	1	2	3	4	5	7	
Doctors, dentists etc	1	2	3	4	5	7	1	2	3	4	5	7	
HOH's place of work	1	2	3	4	5	7	1	2	3	4	5	7	
Partner's place of work	1	2	3	4	5	7	1	2	3	4	5	7	
City centre	1	2	3	4	5	7	1	2	3	4	5	7	
Public transport	1	2	3	4	5	7	1	2	3	4	5	7	
Leisure facilities	1	2	3	4	5	7	1	2	3	4	5	7	
Primary schools	1	2	3	4	5	7	1	2	3	4	5	7	
Secondary schools	1	2	3	4	5	7	1	2	3	4	5	7	
Overall convenience of location	1	2	3	4	5	7	1	2	3	4	5	7	→ Section E

SECTION E - TENURE CHOICE AND REASONS FOR MOBILITY

All Respondents

In this section I will ask you some questions about why you chose to buy a house / flat rather than renting.

(NOTE REMINDER OF HOUSEHOLD STATUS - Q40, p.20)

New household	1	→ (A)
Continuing household	2	→ (B)

Q42 (A) Let me just check. Is this your first home since setting up your household ?

Yes (new hhold / first time buyer)	1	→ Q43
No	2	Check previous answers and fix

(B) Let me just check. Is this the first time that, as a household, you have owned your own home ?

Yes (continuing household / first time buyer)	1	→ Q44
No (continuing household / continuing owner)	2	→ Q47

New Household First Time Buyers (NHFTB)

Q43 Did you consider any housing options other than buying ?

Yes	1	→ (A)
No	2	→ Sect. F p.31

(A) What options did you consider ? Did you consider (READ EACH IN TURN)

	Yes	No	
Renting from the NIHE	1	2	→ (B)
Renting from a housing association	1	2	→ (F)
Renting in the private rented sector	1	2	→ (K)
Other (specify)	1	2	

_____ |_|

NHFTB that considered Housing Executive

(B) Did you apply for a Housing Executive house / flat ?

Yes	1	→ (C)
No	2	→ (E)

(C) Were you offered accommodation by the Executive ?

Yes	1	→ (D)
No	2	→ (E)

(D) Which of the reasons on this card (CARD 15) explain your decision NOT to accept the offer ? (PROMPT - any other reasons?)

(CODE ALL THAT APPLY) **SHOW CARD 15**

	Yes	No	
Didn't like the type of properties offered	1	2	----------
Didn't like the condition of properties offered	1	2	
Didn't like the estate offered	1	2	Check (A) for routing, otherwise go to Sect. F page 31
Unsuitable location	1	2	
Rents were too high	1	2	
Thought it was poor value for money	1	2	
Intimidation	1	2	
Security problems	1	2	
Cheaper to rent than buy / decided to buy	1	2	
Other (SPECIFY)	1	2	

_____ |_|_|

_____ |_|_| ----------

(E) Did you not proceed because you ... (PROMPT ..any other reasons ?)

(RUNNING PROMPT)

	Yes	No	
.. didn't really want to rent	1	2	----------
.. decided to buy a house	1	2	Check (A) for routing, otherwise go to Sect F page 31
.. couldn't wait until suitable vacancy came up	1	2	
.. were intimidated	1	2	
.. were concerned about security problems	1	2	
Other (SPECIFY)	1	2	

_____

_____ |_| ----------

NHFTB that considered Housing Association

(F) Did you apply for a housing association house / flat ?

Yes	1	→ (G)
No	2	→ (J)

(G) What was the name of the association ?

|_____| |_|_| → (H)

(H) Were you offered accommodation by (NAME THE ASSOCIATION) ?

Yes	1	→ (I)
No	2	→ (J)

(I) Which of the reasons on this card (CARD 15) explain your decision NOT to accept the offer ? (PROMPT - any other reasons?)

(CODE ALL THAT APPLY)

SHOW CARD 15

	Yes	No	
Didn't like the type of properties offered	1	2	---
Didn't like the condition of properties offered	1	2	
Didn't like the estate offered	1	2	Check (A) for routing, otherwise go to Sect. F page 31
Unsuitable location	1	2	
Rents were too high	1	2	
Thought it was poor value for money	1	2	
Intimidation	1	2	
Security problems	1	2	
Cheaper to buy than rent/ decided to buy	1	2	
Other (specify)	1	2	
_____		|_|_|	
_____		|_|_|	---

(J) Did you not proceed because you... (PROMPT ..any other reasons ?)

(RUNNING PROMPT)

	Yes	No	
.. didn't really want to rent	1	2	---
.. decided to buy a house	1	2	Check (A) for routing, otherwise go to Sect. F page 31
.. couldn't wait until suitable vacancy came up	1	2	
.. were Intimidated	1	2	
.. were worried about security problems	1	2	
Other (specify)	1	2	
_____			
_____		|_|	---

NHFTB that considered Private Rented Sector

(K) Did you consider furnished or unfurnished accommodation, or had you no preference ?

Furnished	1	→ (L)
Unfurnished	2	→ (L)
No Preference	3	→ (L)

(L) Did you visit any potential properties ?

Yes	1	→ (M)
No	2	→ (P)

(M) Approximately how many did you visit ?

One	1	→ (P)
Two	2	→ (P)
Three	3	→ (P)
Four	4	→ (P)
Five	5	→ (P)
More than five	6	→ (N)
Unable to say	77	→ (O)

(O) Can you be more precise ?

\|_\|_\| → (P)

(P) Why did you decide not to rent privately ? Was it because you (READ EACH ITEM) ...

	Yes	No	
Didn't like the type of properties available	1	2	
Didn't like the condition of the properties available	1	2	
Didn't like the environment of the properties available	1	2	
Unsuitable location	1	2	
Rents were too high	1	2	
Thought it was poor value for money	1	2	
Intimidation	1	2	
Security problems	1	2	
Cheaper to buy than to rent / decided to buy	1	2	
Other reason (specify)	1	2	
_____		|_|_|	
_____		|_|_|	→ Sect F. p.31

Continuing Household First Time Buyers

Q44 Let me just check. You told me earlier that your last house was

CHECK Q16 (page 8)

Rented from the Housing Executive	1 → Q45
Rented from a housing association	2 → Q47
Rented from a private landlord	3 → Q46
Provided with your job	4 → Q47
Shared accommodation	5 → Q47

Q45 Please look at this card. These are some of the reasons for leaving the Executive sector given by other former tenants. Can you tell me if any of these factors influenced your decision to cease being a tenant of the Executive ? (SHOW CARD 16)

(RECORD ALL THAT APPLY)

SHOW CARD 16

	Yes	No	
Wanted to be a home owner	1	2	
Renting was a first step on housing ladder	1	2	
Unhappy with services received	1	2	
Didn't like estate or area .	1	2	
Unhappy with services received	1	2	
Problems with the neighbours	1	2	
Intimidation	1	2	
Security problems	1	2	
Unable to get a transfer	1	2	
Some other reason (specify)	1	2	
_____		|_|_|	
_____		|_|_|	→ (A)

(A) Did you consider any housing options other than buying in the private market ?

Yes	1 → (B)
No	2 → Q47 p.29

(B) Did you consider ....

(RUNNING PROMPT)

	Yes	No	
Buying your rented home from the NIHE	1	2	→ (C)
Transferring / Exchanging to another NIHE house	1	2	→ (F)
Renting from a housing association	1	2	→ (J)
Renting in the private rented sector	1	2	→ (O)
Other (specify)	1	2	
_____			
_____		|_|	→ Q47 p.29

Former NIHE that considered sitting tenant purchase

(C) Did you apply to buy your former home through the Executive's House Sales Scheme ?

Yes	1	→ (D)
No	2	→ (E)

(D) Which of the reasons on this card (CARD 17) explain your decision NOT to proceed ? (PROMPT - any other reasons?)

SHOW CARD 17

	Yes	No
Didn't think that it was good value	1	2
Didn't like the house	1	2
Didn't like the estate or area	1	2
Problems with the neighbours	1	2
Wanted "proper" owner occupied house	1	2
Not tenant long enough for good discount	1	2
Problems with "Historic Cost"	1	2
Some other reason (specify)	1	2

_____

_____ |_|_|

→Check (B) for routing otherwise go to Q47 p.29

(E) Which of the reasons on this card (CARD 17) explain your decision NOT to apply ? (PROMPT - any other reasons?)

SHOW CARD 17

Didn't think that it was good value	1	2
Didn't like the house	1	2
Didn't like the estate or area	1	2
Problems with the neighbours	1	2
Wanted "proper" owner occupied house	1	2
Not tenant long enough for good discount	1	2
Problems with "Historic Cost"	1	2
Some other reason (specify)	1	2

_____

_____ |_|_|

→Check (B) for routing otherwise go to Q47 p.29

Former NIHE that considered Transfer / Exchange

(F) Did you apply for a transfer or and exchange Housing Executive house / flat ? (PROBE)

Applied for transfer	1	→ (G)
Applied for exchange	2	→ (G)
Applied for both transfer and exchange	3	→ (G)
Applied for neither transfer nor exchange	4	→ (I)

(G) Were you offered alternative accommodation by the Executive ?

Yes	1	→ (H)
No	2	→ (I)

(H) Which of the reasons on this card (CARD 15) explains your decision NOT to accept the offer ? (PROMPT - any other reasons?)

(RECORD ALL THAT APPLY)

SHOW CARD 15

	Yes	No
Didn't like the type of properties offered	1	2
Didn't like the condition of properties offered	1	2
Didn't like the estate offered	1	2
Unsuitable location	1	2
Rents were too high	1	2
Thought it was poor value for money	1	2
Intimidation	1	2

Check (B) for routing, otherwise go to Q47 p.29

Security problems	1	2	
Cheaper to buy than rent / decided to buy	1	2	
Other	1	2	
_____		|_|_|	
_____		|_|_|	---

(I) Did you not proceed because you ... (PROMPT: .. any other reasons ?)

(RUNNING PROMPT)

	Yes	No	
.. didn't really want to rent	1	2	---
.. decided to buy a house	1	2	Check (B) for routing, otherwise go to Q47 p.29
.. couldn't wait until suitable vacancy came up	1	2	
.. were intimidated	1	2	
..or, were concerned about security problems	1	2	
Other (specify)	1	2	
_____			
_____		|_|	---

Former NIHE that considered Housing Association

(J) Did you apply for a housing association house / flat ?

Yes	1	→ (K)
No	2	→ (N)

(K) What was the name of the association ?

\|_____\| \|_\|_\| → (L)

(L) Were you offered accommodation by (NAME THE ASSOCIATION) ?

Yes	1	→ (M)
No	2	→ (N)

(M) Which of the reasons on this card (CARD 15) explains your decision NOT to accept the offer ? (PROMPT - any other reasons?)

SHOW CARD 15

	Yes	No	
Didn't like the type of properties offered	1	2	---
Didn't like the condition of properties offered	1	2	
Didn't like the estate offered	1	2	Check (B) for routing, otherwise go to Q47 p.29
Unsuitable location	1	2	
Rents were too high	1	2	
Thought it was poor value for money	1	2	
Intimidation	1	2	
Security problems	1	2	
Cheaper to buy than rent/ decided to buy	1	2	
Other (SPECIFY)	1	2	
_____		|_|_|	
_____		|_|_|	---

(N) Did you not proceed because you... (PROMPT ..any other reasons ?)

(RUNNING PROMPT)

	Yes	No	
.. didn't really want to rent	1	2	---
.. decided to buy a house	1	2	Check (B) for routing, otherwise go to Q47 p.29
.. couldn't wait until suitable vacancy came up	1	2	
.. were intimidated	1	2	
.. were concerned about security problems	1	2	
Other (specify)	1	2	
_____			
_____		|_|	---

Former NIHE that considered Private Rented Sector

(O) Did you consider furnished or unfurnished accommodation, or had you no preference ?

Furnished	1	→ (P)
Unfurnished	2	→ (P)
No Preference	3	→ (P)

(P) Did you visit any potential properties ?

Yes	1	→ (Q)
No	2	→ (S)

(Q) Approximately how many did you visit ?

One	1	→ (S)
Two	2	→ (S)
Three	3	→ (S)
Four	4	→ (S)
Five	5	→ (S)
More than five	6	→ (R)
Unable to say	77	→ (S)

(R) Can you be more precise ?

|_|_| → (S)

(S) Which of the reasons on this card (CARD 18) explains your decision NOT to proceed with this option ? (PROMPT - any other reasons?)

SHOW CARD 18

	Yes	No
Didn't like the types of properties available	1	2
Didn't like the condition of the properties available	1	2
Didn't like the environment of the properties available	1	2
Unsuitable location	1	2
Rents were too high	1	2
Intimidation	1	2
Security problems	1	2
Thought it was poor value for money	1	2
Cheaper to buy than to rent / decided to buy	1	2
Other reason (specify)	1	2

_____ |_|_|

_____ |_|_| → Q47 p.29

Former Private Rented Households

Q46 Did you consider any housing options other than buying ?

Yes	1	→ (A)
No	2	→ Q47 p.29

(A) Did you consider ...

(RUNNING PROMPT)

	Yes	No	
.. renting from the NIHE	1	2	→ (B)
.. renting from a housing association	1	2	→ (F)
Other (SPECIFY)	1	2	

_____

_____ |_| → Q47 p.29

Former private renter that considered Housing Executive

(B) Did you apply for a Housing Executive house / flat ?

Yes	1	→ (C)
No	2	→ (E)

(C) Were you offered accommodation by the Executive ?

Yes	1	→ (D)
No	2	→ (E)

(D) Which of the reasons on this card (CARD 15) explains your decision NOT to accept the offer ? (PROMPT - any other reasons?)

SHOW CARD 15

	Yes	No	
Didn't like the type of properties offered	1	2	---
Didn't like the condition of properties offered	1	2	
Didn't like the estate offered	1	2	Check (A) for routing, otherwise go to Q47 p.29
Unsuitable location	1	2	
Rents were too high	1	2	
Thought it was poor value for money	1	2	
Intimidation	1	2	
Security problems	1	2	
Cheaper to buy than rent /decided to buy	1	2	
Other (specify)	1	2	
_____		|_|_|	
_____		|_|_|	---

(E) Did you not proceed because you ... (PROMPT ..any other reasons ?)

(RUNNING PROMPT)

	Yes	No	
.. didn't really want to rent	1	2	---
.. decoded to buy a house	1	2	Check (A) for routing, otherwise go to Q47 p.29
.. couldn't wait until suitable vacancy came up	1	2	
.. were intimidated	1	2	
.. were concerned about security problems	1	2	
Other (specify)	1	2	
_____			
_____		|_|	---

Former private renters that considered Housing Association

(F) Did you apply for a housing association house / flat ?

Yes	1	→ (G)
No	2	→ (J)

(G) What was the name of the association ?

\|_____\| \|_\|_\| → (H)

(H) Were you offered accommodation by (NAME THE ASSOCIATION) ?

Yes	1	→ (I)
No	2	→ (J)

(I) Which of the reasons on this card (CARD 15) explains your decision NOT to accept the offer ? (PROMPT - any other reasons?)

SHOW CARD 15

	Yes	No	
Didn't like the type of properties offered	1	2	---
Didn't like the condition of properties offered	1	2	
Didn't like the estate offered	1	2	Check (A) for routing, otherwise go to Q47
Unsuitable location	1	2	
Rents were too high	1	2	
Thought it was poor value for money	1	2	
Intimidation	1	2	
Security problems	1	2	
Cheaper to buy than rent / decided to buy	1	2	
Other (specify)	1	2	
_____		|_|_|	
_____		|_|_|	---

(J) Did you not proceed because ... (PROMPT ..any other reasons ?)

(RUNNING PROMPT)

	Yes	No	
.. didn't really want to/rent	1	2	
.. decided to buy a house	1	2	
.. couldn't wait until suitable vacancy came up	1	2	
.. were intimidated	1	2	
.. were concerned about security problems	1	2	
Other (specify)	1	2	
_____			
_____		|_|	→ Q47

CONTINUING HOUSEHOLDS ONLY

Reasons for Movement

Q47 CHECK HOUSEHOLD DETAILS . THIS SECTION ONLY APPLIES IF Q3A CODED 1 **OR** Q3B EQ 1 (Page 4).

INTERVIEWER NOTE - Q47 IS ASKED DIFFERENTLY ACCORDING TO WHETHER OR NOT THE HOUSEHOLD IS A SINGLE ADULT HOUSEHOLD OR A COUPLE HOUSEHOLD.

Continuing Single (CHECK 3 (A) = 1)	1	→ (A)
Continuing Couple (CHECK 3 (B) = 1)	2	→ (B)

(A) Please look at this list of possible reasons for moving home and tell me which prompted you to move from your last home. (RANDOMIZE CARDS AND GIVE TO RESPONDENT)

For your convenience, the reasons are grouped into a series of categories. You don't have to pick one or any from each group. Please just say which were relevant to you. If the factor was relevant, simply tell me its number from the card.

(B) I want to separately ask each partner (2) about your reasons for moving home.

1 - Please look at this list of possible reasons for moving home and tell me which prompted you to move from your last home. RANDOMIZE CARDS AND GIVE TO FIRST RESPONDENT (#1)

For your convenience, the reasons are grouped into a series of categories. You don't have to pick one or any from each group. Please just say which were personally relevant to you. If the factor was relevant, simply tell me its number from the card.

(RECORD ALL THAT APPLY - PROBE FOR OTHER FACTORS)

SHUFFLE CARDS		Code	Reason	HoH Yes	HoH No	Partner Yes	Partner No
I	Financial	01	Wanted to own rather than rent a home	1	2	1	2
		02	Wanted the financial / investment benefits of owning	1	2	1	2
		03	To move to a cheaper house / area	1	2	1	2
		04	Buying was cheaper than renting	1	2	1	2
		05	Felt that you could afford better accommodation	1	2	1	2
II	Personal	06	Intending / just got married	1	2	1	2
		07	Impending / recent change in family size	1	2	1	2
		08	Getting too old for previous house	1	2	1	2
		09	Getting to ill for previous house	1	2	1	2
		10	To be nearer to friends or relatives	1	2	1	2
		11	HOH or partner lost / gave up job	1	2	1	2
		12	HOH or partner retired	1	2	1	2
		13	HOH or partner died	1	2	1	2
		14	Marital / family break up	1	2	1	2
		15	Other personal reason	1	2	1	2
III	Work	16	To be nearer to HOH's workplace	1	2	1	2
		17	To be nearer to partner's workplace	1	2	1	2
		18	HOH changed job	1	2	1	2
		19	Partner changed job	1	2	1	2
		20	Other work related reasons	1	2	1	2
IV	Accommodation Size	21	Previous home was too small for your needs	1	2	1	2
		22	Previous home was too large for your needs	1	2	1	2
		23	Previous home had too few bedrooms	1	2	1	2
		24	Previous home had too many bedrooms	1	2	1	2
		25	Previous bedrooms were too small	1	2	1	2
		26	Previous bedrooms were too large	1	2	1	2
		27	Previous home had too few reception rooms	1	2	1	2
		28	Previous home had too many reception rooms	1	2	1	2
V	Accommodation Form	29	Didn't like arrangement of rooms in previous home	1	2	1	2
		30	Wanted a single storey dwelling	1	2	1	2
		31	Wanted a two-storey dwelling	1	2	1	2
		32	Wanted a house as opposed to a flat	1	2	1	2
		33	Wanted a flat as opposed to a house	1	2	1	2
		34	Wanted a detached house	1	2	1	2
VI	External Features	35	No garden at your previous home	1	2	1	2
		36	Garden too small at previous home	1	2	1	2
		37	Garden too large at previous home	1	2	1	2
		38	No garage at previous home	1	2	1	2
		39	Garage at previous home too small	1	2	1	2
		40	Couldn't park park car(s) off the street at previous home	1	2	1	2
VII	Accommodation General	41	Wanted a new (ie brand new) house	1	2	1	2
		42	Wanted a newer house	1	2	1	2
		43	Wanted an old house / a house of character	1	2	1	2
		44	Needed a dwelling with extra bathroom facilities	1	2	1	2
		45	Present accommodation no longer available	1	2	1	2
		46	Other accommodation related reason	1	2	1	2
VIII	Location	47	Didn't like the previous area	1	2	1	2
		48	Previous area had "gone downhill"	1	2	1	2
		49	Wanted a more mature location	1	2	1	2
		50	Intimidation / security reasons	1	2	1	2
		51	Neighbour problems	1	2	1	2

	52	Wanted to be nearer to children's school	1	2	1	2	
	53	Wanted to be nearer to amenities (shops, leisure etc)	1	2	1	2	
	54	Other locational reason	1	2	1	2	
Other	55	Other:_____	1	2	1	2	
	56	Other:_____	1	2	1	2	→ (C)

(C) You give me (SAY NUMBER) number of reasons. These were .. (READ OUT)
Which would you say were the three most important in order of importance?

(Code 77 if unable to say)
(Code 66 if all important)

HoH	1st	__|	
	2nd	__|	
	3rd	__|	→ Ask partner if applicable, otherwise ask (D)
Partner	1st	__|	
	2nd	__|	
	3rd	__|	→ (D)

(D) INTERVIEWER NOTE - CODE SUMMARY RESPONSE TO Q47:

	HoH	Part	
Data Collected	1	1	
Don't Know	7	7	
Refused	8	8	
Unobtainable	9	9	→ Section F

SECTION F - HOUSING SEARCH AND CHOICE BEHAVIOUR

In this section of the interview I want to ask you about you search and choice behaviour. In particular, I want to explore how you set out on your search, what information sources you used, how you selected dwellings for viewing and how you eventually picked this particular house.

I want to ask about how long the whole process of search took, but I am also interested in the time taken at each stage. To help you to remember you might find it helpful to try and think about what stage you were at in your search at important events in your home or work life, for example, your own birthday, your children's birthdays, holidays, Christmas time, etc.

Q48 How long did it take you to find your present home, i.e. the time from when you had definitely decided that you wanted to move from your previous home to the time that you had your offer accepted ?

(PROMPT - Think about what other things you were doing at the time. It may help to fix the timings in your mind. Take your time. Think out loud if it will help) (Code 77 if unable to say)

(WRITE IN ANY DETAILS GIVEN)

Months	__|	
Weeks	__|	→ (A)

(A) ... and how long to negotiate sale i.e. offer accepted to signing contract ?

Months	__|	
Weeks	__|	→ (B)

(B) ... and how long from signing contract to moving in ?

Months	__|	
Weeks	__|	→ (C)

(C) CHECK. Let me see. Overall, it took (CALCULATE AND READ OUT TIME) from time you decided to move to the time that you moved into your new home. Is this about right ?

Yes ..... 1 → Q49
No (CORRECT ERRORS) ..... 2 → Q48

Q49 Did you have a price range in mind at the start of your search ?

Yes ..... 1 → (A)
No ..... 2 → (C)

(A) What price range had you in mind ?

Minimum (RIGHT JUSTIFY) |_|_|_|_|_|_|_|
Maximum (RIGHT JUSTIFY) |_|_|_|_|_|_|_| →(B)

(B) I want to know how fixed you were in terms of this price range. Would you say that you were ....(RUNNING PROMPT)

.. absolutely firm, you were unable to consider dwellings outside this range 1
.. reasonably firm, to get the right property you might look outside the range 2
.. fairly flexible, from the beginning you were prepared to buy outside this range 3
or, were you very flexible, range was simply a rough guide 4
Don't Know ..... 7 → (C)

(C) How important or unimportant was price in your search ? Would you say it was....

(RUNNING PROMPT)
.. very important 1
.. quite important 2
.. neither important nor unimportant 3
.. quite unimportant 4
.. or, very unimportant 5
Don't Know ..... 7 → NOTE

NOTE. ASK Q50 (ALL COMPONENTS) FOR BOTH PARTNERS (IF APPLIC). BEGIN WITH HOH.

FOR TWO PARTNER HOUSEHOLDS - READ OUT (A)

(A) I want to ask some questions to each of you in turn. This is to help us understand how decisions are made when partners may differ in their views on their housing preferences. Please answer as fully as possible.

Q50 Thinking back to when you first decided to move house and began to look around for a new house, would you say that you...

(RUNNING PROMPT)		HoH	Part	
	... had no particular area in mind	1	1	→ (C)
	... had several possible areas in mind	2	2	→ (A)
	...or, you had only one particular area in mind	3	3	→ (A)

(A) Please look at this card. I want to ask you about the areas that you had in mind when you first began to look for a new home. **(SHOW CARD 19)**

You will notice that the list is divided into two sections: the first for those areas outside of the city limits, and the second for Belfast itself. Just tell me the number of the area or areas that you had initially thought that you might have be interested in, irrespective of whether you searched in them or not.

OUTSIDE BELFAST CITY BOUNDARY DISTRICT	Neighbourhood		HoH Yes	HoH No	Partner Yes	Partner No	
Carrickfegus District	01	Greenisland	1	2	1	2	Record each area that respondent indicates. If he/she searched in Belfast, then go to (B)
Newtownabbey District	02	Ballyduff	1	2	1	2	
	03	Carnmoney	1	2	1	2	
	04	Glengormley	1	2	1	2	
	05	Jordanstown	1	2	1	2	
	06	Mossley	1	2	1	2	
	07	Whiteabbey	1	2	1	2	
	08	Whitehouse	1	2	1	2	
North Down	09	Cultra	1	2	1	2	If no search in Belfast, go to (C)
	10	Holywood	1	2	1	2	
	11	Tillysburn	1	2	1	2	
Castlereagh	12	Beechill	1	2	1	2	
	13	Cairnshill	1	2	1	2	
	14	Four Winds	1	2	1	2	
	15	Knockbreda	1	2	1	2	
Lisburn	16	Blaris (Lisburn South)	1	2	1	2	
	17	Derriaghy	1	2	1	2	
	18	Dunmurry	1	2	1	2	
	19	Glen Collin	1	2	1	2	
	20	Lagmore	1	2	1	2	
	21	Lisburn Town	1	2	1	2	
	22	Lisburn West	1	2	1	2	
	23	Springbank	1	2	1	2	
Other Areas	24	Another area(s) outside Belfast	1	2	1	2	
INSIDE BELFAST BOUNDARY							
Belfast	25	North Belfast	1	2	1	2	→ (B)
	26	East Belfast	1	2	1	2	→ (B)
	27	South Belfast	1	2	1	2	→ (B)
	28	West Belfast	1	2	1	2	→ (B)

(B) You told me that you had considered (READ North/East/South/West) Belfast. I now want to ask you about these areas in a little more detail. Please look at this map and tell me which of the areas you had considered. If you can, tell me the areas in order of your initial preference starting with your most preferred area.

Community District Codes		HoH	Partner	
	Most Preferred	___	___	
	2nd Most Preferred	___	___	
RIGHT JUSTIFY	3rd Most Preferred	___	___	
	4th Most Preferred	___	___	
	5th Most Preferred	___	___	
	6th Most Preferred	___	___	
	7h Most Preferred	___	___	
	8th Most Preferred	___	___	→ (C)

Note: If more than 8 areas write in the codes for the extra

HoH _____

Part _____

(C) When you were looking for a new home, which of the following statements best described your view ?

		HoH	Partner	
	It was more important to get the right area -			
SHOW	you could be flexible on the details of the house	1	1	→ (D)
CARD	It was more important to get the details of the house right -			
20	you could be flexible on the area in which to live	2	2	→ (D)
	The details of the house and the area were equally important	3	3	→ (D)

(D) Look at the statements on this card. Which statement best describes how the religious composition of the area influenced your search activity ?

		HoH	Partner	
	Only searched in areas where most people were the same religion as yourself	1	1	→ (E)
SHOW	Mainly searched in areas where most people were			
CARD	the same religion as yourself	2	2	→ (E)
21	Only searched in areas where there was a mix of religions	3	3	→ (E)
	Mainly searched in areas where there was a mix of religions	4	4	→ (E)
	No effect	5	5	→ (F)
	Unable to say	7	7	→ (F)

(E) Which of these factors explains how you knew the religious composition of the area(s) ?

		HoH		Partner	
		Yes	No	Yes	No
	Live in / used to live in the area(s)	1	2	1	2
	Nature of the graffiti / murals / slogans	1	2	1	2
SHOW	Know people who live in the area(s)	1	2	1	2
CARD	Press coverage of the area(s)	1	2	1	2
22	Nature of schools or other institutions	1	2	1	2
	Street signs in Irish or other visual cues	1	2	1	2
	Common knowledge	1	2	1	2
	Some other factor (Specify)	1	2	1	2
	_____	|_|_|		|_|_|	
	_____	|_|_|		|_|_|	

→ (F)

(F) At the outset of your search, how important was...
(RUNNING PROMPT - SHOW CARD 23)

		HoH			Partner		
		Very Imp	Quite Imp	Not Imp	Very Imp	Quite Imp	Not Imp
	Location Factors						
SHOW	Convenience to shopping facilities	1	2	3	1	2	3
CARD	Convenience to friends / relatives	1	2	3	1	2	3
23	Convenience to doctors, dentists etc	1	2	3	1	2	3
	Convenience to HOH's place of work	1	2	3	1	2	3
	Convenience to partner's place of work	1	2	3	1	2	3
	Convenience to city centre	1	2	3	1	2	3
	Convenience to public transport	1	2	3	1	2	3
	Convenience to leisure facilities	1	2	3	1	2	3
	Convenience to primary schools	1	2	3	1	2	3
	Convenience to secondary schools	1	2	3	1	2	3
	Neighbourhood Factors						
	Security from burglary	1	2	3	1	2	3
	Security for your car(s)	1	2	3	1	2	3
	Personal safety	1	2	3	1	2	3
	Tidy appearance of neighbourhood	1	2	3	1	2	3
	Privacy	1	2	3	1	2	3
	Environmental Quality / Maturity	1	2	3	1	2	3
	Social composition of neighbourhood	1	2	3	1	2	3
	Religious composition of neighbourhood	1	2	3	1	2	3

Dwelling Factors

The number of bedrooms	1	2	3	1	2	3	
The number of reception rooms	1	2	3	1	2	3	
The internal condition of the dwelling	1	2	3	1	2	3	
The external condition of the dwelling	1	2	3	1	2	3	
The layout of the rooms	1	2	3	1	2	3	
Needed a garage / bigger garage	1	2	3	1	2	3	
Being able to park cars off the road/street	1	2	3	1	2	3	
Mature garden	1	2	3	1	2	3	
House of character / style	1	2	3	1	2	3	
Brand new house	1	2	3	1	2	3	
DIY potential	1	2	3	1	2	3	→ (G)

(G) When you first started to search, would you say that you... (RUNNING PROMPT)

	HoH	Partner	
.. knew exactly what you wanted	1	1	→ (H)
.. had well developed idea of what you wanted	2	2	→ (H)
.. had some ideas but nothing definite	3	3	→ (H)
.. or, had no real ideas	4	3	→ Q51

(H) Did you have a particular type of dwelling in mind when you started your search ? (PROBE)

Detached house (2 storey +)	1	1
Semi-detached house (2 storey +)	2	2
Terraced house (2 storey +)	3	3
Chalet type	4	4
Detached bungalow	5	5
Semi-detached bungalow	6	6
Terraced bungalow	7	7
Flat or apartment	8	8
No preference (if more than one rank codes below)	9	9

HoH |_|_|_|_|_| → (I)

(RIGHT JUSTIFY) Partner |_|_|_|_|_| → (I)

(I) Did you have a particular age of dwelling in mind when you started your search ? (PROBE)

Before 1919	(Say, more than 75 years old)	1	1
1919 - 1944	(Say, 50 - 75 years old)	2	2
1945 - 1964	(Say, 25 - 50 years old)	3	3
1965 - 1980	(Say, 12 - 25 years old)	4	4
After 1980	(Say, up to 12 years old)	5	5
Brand new dwelling		6	6
No Preference (if more than one rank codes)		7	7

HoH |_|_|_|_|_|_|_| → (J)

(RIGHT JUSTIFY) Partner |_|_|_|_|_|_|_| → (J)

(J) What size of house did you have in mind ?

Bedrooms

One	1	1
Two	2	2
Three	3	3
Four or more	4	4
No preference (more than one preference rank codes)	7	

HoH |_|_|_|_|_|

(RIGHT JUSTIFY) Partner |_|_|_|_|_|

Reception Rooms

	HoH	Partner	
One	1	1	
Two	2	2	
Three	3	3	
Four	4	4	
Five or more	5	5	
No preference (more than one preference rank codes)	7		
	HoH	|_|_|_|_|_|	→ Q51
(RIGHT JUSTIFY)	Partner	|_|_|_|_|_|	→ Q51

FOR TWO PARTNER HOUSEHOLDS, ASK EACH IN TURN. FOR ONE, ASK HOH ONLY

Q51 Did your initial aspirations change in any way in the course of your search activity ?

	HoH	Partner	
Yes	1	1	→ (A)
No	2	2	→ (B)

(A) In what way(s) did your aspirations change ? (RECORD VERBATIM: PROBE FOR 3)

HoH

_____ \|_\|_\|
_____ \|_\|_\|
_____ \|_\|_\|
_____ \|_\|_\|
_____ \|_\|_\|
_____ \|_\|_\| → (B)

Partner

_____ \|_\|_\|
_____ \|_\|_\|
_____ \|_\|_\|
_____ \|_\|_\|
_____ \|_\|_\|
_____ \|_\|_\| → (B)

(B) In summary, how well or poorly defined would you say that your initial aspirations were ? Would you say that they were... (RUNNING PROBE)

	HoH	Partner	
.. very well defined	1	1	
.. quite well defined	2	2	
.. neither well nor poorly defined	3	3	
.. quite poorly defined	4	4	
.. or, very poorly defined	5	5	
			→ (C)

(C) Overall, would you say that your current home matched up against your initial aspirations....(RUNNING PROMPT)

.. better than you had expected	1	1	
.. about as well as you had expected	2	2	
.. or, worse than you had expected	3	3	→ Q52

FOR TWO PARTNER HOUSEHOLDS, ASK EACH IN TURN. FOR ONE, ASK HOH ONLY

Q52 I want to ask about the information sources used in your search for a new home. I will read you out a list of possible sources. Please tell me if you used any of the sources that I read out. (TWO PARTNER HHOLDS SAY- I'll start with the Head of Household if I may...)

Did you use (READ EACH IN TURN) ?

		HoH Yes	HoH No	Partner Yes	Partner No	Route if HoH or Part used source
01	Newspaper advertisements	1	2	1	2	→ Q53
02	Property magazines	1	2	1	2	→ Q54
03	Estate agents	1	2	1	2	→ Q55
04	Driving around (specifically to search)	1	2	1	2	→ Q56
05	Viewing show houses	1	2	1	2	→ Q57
06	Relatives	1	2	1	2	→ Q58
07	Friends	1	2	1	2	→ Q58
08	Colleagues at work	1	2	1	2	→ Q58
09	Personal inspection	1	2	1	2	→ Q59
10	Bank / Building Society	1	2	1	2	→ Q60
11	Spotted "For Sale" signs on journey to work	1	2	1	2	→ Q61
12	Spotted "For Sale" signs on other trips	1	2	1	2	→ Q61
13	Previous knowledge	1	2	1	2	→ Q61
14	Other sources (Specify)	1	2	1	2	→ Q61
HoH	_____	|_|_|		|_|_|		
Partner	_____	|_|_|		|_|_|		→ Q61

↓

If Partner, Repeat above questions
else follow routing indicated for HoH only

Newspapers

Q53 Which of the newspapers on this card (GIVE CARD) did your household use in the course of your search ?

SHOW CARD 24

	Yes	No	
Belfast Telegraph	1	2	
Newsletter	1	2	
Irish News	1	2	
Ulster Star (Lisburn)	1	2	
Ulster Star (Castlereagh)	1	2	
Herald and Post (N. Belfast / Newtownabbey)	1	2	
Herald and Post (S. Belfast / N. Down)	1	2	
Shankill People	1	2	
Anderstownstown News	1	2	
Newtownabbey / East Antrim Times	1	2	
Holywood Advertiser	1	2	
Carrickfergus Advertiser	1	2	
County Down Spectator	1	2	
Other newspapers (Specify)	1	2	
_____			|_|_|
_____			|_|_| → (A)

(A) Was / were these the newspapers that your household normally read or did you buy them specifically for the property advertisements ? (PROBE ACCORDINGLY)

Newspapers that normally read	1
Bought specifically for property advertisements	2
Used both your normal paper(s) and bought extra	3
Unable to say	7 → (B)

(B) Using the descriptions on this card (CARD 25), how helpful or unhelpful did your household find the information that you obtained from newspapers ?

SHOW CARD 25

Very helpful	1
Quite helpful	2
Neither helpful nor unhelpful	3
Quite unhelpful	4
Very unhelpful	5
Unable to say	7

→ Q52 for routing

Property Magazines

Q54 Which of the property magazines shown on this card (SHOW CARD) did you use ?

SHOW CARD 26

	Yes	No
Halifax Property Services	1	2
McQuitty Ross	1	2
Property News	1	2
Ulster Property Sales	1	2
Some other magazine (Specify)	1	2
_____	|_|_|	
_____	|_|_|	→ (A)

(A) Using the descriptions on this card (CARD 25), how helpful or unhelpful did your household find the information that you obtained from property magazines ?

SHOW CARD 25

Very helpful	1
Quite helpful	2
Neither helpful nor unhelpful	3
Quite unhelpful	4
Very unhelpful	5
Unable to say	7

→ Q52 for routing

Estate Agents

Q55 Which estate agents' listings did your household browse? That is, which estate agency offices did you visit ? (PROBE FOR UP TO 10)

	Agent Name & Address	
01	_____	|_|_|
02	_____	|_|_|
03	_____	|_|_|
04	_____	|_|_|
05	_____	|_|_|
06	_____	|_|_|
07	_____	|_|_|
08	_____	|_|_|
09	_____	|_|_|
10	_____	|_|_| → (A)

(A) Did you concentrate your search on the properties of any particular agent(s) ?

Yes	1 → (B)
No	2 → (C)

(B) Which agent(s) ? (ENTER CODES - MAXIMUM 3 - IN ORDER OF IMPORTANCE)

Most important	|_|_|	
Second most important	|_|_|	
Third most important	|_|_|	→ (C)

(C) How often did someone from your household visit estate agents' offices during your search ?

SHOW CARD 27

Every day	1	
Several times a week	2	
Once a week	3	
Several times each month	4	
Once each month	5	
Less than once a month	6	
Unable to say	7	→ (D)

(D) Were you on an agents' mailing list ?

Yes	1	
No	2	→ (E)

(E) When you visited properties, were you ...

(RUNNING PROMPT)

.. generally accompanied by agent	1	→ (F)
.. sometimes accompanied by an agent	2	→ (F)
.. never accompanied by an agent	3	→ (H)

(F) In general, how helpful was it to be accompanied by an agent ?

SHOW CARD 27

Very helpful	1	→ (H)
Quite helpful	2	→ (H)
Neither helpful nor unhelpful	3	→ (H)
Quite unhelpful	4	→ (G)
Very unhelpful	5	→ (G)
Unable to say	7	→ (H)

(G) In what way was it unhelpful ? Did you ... ? (RUNNING PROMPT)

	Yes	No	
.. feel ill at ease / intimidated by agent's presence	1	2	
.. feel that the agent was pushing you to buy	1	2	
.. feel that the agent wasn't interested in selling to you	1	2	
.. feel that agent tried to steer you away from aspects of the house	1	2	
.. feel something else (Please specify)	1	2	
_____		|_|_|	
_____		|_|_|	→ (H)

(H) Did the agent(s) give advice on any of the following ? (READ OUT EACH IN TURN)

	Yes	No	
Those parts of the BUA that had properties within your PRICE range	1	2	
Those parts of the BUA that should be a good INVESTMENT	1	2	
Those parts of the BUA that had particular TYPES of properties	1	2	
The religious composition of particular neighbourhoods or areas	1	2	any code 1 go
The amenities (i.e. social and recreation facilities) of particular areas	1	2	to (I) else (J)
Repairs, maintenance or improvement on individual dwellings	1	2	
Obtaining a mortgage to buy particular dwellings	1	2	
	↓	↓	
	I	J	

(I) What influence would you say that the agent(s) had on directing your search to particular part of the Belfast Urban Area ?

SHOW CARD 28

A very significant influence	1	→ (J)
A fairly big influence	2	→ (J)
Some influence	3	→ (J)
Very little influence	4	→ (J)
No influence at all	5	→ (K)

(J) As a result of taking the advice of the agent(s), would you say that you searched in fewer areas or more areas than you might otherwise had done ?

Searched fewer areas (more focused)	1	
Searched more areas (less focused)	2	
Unable to say	7	→ (K)

(K) Using the descriptions on this card (CARD 25), how helpful or unhelpful did your household find the information that you obtained from estate agents ?

SHOW CARD 25

Very helpful	1	
Quite helpful	2	
Neither helpful nor unhelpful	3	
Quite unhelpful	4	
Very unhelpful	5	→ Q52 for routing
Unable to say	7	

Driving Around

Q56 Please look at this card (SHOW CARD 29) and tell me which of statements best describes your driving around activities in the course of your search.

SHOW CARD 29

Mostly on week-day evenings	1	
Mostly day-time during the week	2	
Mostly on a Saturday morning	3	
Mostly on a Saturday afternoon	4	
Mostly on a Saturday (no morning / afternoon pattern)	5	
Mostly on a Sunday morning	6	
Mostly on a Sunday afternoon	7	
Mostly on a Sunday (no morning / afternoon pattern)	8	
No real pattern (unable to say)	9	
More than one time (write in codes) (RIGHT JUSTIFY)	|_|_|_|_|_|	→ (A)

(A) When you were out driving around who would normally have been in the car ? (PROBE)

HOH only	1	
Partner only	2	
HOH and partner	3	
Whole family	4	
No real pattern	5	
Don't Know	7	→ (B)

(B) I am interested in finding out how you decided which areas to drive around. I will read you a list of possible reasons for picking particular areas. For each reason that I read out please tell me if it was relevant to you.

You went to areas that...(READ OUT EACH IN TURN)

		Yes	No	
1	you previously knew had properties of sort you were interested in	1	2	
2	were suggested by estate agents / other professional advisors	1	2	
3	contained properties you had seen advertised in newspapers	1	2	
4	contained properties you had seen in property magazines	1	2	
5	contained properties that you had details of from agents lists	1	2	
6	were suggested by friends / colleagues	1	2	
7	where you had only vague notions of sort of properties available	1	2	
8	were largely unknown to you	1	2	→ (C)

(C) Would you say that your driving around during search was ... (RUNNING PROMPT) ?

.. never combined with trips to view a specific property	1
.. sometimes combined with trips to view a specific property	2
.. usually combined with trips to view a specific property	3
.. or, always combined with trips to view a specific property	4
Don't Know	7 → (D)

(D) Whilst diving around, did you ever stop to view a property on impulse ?

Yes	1
No	2 → (E)

(E) Using the descriptions on this card (CARD 25), how helpful or unhelpful did your household find the information that you obtained from driving around ?

SHOW CARD 25

Very helpful	1
Quite helpful	2
Neither helpful nor unhelpful	3
Quite unhelpful	4
Very unhelpful	5
Unable to say	7

→ Q52 for routing

Viewing Show Houses

Q57 What was the main reason for viewing show houses ?

SHOW CARD 30

Specifically wanted to buy house from particular scheme	1
Specifically wanted a house from that developer	2
Specifically wanted to buy a new house and searched accordingly	3
Thought might want a new house and show houses were part of wider search	4
No real preferences for new or existing house but wanted to keep your options open	5
Don't Know	7 → (A)

(A) What did you learn most from visiting show houses ? Visiting show houses .. (RUNNING)

		Yes	No	
1	helped you to decide that you wanted a new house	1	2	
2	helped you to decide that you did not want a new house	1	2	
3	helped you to decide what features you wanted in a house	1	2	
4	helped you to decide what features you didn't want in a house	1	2	
5	gave you information on other new housing sites	1	2	
6	gave you information on the sort of people who buy such houses	1	2	
7	gave you ideas on decoration	1	2	
8	gave you ideas on the garden	1	2	
9	gave you some other information (Please specify)	1	2	
	_____			|_|_|
	_____			|_|_| → (B)

(B) Approximately how many show houses did you visit ?

One	1	
Two	2	
Three	3	
Four	4	
Five or more (specify) |_|_|		
Don't Know	7	→ (C)

(C) How did you find out about the show houses that you visited ? (PROBE LIST))

	Yes	No	
Newspaper advertisement			
Property magazine	1	2	
Estate agent	1	2	
Driving around (specific to search)	1	2	
Friends / colleagues	1	2	
Spotted on other journeys	1	2	
Other sources (Specify)	1	2	
_____ |_|_|			
_____ |_|_|			→ (D)

(D) Using the descriptions on this card (CARD 25), how helpful or unhelpful did your household find the information that you obtained from visiting show houses ?

SHOW CARD 25

Very helpful	1	
Quite helpful	2	
Neither helpful nor unhelpful	3	
Quite unhelpful	4	
Very unhelpful	5	→ Q52 for routing
Unable to say	7	

Relatives, Friends or Colleagues

Q58 In general, did you actively seek advice or information from relatives, friends or colleagues or did they approach you ? (PROBE LIST)

Actively approached relatives / friends / colleagues for advice or information	1	→ (A)
Relatives / friends / colleagues tended to approach you with advice or information	2	→ (C)
Both of these things	3	→ (A - D)
Don't Know	7	→ (E)

(A) Did you actively seek advice or information on.. (READ OUT EACH - PROBE OTHER)

Area		Yes	No
01	Advice / information on the areas in which they lived	1	2
02	Advice / information on areas they had considered when they moved	1	2
03	Advice on areas that you should NOT consider	1	2
04	General advice on the areas that they had considered when they moved	1	2
05	The religious composition of particular neighbourhoods or areas	1	2
06	Other area-based advice (Specify)	1	2
	_____ |_|_|		
	Dwellings		
07	Whether particular area / dwelling would be a good investment	1	2
08	Advice / information on particular dwellings that you were considering	1	2
09	Advice / information on home improvement / repairs / maintenance	1	2
10	Information on dwellings that they knew were for sale	1	2
11	Other dwelling-related advice (Specify)	1	2
	_____ |_|_|		

General

12	Advice / information on agents that they had used	1	2
13	Advice / information on mortgage / financing the purchase	1	2
14	General advice on their buying experiences	1	2
15	Advice / information on the transaction costs (eg legal, land registry etc)	1	2
16	Other general advice (Specify)	1	2

_____ |_|_| → (B)

(B) Which proved the most useful ? (ENTER MAX 3 CODES IN ORDER OF IMPORTANCE)

Most useful |_|_|
Second most useful |_|_| → Q58 for routing
Third most useful |_|_|

(C) Did your relatives, friends or colleagues approach you with advice or information on.. (READ)

Area		Yes	No
01	Advice / information on the areas in which they lived	1	2
02	Advice / information on areas that had considered when they moved	1	2
03	Advice on areas that you should NOT consider	1	2
04	General advice on the areas that they considered when they moved	1	2
05	The religious composition of particular neighbourhoods or areas	1	2
06	Other area-based advice (Specify)	1	2

_____ |_|_|

Dwellings

07	Whether particular area / dwelling would be a good investment	1	2
08	Advice / information on particular dwellings that you were considering	1	2
09	Advice / information on home improvement / repairs / maintenance	1	2
10	Information on dwellings that they knew were for sale	1	2
11	Other dwelling-related advice (Specify)	1	2

_____ |_|_|

General

12	Advice / information on agents that they had used	1	2
13	Advice / information on mortgage / financing the purchase	1	2
14	General advice on their buying experiences	1	2
15	Advice / information on the transaction costs (eg legal, land registry etc)	1	2
16	Other general advice (Specify)	1	2

_____ |_|_| → (D)

(D) Which proved the most useful ? (ENTER MAX 3 CODES IN ORDER OF IMPORTANCE)

Most useful |_|_|
Second most useful |_|_|
Third most useful |_|_| → (E)

(E) Using the descriptions on this card (CARD 25), how helpful or unhelpful did your household find the information that you obtained from relatives/ friends / colleagues ?

SHOW CARD 25

Very helpful 1
Quite helpful 2
Neither helpful nor unhelpful 3
Quite unhelpful 4
Very unhelpful ..... 5 → Q52 for routing
Unable to say 8

Personal Inspection

Q59 How many dwellings did you view ...

Externally only ..... |_|_| if unable to say
Externally and internally ..... |_|_| go to (A) else (B)

(A) Can you give me a rough estimate of the number of properties viewed internally or externally ?

One 1
Between two and five 2
Between six and ten 3
Between eleven and twenty 4
More than twenty 5
Unable to say ..... 8 → (B)

(B) Thinking about the dwelling that you bought, how did you find out that it was for sale ?

(PROBE LIST)

Advertised in newspaper 1
Advertised in property magazine 2
Advertised in estate agents list 3
Saw whilst driving around (Specifically to search) 4
Heard from friends / colleagues 5
Other source (Specify) 6
_____ |_|_| → (C)

(C) Was this how you normally discovered about dwellings that you visited ?

Yes ..... 1 → (E)
No ..... 2 → (D)

(D) What was the normal method ?

Advertised in newspaper 1
Advertised in property magazine 2
Advertised in estate agents list 3
Saw whilst driving around (Specifically to search) 4
Heard from friends / colleagues 5
Other source (Specify) 6
_____ |_|_|
No normal method / various sources ..... 7 → (E)

(E) I want you to think back to the time when you were searching for a new home. I am interested in finding out how you decided to view some properties and not others. Which of the factors on this card (SHOW CARD 31) would you say helped you decide NOT to view a property that you identified as a potential purchase ?

		Factor	Yes	No
SHOW CARD 31	1	Property was outside your price range	1	2
	2	Property was in wrong location vis-a-vis work, amenities etc	1	2
	3	Religious composition of area unsuitable	1	2
	4	Property seemed poor value for money	1	2
	5	Property required too much work	1	2
	6	Didn't like look / sound of the property	1	2
	7	Property didn't meet your basic requirements	1	2
	8	Other factor(s) (Specify)	1	2

_____ |_|_|
_____ |_|_| → (F)

(F) When viewing a property, did you usually make only one visit or did did you usually make more than one visit before deciding how you felt ? (PROBE FOR DETAILS)

Normally made one visit only	1	
Normally made one or two visits	2	
Normally made more than two visits	3	
Unable to say	8	→ (G)

(G) When viewing properties, did you have any problems with the owners ?

Yes	1	→ (H)
No	2	→ (I)

(H) What sort of problems ? (RECORD VERBATIM)

_____	|_|_|	
_____	|_|_|	
_____	|_|_|	
_____	|_|_|	
_____	|_|_|	
_____	|_|_|	→ (I)

(I) Using the descriptions on this card (CARD 25), how helpful or unhelpful did your household find the information that you obtained from personal inspection?

SHOW CARD 25

Very helpful	1	
Quite helpful	2	
Neither helpful nor unhelpful	3	
Quite unhelpful	4	
Very unhelpful	5	
Unable to say	8	→ Q52 for routing

Banks / Building Societies

Q60 What sort of information / advice did you get from banks / building societies ? Did you get information / advice on .... (RUNNING PROMPT) ?

		Yes	No
General			
1	General advice on picking a new home	1	2
2	Guidance on the transaction costs (survey fees, removal etc)	1	2
3	Advice on the range of mortgage options available	1	2
4	Advice on insurance etc	1	2
Specific			
5	Advice on how much you could borrow	1	2
6	Valuation information on specific properties	1	2
7	Structural survey information on specific properties	1	2
8	Indications that loans would not be available for certain areas	1	2
9	Information on properties for sale (eg repossessions)	1	2
10	Other advice or information (Specify)	1	2

_____ |_|_|

_____ |_|_|

_____ |_|_| → (A)

(A) How many banks / building societies did you obtain advice or information from ?

One	1	
Two	2	
Three	3	
Four	4	
Five or more (specify)	|_|_|	
Unable to say	77	→ (B)

(B) Did you obtain this information / advice from any of the sources ?

	Yes	No	
Leaflets	1	2	
Special promotional packs for buyers	1	2	
A meeting(s) with officers of bank / society(eg mortgage advisor)	1	2	→ (C)

(C) Using the descriptions on this card (CARD 25), how helpful or unhelpful did your household find the information that you obtained from banks / building societies ?

SHOW CARD 25

Very helpful	1	
Quite helpful	2	
Neither helpful nor unhelpful	3	
Quite unhelpful	4	
Very unhelpful	5	
Unable to say	8	→ Q61

Q61 I now want to ask you about what sources were used for what purposes in your search activity. First, I need to review what you have already told me (CHECK Q52, p.37). Let me see, your household used the following sources of information (READ OUT AND CIRCLE TICKS IF SOURCE USED).

Please look at this card. It describes a number of different purposes that information sources may fulfil. For each source that you used I want to ask if you used it to...

SHOW CARD 32

1 ... to provide general market knowledge
2 ... to select areas for possible search
3 ... to provide detailed information particular areas
4 ... to select dwellings for on-site viewing
5 ... to provide detailed information on particular dwellings
6 ... to keep up-to-date DURING search

NOTE: CIRCLE TICKS WHERE SOURCE WAS USED (Check Q52) **Code all that apply**

What did you mainly use (NAME SOURCE) for.... (REPEAT FOR EACH SOURCE USED)

	Q52	No.	Source	Main Purpose of Source 1	2	3	4	5	6	
	✓	01	Newspaper advertisements	Y	Y	Y	Y	Y	Y	
Circle if used (Q52)	✓	02	Property magazines	Y	Y	Y	Y	Y	Y	
	✓	03	Estate agents	Y	Y	Y	Y	Y	Y	
	✓	04	Driving around (specifically to search)	Y	Y	Y	Y	Y	Y	
	✓	05	Viewing show houses	Y	Y	Y	Y	Y	Y	
	✓	06	Relatives	Y	Y	Y	Y	Y	Y	
	✓	07	Friends	Y	Y	Y	Y	Y	Y	
	✓	08	Colleagues at work	Y	Y	Y	Y	Y	Y	
	✓	09	Personal inspection	Y	Y	Y	Y	Y	Y	
	✓	10	Banks / Building societies	Y	Y	Y	Y	Y	Y	
	✓	11	Spotted "For Sale" signs on journey to work	Y	Y	Y	Y	Y	Y	
	✓	12	Spotted "For Sale" signs on other trips	Y	Y	Y	Y	Y	Y	
	✓	13	Previous knowledge	Y	Y	Y	Y	Y	Y	
	✓	14	Other sources	Y	Y	Y	Y	Y	Y	→ (A)

(A) Through which source did you find the dwelling that you actually bought

RECORD CODE NUMBER OF SOURCE |_|_| → (B)

(B) I now want to ask about how your use of particular information sources varied throughout your search activity. Please look at this card (SHOW CARD 34). It describes four different stages in search. For each source that you used, I'll ask you at which of these four stages the information source was mostly used. Did you use (NAME SOURCE) mainly...

SHOW CARD 33

1 ... before you began to view / inspect dwellings (background)
2 ... in the early stages of your viewing activity
3 ... throughout your active search (ie period of viewing)
4 ... at all stages in your search ?

NOTE: CIRCLE TICKS WHERE SOURCE WAS USED (Check Q61) **Code all that apply**

Q60	No.	Source	Main Stage in Search 1	2	3	4
✓	01	Newspaper advertisements	Y	Y	Y	Y
✓	02	Property magazines	Y	Y	Y	Y
✓	03	Estate agents	Y	Y	Y	Y
✓	04	Driving around (specifically to search)	Y	Y	Y	Y
✓	05	Viewing show houses	Y	Y	Y	Y
✓	06	Relatives	Y	Y	Y	Y
✓	07	Friends	Y	Y	Y	Y
✓	08	Colleagues at work	Y	Y	Y	Y
✓	09	Personal inspection	Y	Y	Y	Y
✓	10	Banks / Building societies	Y	Y	Y	Y
✓	11	Spotted "For Sale" signs on journey to work	Y	Y	Y	Y
✓	12	Spotted "For Sale" signs on other trips	Y	Y	Y	Y
✓	13	Previous knowledge	Y	Y	Y	Y
✓	14	Other sources	Y	Y	Y	Y

→ (C)

(C) Thinking about the sources that you used, can you place them in the order in which you used them ? That is, when you first decided to move what information source did you use first, what second, and so on ?

CHECK THAT RESPONDENT ONLY RANKS SOURCES USED IN SEARCH

SCORE OUT RANKS NOT APPLICABLE

1st source used	__
2nd source used	__
3rd source used	__
4th source used	__
5th source used	__
6th source used	__
7th source used	__
8th source used	__
9th source used	__
10th source used	__
11th source used	__
12th source used	__
13th source used	__
14th source used	__

→ Q62

Q62 Thinking about the various sources that you used, I want to ask for opinions on the various merits of each source (SHOW CARD 34). For each of the sources that you used, please tell me what was ...

SHOW CARD 34

1 ... the most accurate
2 ... the least accurate
3 ... the most up-to-date
4 ... the least up-to-date
5 ... the most expensive
6 ... the least expensive

NOTE: CIRCLE TICKS WHERE SOURCE WAS USED (Check Q61

Q61	No.	Source	Attributes of information 1	2	3	4	5	6	
✓	01	Newspaper advertisements	Y	Y	Y	Y	Y	Y	
✓	02	Property magazines	Y	Y	Y	Y	Y	Y	
✓	03	Estate agents	Y	Y	Y	Y	Y	Y	
✓	04	Driving around (specifically to search)	Y	Y	Y	Y	Y	Y	
✓	05	Viewing show houses	Y	Y	Y	Y	Y	Y	
✓	06	Relatives	Y	Y	Y	Y	Y	Y	
✓	07	Friends	Y	Y	Y	Y	Y	Y	
✓	08	Colleagues at work	Y	Y	Y	Y	Y	Y	
✓	09	Personal inspection	Y	Y	Y	Y	Y	Y	
✓	10	Banks / Building societies	Y	Y	Y	Y	Y	Y	
✓	11	Spotted "For Sale" signs on journey to work	Y	Y	Y	Y	Y	Y	
✓	12	Spotted "For Sale" signs on other trips	Y	Y	Y	Y	Y	Y	
✓	13	Previous knowledge	Y	Y	Y	Y	Y	Y	
✓	14	Other sources	Y	Y	Y	Y	Y	Y	→ Q63

Q63 I now want to find out what sources provided the information that you needed on those aspects of the location, neighbourhood and the dwelling itself. Let me check which attributes were important to you. (CHECK Q50Fp.34. CIRCLE TICKS IF RESPONDENT SAID FACTOR WAS QUITE / VERY IMPORTANT. GIVE RESPONDENT CARD 35 - INFORMATION SOURCES)

What information source did you use to obtain information on ... (READ EACH)

FACTORS	INFORMATION SOURCES 1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Location Factors															
✓ Convenience to shopping facilities	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Convenience to friends / relatives	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Convenience to doctors, dentists etc	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Convenience to HOH's place of work	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Convenience to partner's place of work	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Convenience to city centre	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Convenience to public transport	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Convenience to leisure facilities	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Convenience to primary schools	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Convenience to secondary schools	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Neighbourhood Factors															
✓ Security from burglary	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Security for your car(s)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Personal safety	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Tidy appearance of neighbourhood	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Privacy	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Environmental Quality / Maturity	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Social composition of neighbourhood	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Religious composition of neighbourhood	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Dwelling Factors															
✓ The number of bedrooms	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ The number of reception rooms	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ The internal condition of the dwelling	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ The external condition of the dwelling	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ The layout of the rooms	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Needed a garage / bigger garage	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Being able to park cars off the street	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Mature garden	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ House of character / style	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ Brand new house	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
✓ DIY potential	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	→ Q64

Q64 I now want to ask you a number of questions about the areas searched and the intensity of search in each area. → (A)

(A) Please look at this card. I want to ask you about the areas in which you visited or viewed houses that you were interested in **(SHOW CARD 19)**.

As before, just tell me the number of the area or areas that you had searched. Remember, I'm only interested in areas where you actually inspected dwellings.

DISTRICT	Neighbourhood		Yes	No	
Carrickfegus District	01	Greenisland	1	2	Record each area that respondent indicates. If he/she searched in Belfast, then go to (B)
Newtownabbey District	02	Ballyduff	1	2	
	03	Carnmoney	1	2	
	04	Glengormley	1	2	
	05	Jordanstown	1	2	
	06	Mossley	1	2	
	07	Whiteabbey	1	2	
	08	Whitehouse	1	2	
North Down	09	Cultra	1	2	If no search in Belfast, go to (C)
	10	Holywood	1	2	
	11	Tillysburn	1	2	
Castlereagh	12	Beechill	1	2	
	13	Cairnshill	1	2	
	14	Four Winds	1	2	
	15	Knockbreda	1	2	
Lisburn	16	Blaris (Lisburn South)	1	2	
	17	Derriaghy	1	2	
	18	Dunmurry	1	2	
	19	Glen Collin	1	2	
	20	Lagmore	1	2	
	21	Lisburn Town	1	2	
	22	Lisburn West	1	2	
	23	Springbank	1	2	
Other	24	Other area(s) outside Belfast	1	2	
Belfast	25	North Belfast	1	2	→ (B)
	26	East Belfast	1	2	→ (B)
	27	South Belfast	1	2	→ (B)
	28	West Belfast	1	2	→ (B)

(B) You told me that you had inspected dwellings in (READ North/East/South/West) Belfast. As before, I now want to ask you about the areas in a little more detail. Please look at this map and tell me in which of the areas you inspected dwellings and in which you made bids on particular dwellings.

		Inspected	Made Bids	
Community District Codes	1st choice	___	___	
	2nd choice	___	___	
RIGHT JUSTIFY	3rd choice	___	___	
	4th choice	___	___	
	5th choice	___	___	
	6th choice	___	___	→ (C)

(C) Overall, how many dwellings did you make bids on ?

One	1	
Two	2	
Three	3	
Four	4	
Five	5	
More than five (Interviewer to write in)	6	
	|_|_|	
Unable to say	7	→ (D)

(D) ... and in which one area did you concentrate your search ?

(RIGHT JUSTIFY) |_|_|_| → (E)

(E) Is this the area in which you purchased this house ?

Yes	1	→ Q65
No	2	→ (F)

(F) Why did you buy in this area as opposed to where you concentrated your search ?

Unable to find a house at right price	1	
Unable to find a house that you liked	2	
Other reason (Specify)	3	→ Q65
_____	|_|_|	

Q65 Thinking about the area(s) in which you searched, what would you say made these areas different to areas that you didn't search in ? What about..

(RUNNING PROMPT)

	Yes	No	
.. the types of dwellings	1	2	
.. the price range of the dwellings	1	2	
.. the quality of the environment	1	2	
.. the religious composition of the neighbourhood	1	2	
.. accessibility to work	1	2	
.. accessibility to other facilities	1	2	
.. accessibility to friends and relatives	1	2	
.. other factors (Specify)	1	2	→ Q66
_____		|_|_|	
_____		|_|_|	

Q66 Let me just check. You made bids in one/more than one area(s) (Check Q64B).

One area only	1	→ Q67
More than one area	2	→ (A)

(A) What factors differed between the areas where you made bids and those where you did not ?

SHOW CARD 36

	Yes	No
The types of dwellings	1	2
The price range of the dwellings	1	2
The quality of the environment	1	2
The religious composition of the neighbourhood	1	2
Accessibility to work	1	2
Accessibility to other facilities	1	2
Accessibility to friends and relatives	1	2
Other factors (Specify)	1	2

_____ |_|_|
_____ |_|_|

→ Q67

Q67 I want to ask you about your bidding activity on your present home.
First, can you tell me what the initial asking price was ?

(Right justify) £ |_|_|_|_|_|_| → (A)

(A) Did you have to make more than one bid ?

No ..... 1 → (B)
Yes (Specify) 2
|_| → (C)

(B) What was your bid ?

(Right justify) £ |_|_|_|_|_|_| → (E)

(C) What was your FIRST bid ?

(Right justify) £ |_|_|_|_|_|_| → (D)

(D) ... and what was your FINAL bid ?

(Right justify) £ |_|_|_|_|_|_| → (E)

(E) So you paid (READ BID) for the dwelling ?

Yes 1
No ..... 2 → correct error then (F)

(F) Were you in competition with other bidders ?

No 1
Yes (Specify Number) 2
|_| → CHECK X

CHECK X CHECK 64C p. 50 FOR NUMBER OF BIDS AND RECORD BELOW.

One dwelling only ..... 1 → Q69
More than one dwelling (Record Number) |_|_| ..... 2 → Q68

Q68 You told me earlier that you made bids on (NUMBER) dwellings including this dwelling. Did you place bids on more than one property at once ?

Yes ..... 1 → (A)
No ..... 2 → (B)

(A) Why did you adopt this approach ? (PROBE EACH OPTION)

	Yes	No
More than one dwelling genuinely interested in	1	2
Needed to buy quickly & thought this would help	1	2

Was bidding on one when something better came up 1 2
Other reason (Specify) 1 2

_____ |_|_|

_____ |_|_| → (B)

(B) Can you tell me the address(es) of properties on which you made bids ?
(Exclude current dwelling)

RECORD DETAILS ON MAX OF 3. IF RESPONDENT CAN REMEMBER MORE THAN 3, TAKE 3 MOST RECENT.

Number 1

House / Flat Number |_|_|_|_|
Street |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
Town |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
Postcode |_|_|_|_|_|_|_|_|
District and Ward Code *(Office Coded)* |_|_|_|_|
Community District Code *(Office Coded)* |_|_|_|
Religion Code *(Office Coded)* |_|

Asking Price (RIGHT JUSTIFY) £ |_|_|_|_|_|_|
Your last bid (RIGHT JUSTIFY) £ |_|_|_|_|_|_|

Number 2

House / Flat Number |_|_|_|_|
Street |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
Town |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
Postcode |_|_|_|_|_|_|_|_|
District and Ward Code *(Office Coded)* |_|_|_|_|
Community District Code *(Office Coded)* |_|_|_|
Religion Code *(Office Coded)* |_|

Asking Price (RIGHT JUSTIFY) £ |_|_|_|_|_|_|
Your last bid (RIGHT JUSTIFY) £ |_|_|_|_|_|_|

Number 3

House / Flat Number |_|_|_|_|
Street |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
Town |_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|_|
Postcode |_|_|_|_|_|_|_|_|
District and Ward Code *(Office Coded)* |_|_|_|_|
Community District Code *(Office Coded)* |_|_|_|
Religion Code *(Office Coded)* |_|

Asking Price (RIGHT JUSTIFY) £ |_|_|_|_|_|_|
Your last bid (RIGHT JUSTIFY) £ |_|_|_|_|_|_| → (C)

(C) Did you have a bid accepted on any of these dwellings ?

Yes	1	→ (D)
No	2	→ Q69

(D) Which dwellings ?

	Yes	No	
Number 1	1	2	if yes to
Number 2	1	2	any, go to
Number 3	1	2	(E) else Q69

(E) Why was the sale not completed for this/these dwellings ? (PROBE LIST)

	One		Two		Three	
	Y	N	Y	N	Y	N
Changed your mind	1	2	1	2	1	2
Vendor changed his/her mind	1	2	1	2	1	2
Something better came along	1	2	1	2	1	2
Vendor's purchase fell through	1	2	1	2	1	2
Unable to obtain finance	1	2	1	2	1	2
Unsatisfactory survey / report	1	2	1	2	1	2
Found something wrong with property	1	2	1	2	1	2
Someone else bettered your offer	1	2	1	2	1	2
Found religious composition not as expected	1	2	1	2	1	2
Intimidation	1	2	1	2	1	2
Some other reason (Specify)	1	2	1	2	1	2

Other - Dwelling 1 _____ |_|_|

_____

Other - Dwelling 2 _____ |_|_|

_____

Other - Dwelling 3 _____ |_|_|

_____

→ Q69

Constraints

Q69 I am interested in whether or not your household encountered any particular problems in the course of your search. I am going to ask you about a series of possible constraints. Tell me if (READ OUT) was a big problem, a bit of a problem or not a problem in your case.

	Big	Bit	Not	
Finding a home that you liked within your price range	1	2	3	→ Q70
Finding a home that you liked in the area of your choice	1	2	3	→ Q70
Finding a home that you could afford in the area of your choice	1	2	3	→ Q70
Obtaining information on the houses that were available throughout the city	1	2	3	→ Q70
Feeling that you wouldn't be safe in a particular area	1	2	3	1 or 2 → (A)
Feeling that you were being discriminated against in some way	1	2	3	1 or 2 → (B)
Having to cut short your search because of a lack of time	1	2	3	→ Q70
Having to cut short your search because of a lack of money	1	2	3	→ Q70
Deciding on which property to bid / stop your search	1	2	3	→ Q70
Deciding on how much to bid on any particular property	1	2	3	→ Q70
Deciding on which factors were really important to you and which were less so	1	2	3	→ Q70
Deciding on how much you could afford to spend as a maximum amount	1	2	3	→ Q70
Getting the time to view properties that you were interested in	1	2	3	→ Q70
Raising the funds for the deposit and other transaction charges	1	2	3	→ Q70
Being able to sell your previous home	1	2	3	→ Q70
Raising the money needed for decoration / furniture in your new home	1	2	3	→ Q70
Finding properties that you may have been interested in had already been sold	1	2	3	→ Q70
Finding that properties that you wanted to re-visit had been sold	1	2	3	→ Q70

(A) Why do you say that ?

_____ |_|_|
_____ |_|_|
_____ |_|_| → Check Q69 for routing

(B) What form did this take ? (RECORD VERBATIM)

_____ |_|_|
_____ |_|_|
_____ |_|_| → Check Q69 for routing

Q70 Compared to the second-best dwelling that you considered for purchase, was the home that you bought better or worse with regard to the following features. (CARD 37)

SHOW CARD 37

	Better	Same	Worse
Location Factors			
Convenience to shopping facilities	1	2	3
Convenience to friends / relatives	1	2	3
Convenience to doctors, dentists etc	1	2	3
Convenience to HOH's place of work	1	2	3
Convenience to partner's place of work	1	2	3
Convenience to city centre	1	2	3
Convenience to public transport	1	2	3
Convenience to leisure facilities	1	2	3
Convenience to primary schools	1	2	3
Convenience to secondary schools	1	2	3
Neighbourhood Factors			
Security from burglary	1	2	3
Security for your car(s)	1	2	3
Personal safety	1	2	3
Tidy appearance of neighbourhood	1	2	3
Privacy	1	2	3
Environmental Quality / Maturity	1	2	3
Social composition of neighbourhood	1	2	3
Religious composition of neighbourhood	1	2	3
Dwelling Factors			
The number of bedrooms	1	2	3
The number of reception rooms	1	2	3
The internal condition of the dwelling	1	2	3
The external condition of the dwelling	1	2	3
The layout of the rooms	1	2	3
Parking provision	1	2	3
Mature garden	1	2	3
House of character / style	1	2	3

→ Q71

Q71 I am interested in finding out about the relative influence that the head, partner and others may have had in making various decisions associated with your purchase.

I am going to read you a list of decisions. Please allocate a total of 9 points between the Head of Household, his/her partner and others (eg family, friends, agents etc). For example, if you think that all three exerted equal influence on deciding when to move, then allocate 3 points to each.
What about (READ OUT EACH)...how would you divide the 9 points ?

		HoH	Part	Others	
	The decision to move in the first place	⌊_⌋	⌊_⌋	⌊_⌋	
	The amount that you could afford to spend	⌊_⌋	⌊_⌋	⌊_⌋	
SHOW	The selection of information sources	⌊_⌋	⌊_⌋	⌊_⌋	
CARD	The areas in which to search	⌊_⌋	⌊_⌋	⌊_⌋	
38	The selection of houses to visit	⌊_⌋	⌊_⌋	⌊_⌋	
	Where to go for a mortgage	⌊_⌋	⌊_⌋	⌊_⌋	
	When to stop searching (buy particular house)	⌊_⌋	⌊_⌋	⌊_⌋	
	The amount to bid	⌊_⌋	⌊_⌋	⌊_⌋	→ (A)

(A) Using the same approach, I now want to consider the relative importance attached to particular factors in the choice of a new home. Please score each source according to its influence on deciding if the factor was important or not ? What about (READ OUT)...how would you divide the scores ?

	Location Factors			
	Convenience to shopping facilities	⌊_⌋	⌊_⌋	⌊_⌋
CHECK	Convenience to friends / relatives	⌊_⌋	⌊_⌋	⌊_⌋
SCORES	Convenience to doctors, dentists etc	⌊_⌋	⌊_⌋	⌊_⌋
ALWAYS	Convenience to HOH's place of work	⌊_⌋	⌊_⌋	⌊_⌋
SUM	Convenience to partner's place of work	⌊_⌋	⌊_⌋	⌊_⌋
TO	Convenience to city centre	⌊_⌋	⌊_⌋	⌊_⌋
9	Convenience to public transport	⌊_⌋	⌊_⌋	⌊_⌋
	Convenience to leisure facilities	⌊_⌋	⌊_⌋	⌊_⌋
SHOW	Convenience to primary schools	⌊_⌋	⌊_⌋	⌊_⌋
CARD	Convenience to secondary schools	⌊_⌋	⌊_⌋	⌊_⌋
38				
	Neighbourhood Factors			
	Security from burglary	⌊_⌋	⌊_⌋	⌊_⌋
	Security for your car(s)	⌊_⌋	⌊_⌋	⌊_⌋
	Personal safety	⌊_⌋	⌊_⌋	⌊_⌋
	Tidy appearance of neighbourhood	⌊_⌋	⌊_⌋	⌊_⌋
	Privacy	⌊_⌋	⌊_⌋	⌊_⌋
	Environmental Quality / Maturity	⌊_⌋	⌊_⌋	⌊_⌋
	Social composition of neighbourhood	⌊_⌋	⌊_⌋	⌊_⌋
	Religious composition of neighbourhood	⌊_⌋	⌊_⌋	⌊_⌋
	Dwelling Factors			
	The number of bedrooms	⌊_⌋	⌊_⌋	⌊_⌋
	The number of reception rooms	⌊_⌋	⌊_⌋	⌊_⌋
	The internal condition of the dwelling	⌊_⌋	⌊_⌋	⌊_⌋
	The external condition of the dwelling	⌊_⌋	⌊_⌋	⌊_⌋
	The layout of the rooms	⌊_⌋	⌊_⌋	⌊_⌋

Needed a garage / bigger garage	|_|	|_|	|_|	
Being able to park cars off the street	|_|	|_|	|_|	
Mature garden	|_|	|_|	|_|	
House of character / style	|_|	|_|	|_|	
Brand new house	|_|	|_|	|_|	
DIY potential	|_|	|_|	|_|	→ Q72

SECTION G - HOUSING FINANCE

In this section, I want to ask you about the various costs associated with your purchase.

Q72 I want to begin by considering the various transaction costs. Please look at this card (CARD 39) and tell me if you incurred any of these costs, and the amount in each case.

SHOW CARD 39

	Y	N	RIGHT JUSTIFY	
Removal costs	1	2	£ |_|_|_|_|	
Legal costs (incl land registry etc)	1	2	£ |_|_|_|_|	
Dwelling valuation fee	1	2	£ |_|_|_|_|	
Dwelling survey fees	1	2	£ |_|_|_|_|	
Mortgage indemnity fee	1	2	£ |_|_|_|_|	→ Q73

Q73 You told me earlier that you paid (CHECK Q67B or Q67D - READ OUT) for this dwelling.

RIGHT JUSTIFY

Amount paid ..... £ \|_\|_\|_\|_\|_\|_\| → (A)

(A) Do you own the house / flat outright or are you buying with a mortgage or are you buying through the Co-Ownership scheme ?

Own house / flat outright	1	→ (E)
Buying with a mortgage	2	→ (C)
Buying part / renting part (co-ownership)	3	→ (B)

(B) How much of the equity did you buy ? That is, what proportion ?

50%	1	
62.5%	2	
75%	3	
Unable to say	7	→ (C)

(C) How much of a deposit did you put down ?

Deposit ..... £ \|_\|_\|_\|_\|_\|_\| → If > £0 (D), else go to (E)

(D) How did you fund this deposit ? (CODE ALL ANSWERS)

(PROMPT LIST)

	Y	N	
Proceeds from previous sale	1	2	
Savings and investments	1	2	
Gift	1	2	
Loan from bank / building society	1	2	
Private loan (e.g. family, friends)	1	2	
Some other source	1	2	→ (E)

(E) How did you fund the purchase of your home ?

(PROMPT LIST)

	Yes	No	
Mortgage from a building society	1	2	→ (F)
Mortgage form a bank	1	2	→ (F)
Mortgage from some other source	1	2	→ (F)
Proceeds from previous sale	1	2	→ Q74
Savings / investments	1	2	→ Q74
Gift	1	2	→ Q74
Private loan (e.g., family, friends)	1	2	→ Q74
Some other source	1	2	→ Q74

(F) Where did you obtain your mortgage (i.e. name of the society, bank etc) ?

|_____| |_|_| → (G)

(G) When you took out your mortgage, how long was it for ?

25 years	1
20 years	2
15 years	3
None of these (Specify no years)	|_|_|
Unable to say	7 → (H)

(H) How much was the mortgage ?

£ |_|_|_|_|_|_| → (I)

(I) What type of mortgage did you take out ? (PROBE FULLY)

Endowment (ie interest only repaid monthly)	1
Any other mortgage where interest only paid (eg pension)	2
Repayment (ie interest and capital repaid monthly)	3
A mixed mortgage (part endowment and part repayment)	4
Something else	5
Unable to say	7 → (J)

(J) At the moment, what is the monthly repayment on your mortgage ?

£ (nearest £) |_|_|_|_| → (K)

(K) Does this include mortgage protection insurance, endowment premiums, house insurance etc ?

Yes	1 → (L)
No	2 → Q74

(L) How much do these additional costs add up to ?

£ (nearest £) |_|_|_|_| → (M)

(M) So that means that the costs of your mortgage are about (CALCULATE K-M and READ OUT). Does this seem about right ?

Yes	1
No	2 → Q74

SECTION H - SOCIO-ECONOMIC PROFILE OF HOUSEHOLD

This is the final section of the form. I need to ask some questions about the employment and occupations of the Head of Household (and partner).

HoH

Q74 Let me just check. You told me that the Head of Household was in ... (CHECK Q2 and RECORD)

Full time work	1	→ (A)
Part time work	2	→ (A)
Short-time unemployed	3	→ (E)
Long-term unemployed	4	→ (E)
Wholly retired from work	5	→ (E)
A Full-time student	6	→ Q75
Permanently sick / disabled	7	→ (E)
Keeping house	8	→ Q75
ET / YTP	0	→ Q75

(A) What is your present job title ?

|_____| |_|_|_| |_| → (B)

(B) Describe briefly what your job involves.

_____
_____
_____ → (C)

(C) Are you self employed ?

Yes	1	→ (D)
No	2	→ Q75

(D) How many people other than yourself do you employ ?

Self only, no others	1	
Between 1 and 9	2	
Between 10 and 25	3	
Between 26 and 50	4	
Over 50	5	→ Q75

(E) What was your last job title ?

|_____| |_|_|_| |_| → (F)

(NOTE - Code 666 6 if never worked)

(F) Describe briefly what your last job involved.

_____
_____
_____ → (G)

(G) Were you self employed ?

Yes	1	
No	2	→ (H)

(H) When did you end work in your last job ?

PROBE FOR YEAR AND MONTH

Year |_|_|_|_|

Month |_|_| → Q75

Partner in Household ?

Q75 CHECK (DO NOT READ OUT)

Partner (Check Q2) ..... 1 → Q76
No partner ..... 2 → Q77

Q76 Let me just check. You told me that the Partner was in ... (CHECK Q2 and RECORD)

Full time work ..... 1 → (A)
Part time work ..... 2 → (A)
Short-time unemployed ..... 3 → (E)
Long-term unemployed ..... 4 → (E)
Wholly retired from work ..... 5 → (E)
A Full-time student ..... 6 → Q77
Permanently sick / disabled ..... 7 → (E)
Keeping house ..... 8 → Q77
ET / YTP ..... 0 → Q77

(A) What is your present job title ?

|_____| |_|_|_| |_| → (B)

(B) Describe briefly what your job involves.

_____
_____
_____ → (C)

(C) Are you self employed ?

Yes ..... 1 → (D)
No ..... 2 → Q77

(D) How many people other than yourself do you employ ?

Self only, no others 1
Between 1 and 92
Between 10 and 25 3
Between 26 and 50 4
Over 50 ..... 5 → Q77

(E) What was your last job title ?

|_____| |_|_|_| |_| → (F)

(NOTE - Code 666 6 if never worked)

(F) Describe briefly what your last job involved.

_____
_____
_____ → (G)

(G) Were you self employed ?

Yes 1
No ..... 2 → (H)

(H) When did you end work in your last job ?

PROBE FOR YEAR AND MONTH

Year |_|_|_|_|
Month |_|_| → Q77

Q77 Please look at this card and tell me which group best describes the income of the HOUSEHOLD in total. Include income from all sources (e.g., earnings, investments, interest payments, benefits etc). By income I mean GROSS INCOME, that is before any deductions for income tax, national insurance etc.

(IF RESPONDENT RELUCTANT → This information is used to help us see how choice behaviour varied according to income. It is used to compare the profile of buyers in the Belfast area with buyers elsewhere. It obviously remains absolutely confidential)

SHOW CARD 40

A	Under £3,000 per annum	01
B	£3,000 - £4,999 per annum	02
C	£4,000 - £6,999 per annum	03
D	£7,000 - £9,999 per annum	04
E	£10,000 - £14,999 per annum	05
F	£15,000 - £19,999 per annum	06
G	£20,000 - £24,999 per annum	07
H	£25,000 - £29,999 per annum	08
I	£30,000 - £34,999 per annum	09
J	£35,000 - £39,999 per annum	10
K	£40,000 - £49,999 per annum	11
L	£50,000 - £59,999 per annum	12
M	£60,000 and over	13
	Unable to say	77
	Refused to say	88 → Q78

Q78 Most people see themselves as belonging to a particular social class. Please look at this card (CARD 41) and tell me which social class you would say that you belong to ? (RECORD IN COL A).

... and which social class would you say that your parents belonged to when you started at primary school ? (RECORD IN COL B).

SHOW CARD 41

	A	B	
Upper middle class	1	1	
Middle class	2	2	
Upper working class	3	3	
Working class	4	4	
Poor	5	5	
Unable to say	7	7	
Refused to say	8	8	→ Q79

Q79 One of the important objectives of this study is to examine how search and choice behaviour varies according to religion. May I ask you to look at this card and say which grouping best describes the religious composition of this HOUSEHOLD ? (CARD 42)

SHOW CARD 42

Protestant	1	→ End
Roman Catholic	2	→ End
Mixed Protestant and Roman Catholic	3	→ End
Other religion	4	→ End
No religion	5	→ (A)
Refused to say	8	→ End

(A) May I ask in which faith were you brought up ? (ASK HOH AND PARTNER)

SHOW CARD 43

	HoH	Partner	
Protestant	1	1	
Roman Catholic	2	2	
Other religion	4	4	
No religion	5	5	
Refused to say	8	8	→ End

End of Interview That's the end of the interview. Thankyou for your help.

INTERVIEWER NOTE: REMEMBER TO COMPLETE ENVIRONMENTAL SCORES WHEN YOU GO OUTSIDE

INTERVIEWER SIGNATURE: _____

INTERVIEWER NOTES

ENVIRONMENTAL SCORING

INTERVIEWER TO CODE: RANGE 1 (worst) to 5 (best). USE OWN JUDGEMENT.

1	Tree coverage	1	2	3	4	5
2	Neighbourhood condition / amenity value	1	2	3	4	5
3	Attractiveness of area	1	2	3	4	5
4	Traffic noise / volume of traffic	1	2	3	4	5
5	Feeling of privacy	1	2	3	4	5
6	Attractive views from dwelling	1	2	3	4	5
7	Exterior condition of dwellings in area in general	1	2	3	4	5
8	Size of plot	1	2	3	4	5

On site parking provision

Yes 1
No 2

Garage on plot

None 1
Single 2
Double 3
Larger than double 4

Neighbouring property is predominately:

Residential 1
Industrial 2
Commercial 3
Recreational 4
Derelict / Vacant 5

IF RESIDENTIAL:

Type of dwellings in neighbourhood

Terraced 1
Semi-detached housing 2
Detached housing 3
Semi-detached bungalows 4
Detached bungalows 5
Apartments 6

Housing Executive

Northern Ireland Housing Executive
Housing Centre
2 Adelaide Street
Belfast BT2 8PB
☎ (0232) 240588

APPENDIX 3

Date your reference our reference

Dear Householder

BELFAST HOUSING SEARCH AND CHOICE STUDY

I am writing to seek your help with a research project on how people search for new homes. The Executive is interested in developing a better understanding of how the housing market in the city operates and what sort of factors influence the housing choices that people make. On a personal level, I also hope to use some of the information in the survey as part of on-going Ph.D research at the University of Glasgow.

Your address was selected at random from estate agency records as a dwelling which had recently been purchased. The survey, which will take about 45 minutes to complete, will be confidential. An interviewer will call at your home sometime over the next two weeks.

If you would like more information on the research please give me a ring on Belfast 240588 extension 2540, or write to me at the above address.

I would like to thank you in advance for for cooperation.

Yours sincerely,

John McPeake
Head of Research
Northern Ireland Housing Executive

APPENDIX 4
THE SPSS SUITE OF STATISTICAL SOFTWARE

Introduction

1 SPSS is one of the most widely used, comprehensive and flexible statistical and general data analysis software packages that is available for use in the socail sciences (Cramer, 1994). The name "SPSS" is an acronym for Statistical Package for the Social Sciences.

2 The software has been under continual development for more than twenty years. It is now available on a wide variety of platforms from mainframe through minis and workstations to PCs and Apple Macs. In this thesis, most of the analysis was conducted using SPSS for Windows, version 6.1.

The Modular Organisation of SPSS

3 In its current form SPSS for Windows offers the same facilities as the mainframe version, although it is distributed as a modular product. For most applications, the BASE system is sufficient providing facilities for basic tabulation, descriptive statistical analysis, hypothesis testing, analysis of variance, correlationa nd regression analysis, and non-parametric testing.

4 The following additional models are also available:

Professional Stats	facilities for the analysis of similarities and differcnes in data, including cluster and factor analysis, discriminant annalysis and multi-dimensional scaling. The Professional Statistics Module was used extensively in the analysis of product groups.
Advanaced Stats	Includes programs for logistic regression, loglinear analysis, MANOVA and probit analysis, amongst others. This was not used in the thesis.
SPSS Tables	Creates variety of presentation-quality tabular reports. This was used for most of the cross-tabulated analysis.
SPSS Trends	Includes techniques for time series analysis and forecasting. This was not used in this thesis.
SPSS Categories	Includes facilities for conjoint analysis and correspondence analysis. This was not used in this thesis.
SPSS Chaid	Technique for hieracchiacal analysis of category cariables and the production of tree diagrames. This was used in the preliminary analysis of the census data prior to clustering.
SPSS Lisrel	A separate program for LISREL analysis which can read SPSS data directly. The SPSS version was not used in this thesis. This is becasue it was version 7 and ran only under DOS. Version 8 was available to the author in its Windows guise. This was preferable.

Further Details

5 Further details are available from:
SPSS UK
SPSS House
5 London Street
Chertsey
Surrey KT16 8AP

APPENDIX 5
DEFINITION OF THE BUA SECTORS

BELFAST		SUBURBAN BUA	
Sector	Ward	Sector	Ward
Inner North	Crumlin Duncairn New Lodge Shankill St. Annes Water Works Woodvale	Greenisland (Carrickfergus)	Gortalee Greenisland Knockagh
Inner East	Ballymacarrett Island The Mount	Castlereagh	Ballyhanwood Beechill Carrowreagh Creagagh Downshire Dundonald Enler Four Winds Gilnahirk Graham's Bridge Hillfoot Knockbracken Lisnasharagh Lower Braniel Minnowburn Newtownbreda Tullycarnet Upper Braniel Wynchurch
Inner South	Blackstaff Botanic Shaftesbury Woodstock		
Inner West	Beechmount Clonard Falls		
Outer North	Ardoyne Ballysillan Bellevue Castleview Cavehill Chichester Park Cliftonville Fortwilliam Glencairn Highfiled Legoniel	Lisburn	Ballymacash Ballymacoss Blaris Collin Glen Derryaghy Dunmurray Harmony Hill Hilden Hillhall Kilwee Knockmore Lagan Valley Lambeg Lisnagarvey Magheralave Old Warren Seymour Hill Tonagh Twinbrook Wallace Park
Outer East	Ballyhackamore Belmont Bloomfield Cherryvalley Knock Orangefield Stormont Sydenham		

Outer South	Ballynafeigh Finaghy Malone Ravenhill Rosetta Stranmillis Upper Malone Windsor	Newtownabbey	Abbey Ballyduff BallyhenryBraden Burnthill Carnmoney Collinbridge Coole Dunaney Glebe Glengormley Hawthorn Hightown Jordanstown Monkstown Mossley Rostulla Valley Whitehouse
Outer West	Andersonstown Falls Park Glen Raod Glencolin Ladybrook Upper Springfield Whiterock	Holywood (North Down)	Cultra Holywood Demesne Holywood Priory Loughview

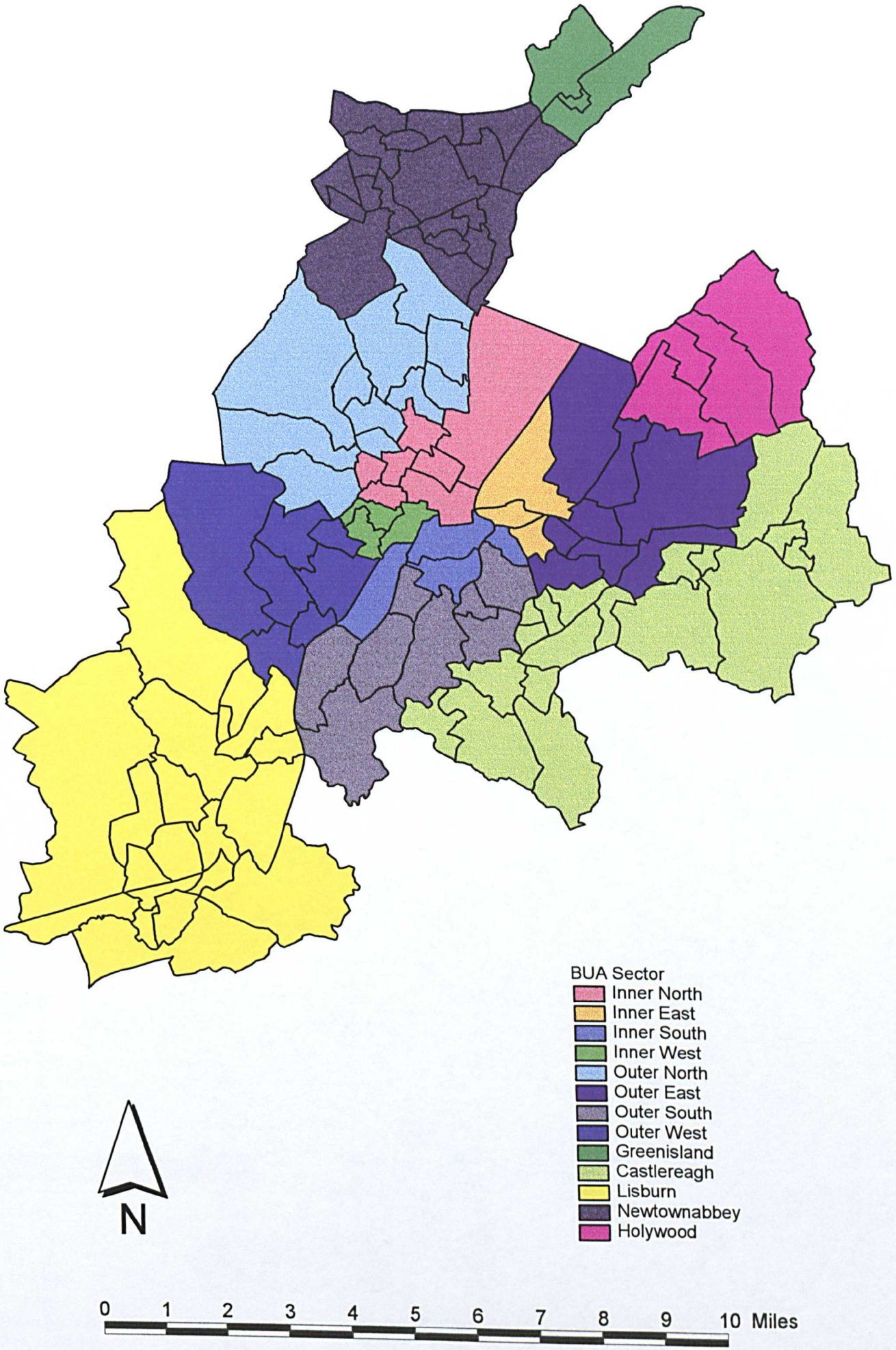
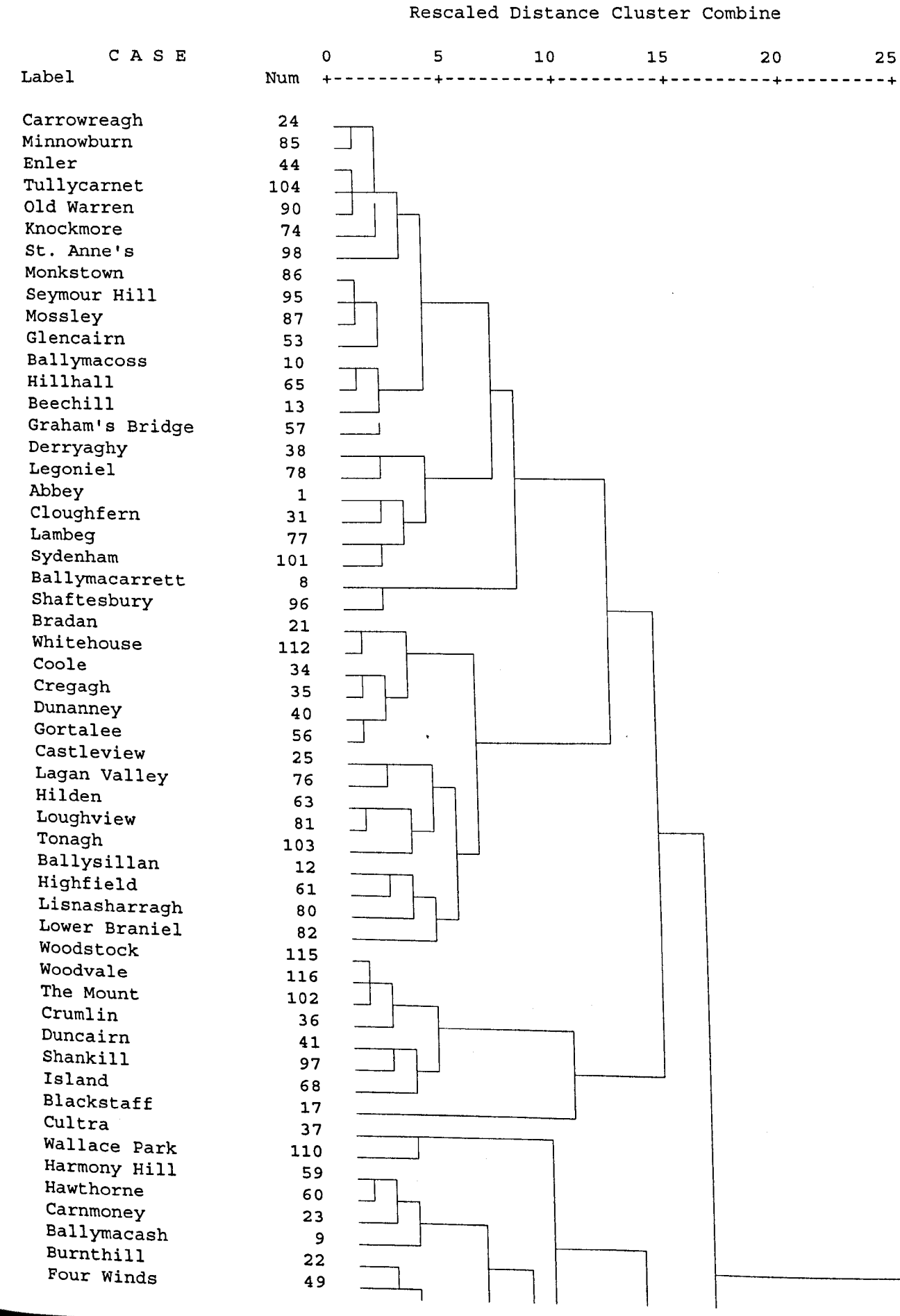


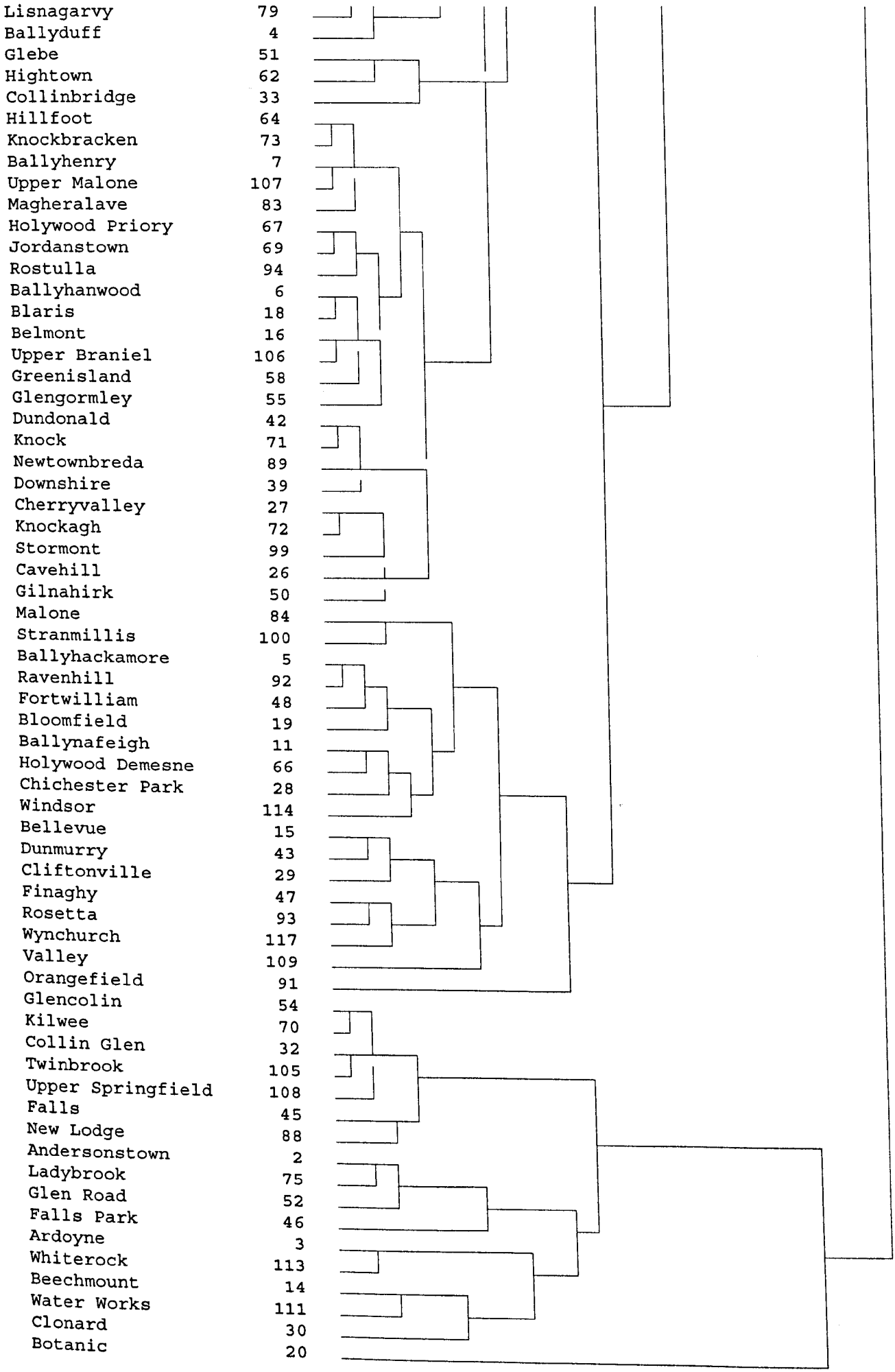
Figure A5.1: Sectors of the BUA

APPENDIX 6: DENDROGRAM FOR UPGMA CLUSTER SOLUTION

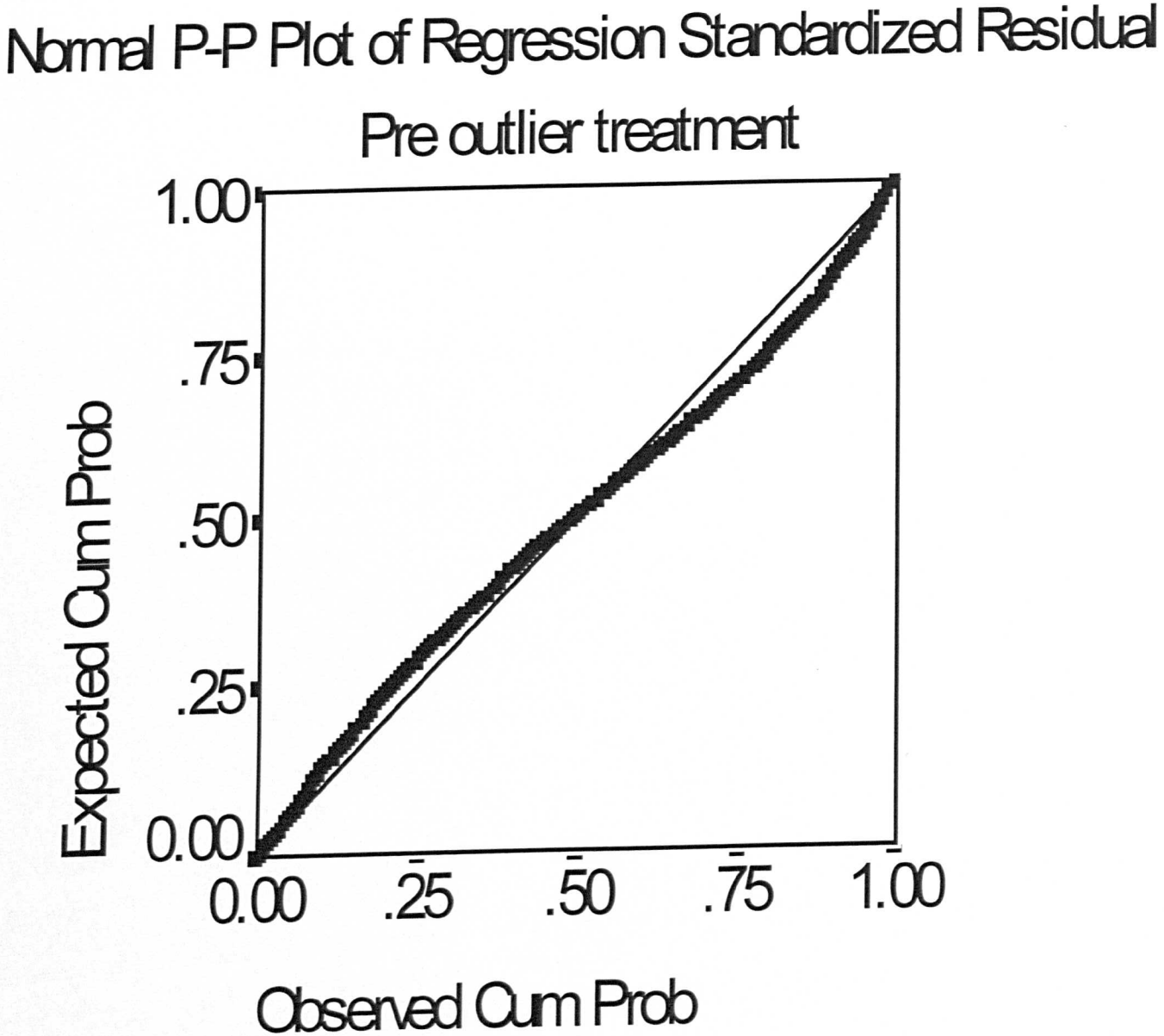
* H I E R A R C H I C A L C L U S T E R A N A L Y

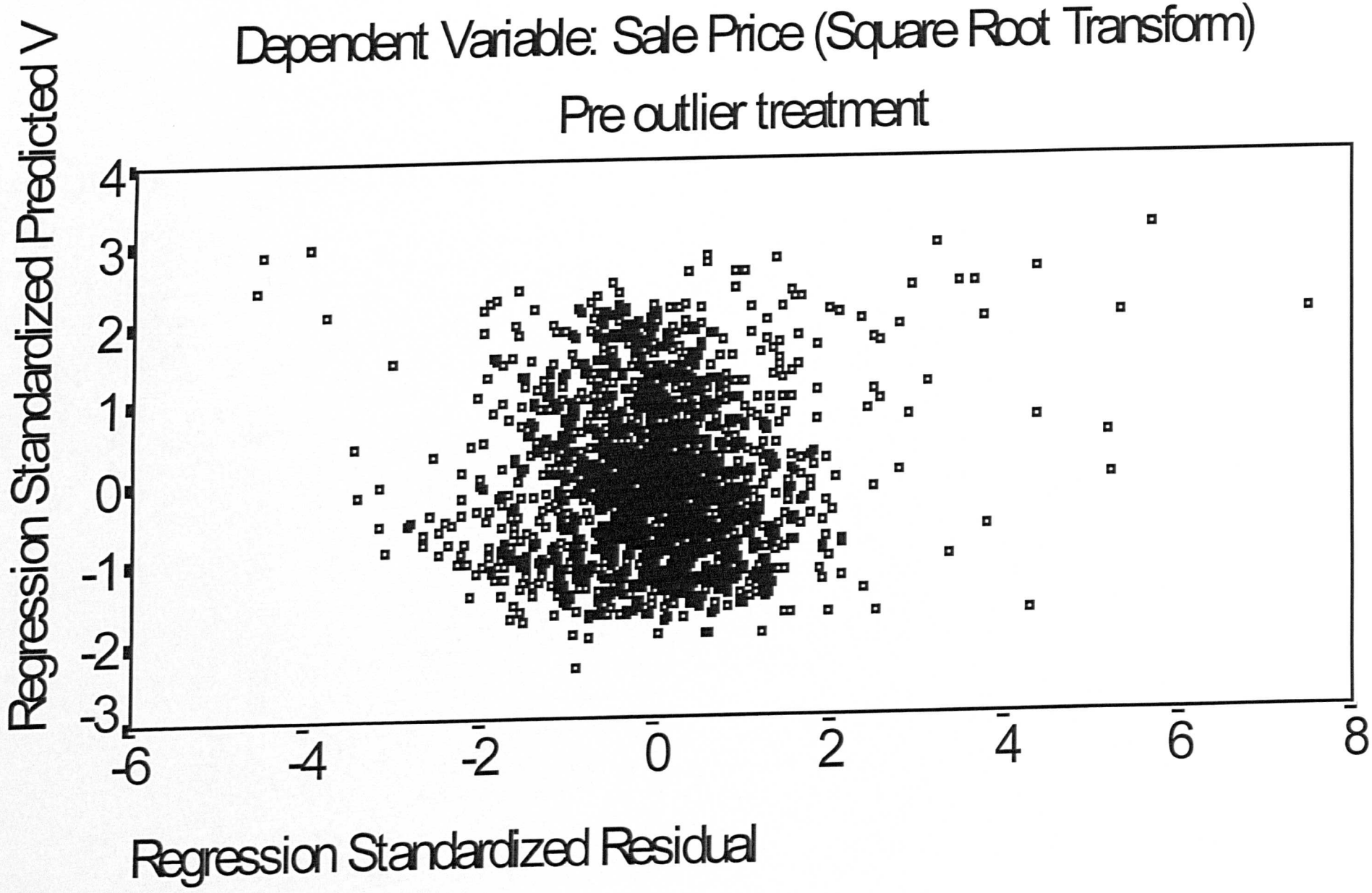
Dendrogram using Average Linkage (Between Groups)

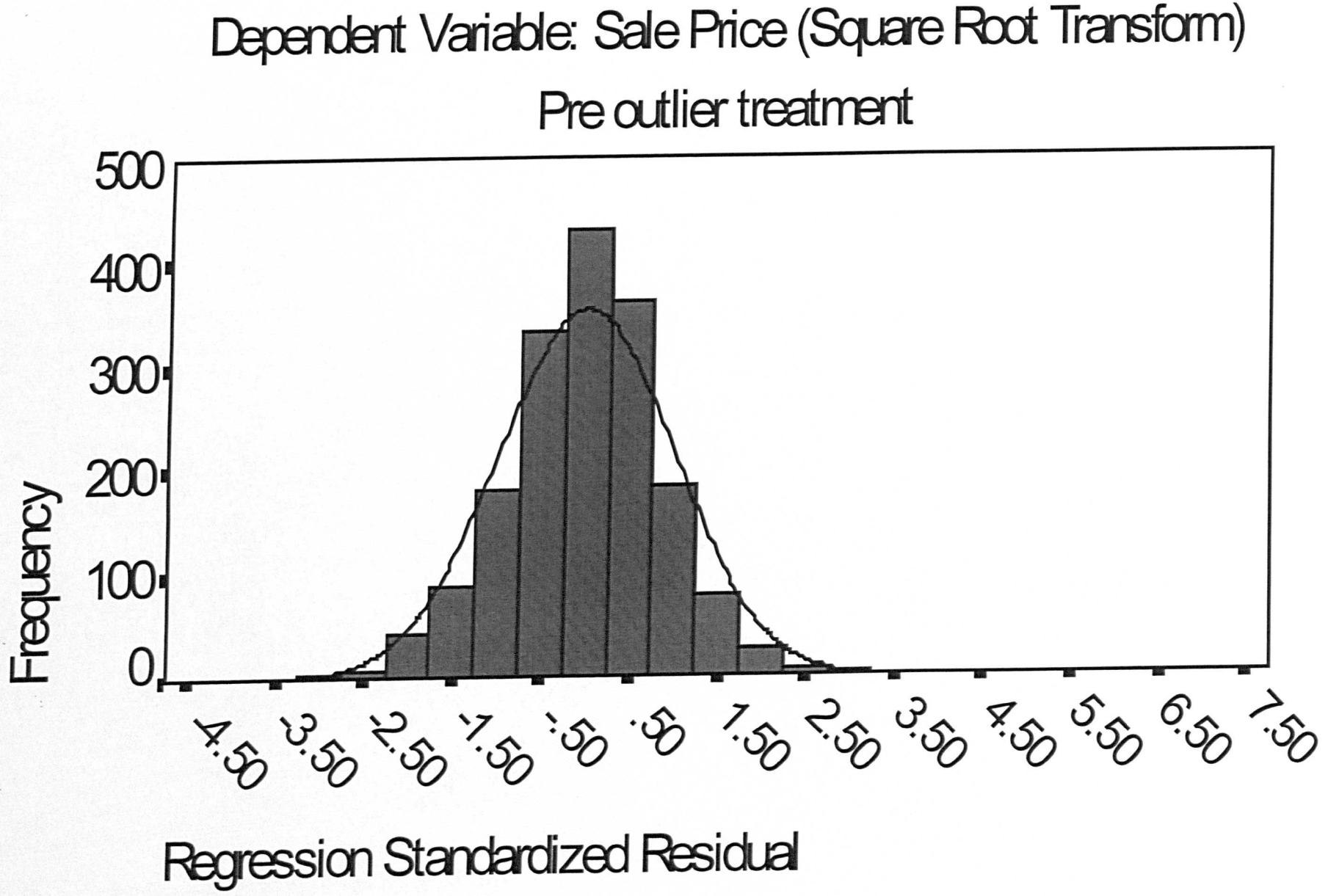


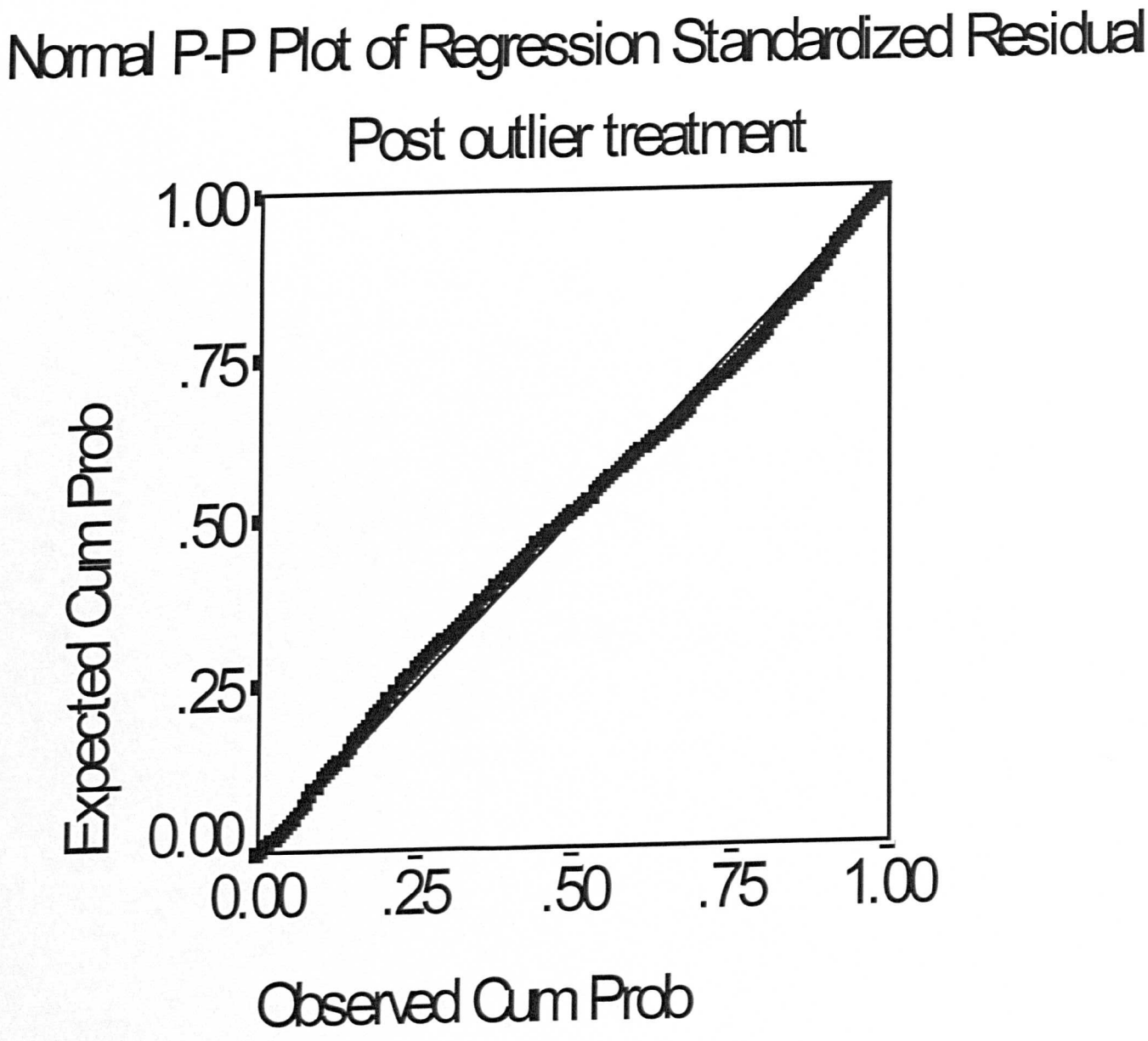

Lisnagarvy 79
Ballyduff 4
Glebe 51
Hightown 62
Collinbridge 33
Hillfoot 64
Knockbracken 73
Ballyhenry 7
Upper Malone 107
Magheralave 83
Holywood Priory 67
Jordanstown 69
Rostulla 94
Ballyhanwood 6
Blaris 18
Belmont 16
Upper Braniel 106
Greenisland 58
Glengormley 55
Dundonald 42
Knock 71
Newtownbreda 89
Downshire 39
Cherryvalley 27
Knockagh 72
Stormont 99
Cavehill 26
Gilnahirk 50
Malone 84
Stranmillis 100
Ballyhackamore 5
Ravenhill 92
Fortwilliam 48
Bloomfield 19
Ballynafeigh 11
Holywood Demesne 66
Chichester Park 28
Windsor 114
Bellevue 15
Dunmurry 43
Cliftonville 29
Finaghy 47
Rosetta 93
Wynchurch 117
Valley 109
Orangefield 91
Glencolin 54
Kilwee 70
Collin Glen 32
Twinbrook 105
Upper Springfield 108
Falls 45
New Lodge 88
Andersonstown 2
Ladybrook 75
Glen Road 52
Falls Park 46
Ardoyne 3
Whiterock 113
Beechmount 14
Water Works 111
Clonard 30
Botanic 20

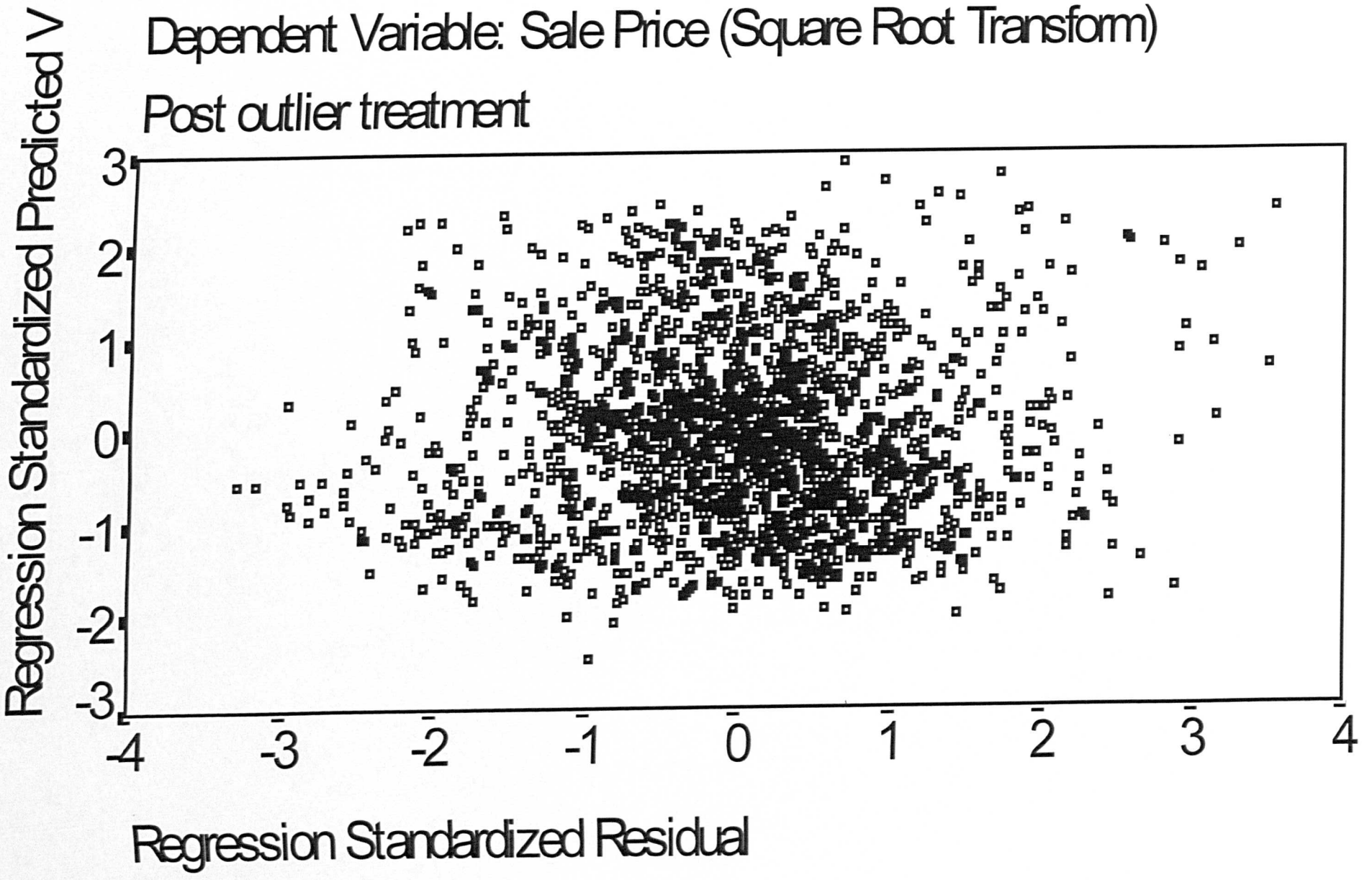
APPENDIX 7
DIAGNOSTIC PLOTS FOR MARKET-WIDE REGRESSION EQUATION (PRE AND POST OUTLIER TREATMENT)

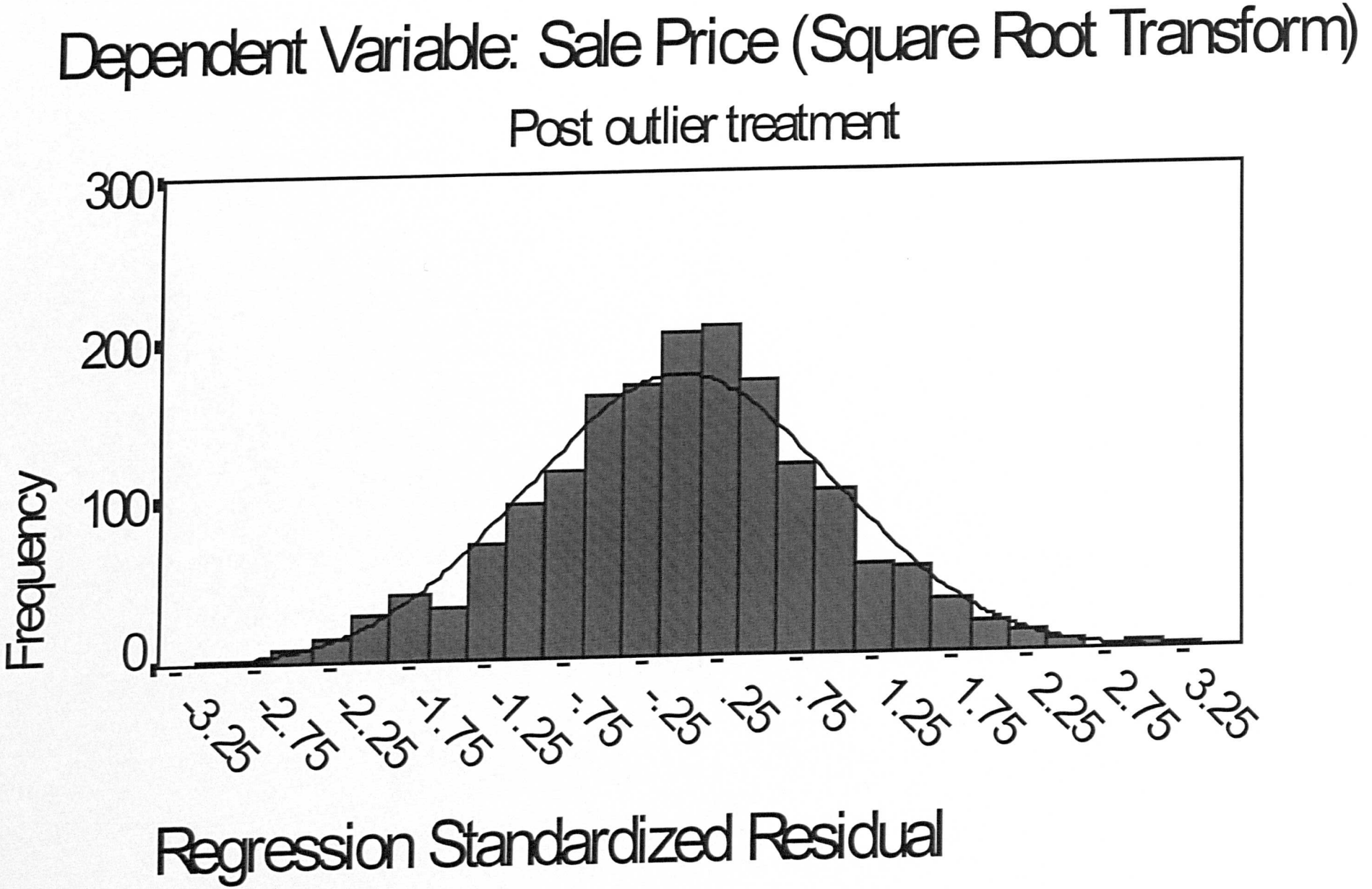

Normal P-P Plot of Regression Standardized Residual
Pre outlier treatment
Expected Cum Prob
Observed Cum Prob
0.00
.25
.50
.75
1.00


Dependent Variable: Sale Price (Square Root Transform)
Pre outlier treatment
Regression Standardized Predicted V
4
3
2
1
0
-1
-2
-3
-6
-4
-2
0
2
4
6
8
Regression Standardized Residual


Dependent Variable: Sale Price (Square Root Transform)
Pre outlier treatment
Frequency
500
400
300
200
100
0
-4.50
-3.50
-2.50
-1.50
-.50
.50
1.50
2.50
3.50
4.50
5.50
6.50
7.50
Regression Standardized Residual


Normal P-P Plot of Regression Standardized Residual
Post outlier treatment
Expected Cum Prob
1.00
.75
.50
.25
0.00
0.00
.25
.50
.75
1.00
Observed Cum Prob


Dependent Variable: Sale Price (Square Root Transform)
Post outlier treatment
Regression Standardized Predicted V
3
2
1
0
-1
-2
-3
-4
-3
-2
-1
0
1
2
3
4
Regression Standardized Residual


Dependent Variable: Sale Price (Square Root Transform)
Post outlier treatment
Frequency
300
200
100
0
-3.25
-2.75
-2.25
-1.75
-1.25
-.75
-.25
.25
.75
1.25
1.75
2.25
2.75
3.25
Regression Standardized Residual

APPENDIX 8
THE CORRELATION MATRIX

- - Correlation Coefficients - -

	LOG_S1	LOGVIEW2	LOGAREA2	NO_CHAN2	SQRT_RC	SQRTSET	STIME	COMPETE	PGMATCH2	NONMARK	AGENT
LOG_S1	1.0000	.2373**	.1144**	.1738**	.1278**	.1844**	.0924*	.1213**	.1090**	.0709	.1000*
LOGVIEW2	.2373**	1.0000	.4108**	.5924**	.1965**	.1888**	-.0031	.2742**	.2367**	.3935**	.2597**
LOGAREA2	.1144**	.4108**	1.0000	.2768**	-.1475**	.1037*	.0681	.2360**	.5040**	.1645**	.1415**
NO_CHAN2	.1738**	.5924**	.2768**	1.0000	.2061**	.1318**	-.0401	.2320**	.1607**	.4909**	.4651**
SQRT_RC	.1278**	.1965**	-.1475**	.2061**	1.0000	.2462**	-.0270	-.0271	-.0202	.1447**	.1209**
SQRTSET	.1844**	.1888**	.1037*	.1318**	.2462**	1.0000	-.0868*	.1434**	.0563	.1267**	.1391**
STIME	.0924*	-.0031	.0681	-.0401	-.0270	-.0868*	1.0000	-.0066	-.0031	-.0364	.0666
COMPETE	.1213**	.2742**	.2360**	.2320**	-.0271	.1434**	-.0066	1.0000	.0831*	.1032*	.0755
PGMATCH2	.1090**	.2367**	.5040**	.1607**	-.0202	.0563	-.0031	.0831*	1.0000	.1097**	.0546
NONMARK	.0709	.3935**	.1645**	.4909**	.1447**	.1267**	-.0364	.1032*	.1097**	1.0000	.0410
AGENT	.1000*	.2597**	.1415**	.4651**	.1209**	.1391**	.0666	.0755	.0546	.0410	1.0000
NEW	-.1320**	-.1471**	.0213	-.1144**	-.2363**	-.1725**	.1393**	-.1711**	-.0309	-.1050*	-.1019*
LOGFLOOR	.0052	-.1376**	.0458	-.0373	-.0417	-.3571**	.2316**	-.0346	.0323	-.1098**	-.0035
LOGPRICE	.0483	-.0508	.0449	.0496	-.0015	-.2303**	.2821**	.0080	.0336	-.0562	.0591
SAFETY	.1764**	.1954**	.3844**	.2136**	.0688	.0973*	-.0216	.1566**	.2337**	.0823*	.0788
ECONMOVE	-.0220	.0302	-.0272	-.0375	-.0816	-.0144	-.0178	-.0778	-.0208	.0006	.0156
WARDMOVE	.0671	-.0082	-.1817**	.0509	.1896**	-.0025	-.0979*	.0217	-.0837*	.0182	.0005
SQRTRCPV	.0384	.1333**	-.1560**	.1617**	.6075**	.0902*	-.0783	.0168	-.0544	.1221**	.0686
SATISF	.3002**	.1815**	.0727	.1397**	.0944*	-.0135	.0484	-.0086	.0446	.0174	.0489
OUTCOME	.0802	.1084**	-.0238	.0787	.1085**	-.0052	.0445	.0537	-.0150	.0841*	-.0323
DISCB	.3522**	.1578**	.0539	.0992*	.0128	.0971*	.1012*	-.0298	.0343	.0111	.0199
FTB	.0878*	.1384**	.0355	.0915*	.1202**	.3007**	-.4855**	.0857*	.0237	-.0108	.0235
RMOVE	-.0426	-.0270	-.0501	-.0097	.0100	.0592	-.0456	.0271	-.0562	-.0330	.0338
UNCERT	.3478**	.1121**	.1792**	.0776	-.1247**	.0712	.0315	.0886*	.1027*	.0205	.0469
LOG_AGE	-.0507	-.1285**	-.1119**	-.0955*	-.1655**	-.1697**	.2543**	-.1062*	-.0634	-.0352	-.0250
LOG_EDUC	.0629	.1162**	.0057	.0967*	.1023*	.0321	-.0638	.1052*	.0851*	-.0196	.0174
LOG_SIZE	.0002	-.0693	.0494	.0818	.0587	-.1250**	.2328**	-.0118	.0376	.0328	.1254**
PCHILD	-.0064	-.0845*	-.0257	-.0103	.0556	-.1545**	.1682**	.0303	.0052	-.0138	.0341
INCOME	.0685	.0068	.0814	.0695	-.0184	-.1572**	.1513**	.0292	.0210	-.0097	.0989*
RC_HHLD	.1266**	.1925**	-.1762**	.2074**	.5900**	.1312**	-.0114	.0011	.0274	.1426**	.0722
CMIND	.0782	.3134**	.2826**	.2518**	.0521	.0156	.0328	.2184**	.1748**	.1054*	.0673
DWELPROB	.2037**	.3699**	.2151**	.1960**	.1517**	.1528**	.0828*	.1558**	.1100**	.0990*	.0513
EVALPROB	.3050**	-.1134**	.0249	.1112**	.0538	.0660	.0741	.0014	-.0465	.0784	.0680
LACKTIME	-.5704**	-.1333**	-.1481**	-.1010*	-.0036	-.1483**	-.0437	-.1062*	-.1024*	-.0052	-.0969*
LACKCASH	.0940*	-.0383	.1247**	.0822*	.0199	.1033*	-.0510	.2630**	.0865*	.0105	.0080

* - Signif. LE .05 ** - Signif. LE .01 (2-tailed) " . " is printed if a coefficient cannot be computed

- - Correlation Coefficients - -

	NEW	LOGFLOOR	LOGPRICE	SAFETY	ECONMOVE	WARDMOVE	SQRTRCPV	SATISF	OUTCOME	DISCB	FTB
LOG_S1	-.1320**	.0052	.0483	.1764**	-.0220	.0671	.0384	.3002**	.0802	.3522**	.0878*
LOGVIEW2	-.1471**	-.1376**	-.0508	.1954**	.0302	-.0082	.1333**	.1815**	.1084**	.1578**	.1384**

LOGAREA2	.0213	.0458	.0449	.3844**	-.0272	-.1817**	-.1560**	.0727	-.0238	.0539	.0355
NO_CHAN2	-.1144**	-.0373	.0496	.2136**	-.0375	.0509	.1617**	.1397**	.0787	.0992*	.0915*
SQRT_RC	-.2363**	-.0417	-.0015	.0688	-.0816	.1896**	.6075**	.0944*	.1085**	.0128	.1202**
SQRTSET	-.1725**	-.3571**	-.2303**	.0973*	-.0144	-.0025	.0902*	-.0135	-.0052	.0971*	.3007**
STIME	.1393**	.2316**	.2821**	-.0216	-.0178	-.0979*	-.0783	.0484	.0445	.1012*	-.4855**
COMPETE	-.1711**	-.0346	.0080	.1566**	-.0778	.0217	.0168	-.0086	.0537	-.0298	.0857*
PGMATCH2	-.0309	.0323	.0336	.2337**	-.0208	-.0837*	-.0544	.0446	-.0150	.0343	.0237
NONMARK	-.1050*	-.1098**	-.0562	.0823*	.0006	.0182	.1221**	.0174	.0841*	.0111	-.0108
AGENT	-.1019*	-.0035	.0591	.0788	.0156	.0005	.0686	.0489	-.0323	.0199	.0235
NEW	1.0000	.2886**	.4040**	-.0498	.0148	-.1452**	-.1427**	.1235**	.0731	-.0774	-.2224**
LOGFLOOR	.2886**	1.0000	.6154**	.0202	-.0135	-.0184	-.0469	.1329**	.0154	-.0727	-.3977**
LOGPRICE	.4040**	.6154**	1.0000	.0009	-.0223	-.0622	.0337	.1987**	.1133**	-.1183**	-.4134**
SAFETY	-.0498	.0202	.0009	1.0000	.0440	-.0412	.0211	.0357	.0163	.0399	.0467
ECONMOVE	.0148	-.0135	-.0223	.0440	1.0000	-.1686**	-.1527**	-.0073	-.0556	.0536	-.0095
WARDMOVE	-.1452**	-.0184	-.0622	-.0412	-.1686**	1.0000	.3226**	.0140	.0337	.0135	.0431
SQRTRCPV	-.1427**	-.0469	.0337	.0211	-.1527**	.3226**	1.0000	.0441	.0512	-.0161	.0838*
SATISF	.1235**	.1329**	.1987**	.0357	-.0073	.0140	.0441	1.0000	.3227**	.0884*	-.0445
OUTCOME	.0731	.0154	.1133**	.0163	-.0556	.0337	.0512	.3227**	1.0000	.0262	.0350
DISCB	-.0774	-.0727	-.1183**	.0399	.0536	.0135	-.0161	.0884*	.0262	1.0000	.0891*
FTB	-.2224**	-.3977**	-.4134**	.0467	-.0095	.0431	.0838*	-.0445	.0350	.0891*	1.0000
RMOVE	-.0466	-.0905*	-.0729	.0016	.2409**	-.0115	-.0221	-.0499	.0007	.0489	.1583**
UNCERT	-.0719	-.0027	-.0191	.1524**	.0170	-.0542	-.1045*	.0930*	.0283	.1547**	.0595
LOG_AGE	.1447**	.1273**	.1536**	-.0131	.0074	-.0042	-.1384**	.0698	-.0049	-.0708	-.4780**
LOG_EDUC	.0227	.1098**	.2640**	.0450	.0231	.0025	.1207**	.0148	.0276	-.0582	.1286**
LOG_SIZE	.0661	.4189**	.2948**	.0028	.0507	.1062*	.0160	.0033	-.0362	.0273	-.3089**
PCHILD	.0421	.3149**	.1909**	.0073	.0912*	.0671	-.0094	-.0379	-.0693	.0055	-.2436**
INCOME	.2845**	.3468**	.5083**	.0649	.0027	.0342	.0824*	.1416**	.0312	-.0678	-.2449**
RC_HHLD	-.1505**	-.0084	.0677	.0495	-.1386**	.1763**	.6179**	.0595	.1401**	.0010	.1169**
CMIND	-.0580	-.0158	.0786	.2751**	-.0305	-.0728	.0099	.0776	.1203**	-.0140	.0414
DWELPROB	-.0424	-.0346	-.0176	.2206**	-.0267	-.0183	.0871*	.0505	.1098**	.0804	.0636
EVALPROB	-.0450	.0866*	.0865*	.0493	-.0502	.0959*	.0140	.0917*	.0474	.1248**	-.0446
LACKTIME	.1212**	.0777	.0288	-.0209	.1060*	-.0048	-.0211	-.2821**	-.0768	-.1357**	-.1003*
LACKCASH	-.0722	-.0551	-.0752	.1788**	-.0246	-.0257	.0026	-.0559	.0146	.0875*	.1193**

* - Signif. LE .05 ** - Signif. LE .01 (2-tailed)

" . " is printed if a coefficient cannot be computed

- - Correlation Coefficients - -

	RMOVE	UNCERT	LOG_AGE	LOG_EDUC	LOG_SIZE	PCHILD	INCOME	RC_HHLD	CMIND	DWELPROB	EVALPROB
LOG_S1	-.0426	.3478**	-.0507	.0629	.0002	-.0064	.0685	.1266**	.0782	.2037**	.3050**
LOGVIEW2	-.0270	.1121**	-.1285**	.1162**	-.0693	-.0845*	.0068	.1925**	.3134**	.3699**	-.1134**
LOGAREA2	-.0501	.1792**	-.1119**	.0057	.0494	-.0257	.0814	-.1762**	.2826**	.2151**	.0249
NO_CHAN2	-.0097	.0776	-.0955*	.0967*	.0818	-.0103	.0695	.2074**	.2518**	.1960**	.1112**
SQRT_RC	.0100	-.1247**	-.1655**	.1023*	.0587	.0556	-.0184	.5900**	.0521	.1517**	.0538
SQRTSET	.0592	.0712	-.1697**	.0321	-.1250**	-.1545**	-.1572**	.1312**	.0156	.1528**	.0660
STIME	-.0456	.0315	.2543**	-.0638	.2328**	.1682**	.1513**	-.0114	.0328	.0828*	.0741
COMPETE	.0271	.0886*	-.1062*	.1052*	-.0118	.0303	.0292	.0011	.2184**	.1558**	.0014
PGMATCH2	-.0562	.1027*	-.0634	.0851*	.0376	.0052	.0210	.0274	.1748**	.1100**	-.0465
NONMARK	-.0330	.0205	-.0352	-.0196	.0328	-.0138	-.0097	.1426**	.1054*	.0990*	.0784
AGENT	.0338	.0469	-.0250	.0174	.1254**	.0341	.0989*	.0722	.0673	.0513	.0680
NEW	-.0466	-.0719	.1447**	.0227	.0661	.0421	.2845**	-.1505**	-.0580	-.0424	-.0450
LOGFLOOR	-.0905*	-.0027	.1273**	.1098**	.4189**	.3149**	.3468**	-.0084	-.0158	-.0346	.0866*
LOGPRICE	-.0729	-.0191	.1536**	.2640**	.2948**	.1909**	.5083**	.0677	.0786	-.0176	.0865*
SAFETY	.0016	.1524**	-.0131	.0450	.0028	.0073	.0649	.0495	.2751**	.2206**	.0493
ECONMOVE	.2409**	.0170	.0074	.0231	.0507	.0912*	.0027	-.1386**	-.0305	-.0267	-.0502
WARDMOVE	-.0115	-.0542	-.0042	.0025	.1062*	.0671	.0342	.1763**	-.0728	-.0183	.0959*
SQRTRCPV	-.0221	-.1045*	-.1384**	.1207**	.0160	-.0094	.0824*	.6179**	.0099	.0871*	.0140
SATISF	-.0499	.0930*	.0698	.0148	.0033	-.0379	.1416**	.0595	.0776	.0505	.0917*
OUTCOME	.0007	.0283	-.0049	.0276	-.0362	-.0693	.0312	.1401**	.1203**	.1098**	.0474
DISCB	.0489	.1547**	-.0708	-.0582	.0273	.0055	-.0678	.0010	-.0140	.0804	.1248**
FTB	.1583**	.0595	-.4780**	.1286**	-.3089**	-.2436**	-.2449**	.1169**	.0414	.0636	-.0446
RMOVE	1.0000	.0639	-.1578**	.1096**	.0037	.0366	-.0432	-.0307	.0434	.0564	-.0427
UNCERT	.0639	1.0000	-.0999*	.0394	.0265	.0078	.0001	-.0951*	.2884**	.1425**	.1050*
LOG_AGE	-.1578**	-.0999*	1.0000	-.2378**	.0202	-.1148**	.1068*	-.1508**	-.1132**	-.1250**	-.0172
LOG_EDUC	.1096**	.0394	-.2378**	1.0000	-.1790**	-.0905*	.2365**	.1980**	.1376**	.0644	-.1084**
LOG_SIZE	.0037	.0265	.0202	-.1790**	1.0000	.7483**	.1440**	-.0177	-.0167	-.0254	.3839**
PCHILD	.0366	.0078	-.1148**	-.0905*	.7483**	1.0000	.0164	.0181	-.0183	-.0106	.1543**
INCOME	-.0432	.0001	.1068*	.2365**	.1440**	.0164	1.0000	.0345	.0412	-.0175	.0287
RC_HHLD	-.0307	-.0951*	-.1508**	.1980**	-.0177	.0181	.0345	1.0000	.0992*	.1643**	-.0060
CMIND	.0434	.2884**	-.1132**	.1376**	-.0167	-.0183	.0412	.0992*	1.0000	.2762**	-.0239
DWELPROB	.0564	.1425**	-.1250**	.0644	-.0254	-.0106	-.0175	.1643**	.2762**	1.0000	-.0286
EVALPROB	-.0427	.1050*	-.0172	-.1084**	.3839**	.1543**	.0287	-.0060	-.0239	-.0286	1.0000
LACKTIME	.0394	-.2926**	.0574	.0052	.0620	.0473	-.0447	-.0379	-.0809	-.1204**	-.1952**
LACKCASH	.1237**	.1598**	-.2281**	.0238	.0109	.0429	-.1331**	.0250	.1563**	.1883**	.0795

* - Signif. LE .05 ** - Signif. LE .01 (2-tailed)

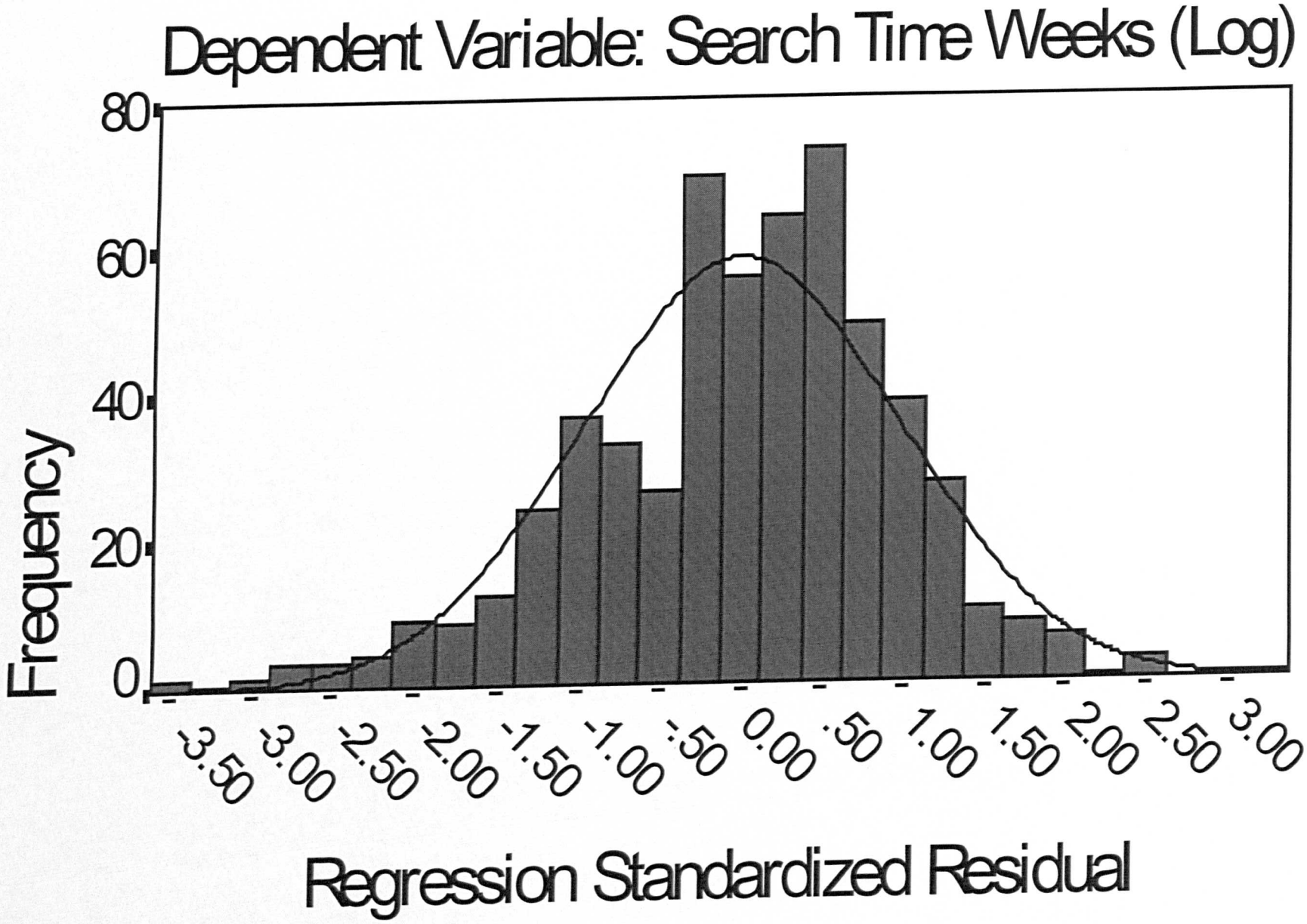
" . " is printed if a coefficient cannot be computed

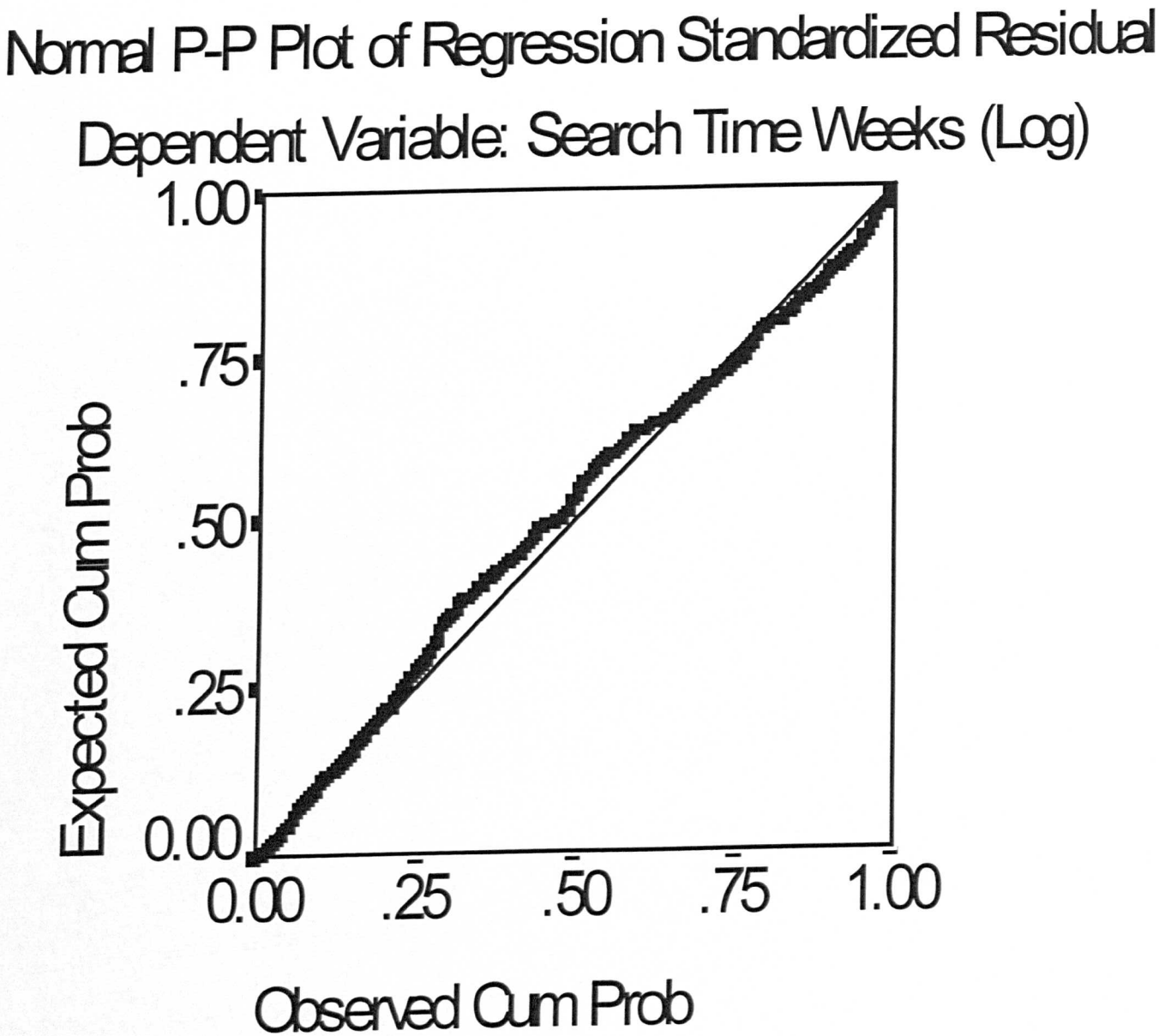
Correlation Coefficients - -

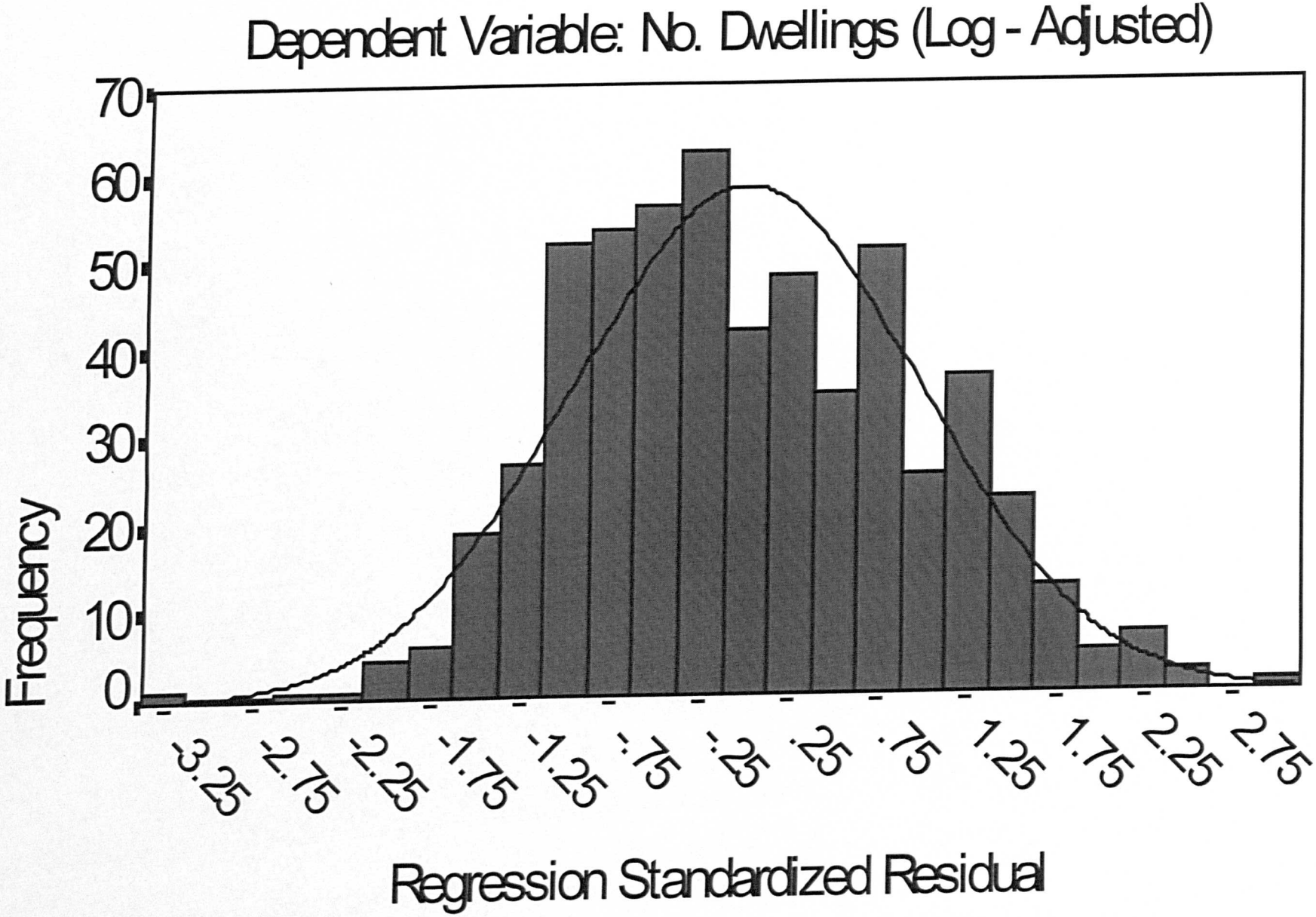
	LACKTIME	LACKCASH
LOG_S1	-.5704**	.0940*
LOGVIEW2	-.1333**	-.0383
LOGAREA2	-.1481**	.1247**
NO_CHAN2	-.1010*	.0822*
SQRT_RC	-.0036	.0199
SQRTSET	-.1483**	.1033*
STIME	-.0437	-.0510
COMPETE	-.1062*	.2630**
PGMATCH2	-.1024*	.0865*
NONMARK	-.0052	.0105
AGENT	-.0969*	.0080
NEW	.1212**	-.0722
LOGFLOOR	.0777	-.0551
LOGPRICE	.0288	-.0752
SAFETY	-.0209	.1788**
ECONMOVE	.1060*	-.0246
WARDMOVE	-.0048	-.0257
SQRTRCPV	-.0211	.0026
SATISF	-.2821**	-.0559
OUTCOME	-.0768	.0146
DISCB	-.1357**	.0875*
FTB	-.1003*	.1193**
RMOVE	.0394	.1237**
UNCERT	-.2926**	.1598**
LOG_AGE	.0574	-.2281**
LOG_EDUC	.0052	.0238
LOG_SIZE	.0620	.0109
PCHILD	.0473	.0429
INCOME	-.0447	-.1331**
RC_HHLD	-.0379	.0250
CMIND	-.0809	.1563**
DWELPROB	-.1204**	.1883**
EVALPROB	-.1952**	.0795
LACKTIME	1.0000	-.0604
LACKCASH	-.0604	1.0000

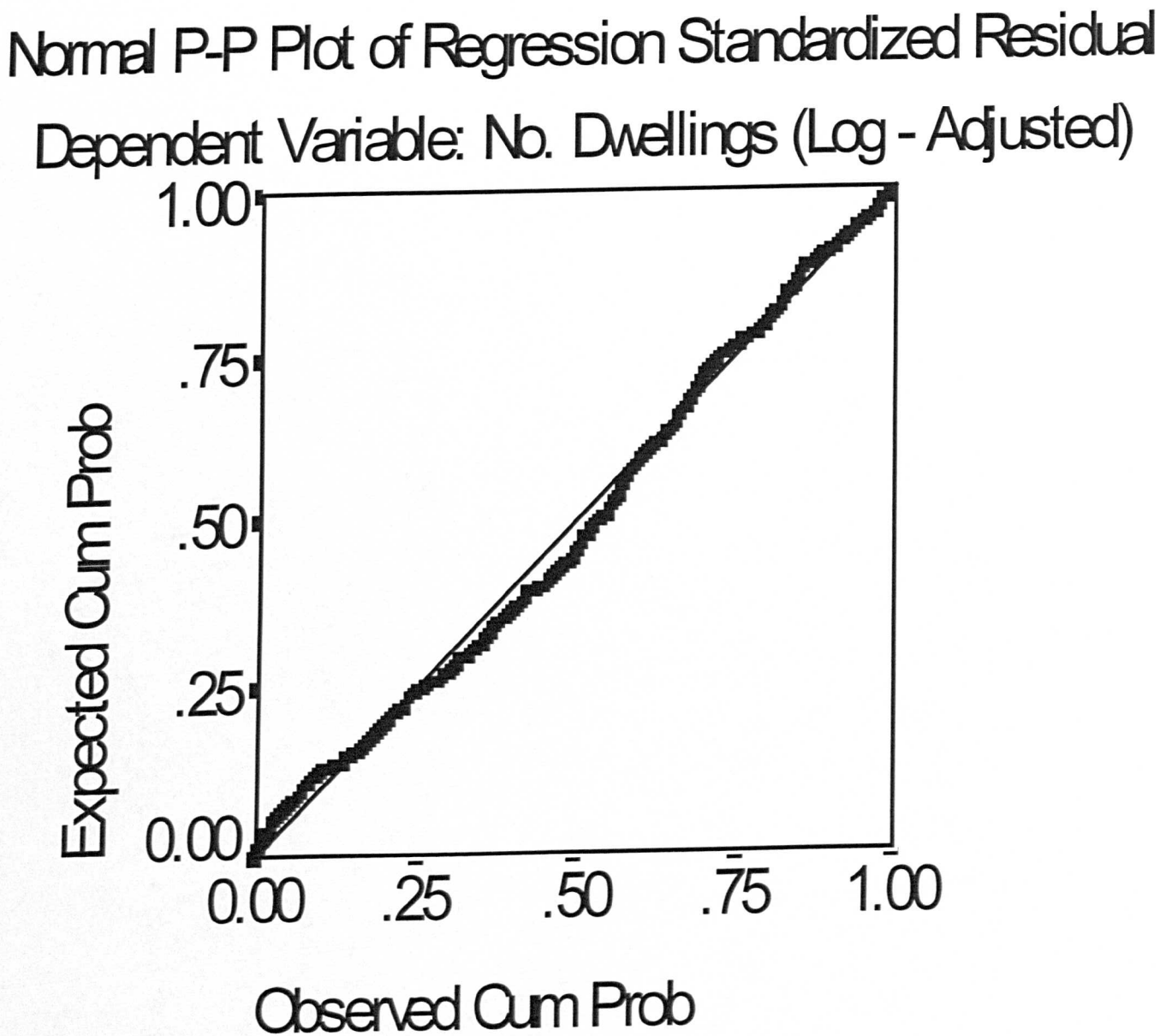
* - Signif. LE .05 ** - Signif. LE .01 (2-tailed) " . " is printed if a coefficient cannot be computed

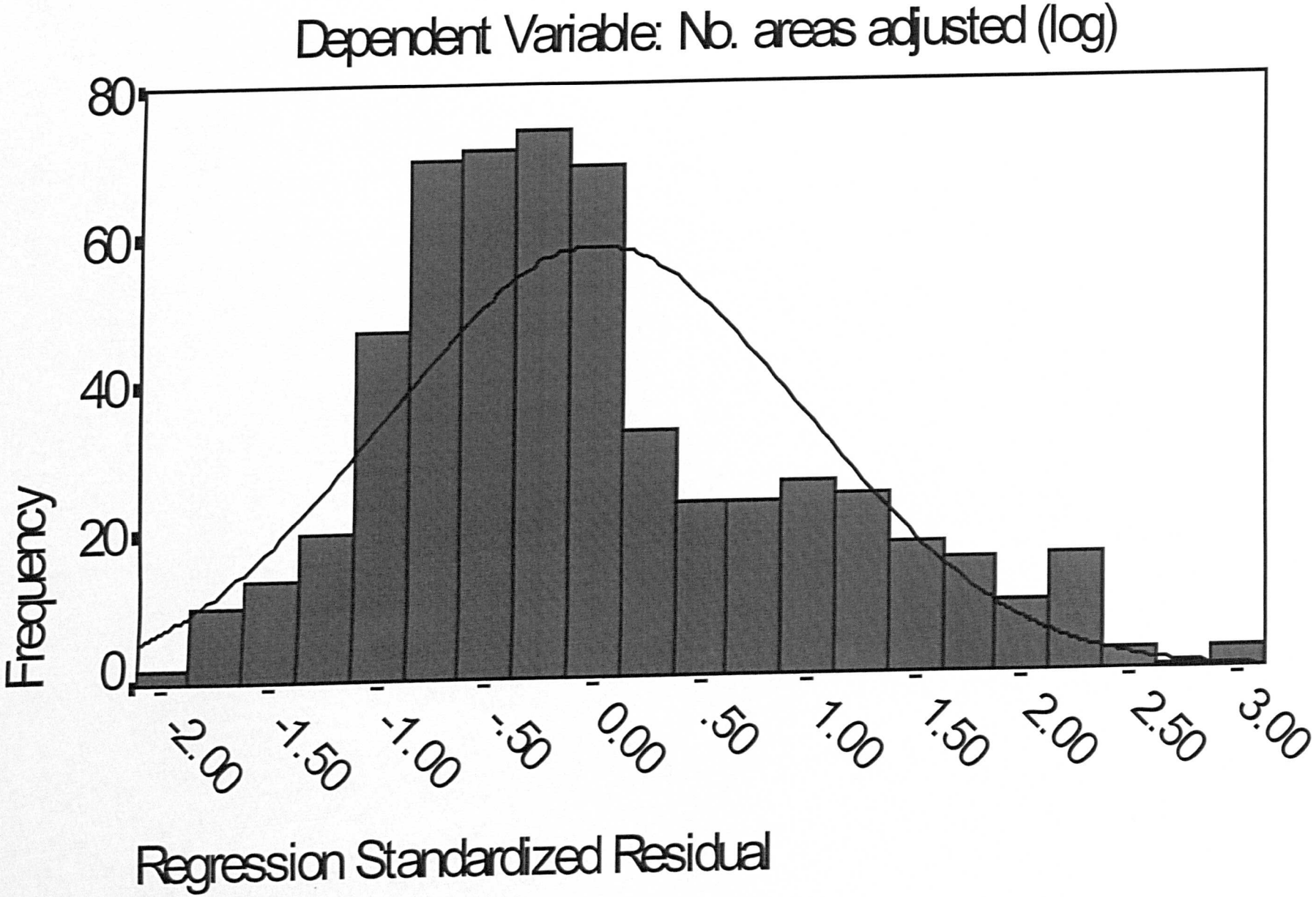
APPENDIX 9
DIAGNOSTIC PLOTS FOR SEARCH BEHAVIOUR REGRESSION MODELS

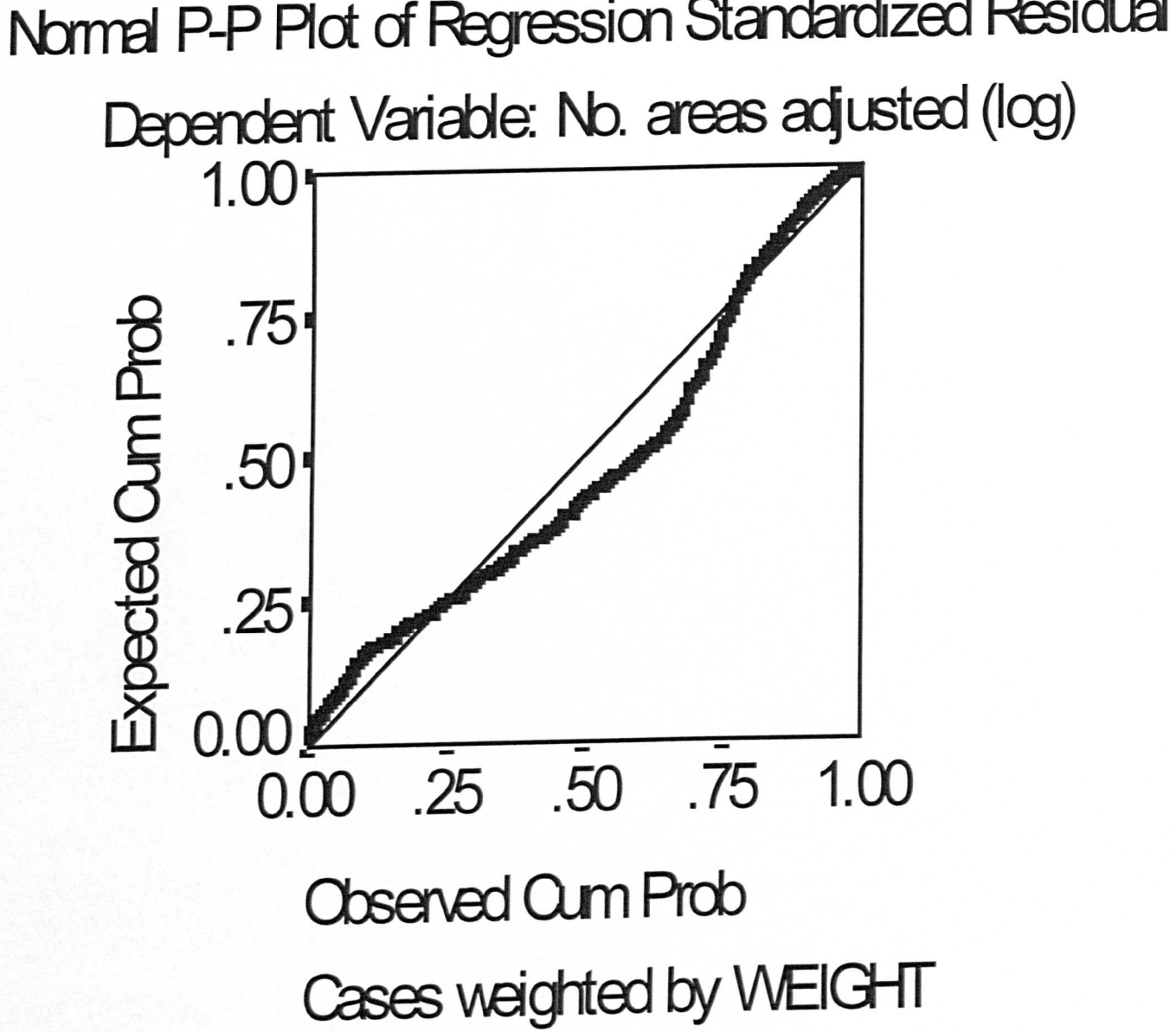

Dependent Variable: Search Time Weeks (Log)
Frequency
80
60
40
20
0
-3.50
-3.00
-2.50
-2.00
-1.50
-1.00
-.50
0.00
.50
1.00
1.50
2.00
2.50
3.00
Regression Standardized Residual

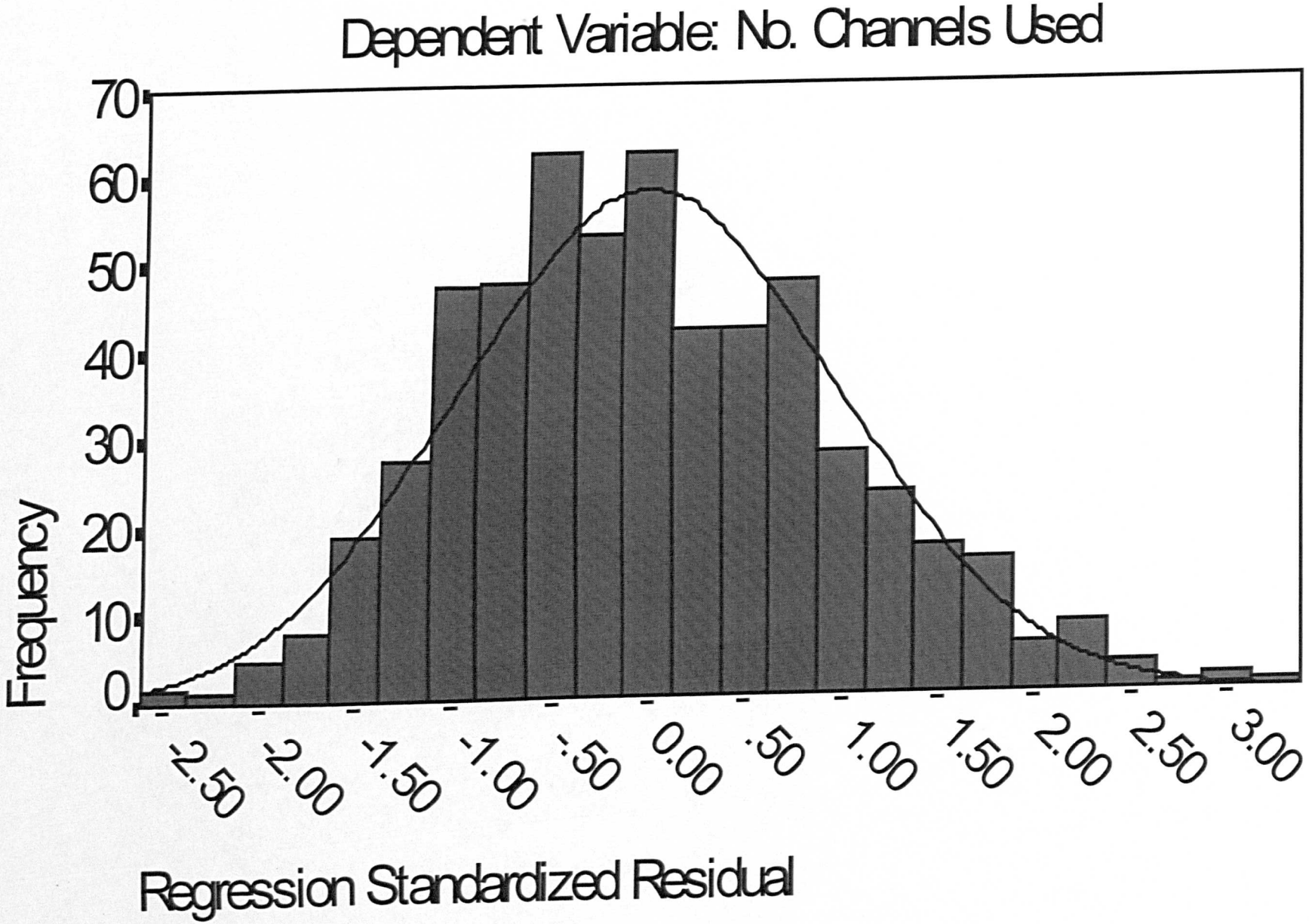

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Search Time Weeks (Log)
Expected Cum Prob
1.00
.75
.50
.25
0.00
0.00
.25
.50
.75
1.00
Observed Cum Prob

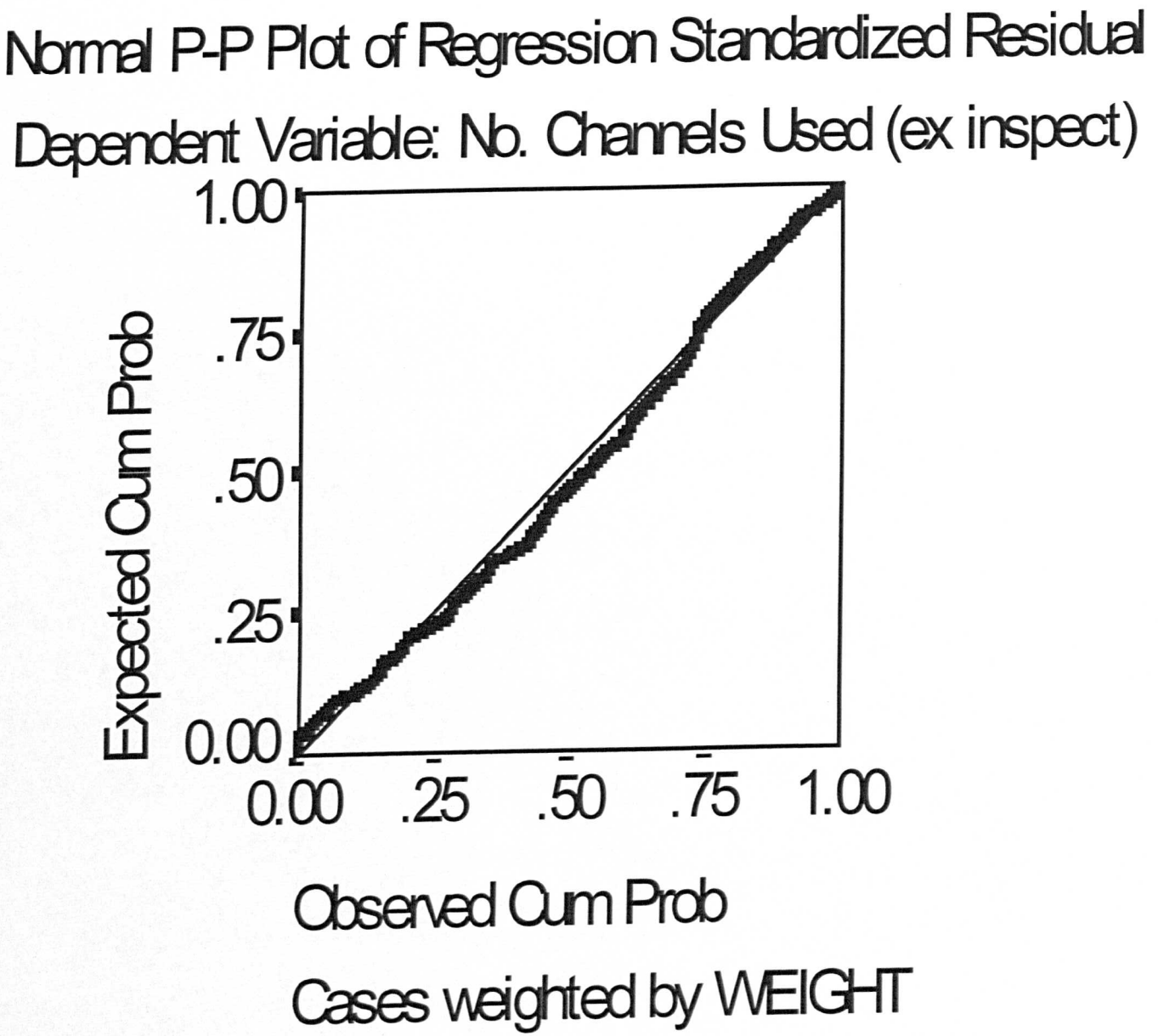

Dependent Variable: No. Dwellings (Log - Adjusted)
Frequency
70
60
50
40
30
20
10
0
-3.25
-2.75
-2.25
-1.75
-1.25
-.75
-.25
.25
.75
1.25
1.75
2.25
2.75
Regression Standardized Residual

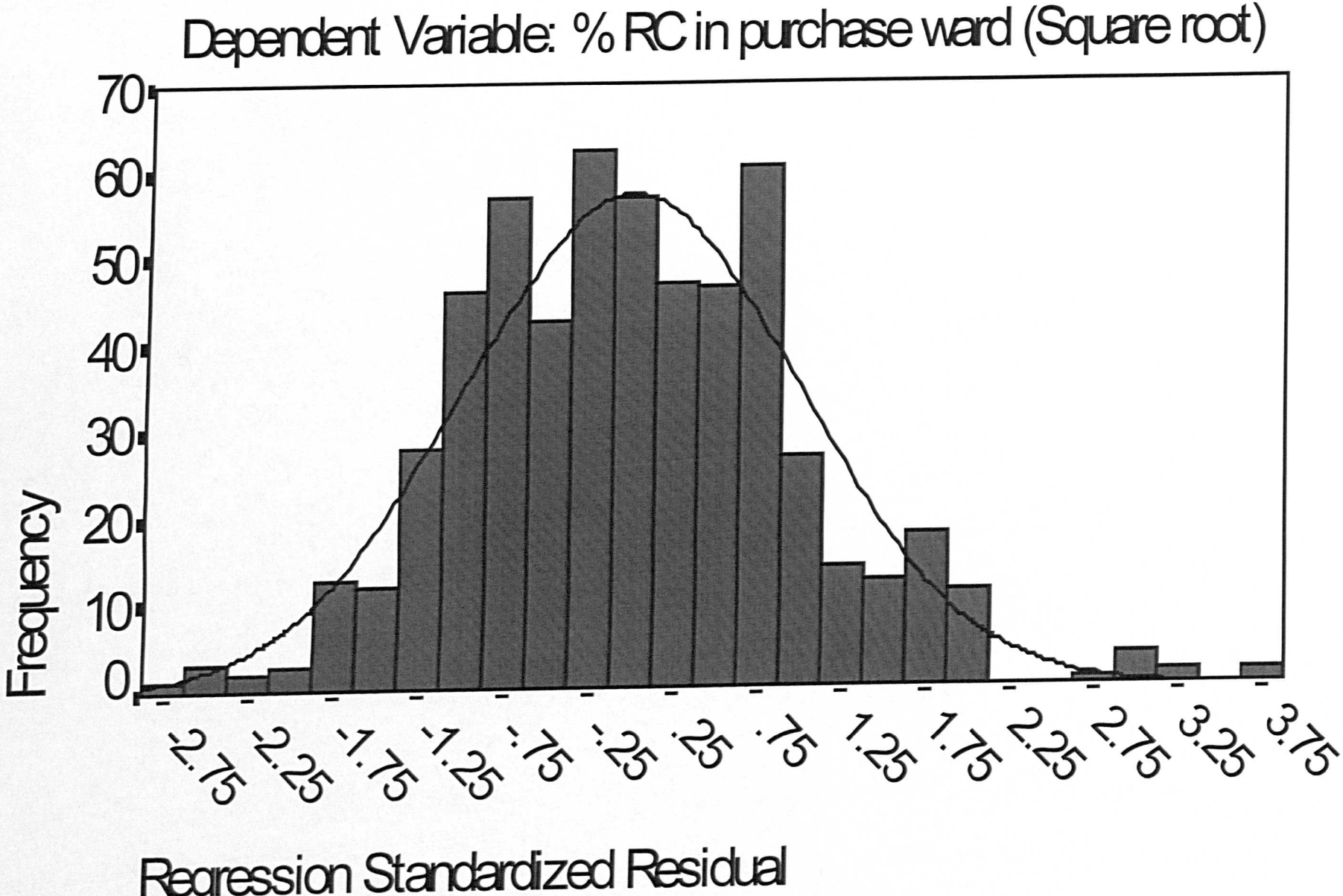

Normal P-P Plot of Regression Standardized Residual
Dependent Variable: No. Dwellings (Log - Adjusted)
Expected Cum Prob
Observed Cum Prob
0.00
.25
.50
.75
1.00

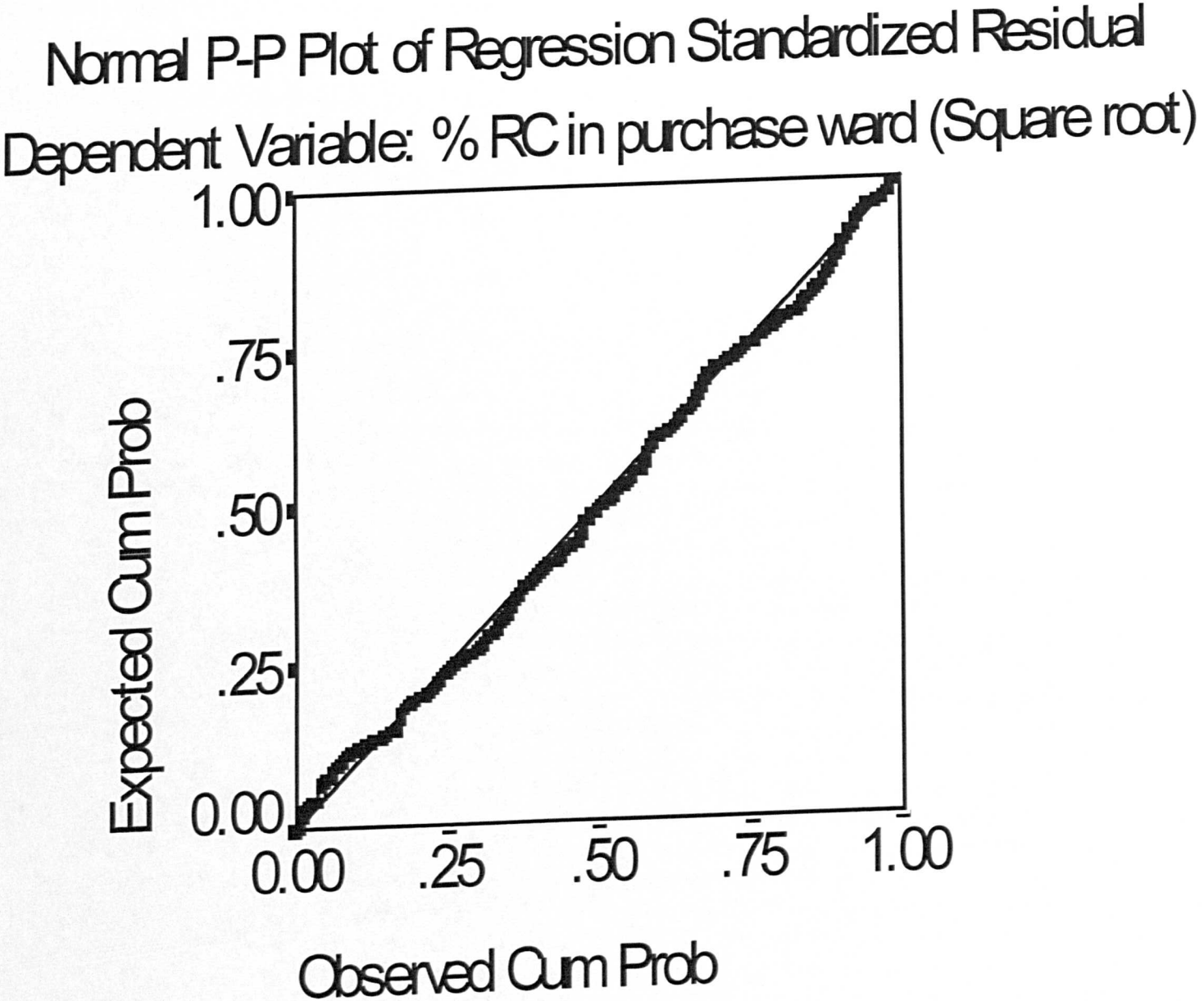

Dependent Variable: No. areas adjusted (log)
Frequency
80
60
40
20
0
-2.00
-1.50
-1.00
-.50
0.00
.50
1.00
1.50
2.00
2.50
3.00
Regression Standardized Residual


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: No. areas adjusted (log)
Expected Cum Prob
1.00
.75
.50
.25
0.00
0.00
.25
.50
.75
1.00
Observed Cum Prob
Cases weighted by WEIGHT


Dependent Variable: No. Channels Used
70
60
50
40
30
20
10
0
Frequency
-2.50
-2.00
-1.50
-1.00
-.50
0.00
.50
1.00
1.50
2.00
2.50
3.00
Regression Standardized Residual


Normal P-P Plot of Regression Standardized Residual
Dependent Variable: No. Channels Used (ex inspect)
Expected Cum Prob
1.00
.75
.50
.25
0.00
0.00
.25
.50
.75
1.00
Observed Cum Prob
Cases weighted by WEIGHT


Dependent Variable: % RC in purchase ward (Square root)
Frequency
70
60
50
40
30
20
10
0
-2.75
-2.25
-1.75
-1.25
-.75
-.25
.25
.75
1.25
1.75
2.25
2.75
3.25
3.75
Regression Standardized Residual



APPENDIX 10: POSSIBLE SEARCH DIARY INSTRUMENT

PRE-DIARY SEARCH ACTIVITY ✔

PARTICIPANT NUMBER	01

SEARCH HISTORY TO-DATE

Approximate date when ACTIVE search began (ie when you began to select dwellings to view) DD / MM / YYYY	
How long were you engaged in BACKGROUND search before you picked your first dwelling to view? (Please think carefully about this and answer as accurately as possible - write in your answer in months, weeks, or days as appropriate)	
Date that you joined the Diary Study DD / MM / YYYY	

BACKGROUND SEARCH TO-DATE

ACTIVE SEARCH TO-DATE

Please list addresses viewed, dates of viewing and whether or not you made an offer on the dwellings viewed

No.	Address(es) (PLEASE TRY TO COMPLETE AN INSPECTION SHEET FOR EACH DWELLING VIEWED)	Date(s) Viewed DD / MM / YYYY	Offer(s) Y / N
1			
2			
3			
4			
5			

Continue on another sheet if necessary

Please check that you have completed all the details requested on your search activity before joining the diary project and then circle the check mark at the top right-hand side of this page. Thankyou.

DAILY SEARCH RECORD ✔

PARTICIPANT NUMBER	01

DATE (DD / MM/ YYYY)	

HOUSEHOLD SEARCH ACTIVITY UNDERTAKEN TODAY	Tick all that apply ✔	FURTHER DETAILS (Write in details requested)
Visited estate agency		
Read property advertisements in the press		Which newspaper(s)?
Read estate agency property magazine		Which magazine(s)?
Talked with friends/relatives about your search		
Drove around looking for possible houses / areas to live		What areas?
Went to view a dwelling		Address: (Please complete a separate Inspection Sheet for this address)
Made a bid on a dwelling		Address: (Please complete a separate Offer Sheet for this address)
Changed your mind about what you were looking for		Describe briefly:
Some other activity (please describe)		Describe briefly:
Decided to give up your search		(Please complete the Stop Search Sheet)

PLEASE DESCRIBE ANY OTHER ASPECTS OF YOUR SEARCH THAT HAPPENED TODAY

Please check that you have completed all the relevant aspects of your search activity to-day. When you have checked, please ring the tick mark at the top right-hand side of the page. If you viewed or made an offer on any dwellings, you must complete the appropriate additional sheets. If you decided to stop searching, you should complete the Stop Search Sheet and make arrangements to return your complete diary records.

INSPECTION SHEET ✔

Participant Number	01

Date of Inspection (DDMMYY)	

First Inspection of this Dwelling?	Yes / No	If No, how many others?	

PROPERTY DESCRIPTION (Complete for First Inspection only)

Address		
Agent (if applicable)		Write in
Number of Floors		
Number of Bedrooms		
Number of Reception Rooms		
Asking Price	£	

Dwelling Age	Circle
New	1
Post 1980, not new	2
1945 - 1980	3
Interwar	4
Before 1919	5

Dwelling Type	Circle
Detached	1
Semi Detached	2
Terraced	3
Flat / Apartment	4

Overall Condition	Circle
Very good	1
Quite good	2
Neither good nor poor	3
Quite poor	4
Very poor	5

Found dwelling through...	Circle
Newspaper advertisement	1
Property magazine	2
Estate agent	3
Driving around	4
Friends/relatives/colleagues	5
Other source	6

Perceived Religion of Area	Circle
Overwhelmingly Protestant (90%+ Protestant)	1
Mainly Protestant (70-89%)	2
Mixed religion (50-69% Protestant)	3
Mainly Roman Catholic (10-49% Protestant)	4
Overwhelmingly Roman Catholic (<10% Prot)	5

Environmental Maturity	Circle
Very mature	1
Quite mature	2
Quite immature	3
Very immature	4

Pease record the sorts of things that you considered / looked at on this visit. (If second or subsequent visit to this dwelling, please outline your emphasis on this visit)

Did you change your mind about what you wanted in your new home from inspecting this dwelling? Yes / No

What do you like best about this dwelling?	**What do you least like about this dwelling?**

How likely are you to buy this dwelling?		Circle
Certain, practically certain	(99 in 100 chances)	10
Almost sure	(9 in 10 chances)	9
Very probable	(8 in 10 chances)	8
Probable	(7 in 10 hances)	7
Good possibility	(6 in 10 chances)	6
Fairly good possibility	(5 in 10 chances)	5
Fair possibility	(4 in 10 chances)	4
Some possibility	(3 in 10 chances)	3
Slight possibility	(2 in 10 chances)	2
Very slight possibility	(1 in 10 chance)	1
No chance, almost no chance	(1 in 100 chances)	0

Please check that you have completed all the details of your inspection of this dwelling and then ring the check mark in the top right-hand side of this page. Thankyou.

OFFER SHEET ✔

PARTICIPANT NUMBER	01

DETAILS OF Offer(s)

ADDRESS OF PROPERTY ON WHICH YOU MADE BID (Note - Record details for all bids made on this dwelling. Use a continuation sheet if necessary. Do NOT record bids on different properties on the same sheet) **ADDRESS:**		**Date of Offer(s)** DD / MM / YYYY	**Amount of Offer(s)**	**Result of Offer(s)** Enter Codes: 1 Accepted by vendor 2 Rejected by vendor 3 Beaten by another bidder 4 Bid withdrawn by you 5 Property withdrawn from sale	**Were you bidding against other households for this dwelling?** YES / NO
	1		£		
	2		£		
	3		£		
ASKING PRICE £	4		£		

INDICATE THE EXTENT TO WHICH YOU AGREE OR DISAGREE WITH EACH OF THE FOLLOWING STATEMENTS ABOUT YOUR APPROACH TO BIDDING ON THIS DWELLING

	Agree Strongly (Tick ✓)	**Agree Somewhat (Tick ✓)**	**Neither agree nor disagree (Tick ✓)**	**Disagree Somewhat (Tick ✓)**	**Disagree Strongly (Tick ✓)**
You wanted this dwelling no matter what it cost					
You wanted to buy as cheaply as possible and almost any property would have done					
You wanted this dwelling but had a price limit in mind					
You wanted to live in this area and this dwelling was most you could afford					
You wanted this type of property and didn't really mind about the location					
You bid deliberately low hoping for a bargain					
You offered what you thought was realistic for the dwelling					
You were not really that interested in the dwelling					
You bid more than you could really afford in order to secure this dwelling					

Please check that you have completed all the details required on this sheet and then circle the check mark at the top right-hand side of the page. Thankyou.

STOP SEARCH SHEET ✔

PARTICIPANT NUMBER	01

How much would you say that you changed your mind about what you were looking for during the course of your search?	Changed a lot Changed a little Didn't change at all	1 2 3

Date search ended either successfully or unsuccessfully	

SUCCESSFUL SEARCH (BOUGHT A DWELLING)		Circle
Thinking back, would you say that you ...	would have liked to spend less time searching spent about the right amount of time searching would like to have had more time searching	1 2 3
And, would you say that you...	viewed too many dwellings viewed about the right number of dwellings would like to have viewed more dwellings	1 2 3
Overall, how satisfied are you with the outcome of your search effort?	Very satisfied Quite satisfied Neither satisfied nor dissatisfied Quite dissatisfied Very dissatisfied	1 2 3 4 5

UNSUCCESSFUL SEARCH - PLEASE EXPLAIN WHY YOU STOPPED SEARCHING

WHICH OF THE FOLLOWING PROBLEMS DID YOU ENCOUNTER DURING YOUR SEARCH? (Circle appropriate number)	Extent of Problem (Circle)				Extent of Problem (Circle)		
Finding a home that you liked within your price range	Big	Bit	Not	Deciding how much to bid on any particular property	Big	Bit	Not
Finding a home that you liked in the area of your choice	Big	Bit	Not	Deciding on which factors were really important to you and which were less so	Big	Bit	Not
Finding a home that you could afford in the area of your choice	Big	Bit	Not	Deciding on how much you could afford to spend as a maximum amount	Big	Bit	Not
Obtaining information on houses that were available throughout the city	Big	Bit	Not	Getting the time to view properties that you were interested in	Big	Bit	Not
Feeling that you wouldn't be safe in a particular area	Big	Bit	Not	Raising the funds for the deposit and other transaction charges	Big	Bit	Not
Feeling that you were being discriminated against in some way	Big	Bit	Not	Being able to sell your previous home	Big	Bit	Not
Having to cut short your search because of a lack of time	Big	Bit	Not	Raising the money needed for decoration / furniture in your new home	Big	Bit	Not
Having to cut short your search because of a lack of money	Big	Bit	Not	Finding properties that you may have been interested in had already been sold	Big	Bit	Not
Deciding when to stop your search	Big	Bit	Not	Finding that properties that you wanted to re-visit had been sold	Big	Bit	Not

Please check that you have completed all the details required on this sheet and then circle the check mark at the top right-hand side of this page. Thankyou.