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Social networks and residential mobility in later life: the effects of
moving on social network supportive capacity amongst older people
in the UK

by

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Thesis for the degree of Doctor of Philosophy

January 2014

Abstract

This is an interdisciplinary PhD research project, spanning the ESRC Centre for Population Change and the Centre for Research on Ageing. Using British Household Panel Survey data, the thesis aims to prove that undertaking a residential move changes the supportive capacity of one's social network in later life. The study first investigates the determinants of moving home in later life. It then conceptualises and constructs the social networks of older people in the UK, considering key attributes such as network size, frequency, proximity and functions and examines the effects of moving home on these measures. The analysis finds that the incidence of residential mobility is associated with, amongst other things, becoming widowed and experiencing a negative change in health or financial circumstance. Furthermore older people are likely to experience disruption to the supportive capacity of their companionship and community networks following a move. This research has important implications for policy as any damaging effects on an older person's informal support network may have consequences for their health outcomes and in turn lead to an increased dependence on formal health and social care services at the places to which they move.

Social networks and residential mobility in later life: the effects of moving on social network supportive capacity amongst older people in the UK

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Academic Thesis: Declaration of Authorship

I, MARCUS GREEN

declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

Social networks and residential mobility in later life: the effects of moving on social network supportive capacity amongst older people in the UK

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;
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3. Where I have consulted the published work of others, this is always clearly attributed;
4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;
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Chapter 1. Introduction

It is estimated that informal care for those aged 65 and over, if it were fully funded, would cost around £119 billion each year (Carers UK, 2011). This equates to more than the total £98.8 billion annual cost of running the NHS (HM Treasury, 2011). The value of support of family and friends to those in pre-retirement has not been monetised but one can be fairly certain that if this support were formalised, the delivery of health and welfare services in the UK would not be sustainable given current budgets for health and social care. Consider also that the fiscal values quoted are only computed for informal support which is 'instrumental' such as assistance with personal hygiene, getting dressed, preparing meals and administering medicine. There are numerous additional forms of informal social support which older persons receive from their families, friends, neighbours and wider community such as that which is emotional, intimate, monetary and informational. The roles that informal support networks play in both easing the demands on the NHS and, importantly, maintaining the health and well-being of people in later life in the UK are vital. Informal and formal social care provision essentially delays or averts the need for acute care, which can otherwise be resource intensive. In this more recent period of fiscal restraint, local authorities are cutting expenditure; spending on older people's social services is highly restricted and the role of informal support networks in lessening the need for additional outlay is of great importance.

A reduction in the volume of social support available to an older person will have adverse consequences for them. Any form of disruption to this support could affect an older person's health, functional independence and in turn their consequent use of formal health and welfare services. There is a whole body of literature that highlights the pivotal role that informal support plays in dictating one's health (Cobb, 1976; Smith and Christakis, 2008; Umberson and Montez, 2010). Any diminution in the availability of social support when older people rely on informal assistance in carrying out activities of daily living could threaten functional independence. In many cases older people are not eligible for formal care where they live or do not have the means to afford it which could mean that their

needs become untended or worse, force them to sell their home to finance a move into extra-care housing or a residential home.

Informal support emanates from the structure of a more extensive social system. The dimensions of this system if altered may affect support levels available to the network 'ego' (i.e. an older individual). Changes in the attributes of social networks can occur for a variety of reasons associated with the behaviour of the centric network figure; variation in coping resources (characteristics intrinsic to the individual such as those which are financial, demographic or social which may help to build a network of supportive contacts or ameliorate the possibility of change in network attributes) or health may affect an older person's ability to both facilitate and maintain the provision of social support in their social network. Likewise, a residential move can act to interrupt a social network by increasing the distance between the network ego and people in the network thus increasing dependence on a newly constructed social system following a move, which may not be as supportive as the previous. The consequent use of formal health and welfare services as a result of changes to the supportive capacity of social networks should be of great interest to the NHS, social care organisations, policy makers and resource allocators.

Using British Household Panel Survey data, this thesis aims to investigate the effects of residential mobility in later life on older people's social networks in the UK. In exploring the determinants of moving and the ways in which moving affects the attributes of social networks which are fundamental to the provision of informal support, the research builds an understanding of the types of social network that are more or less susceptible to change following a move. Knowledge of the types of older person who are more or less likely to move can inform predictive risk modelling approaches where subgroups of people characterised by their socio-demographic profiles have their risk of moving determined. This may enable demographers to predict migration flows (both in their magnitude and composition) at older ages but it also raises awareness of the possible motives driving the move and the mover's ability to cope throughout the process of relocation. An examination of mover profiles can convey employment status, levels of labour and benefit income, material wealth, savings and debt, physiological and mental health which may suggest

whether a person is likely to need the support of the local authority or welfare state after a move. The findings in the thesis help to build an empirical evidence base for understanding the relationship between moves and change in social network attributes by social network type. Changes in the supportive capacity of social networks in later life have implications for the subsequent use of formal health and welfare services. This subject is reviewed throughout the thesis particularly in the discussion in **chapter 8** assessing the contribution of the research to the evidence base and the policy implications of the findings and areas for further research.

Statement of aims and principal research questions

The central aim of this research project is to ascertain whether moving in later life affects the attributes of social networks which contribute to its supportive capacity. The secondary aims are to identify individuals who are at greater risk of moving and are more likely to experience fluctuation in the supportive capacity of their social network; particularly that which may negatively affect the level of informal support that they receive. This is considered in the context of their overall circumstance. The thesis entails five principal research questions, detailed below:

Research question one: What are the determinants of residential mobility in later life?

Understanding the characteristics that are associated with varying residential mobility rates is important for a number of reasons; to unpick the possible motives driving moves and to appreciate who is more likely to undertake a move in later life as this may have repercussions for the level of welfare assistance they need at the places to which they move. Aside from the need to understand who is moving for targeting purposes, principally service delivery and policy making, establishing the correlations between factors associated with higher and lower than average (for the sample) mover rates can help identify subgroups of older people who are at greater risk of undertaking moves and this is useful for demographers who study population redistribution. For the purposes of this research, an

awareness of the key drivers of moves in later life is essential to understand why there is variation in the levels of supportive capacity in social networks following a move against whether this variation is likely to be intended, prepared for, underestimated or unintended, which can be discerned from what was likely to have triggered the move.

The findings from **chapter 5** indicate that there are numerous socio-demographic characteristics found to have deterministic properties on the propensity to move in later life. A change in partnership status is associated with an increased likelihood of moving in the next year. British Household Panel Survey respondents who became newly partnered were over 15 times more likely to move in the next year than an individual who remained partnered. Similarly, respondents who became divorced or separated in the last year were over seven times more likely to move in the next year. Those who were poorer or better off than average for the sample both in terms of health and financial circumstance were more likely to move in the next year. These findings indicate that the sample of older movers in the British Household Panel Survey are noticeably heterogeneous in their profiles and likely, their reasons for moving.

Research question two: What are the social networks of older people in later life in the UK?

An investigation into the characteristics of older people with varying supportive capacities by social network type is a valuable exercise and an essential piece of the research puzzle. Identifying social networks of particular supportive capacities helps to build a picture of who in later life is likely to have less informal support available to them. For example, it may be found that people at older old ages are more likely to have social networks which have a particularly poor capability to provide support. When examining the susceptibility of certain social network types to change (as referred in the remaining research questions), it is crucial to do so whilst appreciating the profile of the network ego.

The analysis in **chapter 6** finds that over 27 per cent of the sample in 2006 of the British Household Panel Survey had a social network with a 'very low' supportive capacity. A further 18 per cent of the sample had a 'low' supportive capacity social network. As is

detailed in **chapter 4**, supportive capacity takes into account the size, frequency of interaction, proximity of constituents and functions of the network. An investigation of network ego characteristics reveals that people who are older, more financially disadvantaged, express poorer health and are not in a partnership are more likely to possess a social network with a 'very low' or 'low' supportive capacity.

Research question three: What is the association between the direction of social network attribute change and network type by mover status and age?

This research question represents the focal point of this thesis and validates the juxtaposition of residential mobility and social network supportive capacity throughout the analyses. The affirmation of a relationship between the two concepts is a fundamental prerequisite to the remaining research questions.

Beyond an exploration of a high-level relationship between the supportive capacity of different social network types and the occurrence of a move, a study of the relationship between individual network attributes and residential mobility adds further granularity to the analysis. A principal aim of the research in this thesis is to understand how residential mobility affects social network attributes which determine supportive capacity and whether the effects of moving differ significantly across age groups. Using the findings under the remits of research questions one and two, a picture is built of who is more likely to experience adverse change in their social networks following a move. As detailed in **section 3.2** and **chapter 8**, declines in the level of informal support available to an older person can have a detrimental effect on their quality of life, mental and physiological health.

A significant relationship is found to exist between residential mobility and social network supportive capacity change in later life. The results in **chapter 7** illustrate that companionship, community and kin networks are more likely to exhibit change if a move occurs. The companionship networks of individuals in pre-retirement were more likely to demonstrate a negative change in supportive capacity following a move and this may indicate a high prevalence of amenity movers in the British Household Panel Survey. It was

found that moving was associated with an increase in supportive capacity at all ages. This might indicate that community connectedness is not only a prevalent phenomenon following a move but also that it is important for the network ego to assimilate into what is likely to be a new community. Of all three social network types, kinship networks were found to be the most susceptible to change following a move. However, not at any age was moving more associated with a decrease in supportive capacity than not moving. There is evidence of assistance moves in the BHPS sample with movers at ages 65 to 74 more likely to experience an increase in kinship network supportive capacity than non-movers.

Research question four: Is there evidence of varying levels of change in social network attributes depending on the length of elapsed time since a move?

An examination of the relationship between the length of elapsed time since a move and social network change provides the opportunity to better understand the connection between residential mobility and social network change. Controlling for the time that the move occurred allows for the introduction of the concept of network disruption and reconstruction.

The results in **chapter 7** show that the relationship between the time elapsed since a move and social network change is convoluted. It is hypothesised that more recent moves would exemplify stronger correlations with higher prevalences of positive or negative change in attributes. However, this was not found to be the case. Across all social network attributes, moves that occurred between 2005 and 2006 or not moving between 2002 and 2006 were more associated with no change in social network attributes.

Research question five: Are sex and a change in partnership status associated with positive and negative change in network supportive capacity?

The final research question is related to research question three and investigates the effects of sex and marital status on social network supportive capacity change. As in research question three, the findings may indicate who in later life is better prepared to cope with

changes to their social network following a move; the findings in chapter 7 will be considered in context with the conclusions drawn in chapter 5 as to the relationship between determinants, age, sex and a change in partnership, of residential mobility in order to shed light on this.

Unexpectedly it was found that respondents who were newly widowed, divorced or separated were more likely to experience an increase in the supportive capacity of their social network, across all three network types. On the other hand, respondents who were newly partnered were more likely to experience a decrease in the supportive capacity of their social network. Sex was not found to be a significant covariate in explaining the likelihood of a respondent experiencing a change in kinship network or community network supportive capacity. It was however found that being male was more associated with a higher likelihood of experiencing companionship network supportive capacity decrease.

Thesis structure

The thesis begins in **chapter 2** by appraising the literature on the theories of migration and residential mobility at older ages and explores the decision making process of movers in later life. Linking to **chapter 5** later in the thesis, this review chapter investigates the characteristics of older movers and their deterministic properties in the context of moving likelihood. The chapter concludes by presenting a typology of moves in later life. **Chapter 3** examines the literature on social networks in later life with an underpinning focus on their relevance in health and informal support provision. The literature review chapter concludes by studying the scarce literature on residential mobility and change in the supportive capacity of social networks, describing the disconnect between social network concepts in the literature and their operationalisation in social survey data. **Chapter 4** presents the methodology which fronts the four analytical chapters in the thesis. Included in this chapter is a detailed description of the British Household Panel Survey (BHPS) and the analytical samples used throughout the thesis. Furthermore this chapter outlines how social networks and residential mobility are measured. The final section of the methodology introduces the principal analysis techniques that are employed in the analytical chapters. **Chapter 5**

represents the first analytical chapter and investigates how various individual characteristics such as age, sex, marital status and other socio-demographic factors affect the propensity to undertake moves in later life. The findings from this chapter answer research question one ‘what are the determinants to residential mobility in later life?’ Following this, **chapter 6** unearths the social network types of older people in the BHPS including kinship networks, companionship networks and community networks. Addressing research question two, the chapter concludes by correlating social network types by the individual characteristics of older people. **Chapter 7** exemplifies the crux of the analysis in the thesis; social network attributes are interacted with residential mobility in order to determine the existence of a relationship between the two concepts chiming with research questions three, four and five. Age is examined as a confounding variable in mediating the relationship between social network supportive capacity change and residential mobility. Sex and a change in partnership status are investigated for an association with social network supportive capacity change, considering in context their relationships with residential mobility as evidenced in **chapter 5**. Throughout the chapter, changes in social network supportive capacity are also measured against the time elapsed since a move (in answer to research question four). The discussion in **chapter 8** brings together findings from the three analysis chapters and considers these in the context of the literature and implications for policy and service delivery. **Chapter 9** concludes the thesis, defining possible solutions and recommendations by identifying those most ill-prepared and at risk of adverse changes to their social network and highlighting what could be done to safeguard their quality of life and broader health outcomes. The final chapter also discusses the limitations of this PhD research project and outlines areas for further scholarship.

Chapter 2. Residential mobility literature review

The literature review builds the foundation and scope for the research in the thesis. The review focuses on research conducted in the areas of residential mobility and social networks in later life. Gaps in the literature are highlighted where research is missing.

The literature review is comprised of three main sections: i) a summary of the principal theories in migration and residential mobility studies and how these are relevant to the study of geographical relocation at older ages, ii) a discussion of the key motivating factors driving residential mobility at older ages focusing particularly on the decision making process and iii) a comparative study of the characteristics associated with residential mobility and ageing in place at older ages from the literature. **Chapter 3** turns its focus towards social networks in later life and consequent health outcomes in the context of network disruption through residential mobility.

2.1. Review of the principal theories of migration and their relation to residential mobility in later life?

In this section of the literature review, the main theories of migration are discussed in order to gain a better understanding of the process of residential mobility. Residential mobility decision making and mover characteristics in later life are best understood in the light of theories of migration at all ages. Without knowledge of migration across the life course, it is not possible to understand how individuals have reached, by ages 50 and over, a certain point in their life cycle. Our behaviour and individual make-up is dependent on earlier childhood and labour-oriented events (and moves) which cannot be neglected.

Geographical mobility in later life itself is dependent on individual life histories as where we are located (the motives and characteristics that have interacted with each other up to this point) is mostly dictated by what occurred previously, embedded in recent life history and in earlier life course experiences. A tendency for more frequent residential adjustment can develop across the life course owing to life course events such as changes in partnership that become more prevalent as we age. It is evidenced that age-specific migration rates, following a period of heightened mobility in early life and a decline in people's early 20s,

then increase into later life (Office for National Statistics, 2013; 2012a). This is explored further in **section 5.2**. Thus gaining knowledge of residential histories prior to age 50 years and over is important if we are to understand the heightened or lessened susceptibility to moving amongst older individuals. Our health, marital and financial status, parity and formation of the notion of place attachment (all of which exert influence on the propensity to move) are a culmination of a variety of factors across the life course. Thus non-age specific migration theory has relevant application to residential mobility at older ages. The analysis in the thesis, specifically **chapter 5**, focuses on the life course at ages 50 and over. A focus on migratory behaviour at ages below 50 is beyond the remit of the research project.

Ravenstein and Lee's Theories of Migration

In the following section, the principal theories of migration are presented along with a discussion of their relevance to the study of residential mobility at older ages. To begin, we introduce Ernst Georg Ravenstein who is viewed as the father of migration theory. Following on from this, Everett Lee's theories of migration are considered but first let us discuss Ravenstein and the seven laws of migration he outlined in 1885 (Ravenstein, p.198-1999, 1885) which are illustrated briefly below;

First law: a greater body of migrants only proceed a short distance whilst those proceeding longer distances tend to go to the great centres of commerce and industry.

Second law: the shifting or displacing of the population produces 'currents of migration' in the direction of the centres of commerce and industry. The inhabitants of less populated areas move to more populated areas in stages with each less rural area being populated by somewhere more rural. The process of dispersion is the inverse of absorption.

Third law: main currents of migration produce a compensating counterstream.

Fourth law: rural over urban societies show a higher propensity to migrate.

Fifth law: females are more likely to move shorter distances.

Sixth law: migration increases as a result of improvements in technology and locomotion.

Seventh law: the desire to better one's self in material respects produces volumes of migration that scale even higher than the need to migrate due to oppressive laws, heavy taxation, unattractive climates, disagreeable social surroundings or compulsion.

These laws have provided a framework for the understanding of migration in the late 19th, and 20th and 21st Centuries. The underlying theories of migratory driving forces are transferable between migration theory at all ages and that of migration and residential mobility in later life. Older residential mobility is better understood relative to geographical movement earlier in the life course. Evidence of this is discussed in the sections below.

Ravenstein states that the majority of migrants move shorter distances. To move or migrate greater distances is more costly. The greater the distance between a point of origin and destination, the more significant the societal and cultural disparity is likely to be. One is also more likely to experience disruption to their social network and as a result lose the sense of geographical familiarity upon moving, two significant components which comprise the notion of 'place attachment'. The second part of the first rule says that migrants proceeding longer distances do so towards the 'great centres of commerce and industry'. The concept of the 'friction of distance' received some focus in the 1970s literature (Cliff et al, 1974; Curry, 1972; Johnston, 1973; Olsson, 1970). Essentially, 'friction of distance' is the concept that an increasing distance between the points of origin and destination exert an inertial force upon not just the likelihood of a migration but also the distance travelled if a move occurs.

The second law centres on the manner in which migration patterns are dictated by stages. Migration currents develop from fringe areas towards growing urban regions. These fringe areas which experience an out-migration also intake migrants from more rural areas. Thus, migration takes the form of stages.

When discussing 'currents of migration', Ravenstein was referring to flows of migrants. Importantly, he identified what is still a relevant mass movement of people from rural to urban areas. Ravenstein also refers to the effects of dispersion on the suburban and

surrounding areas to the 'centres of commerce and industry'. The theory states that of those areas which experience a greater migrant dispersion to areas of migrant absorption, also receive migrants from more remote areas. Ravenstein states that the most rapid growing cities will influence "the most remote corner of the kingdom (p.199)".

The second law also indicates that the dispersion process is similar to that of absorption. Put another way, Ravenstein is asserting that the acting processes both in sending and receiving areas are similar. This is true in the sense that areas repopulate and depopulate through immigrant and emigrant flows. However, the features of 'dispersion' and 'absorption' as processes are highly dependent on push and pull factors and the population size of the area in question. For example, the absorption process in London was and still is likely to consist of higher proportions of younger people, who migrate in great numbers. The dispersion process is likely to consist of fewer migrants who are more likely to be older and disengaged from the labour market. Similarly, if we consider a rural area, the emigration rates are likely to be higher than the immigration rates with different migrant profiles associated with absorption and dispersion.

Ravenstein in his third law implies that main migrant 'currents' produce compensating counter-currents. Use of the word 'main' assumingly infers significant migrations such as movements from north to south in Britain in 19th Century or to major urban centres. However, use of the word compensating, implies equal or at least significant streams of migrants moving to and from an area which may not necessarily be the case. As with Ravenstein's second law, the immigrant flow into an urban area could feasibly be more significant than the emigrant flow. Compensation in this context also alludes to equal population absorption and dispersion at the interchangeable points of origin and destination resulting in a net balance in migrants. This may not hold true for modern stream and counterstream patterns. As an example, older people who move upon retirement to an area of perceived amenity may not always return to their origin thus creating an imbalance between inflows and outflows.

The fourth law states that persons living in urban areas are less inclined to migrate than those living in rural areas. Owing to the stronger pull factors of urban areas, many of these employment-related, those in rural areas are more likely to move to the 'centres of industry and commerce'.

Using the British 1881 Census Ravenstein states that females were more likely to migrate shorter distances than males. This is likely to have been the case at the time as longer migrations would have been motivated by employment opportunities, which in 19th Century would have only been sought by males. Shorter distance migrations would have tended to have been motivated by residential adjustment or family reunification.

Interestingly, Ravenstein's sixth law stated that in all instances, incidence of migration was increasing. It is not clear whether he is inferring that this increase is in absolute or relative terms. The increase in the number of migrants is not surprising seeing that the population in Britain increased from almost 31.5 million in 1871 to nearly 35 million in 1881 (Ravenstein, 1885), therefore one would expect the number of migrants to also rise providing migration rates at least stayed fairly constant. It is more likely that Ravenstein is referring to a proportional increase in the number of migrants as he alludes to the reasons behind the increase being attributable to the development of manufacturers and commerce and 'locomotion' which in this context translate to the means for migrating.

In his seventh law, Ravenstein outlines some of the principal push and pull factors driving migration in the United Kingdom in 19th Century. He identifies oppressive laws, heavy taxation, compulsion and uncongenial social surrounds as unattractive factors which act to push an individual away from an area. On the other hand, he emphasised that the influence of the economy on migration was noticeably strong in pulling males to areas of commerce or industry.

Ravenstein's theories of migration do have relevance for the study of residential mobility in later life. There are similarities between employment-oriented migration and moves that occur at older ages, particularly those driven by amenity. All of these moves are driven by a

desire to better one's social and economic standing and in turn quality of life. These moves are less likely to be forced, in other words the relocation is more probably determined by pull factors. Thus when Ravenstein in his seventh law refers to moves conducted in order to enhance quality of life amongst employment-oriented moves, the motives are similar to retirement moves where we see older people relocate to rural, tranquil and coastal destinations with the means (capital and the lack of place attachment) to do so in search of a preferable place to retire. Retirement migration particularly overseas voyage has benefited from globalisation and the increasing availability and affordability of air, road and sea travel to the extent that as the means to move in search of employment has progressed considerably in the last 130 years, this has also benefited prospective retirement migrants. This is apparent as there is evidence that retirement migration in the UK has increased over time. Ravenstein's third law is applicable to moves in later life. As is discussed later, typologies of moves in later life classified by the stage of the life course in which they occur (and accordingly their driving factors and the characteristics of the move) are common in the literature. One such typology by that of Litwak and Longino (1987) identifies third moves (those which are health-oriented) which occur in the inverse direction to first moves (amenity-oriented), producing a compensating counterstream. The relevance of the fourth law to older residential mobility is a little complex; Ravenstein states that as urban areas are the main centres of commerce industry, people are likely to move towards them and if individuals already live in these areas then their propensity to move is lower. In contemporary society, counter urbanisation to rural areas is common later in the working life course. As discussed in **sections 2.2** and **2.3** older people who demonstrate higher income and material wealth are more likely to move in and around retirement and the probability is that these moves will occur from more rural areas. The question is whether second and third moves during retirement, e.g. those dictated by health, which may not have patterns of population density underpinning them, occur in greater frequency than the aforementioned moves from rural areas. All of this is examined later in this chapter but it is clear that the discussion of principal migration theory is relevant to the exploration of residential mobility in later life.

Following Ravenstein's work in the late 19th Century, some years later Lee (1966) developed a set of theories which have since shaped the way in which migration flows and patterns are understood in contemporary society. Lee's theories are divided into three sections; the volume of migration, stream and counterstream and the characteristics of migrants.

Volume of migration

The prevalence of migration can be explained by Lee's theory which encompasses the forces that drive and inhibit migration at the population level. Lee (1966) declares that it is the differential in perceived positives and negatives that leads to a migration. The greater the differential (this can be achieved either through higher positives and lower negatives at destination and origin respectively or vice versa) the higher the probability that a migration will occur. This leads to situations where individuals who may experience many positives from residing in a particular location, are pulled towards another area because of more substantial positive factors. What is interesting to note here is that Lee comments on the effects of the migration currents on the existing diversities. Instead of expecting the differentials between origin and destination to narrow (presumably due to the reduction in job opportunities and increases in population density at the point of destination), he believed that in an industrialised society, the in-migration of people to an area will accelerate development thus heightening the attractiveness of the area and in turn enlarging the diversity. It is also important to bear in mind that the out-migration of people from the point of origin also works to devalue the area through the loss of population, of whom some may be skilled and evidently ambitious and active judging by their more proactive migratory behaviour, demonstrating preparedness to move to find work.

Lee also affirmed that the volume of migration fluctuates by the diversity of the migrant currents. In particular, he specifies that the volume of migration rises with the increased diversity of a group. He also mentions in his theory that the diversities of people indicates groups with specific purposes in terms of labour supply. The theory refers to the scattering of various diverse (in terms of ethnicity) groups across countries in which there were different labour demands. Diversity in this context is not that which concerns age, gender,

health and socio-economic circumstance. The fixation on labour migration even up until this period is understandable seeing as migration at older ages was a rarer event than it is in the 21st Century (Rogers and Rajbhandary, 1997). Migration rates for those aged 65 and over were around 0.01 or 10 per 1,000 population in the U.S in 1966 (Rogers and Rajbhandary, 1997; p.519).

Lee postulated that another facet which exerts an effect upon the volume of migration are 'intervening obstacles'. The allusion is not regarding obstacles such as ill health but instead physical hurdles, mostly associated with the geography of the move. Large distances between origin and destination and physical barriers such as the Berlin Wall, seas or immigration restrictions can simply prohibit migrations (Lee, 1966). Of course most of these obstacles are not easily overcome however favourable economic conditions at the macro level can better facilitate moves. For example, fluctuations in the economy at the lower level interact with perceived positives and negatives at origin and destination. Increases in economic activity can affect certain areas and not others thus increasing differentials between regions. Conversely variation in the economy can also encourage convergence between areas in terms of the differential in positive and negative factors. Interestingly also, Lee hypothesises that one's perception of positive and negative factors at origin can change not just because of alterations in the individual's acuity but also when there is little or no variation in circumstance at the place of origin. This concept is better understood in the discussion of 'framing' effects later in the chapter. Essentially, one 'frames' certain decisions when considering circumstance differently in the relative light of other options; considerations in the decision-making process are relative.

Lee discusses the reasons as to why the volume of migration is increasing; he states that due to the increasing diversity of people and places and the reduction in the number and size of intervening obstacles, the prevalence of migration also increases. One assumes that in volume he is referring to the proportion of people migrating as opposed to absolute numbers of migrants. Otherwise, it is likely that Lee would have acknowledged that increases in the volume of migration are attributable to population increases. Advances in technology are also credited for the rising volume of migration over time (Lee, 1966). What

he does not recognise which is perhaps, a more recent development, consequently being more ubiquitous after his research, is that technology can remove the need for certain forms of short-term migration (often motivated by employment) because of improved communication such as through usage of the internet and improved telephone services. This has enabled many to 'work from home' which removes the need to semi-permanently or permanently relocate because of employment thus technology in this instance can lessen labour-driven migration streams. Equally, the effects of technology and globalisation may hypothetically reduce the remoteness of some rural areas thus lessening the need to leave the area. The theory that technology has any effect on the volume of older residential mobility or migration applies more loosely. Technology may have more of a role to play in aiding locational choice decision making as mediums such as the internet can be utilised to research potential destinations. The effects of improved transportation however may have a positive effect on labour migration and moves at older ages not only in terms of improving affordability but overall progression in the coverage and speed of transport infrastructures. To sum, Lee states that more economically active countries are likely to have higher rates of internal migration owing to an increasing diversity between places of possible origin and destination in the context of a society where intervening obstacles are more easily overcome due to technological advances (p. 54).

Interestingly Lee identifies that individual occurrences of the moving process also operate to increase the volume of migration. The experience of one migration reduces the inertial forces acting against further migrations. In particular the experience of overcoming intervening obstacles in previous migrations helps to lessen their prohibitive effects during consequent migrations. Furthermore, an individual who has moved is inherently more mobile than a non-mover by nature and as a result will more likely experience lesser place attachment at residential locations. This in turn also affects the perception of positive and negative factors at origin and destination; place attachment, usually perceived as a positive factor, is removed or at least weakened and due to 'framing effects', positive factors at destination may appear more attractive than at first.

Stream and counterstream

'Streams' or currents and flows as they are commonly referred to in recent migration research are assumed to follow defined routes (Lee, 1966). Lee refers to the 'creation of pathways' by previous migrants which facilitate future moves by lessening intervening obstacles and improving knowledge transfers between origins and destinations. There is also acknowledgement of streams of migrants that flow in opposite direction to the original or more prominent stream; these are referred to as counterstreams (Lee, 1966), mentioned also by Ravenstein. It is hypothesised that these occur due to a re-evaluation of the positive and negative factors at origin and destination. As a result people either make a return journey following their initial migratory route or in other cases of counterstream creation, individuals who reside at what is a point of destination for some, perceive the positive and negative factors conversely therefore what is the origin for one mover becomes the destination for another. Lee mentions also that positive factors at origin for example may become muted during a depression therefore pushing people to move in a counter direction. Similarly, the acquisition of skills which facilitate returns to places of origin or for example situations where the motives driving an initial migration had dissipated may encourage migrations along original routes but in a counter direction.

It is also mentioned that economic conditions can impact heavily upon the efficiency of migration streams as can the magnitude of intervening obstacles. Migrants who overcome intervening obstacles of a greater magnitude are likely to have significant motives for doing so. It has to be added that intervening obstacles are of course likely to deter individuals from making return journeys.

Streams and counterstreams exist in older residential mobility and migration patterns. As is discussed later in the chapter, Litwak and Longino (1987) present a framework which details the geographic mobility of older people. In the framework they consider metropolitan to non-metropolitan moves which occur after an initial labour-orientated move to an urban area earlier in the life course. The destination of this return journey is often to a place of upbringing (origin) or a locality resided in prior to a long-distance move. Similarly, 'third

moves' described by Litwak and Longino are often moves along the same route as the 'first move' but in a counter direction.

Characteristics of migrants

Some important points are made in Lee's study of migrant characteristics. A few principal points are made about the profiles of movers. Migration is selective; either positively in that migrants are 'high quality' or negatively with migrant characteristics representing that of 'low quality' (Lee, 1966). He postulates that this selectivity exists because those that have the resources to overcome intervening obstacles are also likely to possess dissimilar attributes between positive and negative selection. Likewise, as individuals react differently to perceived positive and negative factors at origin and destination, those that move will be characteristically different to non-movers. It is pointed out that migrants who respond to positive factors at destination tend to be positively selected (Lee, 1966), in other words are initiating a move through choice. This is comparable to the selection of older movers whereby those who react to advantageous aspects at destination (amenity movers) are more likely to be 'better off' in terms of their financial and health status amongst other things. Contrastingly, according to Lee movers who respond to negative factors at origin are more likely to be of 'low quality'. Here Lee focuses on those who are forced out of an area due to for example political expulsions. Less focus is given to those who move out of areas for reasons of necessity. This is far more likely to become a pattern of prevalence in older people, where the motives of older movers infer something about their characteristics; in this case 'low quality' would deduce a lower health or financial status, or both perhaps - which can then force a move to occur. It is feasible in certain circumstances that people may make a proactive decision to move because of negative issues in their area of residence so it is not always the case that people who fixate on disadvantageous factors at origin are necessarily negatively selected migrants or movers.

The selection of movers is bimodal (Lee, 1966) and if the migrant population at a place of origin were sampled, one would see a fairly even proportion of both positively and negatively selected movers, with fewer people migrating with non-polarised characteristics.

A good example of this can be seen later in the chapter during the more in-depth discussion of the characteristics and pre-determinants of geographic mobility where the relationship between health and migration is U-shaped. A common theme of the thesis not just in the reviewed literature but also in the empirical research is that lower or higher values of particular mover attributes such as those of health and socio-economic status are more likely to induce migration than more medium values. Equally recent changes in characteristics such as marital status are found to be associated with higher residential mobility rates. Bimodal selection is equally evident amongst older migrant populations, where amenity and assistance moves are both prevalent in migration streams (Wiseman and Virden, 1977). Lee also mentions that positive selection increases as intervening obstacles become more difficult to overcome. This is exemplified by the fact that as one moves further away from the point of origin, movers become, as Lee puts it, 'more superior' (p.57). A lengthier discussion of the characteristics of movers can be found in **section 2.3** of the literature review below.

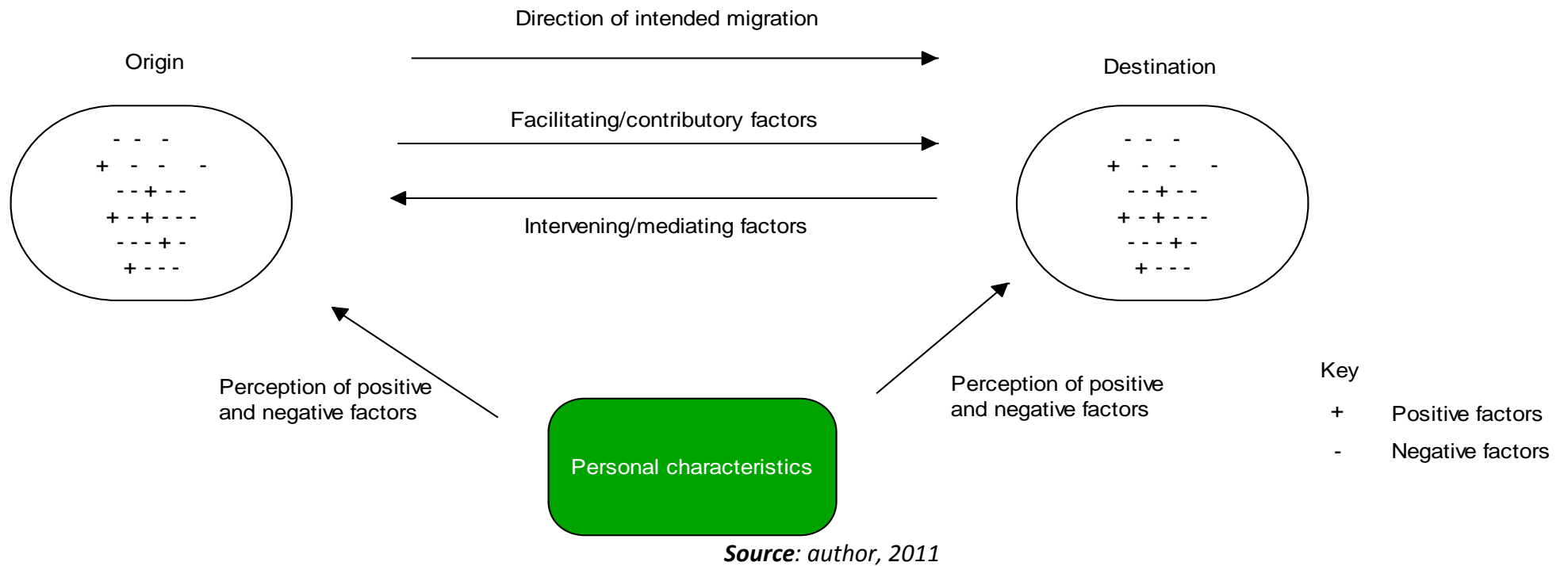
Life course and migration theory

Lee's theory (1966) of push and pull factors at origin and destination in the context of the life course

Lee claims that factors at both the points of origin and destination are heavily influential in dictating the possible occurrence of a migration. It is the manner in which these factors interact with personal characteristics and intervening obstacles which function to impel or prohibit migration. His theory suggests that positive and negative factors exist at both the points of origin and destination. These factors act to push and pull the individual in terms of decision making between the preference to stay or to move. A similar decision-making process in later life decides whether to age in place or move. A stylised view of Lee's push and pull model is presented in **figure 1** below. The greater force of the push or the pull determines the outcome. However, the facilitating and intervening factors can distort the effects of positive and negative factors of the prospective move. Lee also declared that there are factors at the points of origin and destination that some prospective migrants

would feel indifferent about. These were labelled as '0s' in Lee's Push-Pull Theory (1966). These are not considered in the diagram below as the push and pull theory illustrated represents the decision making process through the eyes of the potential migrant and factors which are irrelevant to the eventual outcome are omitted.

Figure 1: A stylised view of Lee's 'push and pull model'



Personal characteristics involved in the process have a three-way effect. Firstly these characteristics, particularly those which are psychological, affect the way in which the positive and negative factors at both the points of origin and destination are perceived. Lee states that attributes such as personal sensitivities, intelligence and one's awareness of conditions elsewhere all influence our perception of circumstance. Secondly, personal characteristics such as one's financial or health status might affect the prospective migrant's propensity to move in terms of how they shape the facilitating and intervening factors. For example, poor health could prohibit a move. Thirdly, it is possible that the individual-level characteristics may dictate the presence of positive, negative factors and 'O' factors as identified by Lee (1966).

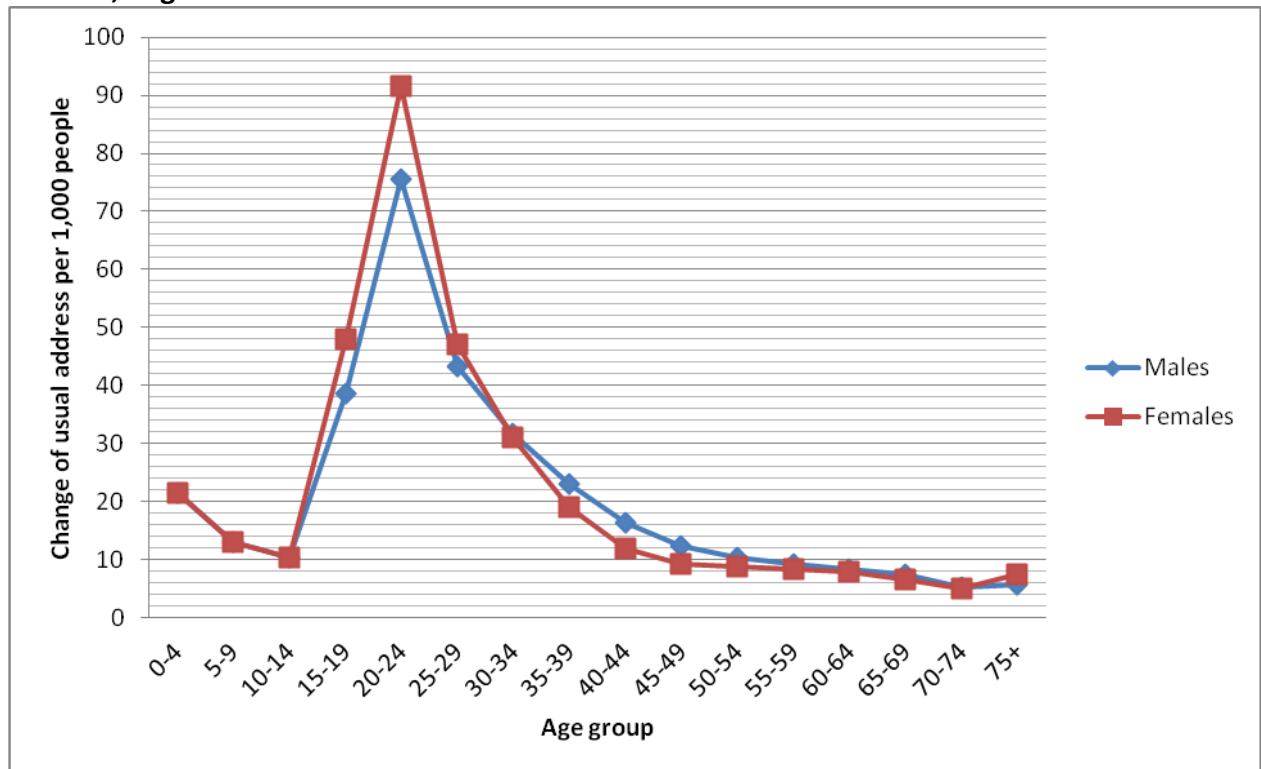
According to Lee, factors that pull prospective migrants to destinations are masked due to the fact that they are not necessarily experienced first-hand. The perception of positive and negative factors at the destination is actually distorted by the distance between origin and destination and the fact that neither the move nor the possible destination has been experienced. Older movers on the other hand are more likely to have holidayed or visited destinations, particularly those selected for amenity purposes. Even amongst moves conducted much later in the life course; destinations may be familiar if older movers are returning to an area where they had previously resided (or holidayed) earlier in the life cycle, which as will be detailed later, is typical for a second or third move (Litwak and Longino, 1987). On the contrary, prospective migrants have clearer perspectives of positive and negative factors at the place of origin owing to their geographic closeness but also what is likely to be a longer term acquaintance with the area.

Intervening factors such as distance or transport infrastructure mediate the effects of positive factors at origin and destination. Moreover, a simple calculation of the positives and negatives would not provide the most exact migratory likelihood. Lee states that there is a natural inertia that exists when making decisions that must be overcome for a move to occur. This inertia may seem greater if the intended move is of a greater distance. Additionally, intervening and personal factors play a part in the process. Lee neglects the presence of facilitating factors which counter intervening factors and are not associated with points of origin or destination, rather the intermediate process which centralises

around how the migration is enacted. Facilitating factors include favourable migration laws, good transport links and low-levels of impedimenta.

The effects of life course upon migration are defined in Lee's theories. Different stages of the life cycle can work to both facilitate and hinder migrations. Importantly phases of the life cycle are characterised by significant positives or negatives at the points of origin and destination. As will become apparent during the thesis, changes in personal circumstance (many of which are attributable to progression through the life course) are more likely to affect the propensity to move positively or negatively. Lee mentions in his 1966 paper that having children can intensify positive elements at origin and add anchorage which contributes to place attachment. As a matter of fact he neglects the fact that depending on the age of the children, their influence upon the migratory likelihood of the family unit can work in the opposite direction. The chart below illustrates the higher mobility rates experienced amongst those in infancy and at very young ages (tied-movers with their parents). It is no surprise that the birth of a new child can increase the need to relocate for some when for example the accommodation or neighbourhood become less suitable for a newborn. This is evident in **figure 2** where age-specific migration rates are also higher amongst those in their twenties as well as the 0-4 year old age group. Employment and education, particularly higher education contributes to higher migration rates amongst persons in their twenties.

Figure 2: Age group-specific migration between April 2010 and April 2011, males and females, England and Wales



Source: author's own analysis of 2011 Census data (Office for National Statistics, 2013; 2012a)

Different stages of the life course are associated with the possibility of various 'tied-moves', i.e. a move in conjunction with at least one other person. Described in greater detail in **section 2.3**, contemplating making a move with another individual involves the considerations of that person; their feelings of place attachment and mobility-related inertia. The likelihood of moving with a tied-mover is often influenced by the stage of the life course. Lee acknowledges that other life course related events such as marriage or divorce and widowhood have notable effects on migration likelihood. In particular, the effect that life course specific events have in terms of their impact upon the perception of positive and negative factors at both origin and possible destination.

Importantly Lee acknowledges that our understanding of the complex process which facilitates and hinders migration propensities is ultimately inexact. When understanding the driving theory behind decision making and the likelihood of a move, the role that emotions, mental disorder and accidental occurrences play must not be underestimated. In all of this,

it must be emphasised that predicting the occurrence of moves using mover profiles to discern motives and possible points of destination is far from an exact science.

The life course is commonly defined by age as it is the primary predictor in understanding the timings of specific life course stages and the transitions between them. Yee and Arsdol (1977) state,

“The life cycle is delineated by a series of age-related events which delimit new ranges of appropriate behavioural choices and thus characterise transition points to new stages (p. 211).”

Yee and Arsdol are highlighting that although life course events are mediated by age, it is our behaviour which is continuously influenced by the extent and timing of these events in the context of personal circumstance, which decide our transition through the stages of the life cycle. Cain (1964) and Erikson (1959) state that it is normatively-defined age status which reflect population level experiences through the life course. The normatively-defined events referred to in the literature are those which not only circumscribe the life course but affect residential mobility. These events include births, marriages, changes in living arrangements and deaths (Yee and Arsdol, 1977). However, as Mortimer and Shanahan (2006) argue, education and employment are now exerting new pressures on the life course in terms of their interaction with these stages, when they occur and what effects they may have on residential mobility decision making. Clausen (1972) and Riley (1973) also acknowledge that life course events indicate changes in behaviour and attitude. Bogue (1959) asserts that residential mobility and migration are inversely related to age. This is true to a certain extent but as we know the relationship is not that straight forward. When considering the life course, it is essential to understand that it is not just the occurrence of events which affect residential mobility and migration outcomes, but that an appreciable range of personal factors along with the effects of age will themselves affect outcomes in interaction with life course phases. Jerome (1959) also recognises the relationship between age and attitudes to behaviour.

This life course perspective is widely discussed in the literature (Clausen, 1986; Elder, 1995; Elder, 1994; Elder and Rockwell, 1979; Moen, 1995). Demographers, sociologists, economists and biologists just to mention a few, use life course approaches where applicable when considering changing individual characteristics and behaviour over time in the context of previous and current micro and macro conditions. Robison and Moen (2000) declare that transitions are influenced and shaped by earlier experiences which themselves shape the consequent life course. Our personal circumstance is influenced by previous experiences and moreover our attitude and behaviour in reaction to various life events which result in decisions made in hindsight, against a backdrop of retrospective episodes. Atchley (1989) confirms this adding that continuity is an important element of the life course process whereby past events are considered in conjunction with 'current influences'. Robison and Moen also stress the importance of context which must be considered in life course and decision making analysis (this is discussed later in the chapter). In particular, they focus on housing expectations where it was proved that individuals make decisions based on their previous housing history and position in a perceived broader social structure. 'Framing' in decision-making has been discussed. Furthermore, Robison and Moen emphasise the fact that resources, past experiences and contextual considerations shape not just choices and outcomes but expectations. Like Lee (1966) specified when examining the effects of previous migrations upon the future propensity to migrate, he proved that past circumstances and experiences had an evidently strong impact upon migratory decision making and outcomes.

Yee and Arsdol's (1977) findings demonstrate the effects of the life course upon residential mobility and migration at all ages. Although these proclaim that age has a consistent relationship with residential mobility and migration, this finding is more pronounced when the sample is homogeneous in nature. Consequently, the relationship between age and residential mobility and migration is consistent in settings where for example particular ethnic groups or metropolitan areas are being studied. The relationship is not so clarified in cases where whole populations are considered. This is likely to be because the effects of education and employment vary for subgroups of different ethnicities and ages. Chiefly, Yee and Arsdol discriminate the key differences between residential mobility and migration

outcomes. They state that job considerations tend to be more associated with the moves of migrations whereas marriage and housing needs dictate residential mobility behaviour. They also state that regional variations in both moving plans and choices are attributable to economic and employment factors. Their discussion neglects the migratory behaviour of older persons who may, as will be discussed later, initiate long-distance moves around retirement thus proving employment is not the sole motive for migrations which distinguish this form of movement from residential mobility. Elsewhere in the literature, this finding is supported by Shryock (1964).

Frey (1986) justifies the life course approach in the migration studies of older people. He pointed out that the migratory behaviour of baby-boom cohorts will as they reach state pension age, have a major impact on the redistribution of the older population when they themselves age. His paper does not however discuss the effects of previous migratory outcomes and earlier personal circumstance at the individual level on the decisions to move in retirement. The research focuses on a cohort-delimited population, whose migrant choices, especially those that stay constant as the subgroup reaches retirement age, will have an impact on the redistribution of the older population. For example, a cohort, of which the majority 'expect' to age in place, will providing their choices match their earlier expectations, affect the redistribution of the older population. What this research does not examine is the influence of residential mobility and personal circumstance life histories on future residential mobility decision making. It considers migration over the entirety of the older life course through a snapshot but neglects earlier stages of the life cycle. Rogers (1988) highlights the fact that life course analysis can be approached both periodically and through the adopting of a cohort approach. In his paper, he centres on the age profiles of migrants (across various study areas) providing a cross sectional approach to looking at migration at older ages. He acknowledges that different stages of the later life course result in varying motives and types of residential mobility.

Warnes (1992) describes the transitions in the life course and how they interact with migration across the life span. He explains that the natural urge to leave one's parents' home occurs between the ages of 16 and 22. This stage is typified by both short and long

distance moves which occur on average, annually. Lee (1966) also makes reference to this when stating that “as one grows older, ages are reached at which it is customary to cease one stage of development and begin another (p. 51).” The following stages of the life course according to Warnes are either dictated by one’s own familial matters or career choices. These phases transpire between the ages of 20 and 30. Similarly, moves undertaken for the purposes of childbearing are characterised by smaller distances, though those carried out by individuals of lower incomes tend to be even shorter in distance and happen earlier in the life course. One might hypothesise that the shorter distances travelled by those of a lower socio-economic status would be attributable to a lack of accumulated wealth or perhaps a case of demanding less in terms of the quality and safety of the destination (one would expect to have to travel further to find places of higher quality on average). Warnes states that career moves are more likely to take place over much longer distances between origin and destination and take place once every two years. As the positive factors at the prospective destination (pull factors) are likely to be heightened (particularly those which concern wage differentials between origin and destination), one would expect the friction of distance to be more easily overcome.

Materialising between the ages of 30 and 55, Warnes singles out longer distances moves occurring at lower frequencies (approximately 0.1 moves a year) carried out for reasons of mid-career promotions and inheritance. Similar to the driving forces behind early career-orientated moves, the financial influence of promotion (within or between organisations) or inheritance impacts upon the probability of moving. A promotion or likewise an inheritance, as a result of the prospect of increased income, can act to facilitate a migration.

Leaving one’s parental home and early career and familial choices are not typically predetermining events to migratory behaviour amongst older people as this subgroup is significantly more likely to be disengaged from the labour market and likewise disassociated with the consequences of dependent children. However, as Litwak and Longino (1987) detailed and is discussed above, there are distinct stages of the life course at ages 50 and over which impact upon residential mobility and migration at the individual-level.

Another well documented influence upon geographic mobility prevalence is experiencing a change in partnership status (see appendices for a paper by Evandrou et al (2010) which evidences an increased propensity to move following a change in partnership). Warnes recognises that those who become divorced, enter into another marriage or endure a change in household composition are progressing into another phase of the life cycle which in itself has profound effects on their geographic mobility. Warnes believes that moves conducted as a consequence of divorce are likely to be of a shorter distance than those undertaken because of another marriage or cohabitation. Perhaps it is likely that these shorter distance moves are more 'residential adjustments'. A divorce might induce a need to move which is not born from the more typical motives and driving factors behind migration rather the necessity not to live with a separated ex-partner. Prevalence of this form of behaviour also stresses the importance of focusing on residential mobility which in its nature is inclusive of these types of moves whereas it would have been overlooked if centralising on migrants. A residential adjustment or a move across the street is entirely different to a migration between counties, regions or countries within the UK. There is a need for research which discerns the distance of moves relative to determinants, motives and in turn the subsequent affect on social networks attributes which may determine the availability of informal support.

Residential mobility theories for older people

The older residential mobility process is intricate and often lengthy in nature (**figure 3**). Some of the driving forces that make people move such as push factors at the place of origin (e.g. dissatisfaction with current residence) are transferable when considering both residential mobility and migration; however there are also distinct differences in the processes which drive these two separate forms of geographic relocation. Before analysing the key differences, it must be articulated that both residential mobility and migration are forms of geographical movement and the former can be said to encompass both types of demographic phenomena. Thus the term residential mobility can be used to discuss both forms of geographical movement in conjunction.

When assessing the two phenomena separately, the observable distinction between residential mobility and migration is geographic distance. Residential moves are more likely to be shorter distance; for example it is not atypical to see moves across the street or within the neighbourhood. The distances involved in migration can still be geographically short but there is scope for movement across much longer distances. There are of course cases where a migration may cover a shorter distance than a residential move if for example a migration crosses a nearby specified boundary (classifying the move as a migration) whereas the residential move is within the particular study area but travelled further. Usually it is expected that migrations characteristically involve longer distances. The motives that drive residential moves as opposed to migrations are different. Longer distance migrations are more typically early retirement moves; these moves are typified by healthier and financially comfortable individuals.

The entire process is illustrated in **figure 3**. Ajzen and Fishbein (1980) outline the interaction between individual level factors and contextual factors on intentions (motives) and behavioural outcomes in the decision making process. The bringing together of both individual and macro-level factors has influenced the visualisation of the decision making process in **figure 3**. Sergeant and Ekerdt (2008) present a model of the elderly residential mobility decision making process. Here the characteristics of the older person are considered to contribute towards moving intentions in conjunction with the physical environment at origin and prospective destination. The model is not entirely comprehensive in its coverage of the process and for this reason further dimensions were added in **figure 3** including a section devoted to motives that precedes the interaction factors which operate as part of the decision making process and the separation of the mediating factors into those which are individual and macro. The diagram also indicates the chronology of the process which was not emphasised in Sergeant and Ekerdt's model. The procedure begins with an individual who has a set of characteristics such as their age and marital status, all which comprise a complete 'set of circumstances'. Although this set of circumstances are viewed cross-sectionally, it is understood that other sets of circumstances have preceded it which may not only have affected subsequent circumstances but also the eventual propensity to move. It is essential that this is understood as it represents the effects which

the life course has upon residential mobility. On top of this, circumstances which may have recently changed can also affect motives. This is discussed in more detail in **section 2.2** below. The importance of the profile of prospective movers is emphasised in the literature. Conway and Rork (2010) for example assessed the predictive properties of determinants such as age on residential mobility rates and this along with a wealth of evidence in the literature is discussed in **section 2.3**. Other socio-demographic characteristics such as sex (Marr and Millerd, 2004), marital status and a change in partnership status (Evandrou et al, 2010) are similarly found to be significantly associated with a change in the likelihood of moving in later life. As named by the author, the 'set of circumstances' are clearly important in explaining the likelihood of moving. Yet these characteristics cannot be considered in isolation and instead must be examined in the context of motives that are in part born from these circumstances.

Consequently this set of circumstances gives rise to motives. Individual circumstances may be for example that the person is experiencing poor housing-fit along with the fact that they are of ill health. Thus the position of this individual has created a situation where the desire to move has arisen. Motives that stimulate the desire to move include those that concern functional independence, marital status change or the purpose of reunifying with family members or friends for assistance means or moving to better one's quality of life. It may also be the case that these individual attributes do not contribute towards a desire to move therefore removing any possible motivations or intentions towards moving. Speare (1974) in his paper discusses the interaction between physical and social pressures on contributing towards residential satisfaction or dissatisfaction but neglects the intrinsic characteristics of the prospective mover as determinants to moves. He does acknowledge that 'residential satisfaction' is the product of certain pressures and gives rise to the desire to move. The distinction between stayers and movers is made on the basis of residential satisfaction and dissatisfaction respectively yet this is a gross simplification. As the residential mobility process below highlights, the desire to move may be mediated by barriers that cannot be overcome. Thus a move is not actuated because the intention is surpassed by the means thus stayers in this instance would not simply exemplify residential satisfaction, particularly where poor housing or environmental fit was driving the desire to move. Wahl (2006) talks

about the build up of pressures that produce motives which are related to residential mobility. Both Wahl (2006) and Speare (1974) recognise the presence of motives as integral to the residential mobility process. Wiseman (1980) in the paper “Why Do Older People Move?”, discussed in the following section, outlines motives that may give rise to the desire to move. The motivations and life course events that are examined in Wiseman (1980) and deliberated in **section 2.2** during a review of Kahana (1975) Lawton (1975) amongst other authors, has guided the list presented in **figure 3**.

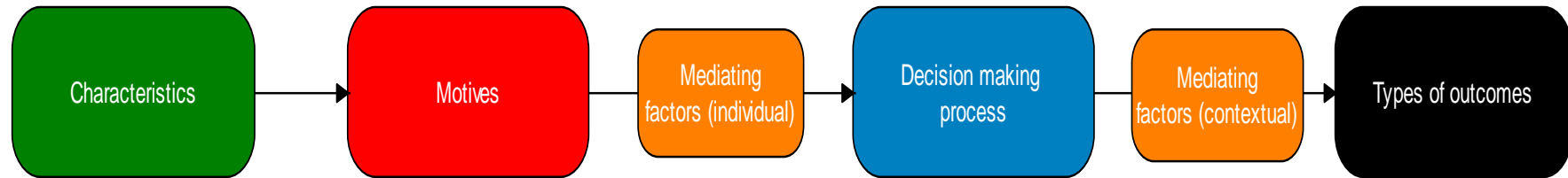
As **figure 3** shows these motives result in the desire to move or not to move. If consequently a desire to move arises it can then be mediated by certain conditions before it becomes contemplated as part of a larger decision making process; questions such as “can we afford it?” and “what about the children?” are then asked. Litwak and Longino (1987) investigate health as a facilitator and barrier to moving in later life. Poor health can act to inhibit some types of residential move. Along with its role as a determinant to moving likelihood in later life (i.e. better health more associated with positively selected first moves, whilst poor health is associated with negatively selected second and third moves), health can itself facilitate or intervene in the early contemplation about moving, derived from the set of circumstances but can also play a role when the actuation of moving therefore logistics are considered. For example, deteriorating health may render an older person’s accommodation unsuitable for their needs thus moving becomes necessary. However, owing to the older person’s health, as in stage 3 of the process below, the desire to move may not arise, rather it is forced upon them and in stage 5 health may also become a consideration both when considering the distance of the move as well as the suitability of any future accommodation. Sergeant and Ekerdt (2008) assess the role of financial circumstance in mediating move probability which could be said to play a similar role to health in its presence throughout the residential mobility process. It represents another individual contextual factor that interplays in the decision making process as it contributes to the likelihood of a move occurring. The distinction with the contextual factors in stage 3 and 5 is that the first represents individual aspects and the latter, macro-level factors such as the economy or the political climate both of which can aid or hinder move actuation. As far as can be seen, there is no evidence in the literature of mediating factors being

distinguished at the individual and macro levels and placed before and after the decision making process. It is believed that individual level considerations such as one's social network, health and financial circumstance may encourage or discourage the decision making process before it has begun. If such factors are particularly undesirable, say an older person is living on below 50 per cent median income, the thought of moving may not even represent a possibility. Mediating factors that are contextual (at a higher level) are likely to play a role in the whole process; for example, a decision to move might be made however the process can be protracted and as a result factors such as changing local economies and political contexts may exact an effect in that time which might reinitiate the decision making process.

If mediating factors at the individual level are considered to be surmountable then the decision making process begins. Of course, the stronger the motives the less likely any mediation will inhibit a move. Likewise, the lesser the mediating or 'intervening' factors (as they are referred in Lee's 1966 'A Theory of Migration') the more likely the motives are to overcome these factors and become considered as part of the decision making process.

The actual intention to move is then born from the weighing up of positive (pull) and negative (push) factors and the overall interaction between a set of circumstances across the life course and the resulting move motives. The move is only then actuated if mediating factors at the contextual level are overcome. These can include barriers such as distance, a lack of sufficient transport infrastructure and a poor economy at either origin, destination or both, just to give a few examples. The three changes in individual perception illustrated in **figure 3** characterise the process; the desire to move, the intention to move and the actuation of a move. These adjustments in individual level decision making are influenced by the social psychology factors discussed in Rossi's (1955) study of urban residential mobility.

Figure 3: The residential mobility process in later life



1. Characteristics

Age
Gender
Ethnicity
Financial status
Health status
Marital status
Housing tenure
Employment status

2. Motives

Bettering quality of life (amenity)
Functional independence
Economic security
Affiliation
Loss of spouse, (divorced/widowed)
Downsizing/reducing upkeep
Assistance-seeking
Institutionalisation

3. Mediating factors (individual)

Financial capabilities
Physical health, (inc. disability)
Mental health
Children/dependants
House sale/rental contract cease

4. Decision making process

Interaction between characteristics, motives and mediating factors (individual)
Push/pull factors at origin and destination
Experiences of others
Research
Promotional efforts of departments of tourism/residential developers and civic clubs

5. Mediating factors (contextual)

Distance
Transport infrastructure
Knowledge transfer
Politics
Local economy, (at origin and destination)
Visa entitlements
Housing prices at destination
Inflation

6. Types of outcomes

Move/no move
Timing of move
Origin/destination
Distance of move
Length of intended stay

Source: author, 2011

Behavioural model (Wiseman, 1980)

In 1980, Wiseman specified the need to build an improved theory of migration at older ages. He noted that owing to the rapidly growing nature of the phenomenon of increased geographical mobility amongst older people, and an obvious rise in the amount of research conducted in the field, that existing or developing theories were weak. Wiseman's model (1980) assumes that all people are potential migrants. His model consists of a number of interrelated decisions; the decision of whether to move or not, where to move and judgements which consider housing unit type and possible living arrangements. The illustrated model can be seen on p.147 of his paper, "Why Older People Move". He elaborates on the decision making process and mentions that individuals continuously re-evaluate their residential satisfaction in light of push and pull factors, which are themselves weighted by a balance of needs and desires. The output of this self-calculation is then according to Wiseman, shaped by the perception of potential outcomes and facilitating and hindering factors.

2.2 Why do older people move?

Sections 2.2 and **2.3** of the literature review focus on residential mobility. As previously, centring on residential mobility allows us to investigate moves of all distances providing a more complete picture of geographic mobility in the UK. This includes small-distance residential relocations and more noticeable residential moves; those which may also constitute migrations. Importantly it is these smaller moves in terms of distance which are of interest to certain sections of commerce in the UK such as the housing industry. The motives and associated characteristics of the shorter-distances moves are different to longer-distance migrations. A noteworthy number of moves conducted amongst older people comprise these short-distance moves which are typically characterised by the desire to downsize, adjust residence due to dissatisfaction with one's current residence or through changing health circumstances or to seek the geographical proximity of family and friends. As is evident from the review, moves of this type make up a significant proportion of all moves in later life hence the need to acknowledge and understand residential mobility in its

entirety. Similarly, longer-distance moves which are exemplified by a different set of characteristics and motives are of interest to institutions like the National Health Service who need to be aware of the redistribution of the older people throughout the UK in order to target resources effectively. Shorter-distance movers are more likely to be negatively selected with longer-distance movers positively selected. As is evident throughout the review, it is essential to understand both types of movers. Terminology such as 'residential adjustment', 'residential relocation' and 'geographic mobility' are used interchangeably to describe residential mobility throughout the literature review and the thesis.

The motives of older movers

The motives of those who move at older ages are vast and complex in their origins. It is not possible to encapsulate what entices people into the decision to move with a single theory. Rather, stripping down the process of moving leaves just two outcomes; to move or not to move. There are other outcomes such as where one moves and decisions made about housing types (Wiseman, 1980). Furthermore, decisions are made regarding whom to move with, when to move (in the context of the life course), what the intended length of the stay is and the list goes on. Nevertheless, the motives driving these outcomes are convoluted particularly as outcomes which appear alike such as intrastate moves are not necessarily driven by similar motives. These motives can arise for different reasons for example such as those that are voluntary or involuntary.

The relationship is not as simple as to represent a set of motives and a series of outcomes. Motives emerge for various reasons whether they are voluntary or involuntary, triggered by previous events (Rossi, 1955); stressing the importance of the life course, based on endogenous or exogenous factors (Wiseman, 1980), due to environmental incongruities (Kahana, 1975; Lawton, 1975) or owing to personal preferences or chance. Endogenous factors may, for example, include socio-demographics such as one's sex, age and ethnicity. Exogenous factors can include one's material wealth, marital status and household composition. The source of these motives must be understood in order to understand why older people move. To further complicate, motives are mediated by intrinsic and contextual attributes which decide whether various motives result in residential movement. **Figure 4**

illustrates the process which leads to the manifestation of these motives. Sets of circumstances across the life course have a bearing upon the likelihood of progression through life cycle stages as a result of the occurrence of life-changing events (marriage, childbirth etc.). For example, being of good health and a higher socio-economic standing may provide the appropriate circumstances for marriage or engagement in a type of formal union. It is then the incidence of these events which predetermine the next set of circumstances. This process continues in cyclical fashion. At any point within this cycle the intention to move can arise. The decision making process wholly involves a set of motives which are directly pre-disposed to a set of circumstances in the context of the life course.

As is discussed in the literature review, socio-economic status can impact upon the motives behind moves with surprising multifariousness. Higher socio-economic positions can induce the desire to move for amenity-purposes as conversely lower socio-economic positions incite assistance moves. Both socio-economic extremes can work to discourage moves. For example, higher socio-economic positions can alleviate the need to move or downsize because of pressures of inflation or maintenance concerns. Similarly, those of a wealthier status can afford to undertake longer-distance moves to amenity areas with low population density, good access to high quality amenities, an older age distribution and services geared towards helping people in old age. On the other hand, lower socio-economic positions can hinder one's capacity to move in the same way that it can force a move. Environmental incongruities pertain to the issues of housing (Phillips et al, 2004), residential or neighbourhood (Gory et al, 1985; Kahana et al, 2003; Oh, 2003) and particularly environmental-fit (Lawton and Nahemow, 1973; Lawton and Simon, 1968; Wahl, 2006) and exert significant pressures on people to move. They are all in a sense measures of residential satisfaction. As Speare (1974) explains it, residential satisfaction is built from a multiplicity of factors; individual-level and household characteristics, locational characteristics and one's social bonds. These factors interact and culminate in an overall level of satisfaction towards one's location of residence. Consequently, this along with circumstances across the life course, push and pull factors from points of origin and destination (as seen in **table 1**) and mediating factors, function collectively to create a probability that a move may occur. Lower levels of environmental or residential-fit are likely

to increase tension and in turn motivate reasons to move. If one's housing or environmental surroundings are compromising their quality of life, then it is more than likely that this will initiate thoughts of moving. Lawton and Nahemow (1973) stated that the balance (or imbalance) between the demands posed by one's environment (press) and the ability of the individual to meet these demands (competence) provokes thoughts of moving.

Table 1: List of push and pull factors involved in the decision making process

Push factors	Pull factors
<p>Crime in local area, proximity of shops/services/health assistance, poor infrastructure/transport, mobility hazards in house (poor housing fit), accessibility issues, high upkeep/maintenance of house and/or plot, high population density, lack of social network, expensive area, size of house (a need to downsize), lack of employment opportunities, sole resident, generally low neighbourhood satisfaction (e.g. plans to build social housing next door, motorway at the end of the garden, falling out with the neighbours), spousal loss (loss of partner's income), change in marital status (becoming separated/divorced), deteriorating health, poor financial circumstance or decreasing income, cost-of-living not covered by pension, failing investments, having to leave tied-housing (upon retirement, losing employment-linked accommodation), a move to sheltered/institutional accommodation.</p>	<p>Cheaper house upkeep/maintenance, affordable housing, proximity of family and friends, quality of housing, low crime rates, scenic area, population sparsity, amenity-rich area, good council service provision with suitable social care eligibility criteria, accessibility to shops/entertainment, social network, opportunity for voluntary/third sector involvement, infrastructure, good transport system, employment opportunities, living with/amongst others, improvement in financial circumstance.</p>

Source: author, 2011

The Litwak-Longino Model (1987)

Litwak and Longino (1987) offer an insightful breakdown into the more specific stages of the life course after the age of 50 which is similar to that illustrated by Warnes (1992) in his typology of moves across the life course. The Litwak-Longino developmental model is to be used only as a guide as of course not all of the geographical mobility of older persons

conforms to the archetypal framework used. The model itself disaggregates the migratory behaviour of those aged 50 and over into three main types of move, which it is believed are, in part, dictated by the life course.

The first type of move is typically undertaken by individuals around retirement age who are more likely to be younger (for this reason), healthier, married, living without dependants, to have a history of geographic mobility and be financially stable. It must be stressed however that to age in place is by far the most common preference at older ages. Nevertheless, around five per cent of persons in any five year period make a long-distance move (Litwak and Longino, 1987). Litwak and Longino do not specify what constitutes a long-distance move. However, due to certain inertia such as 'friction of distance', moves over longer distances tend to be less common. Thus one can assume that the move rate for all types of moves is higher. Consider here also that Litwak and Longino are specifically referring to moves of those aged 60 and over in the U.S, therefore not narrowing focus to just first moves.

First moves habitually occur between the ages of 55 and 70. As a result of retirement, the detachment from the labour market removes the geographical constraint which acts as a catalyst to the moves. The deletion of this form of anchorage allows individuals to move in early retirement through 'choice'. Of course this form of mobility may occur before state pension age among those of a higher socio-economic status with higher accumulated wealth and more generous, often private or occupational pensions. The timing of the first stage of movers is clearly dictated by the life course and therefore age. These moves have also been labelled as 'amenity moves' in the literature (Carlson et al, 1998; Green et al, 2009; Haas and Serow, 2002; Haas and Serow, 1993; Williams et al, 2000).

The driving motives that are emblematic of first stage moves are those which concern the pursuit of amenity locations, healthier social networks and the need to downsize for reasons of maintenance and upkeep (Erickson et al, 2006). This point is reiterated by Wiseman (1980). Another important driver behind first moves is the desire of older parents to create distance between themselves and their children. This according to the literature is

attributable to a few reasons. Anderson (1977) states that due to the pressures of filial responsibility on adult children, there is a tendency for older parents to move away from their children so as not to burden them with care demands. Similarly, meaning of the 'family unit' is not perhaps as strong as it is in southern Europe, particularly countries where Catholicism is more prevalent (Casado-Diaz et al, 2004; King and Patterson, 1998). Therefore people may be less inclined to live in proximity to family members at older ages (at least until they require familial support in much later life). A point that is neglected in the literature is that people around retirement age are likely to themselves have caring responsibilities towards their parents. Thus their locational choices could be dictated by this. To age in place may not just be an oppositional preference to moving but also a necessity owing to various familial duties. Retirement moves may have to be delayed until the needs of one's parents and other close family members in need have passed; this is usually likely to occur once this person has died. In other cases, a move in pre-retirement or early retirement may not have been planned but became prompted by the passing of a close relative. The caring demands of people aged between 55 and 70 are low coupled with the fact that kinship support via means such as telephone and internet communication and occasional visits are sufficient thus allowing people to move away from family and friends. In summary, Litwak and Longino state that these first moves are predominantly undertaken because of life style considerations.

The second type of move is characterised by changes in individual health status. More specifically the onset of adverse health conditions which affect the ability to perform activities of daily living (ADLs) and instrumental activities of daily living (IADLs) also have an impact upon one's likeliness to migrate (Chen and Wilmoth, 2004). Litwak and Longino state that the development of chronic disabilities which inhibit everyday activities contributes towards a need to seek care beyond that attainable through family, friends and neighbours. It is once these everyday tasks become unachievable, whether or not this outcome was attributable to the loss of a spouse, that the need to seek kinship support arises. It is well documented that age-related stressors or 'triggers' (Wiseman and Petersen, 1979), particularly in this context those which concern changes in partnership status (Evandrou et al, 2010) and disability status (Glaser, 1997; Speare et al, 1991) can induce moves. Friends or

neighbours may not be able to feasibly provide the levels of informal support required in order to mediate the effects of chronic disability and increasingly poor levels of environmental and housing fit. However, Litwak and Longino believe that friends and neighbours are not able to provide the level of everyday support required in order to enable people to live 'independently'. The relationship between neighbours is typically short and without any form of economic remuneration, it is unlikely that many people who share a residential locality will be motivated enough to provide appropriate care, in terms of the levels of physical endurance and time. Additionally, the lack of financial gain also operates to disincentive neighbours. Although friends may be more inclined to assist individuals with everyday tasks without financial incentive, often these companions are age peers and are therefore due to age, more likely to be suffering from health conditions of a similar adversity or functional dependence which may prohibit them from providing the appropriate levels of care. Formal support during stage two of the later life course model is more likely considered undesirable because of the fear of the loss of independence, high caring fees and an apprehension towards living communally. Reciprocity is associated with sustained supportive relationships.

With friends and neighbours as a rule unable to cater for the intensive caring demands of older people (aged between 70 and 80), this leaves family members, but particularly adult children, with that responsibility. Litwak and Longino state that adult children who are not only younger but due to a 'long history of past exchanges' (p.268), are more likely to possess the internalised commitments needed to provide these levels of household care. This point is reiterated widely in the literature (Cantor, 1979; Felin and Litwak, 1963; Litwak, 1985; Seigel, 1985).

The third move identified by Litwak and Longino is also related to changes in individual level health status. Similar to stage two moves where older people move towards the family unit as the retirement community could not match the caring demands owing to a deterioration in health, the third move into institutions is mostly attributable to a shortfall in 'kinship resources'. Movers at these ages tend to be noticeably unhealthier than their younger counterparts in the later life developmental framework and are more likely to be financially

unstable. In many cases this is due to the fact that much of the accumulated wealth over the life course has been depleted, coupled with the receipt of an income solely based on a pension and possibly savings which in many cases, particularly at ages 80 and over, is not sufficient. The third move is mainly characterised by the destination; institutionalised care settings such as nursing homes and assisted living facilities. Furthermore, according to Litwak and Longino most third moves are undertaken across shorter distances. This finding points towards one of the reasons why this study focuses on residential mobility as to concentrate purely on migration would overlook these shorter distance moves. Litwak and Longino centralise on the burden of care for adult children in terms of them being overwhelmed in the context of an industrial society where they already have existing pressures; the authors are mostly alluding to temporal pressures. What they neglect is that with some serious chronic disabilities, they may not have the ability to administer the appropriate level of care required.

Of those who move, some may not conduct second moves simply because they do not have any children or family who can care for them and therefore skip from the first to the third move. There may also be those who perhaps do not undertake an amenity move but do make a third move and therefore are already positioned at their place of origin or in the proximity of family members. Even those who age in place, may do so at least until they have no other choice than to move to an institutionalised care setting due to serious chronic disabilities that no longer permit them to live independently.

Naturally, the timing and existence of these three stages will of course vary depending on the individual. Litwak and Longino's developmental framework is intended to be a rule that applies itself at the population level. Thus some individuals may have moved towards a retirement community as a first move and as a result the need for a second move is eradicated.

With life expectancy in the UK continuing to increase (Office for National Statistics, 2010), the stages of the life course, of which are mostly dictated by age, are shifting upwards. Marriage and childbearing are occurring later and the concept of 'middle age' is older in

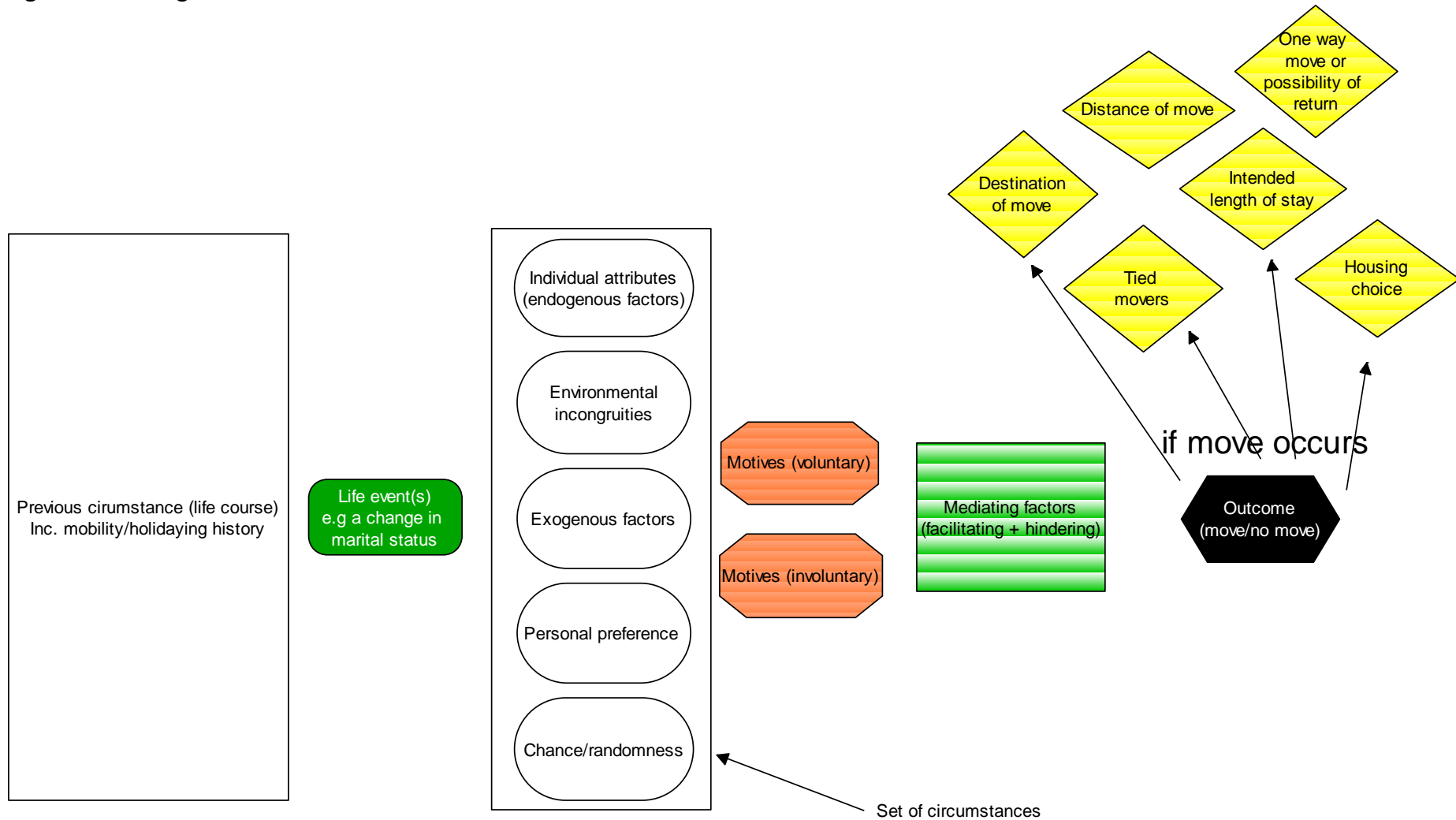
years since birth than before, and this is partly attributable to increases in life expectancy but also due to changes in societal attitudes towards older people and the later life course. Proportionally, the number of years spent in each phase is altering as a result of women's changing attitudes to the relationship between childbearing and careers. As migration is strongly associated with the life course, any change in the duration and timing of life phases can affect moves.

Person-environment fit

Lawton and Simon (1968) suggest that the theory surrounding person-environment frameworks focuses mainly on changes in vulnerability. Vulnerability in this context applies to the level of insecurity an individual is exposed to which might compromise one's ability to retain quality of life. Personal characteristics are more typically at the direct influence of the individual thus reliance is healthy. This type of person-environment fit is more customarily witnessed at the younger old stages of the life course. However, a growing dependence on environmental characteristics leaves individuals vulnerable as this type of context is less of a constant and out of the control of the individual. Environmental characteristics can include the assistance of neighbours and forms of familial support. An increased reliance on support outside of the household may suggest that the accommodation is not sufficient to facilitate a suitable level of independence for that person. Support from more than one source may help an individual's susceptibility to becoming vulnerable which in turn leads to the increased propensity of moving. It is confirmed by Erickson et al (2006) and Wiseman (1980) that residential satisfaction is derived from satisfaction of both one's residence and the environment. An important consideration here is that environmental considerations that initially act as pull factors to a particular locality may conversely operate to make it more difficult to with age, reside in that area. First stage movers (Litwak and Longino, 1987) may for example perceive the isolation, low population density and the picturesque nature of an area as attractive amenities which encouraged a move there. As one's personal characteristics become less conducive to the promotion of independent living, where quality of life is at least maintained, environmental factors which had contributed to active ageing so effectively may have the opposite effect. Isolated areas with low population density (such

as some retirement communities in rural and coastal areas) may not be conducive to providing both the informal and formal support that become more necessary later in the life course (Litwak and Longino, 1987).

Figure 4: The origin of motives



Source: author, 2011

Residential and neighbourhood satisfaction

Residential satisfaction can more broadly be viewed as an amalgamation of housing, neighbour and overall environment satisfaction. Residential satisfaction is one's general contentment with the location in which they live. Yet, residential can also mean that which pertains solely to the neighbourhood (Oh, 2003; Speare, 1974). Factors of importance in the neighbourhood which can increase or decrease satisfaction are plentiful; the friendliness of neighbours, a presence and feeling of community, a sense of security, quality, range and access to services, noise levels and access to social support (both formal and informal). Oh (2003) refers to a sense of 'we-ness' which becomes increasingly important at older ages. The feeling of collective-being in neighbourhoods through social networks and local organisations (Hallman, 1984) is well documented in the literature (Litwak and Szelenyi, 1969; Silverman, 1986). In particular, Oh mentions social cohesion and trust, opportunities to become involved in addressing neighbourhood problems and the levels of victimisation as important factors in determining the neighbourhood element of overall residential satisfaction. This importance of more general neighbourhood activities is also acknowledged in the literature (Logan and Spitze, 1994; Sampson et al, 1999). Carstensen (1995) and Stoller and Pugliesi (1988) refer to the fact that as people grow older, their social networks shrink however, this loss is compensated by an intensification of a smaller number of social ties (likely to be those shared with family and close friends).

Housing fit

Housing fit alludes to the suitability of the house for the individual in question at that point in time. Residence may need adaptations to remain in line with deterioration in functional independence as individual's age (Groger and Kinney, 2007; Wiseman, 1980). If modifications are not possible or sufficient then it becomes more likely that a move will occur. There are numerous factors regarding one's housing which can operate to affect perceptions of housing fit. Issues with maintainability, high upkeep demands, mobility (physical) hazard, housing expenses, large plot sizes or inappropriate layouts, just to mention a few factors which may push someone to move because of housing problems.

As seen in **figure 3**, it then depends on the outcome of the mediating factors as to whether a move results. The likelihood of moving is of course significantly determined by the strength of the motives. At the individual level, examination of the life course helps explain how a person came to be in the situation in which they find themselves. Involved in this life history or story are likely to be various changes of status and evidence of residential mobility behaviour. The life course approach in this context supports the notion that single moves should not be considered in isolation. If in analysis, moves are treated independently then this must be acknowledged as the life course perspective is confirmation of the effects that previous events (such as moves) can have upon the future likelihood of moving. To fully understand the motives of movers at older ages, it is necessary to conduct qualitative research. This is the most effective method of capturing human emotion and factors involved in decision making (Meyrick, 2006). It is tempting in the research of residential mobility to assume that individual-level characteristics predetermining a move suggest the motives driving or triggering it. Of course, in many cases pronounced characteristics such as suffering from noticeably poor health may appear to be driving motives but are not necessarily the real forces giving rise to initial motives and in turn the actuation of a move.

Health and functional independence

As a motive driving moves, health has a dichotomous effect on mobility propensity. On the one hand, good health can encourage one to move in order to maintain or promote the individual's or the family's quality of life and health status (Cuba and Longino, 1991; Speare and Meyer, 1988). Conversely, health can push people to move; particularly if one's physical or mental condition is especially adverse (Colsher and Wallace, 1990; Longino et al, 1991; Miller et al, 1999). This explains the U-shaped relationship evident between health and residential mobility in the studies in **section 2.3** of the literature review. De Jong et al (1995) state that moving for health reasons refers to the goal of maintaining or improving one's physical and mental well-being.

Serow (1987) finds in cross-national studies that health is not a major motivator of moves. As a matter of fact (except for the case of Poland where 48 per cent of moves were attributed to health reasons), moves driven by health do not represent anymore than 12 per cent of the shared proportion of motives. In this instance, the data is disaggregated by five other motives. More expectantly the share of motives attributed to health does increase with age. It is surprising that at ages 75 and over that health does not represent at least a third of the share. In Australia amongst those aged 75 and over, six per cent of participants in the study stated that health was their principal cause for migrating. This rises from three per cent amongst those aged 60 to 64. His study does however suffer from a lack of data as one would expect, seeing that the research relies on a number of sources of data, some of which share inconsistencies in definitions of elderly and residentially mobile persons. Erickson et al (2006) did find health to be a primary reason for moving though poor health did not predict the intention or actuation of moves.

Saito et al (2007) and Kasteler et al (1968) found that those who moved because of health reasons were more vulnerable to becoming socially isolated and as a result, experiencing greater declines in health than non-movers. What becomes apparent when examining how health can motivate moves is that often good health can give rise to the prospect of motives associated with active or healthy living such as moves to amenity areas. Health is more often, when solely cited as a reason, described as a negative motive or push factor to the residential mobility decision making process. In qualitative studies (usually the most appropriate mode of research for the study of motivations) we find that those who move or who plan to move for amenity-purposes are able to do so due to good health. As a result, in some of the studies in the literature, we see that health as a motive is not attributed to a significant proportion of moves, rather intentions to seek better amenities, reunify with family members or move for reasons of comfort are proposed (Kasteler et al, 1968; Saito et al, 2007; Serow, 1987). Sergeant and Ekerdt (2008) see health as less of an important motivator of residential mobility in later life and rather, suggest that functional independence is a more influential factor in the decision making process. This is confirmed by Chen and Wilmoth (2004) and Colsher and Wallace (1990). The assessed importance of a motive in the decision making process and eventual residential mobility outcome is

determined by the mover's perception of the particular reason as being a driver for the move (normally confirmed through qualitative acknowledgement) and something which itself may be affected by the move. Interestingly, there is mention in the literature of the perception of the functional independence of others within prospective movers' social networks and wider communities (Kennedy et al, 2005) who may exert influence on the elder in question. This stresses the importance of others involved in the decision making process which is discussed in the next section of the chapter. Sergeant and Ekerdt (2008) found that the majority of participants in the study cited a wide variety of health events as motivations driving their residential mobility. Specifically health issues were related to a diagnosis and the consequent need for professional care. This finding not only identifies this clear need for one to recognise that their health could be improved by moving (and that they actually have health issues) but that health professionals such as consultants, doctors or nurses could be advising them on the need to move if a different location would be more conducive to improving their health. Sergeant and Ekerdt state that moves in these circumstances might be required in order to 'facilitate management of the health condition' (p. 141).

Owing to the nature of qualitative research, quantifying the importance of motives relative to other driving factors is problematic. How important is it to rank the motivations of various types of movers? Surely it is as important to understand the motive and how it interacts with a propensity to move. A more important consideration is to understand the individual contributions of various motives to the probability of a move occurring.

A number of authors have verified that changes in health trigger residential relocation (Golant, 1984; Gonyea et al, 1990; Hunt, 1991; Merrill and Hunt, 1990). It is more likely that triggers (typically changes in status occurring in close proximity to a planned or actuated move) are representative of moving motives than cross-sectional characteristics prior to an intended or evidenced move. Gibler et al (1998) found that health problems were cited as 25 per cent of all reasons for seeking information about moving amongst retirement facility residents in the U.S aged 60 and over. Participants in the Sergeant and Ekerdt study stated that functional limitations as a moving motive translated to mean the ability that one had in

performing activities of daily living (ADLs) and instrumental activities of daily living (IADLs). Thus, if there were growing complications when performing these activities, attributable to the ageing process (Chen and Wilmoth, 2004), issues regarding functional limitations start to constrain one's ability to carry out these tasks. The topic of functional independence links to environment fit and particularly housing fit whereby deteriorating functional ability renders housing and local environments increasingly inadequate for the individual, which lowers the 'fit', heightening the tension between person and their residential location.

Affiliation

Residential mobility is often driven by the desire to affiliate, to unify with family members and friends. A need to be close to family and friends when at older ages whether for reasons of assistance or pleasure is documented widely in the literature (Fokkema et al, 1996; Litwak and Longino, 1987; Speare et al, 1982; Wiseman, 1980). Affiliation does not necessarily suggest the search for friends or family, rather that it is the existing social network that encourages many people to age in place. In the later life typology of moves, according to the literature it is more often the case that for example familial affiliation is more of a means to mediating the onset of functional dependence as we age than just seeking kinship. As has already been alluded to in the review, many factors whether they are motives, characteristics or determinants to a move, have a noticeably dichotomous effect on residential mobility in later life.

As Cantor (1979) explains, older people increasingly depend on support from the neighbourhood as typically with time, they lose family and particularly friends who provided that assistance. Speare (1982) states that residential satisfaction (discussed earlier) is conditional on background characteristics such as social bonds. In this sense, the existence or lack of social bonds can work to push or pull older people to and from areas. Oh (2003) separates the social bonds into four components; friendship, social cohesion and trust, informal social control and neighbourhood activities. He, like Speare, believes that social bonds contribute to residential satisfaction which itself affirms or negates the need to relocate. Oh found in his sample of elderly urban residents that there is no direct influence of social bonds on mobility intentions. Nevertheless, he finds that increases in the feelings

of social cohesion and trust further increases residential satisfaction which in turn lessens the intention to move. As mentioned, Oh's findings suggest that social bonds alone do not dictate the intention to move. This is contradictory to the findings of Campbell and Lee (1992) and Cantor (1979) who had found that the experience of place-attachment in neighbourhoods significantly lessens the desire to move directly. Oh's discovery highlights the point that residential satisfaction is composed of many facets and a changing experience in one or a few single elements is less likely to have an overall impact on migration intentions. Moreover, the residential mobility decision-making process is convoluted. The question arises, why do those who experience high levels of residential satisfaction still move? Most commonly, it is adverse and often unexpected changes in one's personal circumstance that coerce individuals into making involuntary moves. As Litwak and Longino (1987) cited, these cases of residential mobility are labelled as second and third moves. In these instances one's level of residential satisfaction is less important in the process.

Economic security

Similar to the ways in which health can either enable or disable the possibility of moving for motives which would not be associated with health, individual-level financial status exerts a similar effect. One's level of economic security can operate to provide the means to move and at the same time mediate the probability of moving. For example, there are situations where an individual may be of lower socio-economic circumstance whilst poor health is the overriding reason behind wanting to move. However, these lower levels of economic security may also inhibit certain types of moves over longer distances, to areas that become too costly to move to and live at or equally remove the ability to move all together. In Sergeant and Ekerdt's study (2008) they found that individual financial circumstances induced a social pressure to move. Some of the descriptions of the participants in the study also emphasised the fact that finances were viewed as a side-effect of moves. This again points to the notion that factors such as health and finance can in certain scenarios be viewed less as motives driving moves but rather characteristics which create or remove the setting for moves. A few participants in Sergeant and Ekerdt's study did however cite

reasons such as 'high taxes' or the 'fear of being homeless' as financial pressures which force a move.

Positive financial situations have been found to be more of a motive of amenity or 'first' moves (Litwak and Longino, 1987; Longino et al, 1984). De Jong et al (1995) neglect the positive effects of economic circumstance at the earlier stages of the later life course and instead focus on the types of moves which financial instability encourage. There is also a fairly significant body of literature which suggests that those who choose to live alone are primarily motivated by their economic security which permits them to reside on their own (Michael et al, 1980; Mutchler and Burr, 1991; Pampel, 1983).

Sergeant and Ekerdt also named 'housing options', 'inevitable moves' and 'new beginnings' as motives found to drive moves in their study. Of course these motives can vary depending on the subpopulation. Those making 'third moves' into institutions are very unlikely to afford the luxury of quoting a likely motive for moving other than that purely controlled by health. Motives that are relevant to the entire residential mobility process therefore vary depending on the type of move and the individual.

Foremost, elderly mobility behaviour centres on the desire to improve or maintain one's own or family's quality of life (De Jong et al, 1995; De Jong and Fawcett, 1981). Assuming the move is voluntary, people will move with the belief that their life circumstances will be bettered. However, there are incidences of involuntary moves, such as those that concern health, where although the move is conducted due to a reason which did not arise through choice, the move will most likely ensure that the individual's quality of life is at least maintained. This insinuates in this instance that to have not moved or to have aged-in-place would not have ensured the safeguarding of one's quality of life. De Jong et al (1995) impart that as researchers we can only assume that those who move with quality of life in mind hold the perception that geographic mobility may help one obtain better access to these amenities.

In summary, residential mobility is driven by the motives of the individual. Why is it important to know the processes at the individual level which are driving these moves amongst older people? Principally, there are two reasons as to why we might want to know this information. Understanding why people move at older ages gives an indication as to what services they might need when residing in their new location. For example, those who moved because of financial pressures which pushed them away from their place of origin will conceivably be less financially stable. Thus, essential services that are affordable or free may be of demand at the place of destination and as a result resource allocators will need to be aware of this. Likewise, those who undertake amenity-driven moves are more likely to be better off and therefore invest money in the local economy (the “grey pound”). Accordingly information on these motives could be useful to local businesses, the tourism industry and housing providers. Similarly, awareness of moving motives can aid the prediction of future flows of elderly residential mobility and their composition. With better understanding of the probable motives of mover profiles, the relocation potential of various subgroups can be determined. An appreciation of the motives and mover characteristics driving different types of moves could enable governments to monitor the residential mobility of older people. The redistribution of older people throughout the UK is of interest to local councils amongst others, who need to be conscious of the needs of their community.

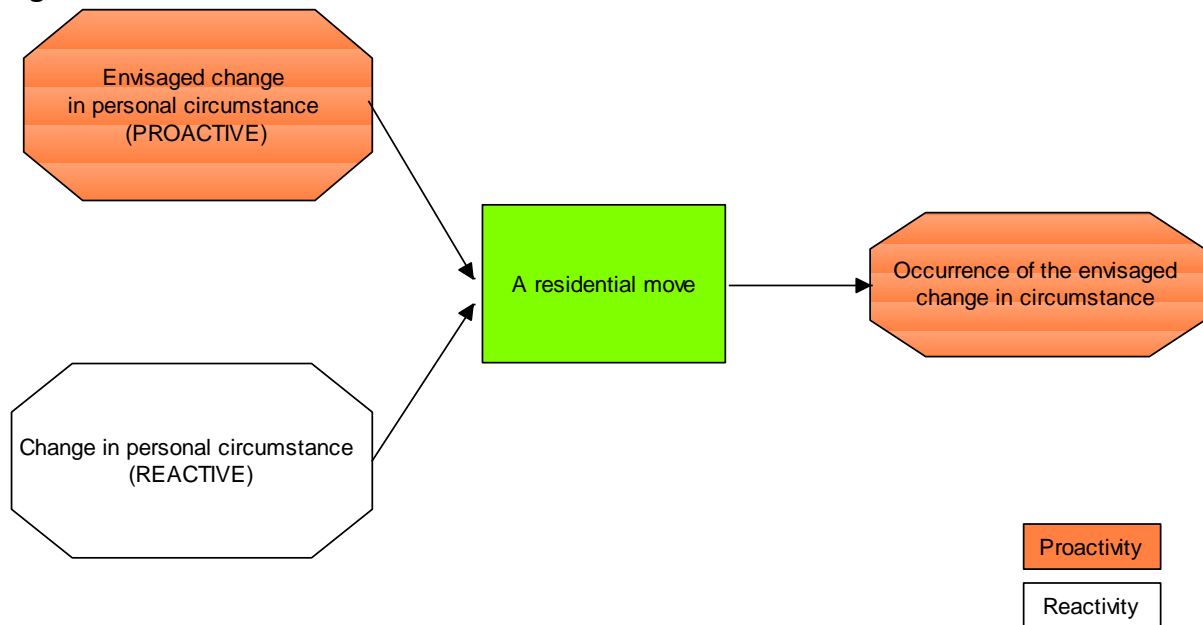
Proactive vs. reactive moves

Changes in personal circumstance are considered differently depending on their timing relative to a residential move. If an individual moves after the occurrence of a trigger (Evandrou et al, 2010; Wiseman and Roseman, 1979) or age-related stressor, this is labelled a reactive move in the literature (Pope and Kang, 2010; Sergeant and Ekerdt, 2008). A move enacted in response to the death of a spouse (Pastalan, 1975) or divorce or an adverse change in financial circumstance for example is described as a reactive move. A move initiated in anticipation of an envisaged change in one’s circumstance such as a need to downsize, move closer to family or accommodate for deteriorating health conditions is seen as a proactive move.

From the literature, it seems that more of the elderly move reactively (American Association for Retired Persons, 2007; McGrew, 2000; Pope and Kang, 2010; Sorenson and Pinguart, 2001). With the use of the Longitudinal Study of Aging, Pope and Kang (2010) gathered a sample of 1,311 older adults of which 874 moved for reactive reasons and 437 for proactive reasons. To move proactively is associated with characteristics such as being more educated and healthy with a higher personal or family income. Proactive moves also tend to result in more positive outcomes post-move such as possessing good health, more so than if one were to move reactively. However, this finding may be biased seeing as the motives which drive a reactive move tend to be more health related (to the individual or a person linked to the mover) and severe.

The proactive and reactive decision making literature focuses on the origin of the move motive and the point at which the move occurs relative to the motive. Regardless of the timing of the trigger in relation to a move, there is in both proactive and reactive behaviour, a resulting move regardless of the temporal nature of the behavioural type. The diagram below illustrates this.

Figure 5: Proactive and reactive moves



Source: author, 2011

Proactive coping theory

There is a theoretical discussion in the literature of proactive coping mechanisms (Aspinwall and Taylor, 1997; Bode et al, 2007; Pope and Kang, 2010). It is affirmed that proactive coping is the technique of building up resistance factors in order to protect one's self against future crises and age-related stressors (Ouwehand et al, 2009; Schwarzer and Knoll, 2009) with the use of a future temporal orientation (Ouwehand et al, 2007). The notion of coping will be revisited in **chapter 7** when examining social networks and how change is mediated by resistance factors. Other such methods of coping more commonly discussed in the literature are concerned with reactive coping theory (Ouwehand et al, 2007). This form of a coping mechanism does not necessarily affect the propensity to move, as the move has already occurred, hence we know it is 'reactive'. Nevertheless, the nature of the coping strategy of an individual as a reaction to a change in personal circumstance might affect the likelihood of future moves.

Aspinwall and Taylor (1997) state that proactive coping requires gathering of resources and acquiring of skills in order to face potential threats. Threats need to be evaluated ahead of time in order to mitigate their adverse effects. This behaviour is particularly central to the

elderly residential mobility decision making process. It may not allude to the weighting of certain motives and factors in the moving process but it does exert an effect upon the residential rate.

Mechanisms of proactive coping may further increase residential mobility rates beyond that encouraged by evidence of warranted proactivity as people are moving in anticipation of events that may not occur. On the other hand, the occurrence of what were perceived to be mobility-inducing events may not have the foreseen effects upon one's inclination to move and therefore result in a decrease in reactive moves.

This review of mover motives and the decision making process in later life has built the foundation for the development of a typology of older movers which is located in **section 2.4**. The typology identifies types of moves defined by the characteristics of the older mover and the motivating factors driving them. These move types are then considered in context with the social networks of older egos before and after a move in order to gain a better understanding of their coping resources. The next section examines the characteristics associated with residential mobility in later life. One might postulate that the characteristics associated with moving may vary widely depending on the motives behind the decision to move or not to move.

2.3. The characteristics associated with residential mobility

It is important to understand who movers are in terms of their demographic, social and economic profiles. An awareness of the characteristics of movers allows central and local government to effectively target resources towards health, housing, transport and local council sectors. Understanding the profiles of movers in the UK is essential for the administering and future planning of services in areas such as health, housing and transport; local councils can use this information to inform policy and plan for the needs of older people in their area. Additionally, an understanding of the determinants to moves means that individuals who are at greater risk of moving can be identified based on their characteristics therefore this analytical approach has predictive properties. Of focus in this thesis is those aged 50 and over. As found in the literature (Litwak and Longino, 1987), a typology of moves exist which are defined by age. Moves conducted by those in pre-retirement (50 to 64 years of age) are made with the life course in mind. These persons are moving in response to the prospect of retirement whilst taking into consideration the probable need for proximal informal care later in retirement. These ‘first moves’ represent a part of the mobility sequence and it is for this reason that the analytical sample in the thesis includes those in pre-retirement. Periodically, inclusion of this age group also provides insightful snapshots of people who will in the future be in retirement; this group have sometimes been referred to as ‘tomorrow’s pensioners’ (Age UK, 2013).

Table 2: Predetermining and current characteristics in the later life residential mobility process

Time	Pre-move (time1)	Status changes (between time1 and time2)	At time of move (time2)
Characteristics	Determining	Determining change variables	Current

Source: author, 2011

In addition to understanding the characteristics of movers at the time of their move which we will label as ‘current’, it can also be advantageous to identify ‘determining’ characteristics. Determining characteristics are the individual attributes or set of circumstances which precede a move. This information can help researchers recognise

possible association between various characteristics at time1 between time1 and time2 and moving outcomes. Understanding associations between individual characteristics and residential mobility may help allude to some of the reasons why older people move, but more importantly will assist demographers and planners in deciphering the types of individuals who are more or less likely to move at older ages. Continued improvement in the collation and quality of longitudinal mobility data will enable researchers to distinguish the determining and current characteristics of those who move at older ages. The following section of the literature review examines the determining characteristics found to be associated with moving in later life along with the profiles of movers (current characteristics) from various studies.

There is a substantial literature concerned with the determinants and current characteristics of moves in later life, particularly in the U.S. Some of the research such as that of Van Der Gaag and Van Wissen (2008) and Jennissen (2003) focuses on the determinants of moving at younger ages where the attributes found to be associated with moving are transferable to residential mobility at older ages, such as changes in marital status, health and financial status; the life stressors which prompt reactive moves.

The following section investigates the literature on residential mobility at older ages in the context of determining factors. The section is organised by determinants and current characteristics. The following factors will be considered; age, gender, ethnicity, financial circumstance, health, marital status, changes in partnership and housing tenure.

Before reviewing the recent research, it is important to understand that the effects of specific determinants on the likelihood of moving in later life vary depending on unique relationships between the individual and their inherent characteristics. This notion is supported by Heaton et al (1981). The effects of determining and current characteristics upon mobility-likelihood must be considered in relation to the wider residential mobility process at older ages which encompasses moving motives, mediating factors and the life course hence the 50+ focus in the analysis. Only consideration of the process in its entirety can shed light on the possible effects of individual attributes on the likelihood of moving at

older ages. **Chapter 5** explores the determinants to residential mobility at older ages in the UK.

Age

How residential mobility rates vary by age gives us an insight into the strength of the association and suggests the possible importance of this demographic factor as a determinant of geographic mobility. The UK displays a typical distribution of mobility rates across all ages for a developed country. A number of authors agree that the relationship between age and residential mobility (at age 50 and over) is in fact U-shaped. Champion et al (1998) and Conway and Rork (2010) are examples of this acknowledgement. The authors allude to the fact that individuals are more likely to move in pre-retirement (50-64 years of age) and oldest old ages (85 years of age and over) than middle old ages (65-84 years of age). All authors here state that the motivations driving moves alter depending on the phase of the older life course after the age of 50. There is an assumption that those who move between the age of 50 and 64 are conducting what have been labelled, 'amenity moves' (Gurran, 2008; Haas and Serow, 1993; He, 2006; King et al, 2000; Lovegreen et al, 2010). Contrastingly, those who move at oldest old ages (85 years and over) are generally presumed to move due to necessity as opposed to choice. This would include situations where individuals move because of poor health or a breakdown in partnership for example. Conway and Rork (2010) use the term 'assistance moves' to describe a residential relocation conducted because of for example, undesirable health conditions. Assistance moves may also be undertaken because of sudden changes in one's marital status such as recently becoming widowed or divorced. Certainly in terms of the effects of age on residential mobility rates, it is evident that this demographic factor is a strong determinant of moving as it dictates the prevalence of moves at older ages. The strength of age as a determinant remains clear when gender is introduced as an interaction variable (Rogers, 1988). Age-specific mobility rates follow a pattern that is similar for both males and females in the U.S (1975-1980), Australia (1976-1981) and Italy (1980-1982) to name just a few countries (Rogers, 1988). Mobility rates are slightly offset earlier for females as they are more likely to engage in union with someone senior in age. In age profile graphs disaggregated by gender, one is likely to see

female residential mobility rates offset slightly to the left, particularly at the labour migration peak (20 to 28 years) with the rates of residential relocation also being higher for females around this age than males. Perhaps this is attributable to a greater number of women moving with their partners who themselves are moving for employment-related motives. Females age-specific mobility rates typically crossover that of the male twice, once in the early teens and secondly, during the early years of retirement (Rogers, 1988). The residential mobility rates of females at ages 80 and over are noticeably higher (Cheung and Liaw, 1987; Rogers, 1988). This is mostly likely due to the fact that typically females live longer than males (Office for National Statistics, 2010) and as result many who are widowed move on their own at ages 80 and above, some no doubt in response to becoming widowed.

Let us focus more specifically on age as a determinant of individual residential mobility behaviour at older ages. It is important to understand that age itself has an effect on an individual's propensity to move. Biological age to a certain extent dictates physiological well-being which itself can act to facilitate or hinder the propensity to move. We should also consider age in terms of the life course and the set of social conditions which are inherently associated with different phases in the life cycle. Typically, those at younger old ages are likely to be healthier and more financially stable than individuals who in retirement are much more likely to be less healthy and rely solely on a pension and savings. When examining the influence of age as a determinant of residential mobility, it may be better considered in conjunction with other factors such as financial situation and health. Moreover, characteristics which are associated with particular points in the life course at ages 50 and over themselves are affecting the propensity to move. Multivariate and regression techniques will help to disentangle the effects of other independent predictors upon residential mobility by controlling for them while assessing individual relationships between characteristics such as age and moves as can be found in **chapter 5**.

Warnes (1992) sums up the social transitions during the life cycle which all have significance when contemplated within the context of geographic mobility. Importantly, these transitions are all almost entirely dictated by age. Warnes believes that retirement (the timing of which is dictated by age due to government directives on what should be a

pensionable age (Directgov, 2010)) begins to impact upon choices regarding residential mobility from the age of 55. He believes that this age range (55-68) is characterised by moves to peri-urban areas. This finding is in slight contrast to that of Dahms and McComb (1999), Juahainen (2009), Litwak and Longino (1987) and Wiseman (1980) who agree that moves are often counter-urban at these ages but also believe that they tend to be to rural areas, typically long distance, often with a retirement community destination. In the UK, studies also suggest that 'first' moves tend to be destined to rural and coastal areas (Law and Warnes, 1976; Phillips and Vincent, 1985; Stockdale, 2006). As one ages towards the latter stages of the life cycle, Warnes (1992) rightly indicates that bereavement, adverse financial circumstance and negative health directly impact upon one's mobility outcomes. He believes that the distance of moves at oldest old ages are shorter than at pre-retirement and early retirement ages. As referred to earlier in the opening section of the literature review, these latter moves are labelled as 'third' moves by Litwak and Longino (1987).

Meyer and Speare (1985) utilised a longitudinal dataset from adult residents in Rhode Island. Those whose mobility was labelled as 'out-of-state amenity' were younger with a mean age of 67.4 years whereas those who moved for 'local assistance' or 'out-of-state assistance' displayed higher ages at 76 and 72.4 years of age respectively. Thus like in Conway and Rork (2010) and Champion et al (1998), the driving factors behind residential mobility and the point of destinations (which infer the motives for the move) amongst those aged 50 and over are associated with age.

So perhaps there are two elements to contemplate; is age as a determinant of residential mobility more effective in terms of its ability to determine the propensity to move in later life, the intention to move (where a move is not always actuated) or the motivations driving these moves? In Marr and Millerd's paper (2004), they state that the proportion of households within an elderly age group who move declines as the age of the primary household maintainer increases. In particular, they single out a noticeably low mobility rate amongst those in the 80+ age group. This finding is contrary to that of Champion et al (1998) and Conway and Rork (2010) who believed that residential mobility rates rose slightly amongst this subgroup relative to middle old ages. It is possible that the relationship

between age and residential mobility does not follow a similar pattern through the life course when concerning households as opposed to individual observations. The household mobility decision making process is far more complex as the considerations of two or more individuals needs to be contemplated before mobility intentions, if they arise, are realised.

Calvo et al (2009) take a different approach to assessing the determinants of later life residential mobility. They acknowledge that moves can be initiated through the channels of 'necessity' or 'choice'. They group these polarised motivational categories as 'reactors' and 'planners'. The two groups are to be considered in the context of the absence or presence of a shock such as the loss of a partner or a sudden negative change in health. In other words, the loss of a partner either through death or even divorce or separation can act to trigger a move. This is of course linked to age as certain points of the life course are more or less associated with current and changing marital, health and financial status which themselves all exemplify differing effects on the propensity to move at older ages. The potential effects of these characteristics on residential mobility will all be covered later in this section of the literature review.

When examining age as a determinant of residential mobility among older people, Calvo et al (2009) found that households with members at oldest old ages were less likely to move than households with youngest old members. Age, for example, in the Health and Retirement Study (2011) was found to be a statistically significant determinant of residential mobility. They hypothesise that the main reason for the reduction in residential mobility rates at older ages is because of increased feelings of place attachment. This is of course still evidence of age determining residential mobility but in a negative relationship. This finding perhaps overlooks other inherent characteristics at middle to oldest elderly ages such as poor health and less stable financial circumstance which as will be demonstrated later in the review, can also operate to inhibit moves at older ages.

Sex

Conway and Rork (2010) found that men were more likely to move at older ages than women in the U.S. However, they found that women were in relative terms more likely to move at advanced ages than men regardless of the fact that females on average live longer than males. Marr and Millerd (2004) stated that if the sex of the household reference person (amongst couple households) was male, that they were 0.94 times as likely to move than if they were female and aged between 55 and 64 years of age and 0.84 times as likely to move than if they were female and aged 65 and over. Interestingly Marr and Millerd found that the opposite was true when considering single-person households. It was found that males aged 65 and over in Canada between 1991 and 1996 were 2.91 times more likely to move than females. This finding conflicts with that of Conway and Rork (2008) who found that women are increasingly more likely to move in retirement. In Champion et al (1998), it was also established that females were far more likely to move in retirement than males. They speculate that this is most likely because men die earlier and therefore escape the consequential residential adjustment after the loss of a spouse that females more expectantly endure. Added to this hypothesis, Rogers (1988) felt that when considering sex as a determinant of residential mobility in later life, one must also contemplate age simultaneously. He stated that because women are more likely to marry or engage in some other form of union with men who are senior to them, that their moves in retirement were likely to occur earlier in their life cycles.

Ethnicity

The majority of the literature in the field finds that those in ethnic minority groups are more likely to move than persons of more populated ethnic groups (Bolt and Kempen, 2009; Owen and Green, 1992;). Bolt and Kempen (2009) concentrate on the stronger push factors endured by those belonging to ethnic minorities who may feel more coerced to move for fear of discrimination. Owen and Green (1992) find that those in ethnic minority groups (except Indians) are more likely to move because of their younger age distributions and the higher probability that they are recent immigrants. Rees and Phillips (1996) found that variation in residential mobility rates between ethnicities are driven by the level of spatial

concentration of minority groups. Champion (1996) discovered that the opposite was true when controlling for age. He found that minorities moved less frequently than whites in Britain.

Lee and Roseman (1999) conducted a study on the determinants of moving interstate amongst black and white families between 1985 and 1990 in the U.S. Again this study focuses on the propensity to move based on ethnicity at all ages. They found that larger family size was a deterrent to moving amongst blacks whereas the effects were conversely related for whites. An individual whose ethnicity is black is more likely to move if their birthplace is outside the U.S. This correlates with the finding of that of Marr and Millerd (2004) who also found that those born outside of the study area who were also of an ethnic minority group were more likely to move than an indigenous individual. Lee and Roseman (1999) did not find that whites who were born outside the U.S were more likely to move. Thus we could discern that as opposed to birth place in relation to the study area, ethnicity can determine the propensity to move.

There is little literature on ethnicity as a determinant of residential mobility in later life. In the UK, this could be due to the fact that the majority of migratory behaviour at older ages is conducted by those of white ethnicity (Green et al, 2009). Sample sizes are too small in many cases to accurately ascertain the association. This gap in the literature is evident across studies which focus on the determinants of residential mobility in the context of developed societies, where mention of ethnicity, race or nationality is commonly omitted.

Financial circumstance

An individual or a household's financial situation can both facilitate and hinder migration in later life. Material wealth, savings, annual income and pensions are components of an individual's socio-economic status (SES). Similar to the hypothesised relationship between residential mobility and age in later life (Conway and Rork, 2010), the correlation between financial circumstance and geographic mobility at older ages is considered to be U-shaped. That is, persons of a lower and a higher SES are more likely to move at older ages than those

who represent more intermediate financial circumstances. Conway and Rork (2008) found that interest income was positively related to elderly residential mobility. On the other hand, employment-derived income was negatively related. Those engaged in the labour market are more 'anchored' in terms of their geographical mobility thus it is more likely that being employed hinders what could otherwise facilitate and finance a potential move. In their paper which uses the Integrated Public Use Microdata Series (IPUMS), they also identified that the positive effects which interest income has upon the likeliness of moving in later life declines as age increases (and through time between 1970 and 2000 as a period effect). They argue that when the socio-economic characteristics of the non-elderly are assessed relative to those of the elderly, that the effects of financial circumstance (for the elderly) upon later life residential mobility and decision making are minimal.

Marr and Millerd (2004) in their research in Canada discovered that the relationship between financial circumstance and later life residential mobility was stronger. Surprisingly, couples aged 65 and over who had zero non-employment income were over 17 times more likely to migrate than someone who was earning between \$25,001 and \$50,000 per annum. Couples who received more than \$50,000 in non-employment income per annum were slightly less likely to move than those in the \$25,000 to \$50,000 income bracket in the aged 65 and over group. Interestingly this finding holds when focus is turned to total income. Couples aged 65 and over with a total annual (employment and non-employment) income of \$0 were over two times as likely to move as those who earned between \$15,001 and \$30,000. Similarly, couples who earned in excess of \$50,001 per annum were much less likely to move than those with zero total income. This finding endorses the notion that lower SES is associated with higher mobility rates.

In the United States, Clark and White (1990) used a housing disequilibrium model which examined national and local elderly mobility flows. They discovered that individuals with a higher or lower income were more likely to move than those of the middle-income bracket. The findings from the data utilised during their research indicate that financial circumstance can influence the geographical mobility of the elderly population at the individual-level.

Financial circumstance can also be considered in the context of the life course. A typical life course transition starting at youngest old ages could feasibly present itself as; retirement, moderate disability, loss of spouse and severe disability. Commonly, and as mentioned previously, upon retirement, geographical moves are believed to be undertaken within the categories of either 'amenity' or 'assistance' moves. So as to incorporate the possible effects of demographic triggers such as changes in partnership, it could be more appropriate to categorise the different types of move as 'choice' or 'necessity' moves. This would therefore include scenarios where moves are undertaken after experiencing a sudden change in union (due to divorce or widowhood) or financial situation (sudden gain or loss in income or material) and as a result are categorised as 'necessity' moves. It is at the point of retirement that these trajectories as it is believed by some researchers (Walters, 2000; Wiseman, 1980; Wiseman and Roseman, 1979) emerge. In all three papers, the authors agree that higher and lower socio-economic status are associated with the increased likeliness of moving in later life. Furthermore, they also believe that one's financial circumstance alludes to the motivations driving the move, may they be 'amenity' or 'assistance' driven. Walters (2002) also believes in the existence of a third type of move; 'residential relocation in response to severe disability'.

Heaton et al (1981) who compared the characteristics of younger (<65) and elderly (>=65) persons, found a slightly negative relationship between income and residential mobility amongst the elderly. As one would expect, the relationship between income and residential mobility was more pronounced amongst the younger population owing to the higher prevalence of labour-orientated moves. Meyer and Speare (1985) identified six different types of residential mobility amongst elderly people on Rhode Island. This ranged from local 'assistance' moves to out-of-state 'amenity' moves and residential adjustment where individuals may be preparing for retirement (i.e. moving into retirement housing) the latter stages of the ageing process and the inherent health, housing and financial implications attached to this life course stage. Both researchers found that Rhode Islanders who demonstrated lower income at older ages were more likely to move for reasons of 'assistance'. On the other hand and perhaps as one would expect, those with higher levels of income moved for reasons motivated by 'amenity'. Furthermore, those who had a history

of geographical mobility prior to reaching older ages who also belonged to the higher income categories were in some cases three times as likely to move as an individual who had a lesser history of geographical mobility. In Calvo et al's (2009) research, they found that households with higher levels of social security and importantly, higher levels of income or wealth were more likely to move as a household unit at older ages.

As one can see from the literature, financial circumstance whether measured by income, savings or material prosperity is evidenced widely as being associated with residential mobility in later life (both positively and negatively varying by financial status). As seen with age and health, the effects of financial circumstance on the propensity to move at older ages needs to be considered in conjunction with other potential determinants in order to be fully understood.

Health

When examining the effects of health on geographic mobility in later life we are interested in the ways in which good or bad health, both mental and physiological might determine residential mobility in later life. There is a good body of literature which focuses on both the effects of health through the life course on later life residential mobility outcomes and the influence of individual-level health characteristics upon decision making and the actuation of mobility intentions at older ages.

Patrick (1980) made the assertion that poor health both hinders and motivates a move. Here he is alluding to the fact that negative health can work as both a push and a pull factor. Bad health may be the reason for moving in circumstances where the individual would benefit from the provision of informal care, usually provided by close family members or friends. Proximity to family members can be integral to the supply of everyday care. The debilitating effects of undesirable health conditions act to hinder one's ability to physically enact a move. Worobey and Angel (1990) and Speare et al (1991) labelled moves of this type, 'second' stage moves. In particular they emphasised the transition from living by oneself (perhaps induced by the loss of a spouse) to moving in with or increasing proximity

to relatives. Another element of residential mobility which can be determined by a particular characteristic is the destination. Positive health can of course facilitate the means for more proactively minded moves such as those to retirement communities or rural areas in and around early retirement.

Moreover, of interest is the geographical area itself and the characteristics of the area, specifically attributes such as the concentration of older people in the receiving area and one's access to services and amenities. Biggar (1980) found that healthier people were more likely to move to areas where the density of older people was more concentrated. On the other hand, those who were disabled were much less likely to move to areas with a higher concentration of older people. Litwak and Longino (1987) simplify the relationship between health, moving motivations and destination selection nicely. They claim that healthier individuals tend to move to amenity destinations whereas those displaying poor health often move back to their 'communities of origin' more often than not in order to minimise distances between themselves and informal care.

As has been discussed, as well as determining the propensity to move at the individual-level, health can also determine the type of residential mobility. This is affirmed in Heaton et al (1981) where they found that poorer health was more likely to attribute to a local move, within a county or intrastate. Whereas, healthier individuals were more liable to be either non-movers or long-distance movers. Heaton et al categorised the types of moves determined by adverse health as 'mobility in preparation for ageing'.

A more specific measure of health is the presence or absence of a disability at the individual-level. Conway and Rork (2008) discerned that evidence of a disability significantly increased an individual's likelihood of moving at older age. Disability was in fact found to be a very strong determinant of later life residential mobility. The probability of moving with a disability also increased with age in the U.S (interstate migration). There is also strong evidence to suggest in Conway and Rork's paper that the effect of disability as a determinant of residential mobility has strengthened over time. In 1980 someone aged 85 or over with a disability was 1.38 times more likely to have moved within the last five years.

This likelihood increased to 1.87 times in the year 2000. Similarly, individuals aged 65 to 74 were 0.92 times as likely to move with a disability as they were without a disability in 1980. The likelihood of moving increased by a factor of 1.14 with a disability compared with those who did not have a disability.

Longino et al (1991) more precisely specify that it is rather recent changes in disability status (within the period of two or three years) which is a stronger determinant on the resulting propensity to move at older ages. They found that those with a pre-existing disability were not any more likely to move than someone without a disability. Thus again, this is evidence of the need to isolate changes in certain status and characteristics to within a narrower time period so as to determine stronger association with residential mobility outcomes.

Marital status and changes in partnership

An individual's marital status prior to a move can affect the likeliness of a move occurring. More noticeably, and allowing for better recognition of association, sudden changes in marital status can be considered an effective determinant of residential mobility in later life. The effects on residential mobility of these sudden changes in partnership have been explored in Evandrou et al (2010).

Marital status infers much about one's current situation. If an individual is married or in a civil partnership, they are highly likely to be cohabiting which carries with it certain assumptions; that the individual has the financial and emotional support of their cohabitant and that the considerations of the cohabitant need to be taken into account when contemplating moving. On the contrary, widowed, divorced or single persons are more likely to be living on their own. For this reason it is more probable that they are socially isolated and lacking the informal support of a partner.

Calvo et al (2009) found that those who are not married are more likely to move at older ages. As supported by Poulain (1986), Speare and Goldscheider (1987), Warnes and Rees (1986), Calvo et al affirm that being married has anchorage effects upon one's geographical

mobility at older ages. Additionally, they acknowledge that the considerations and accommodation preferences of more than one person complicates the moving process.

Meyer and Speare (1985) examined a longitudinal dataset of older people from Rhode Island and used logit analyses to assess the strength of relationships between potential determinants and mobility outcomes. In terms of marital status they found that being married was a fairly strong determinant of residential mobility. A married person in the longitudinal study was fairly likely not to move (logit coefficient of -0.274). If they were to move at older ages, this would be more likely to be driven by amenity-purposes.

Rogers (1988) found in Belgium, Great Britain, the Netherlands, Italy and Japan that the residential mobility rates of married persons was lower than that of non-married individuals. For example, in the Netherlands in 1983 1.42 persons per 100 aged 70 and over moved who were married. In the same age group, 2.07 persons who were never married, 2.90 persons who were divorced and 2.06 persons per 100 who were widowed moved. Similar conclusions have been made in studies in the U.S, Australia, Canada and Hungary by the U.S Bureau of the Census (1981), Hugo (1986), Ledent and Liaw (1986) and Klinger (1986) respectively.

Rogers (1988) stated that the onset of widowhood or divorce on move-propensity may attenuate over time. This is true as of course in studies where a recent change in marital status is not captured, it may otherwise lose strength as a potential determinant of a move. Evandrou et al (2010) found that of those aged 50 and over, residential mobility rates of the newly widowed were nearly twice as high as that of those who were not widowed or not newly widowed. Chevan (1995) also noted using the Panel Study of Income Dynamics (PSID) that becoming widowed acted as a trigger in increasing the likelihood of moving in the next year and that the effects of entering widowhood on residential mobility gradually up to 20 years after the event where the majority of those who had become widowed had consequently moved or at least where the move could be attributed to entering widowhood. Interestingly, widowed individuals stayed in the same housing unit for an average of 15 years. This finding is reiterated by Bonnet et al (2010) who found that housing

adjustments were far more likely to occur in the first four years of widowhood. Their study using the French Housing Study found that residential mobility rates were 90 per cent higher for recent widows than for continuing couples. Equally, Bonnet et al found that the mobility of recent widows increases more dramatically at ages 80 and above, especially when the participant had children.

Housing tenure

There is evidence in the literature that housing tenure like marital status is an effective predictor of the propensity to move in later life. It is documented as an associated determinant but also importantly a factor which can push at points of origin and pull at destination. Researchers have found that those who live in private rented accommodation exemplify increased chances of moving at older ages (Champion et al, 1998; Tatsiramos, 2006). Not surprisingly, this means that individuals who own their property experience reduced chances of moving at older ages. This is to be expected seeing as it is easier to move from private rented residence with little other than rental contract agreements to settle. Selling a property is a more lengthy process relying on the behaviour of numerous parties, especially if the sale is dependent on a chain.

Champion et al (1998) found that at all ages those living in owner occupied housing were less likely to move than those living in rented accommodation and if they did move they were also less likely to do so across long distances as renters were. However, with rented accommodation disaggregated, they found that owner occupiers were more likely to move longer distances than those living in council housing.

In research conducted by Uren and Goldring (2007) using the Office for National Statistics Longitudinal Study (ONS LS), they found that those living in owner occupied accommodation at 1991 were less likely to have moved by 2001. In comparison, those living in social or private rented accommodation were more likely to have moved 10 years later. Interestingly, the differential in moving rates between housing tenures narrowed as age increased. This may be attributable to the fact that residential mobility rates decrease in later life until increases at oldest old ages. The issue however with utilising the ONS LS is that the

decennial nature of the Census results in observation intervals of 10 years. An interval of this size makes it difficult to isolate determinants and be sure of the changes in status within the time period.

Meyer and Speare (1985) found that one would be far more likely to move if they were living in rented accommodation than that which was owner occupied. This finding is further supported by Chevan (1995), Choi (1996), Clark and White (1990) and Walters (2002). Sjaastad (1962) and Todaro (1969) offer some explanation as to why those who own their property are less likely to move in later life. Both pieces of research concur that owner occupiers have invested more in their housing which may indicate the strength of place attachment owing partly to social investment that they may have invested in their community.

Summary

This section of **chapter 2** has explored the literature on the determining characteristics of residential mobility in later life. The analysis in **chapter 5** continues this concept and looks at how changing status prior to moves have an impact upon the propensity to move using data from the British Household Panel Survey. Of further interest as mentioned throughout this section is the effect of recent changes in people's personal characteristics which can exert a stronger effect on the propensity to move. These changes in health and financial status as a consequence of ageing have been labelled as age-related stressors in the literature (Wiseman and Peterson, 1979). An occurrence not acknowledged in the review in much detail is ageing in place. To fully understand characteristics that interact with the propensity to move in later life we need to look beyond attributes which are associated with moving and examine those which correlate with stayers. A focus is required less on place attachment and contextual factors which might inhibit moves but rather on factors at the individual-level that encourage people to stay whether they are positive (voluntary stayers) or negative (involuntary stayers). Many people who stay in their residence over specified study periods do not even contemplate moving but their characteristics may tell us something about why they do not even consider residential relocation on a short term basis.

A common declaration in the literature is that in fact, most people choose to age in place (Erickson et al, 2006; McHugh and Mings, 1996; Sabia, 2008; Safran-Norton, 2010). Sabia (2008) finds that low functional independence, changes in family composition and increased maintenance and costs of living at residence are negatively associated with ageing in place. Conversely, as we would expect, factors such as increased home equity, stronger ties with the community (place attachment) and greater financial resources are positively associated with stayers. McHugh and Mings (1996) cite an increase in elderly residential mobility trends in recent years (attributing this to expanding middle-income retirees and increases in 'active ageing') but insist that ageing in place is still the more common demographic phenomenon in the developed world. Importantly, they mention that our circumstances and experiences earlier in life contribute to the residential mobility paths we take. In particular, they note that the development of place-attachment and a tendency move originates from these earlier life experiences. Safran-Norton (2010) focused more on the result that home modifications had in alleviating issues of poor housing-fit which in turn facilitated situations where people at older ages could age in place (at least until the onset of the need for 'third' moves). To refer to the notion of ageing in place in this review is simply to recognise that the majority of people in later life do not year by year undertake moves. And it is perhaps this that also explains some of the gaps in research into how determinants explain motives and choices of places to which people move.

2.4. Older residential mobility typology

This section introduces a typology of older movers from the literature, taxonomised by characteristics of the move and the motives of the mover. This part of the typology links to **sections 2.1** through to **2.3** of this chapter.

It is useful to create taxonomies of residential mobility in later life. Different types of geographical movement are classified by the characteristics of the move and the associated determining factors and motives intrinsic to the move. As discussed in the literature review, there are a number of existing typologies of residential relocation in later life. Later in the

thesis the typologies are considered in the context of social networks at older ages. Research into the determinants of moves at older ages reveals the individual characteristics of the mover which helps surmise information about their coping resources. This is important as the coping resources of an older network ego infer their ability to mediate the effects of disruption to informal support receipt following a move. For example, an older person of good health who is at 'youngest old' ages may have the coping resources to be able to rebuild their social network more easily following a move or likewise may have been centric to a strong social network whereby the majority of supportive elements were retained following a move. The determinants to moves (typified by mover characteristics) can assist in predicting health and social care demands thus deducing whether needs can be met through informal support channels or instead from formal health or welfare services. Coping resources can also function conversely to inhibit an individual's access to informal or formal support. An older person can for example be subject to two-prong jeopardy; a weak social network (itself initially derived from low coping resources) and poor coping resources, of which both can be detrimental to the health and well-being of the network ego. As is evident, individual level coping resources of the older mover operate in numerous ways to mediate or exacerbate the effects of moving on their social network and likewise dictate the need for support whether it is formal or informally sourced.

Litwak and Longino's developmental framework typology (1987)

Litwak and Longino (1987) state that there are three distinct types of residential mobility in later life. The 'first moves' occur around retirement age and are considered to be amenity-driven. Persons generally move longer distances with the aim of bettering their quality of life. This may translate to mean the desire to reduce the distance between one's self and safer, less populated and more affluent areas as well as those with better services appropriate to older people. Movers who undertake these moves are likely to be healthier and of a better financial standing in terms of their income and material wealth.

'Second moves' occur around middle old ages (75 to 84 years of age) and are typified by individuals who are expecting ill health (proactive movers), or future threats to their

functional independence. However, this level of ill health is usually manageable informally thus persons seek the proximity of family members and friends who may be able to care for them. More so than is evident in first moves, one's characteristics distinctly determine the motives of second moves. An important characteristic of these moves is that often older individuals return to their places of origin; this is mostly attributable to the fact that this is more likely to be the main location of focal family members or friends who can provide them with care (this is assuming that the individual in question had conducted a 'first' move away from their place of origin). Equally friends or family may have themselves moved elsewhere thus it becomes necessary for the older network ego to move closer to them. An older person who had not made an amenity move in later life will have less need to return to an area as seemingly they would not have moved away from an area of 'origin' in the first place. This does not mean they are more likely to live proximally to close kin and friends because they did not conduct early retirement moves. These individuals may still have to move to reduce distances to supportive persons.

'Third moves' are wholly motivated by health reasons. When health conditions become chronic and inhibit functional independence beyond that which is compensable through familial or social networks, there is a need to move to formal care settings such as nursery homes and 24-hour care centres. This requires a move of varying distance depending on the proximity of institutional care settings and in particular how far away this may be for family and friends who will visit them. These moves are epitomised by the oldest old (85 years of age and over), those who are poorer and likely to be suffering from poor health. Movers conducting third moves are also more likely to be living (prior to the move) and moving on their own.

Classified by move motives

The following section categorises moves by the motivating factors of the older mover. First moves as identified by Litwak and Longino (1987) are more associated with older persons who move for amenity purposes and for this reason owing to their better coping resources (being at youngest old age and of better financial and health status) the level of social support emanating from their new social network following a move may be superfluous to

them regardless of whether the supportive capacity of their social network was disrupted by the move. In this instance, coping resources may either mediate the effects of the move on social network characteristics or equally those individual characteristics themselves may actually mean that the individual does not require informal care due to their better health status and higher likelihood of being partnered. On the other hand, second moves which are characterised by the desire to seek more proximal informal support, may be associated with positive changes in social network attributes following a move as individuals move closer to family and friends. Third move motives are more associated with moves into institutional care settings.

Amenity mobility; retirement and departure of children from the family home

Meyer and Speare (1985) state that amenity mobility in later life is associated with younger old people of good health, high income and high educational status who are more likely to be married. Accordingly, amenity movers are also likely to have a more active mobility history and weaker social ties (lesser feeling of place attachment) at their place of residence prior to a move. Typically, those who move for 'choice' around retirement age carry out moves over longer distances with eventual destinations being areas that are perceived to be richer in amenity than their place of origin. Walters (2000) focuses more on the effect that impending or actual retirement has upon residential mobility in later life. He expresses that these moves are themselves also driven by amenity. Retirement diminishes place attachment as the link between person and geographical location initially created by employment is broken upon exiting the labour market. Walters typifies these movers as individuals who have the luxury of being able to choose the most desirable destinations owing to good health and financial status. Warnes (1992) reinforces this, stating that affluent, retired persons are more likely to want to firmly distance themselves from their places of work. It must be acknowledged that retirement could very well bring a reduction in the standard of living (Walters, 2000). This is to be expected as in some cases the loss of a regular income exacerbated by a lack of accumulated wealth across the life course means that individuals are worse-off and as a result are not able to undertake amenity moves. Pension and benefit income may not be sufficient relative to one's earnings across the life

course. Thus some of these moves made in and around retirement could actually be ‘forced’ moves owing to adverse changes in financial circumstance. Some moves around retirement are made with the aim of downsizing; these could still effectively be amenity moves. Moves undertaken in and around retirement may not be possible until familial responsibilities cease; often children depart the family home and/or the caring needs of one’s older parents subside such as if they move into extra care housing, retirement housing or pass away.

Assistance mobility; onset of disability and severe disability

Both moderate and severe disability is likely to induce ‘second’ and ‘third moves’ amongst older people (Litwak and Longino, 1987). It is the loss of functional independence associated with having a disability which exerts the biggest influence on the individual propensity to move. The onset of disability threatens housing-fit which in turn significantly increases the likelihood of a move occurring. The destinations of movers suffering from a disability are typically places of origin (‘second moves’) which tend to be in proximity to family and friends. Those experiencing severe disability tend to move to institutional settings or nursery homes (‘third moves’). Moves of this type are highly likely to be involuntary and in many cases reactive particularly in severe disability cases. What specifically characterises these moves is the fact that the level of care required is beyond that which can be provided by family or friends (Walters, 2000). The use of formal health services increases at oldest old ages where moves of this kind are more common. In general these movers are more likely to be much older, already suffering from poor health and living alone. The distance of moves is dictated by the proximity of either supportive social networks or institutionalised care settings (Meyer and Speare, 1985). According to Walters (2000) there is no distinct spatial pattern to assistance mobility. Rather, assistance mobility is associated with life course attributes, household characteristics and particularly the location of those who can offer informal care.

General residential adjustment mobility; poor housing-fit, a “change of scenery”

Incidence of general mobility is less associated with motives and particular move characteristics, but rather previous mobility histories, the strength of place attachment and housing-fit in conjunction with some randomness. This type of residential mobility is more likely to be conducted by those who had lived in private rented accommodation (Meyer and Speare, 1985). Some people throughout the life course move more than others whilst others are less inclined to move. For some moving is an overly-stressful experience whereas others handle this more effectively. Pair this with the fact that certain people are more prone to desiring a ‘change of scenery’ when residing in an area for a particular amount of time and often some moves in later life are conducted for few reasons. The vast majority of moves of this type are attributable to poor housing or environmental fit and can exert pressures on people to move. Owing to the more generic reasoning driving this type of residential mobility at older ages, it is difficult to group the specific mover characteristics which are likely to be associated.

Loss of a spouse

It is widely documented in the literature that to become widowed noticeably increases the propensity of moving, particularly in the immediate period following the loss of a spouse (Bonnet et al, 2010; Chevan, 1995; Evandrou et al, 2010; Speare and Meyer, 1988; Walters, 2000). Likened to Litwak and Longino’s framework, moves of this type could be classified as second moves. As Silverstein (1995) mentions, widowed seniors move closer to their adult children in order to obtain instrumental and emotional support. It is this desire to obtain instrumental support that relates these movers to ‘second moves’ as they are effectively proactively-driven in the knowledge that without spousal support, retaining their functional independence may be problematic. In terms of potential destinations for moves induced due to the loss of a spouse, more habitually one would expect to see returns to origin and places where previous social networks were based. There is little literature which explores the effects of losing a civil partner or a co-habitee on the propensity to move.

Sudden/substantial loss in income and/or adverse change in financial circumstance

An abrupt change in one's financial status, whether concerning levels of income, accumulated wealth or the cost of living may impact directly on residential satisfaction. Changes in financial circumstance might work both ways; the deterioration of individual-level wealth combined with increased living costs may greatly reduce residential satisfaction which in turn increases the propensity to move. However, an absence of potential familial support may encourage institutionalisation or moves to other care settings. The need to downsize and reduce maintenance and upkeep are common move motives born from adverse changes in financial circumstance. Typically mobility destinations are less affluent areas where individuals seek more affordable living costs. In other examples, older persons may choose to move to retirement communities or when health is problematic, part and full-time care settings. Older people may experience positive changes in financial circumstance which could facilitate longer distance moves to amenity locations. An upturn in one's financial circumstance may also be conducive to an increased likelihood of moving. This is explored further in **chapter 5**.

Mobility in preparation for ageing

Moves of this form are more related to individuals of moderate and higher income and education (Meyer and Speare, 1985). Moves of this type are inherently proactive (Erickson et al, 2006; Pope and Kang, 2010). Typically, these moves are more likely to occur if an initial amenity move away from 'origin' has occurred, in other words this form of geographic movement represents a return to origin. However, one could hypothesise that amenity moves in early retirement for example to retirement communities are in a sense residential adjustments in preparation for ageing. Meyer and Speare (1985) also found these types of movers are more likely to have a poorer health status along with a history of residential mobility throughout the life course. We know that 'serial movers' exist; individuals who are more likely to move as they have a history of being geographically mobile.

Classified by characteristics of the move

The proceeding section introduces types of moves by their characteristics. Moves can be characterised by their place of destination, the intended length of stay at new residence and importantly the distance from the place of origin. One hypothesises that the distance of the move is a function of social network change thus it is important to establish what types of moves, characterised by distance, are associated with what types of movers and their characteristics (coping resources).

Local moves: suburbanisation

Wiseman and Roseman (1979) have categorised individuals who move away from inner-city areas into designated suburban areas as 'local, suburban movers'. These moves are characterised by upper and middle income older persons. The authors mention that these individuals may be pursuing their "dream home." Evidently these older persons are conducting 'first' moves and as a result are likely to be healthier, "empty-nesters" and more likely to possess a rich mobility history with a moving motive of seeking improved amenity. These moves are more likely to be driven by pull factors at destination (suburban areas) than push factors from origin (inner city). Wiseman and Roseman believed that these movers are most likely to be in pre-retirement and motivated by housing readjustment. Moves of this type are local in distance thus minimally disruptive to the social network as remnants of the previous social structure may still be accessible. Equally, the coping resources of these movers suggest that they may not desire high levels of informal support, particularly that which is of an instrumental or tangible nature. It is important to bear in mind that coping resources can operate to suppress the need for informal care but likewise can mediate the effects of a move and enrich the supportive experience within a social network.

Inner city relocation

Moves that are conducted within urban environments are said to be more prevalent than other move types in later life, amongst older persons (Golant, 1972). Unlike counter-urban

moves to suburban areas, persons who change residence within inner city areas are on average more likely to exemplify lower levels of income, be moving on their own (often owing to widowhood) and demonstrate lesser health (Wiseman and Roseman, 1979). Moves of this type may imply that the reasons for moving are less about the wider environment but more associated with poor housing-fit as neighbourhood characteristics are not as likely to vary significantly when relocation occurs within a smaller geographic locality. It is difficult to place inner city moves into Litwak and Longino's developmental framework (1987). This is partly to be expected as incorporating moves classified by their characteristics with moves grouped by motives is not straight forward. The motive driving these moves is more probably associated with health which rules out 'first' moves. It is likely that inner city moves constitute 'second' moves against Litwak and Longino's typology; the distance travelled is likely to be short and moves are likely to be conducted for reasons surrounding health. There may also be incidence of institutionalisation occurring in inner city areas. The latter form of movement comprises what Litwak and Longino considered to be 'third' moves. One would suspect that inner city areas are more likely to be characterised by a greater density in health and care services for older people and for this reason, older persons living in these areas may choose to remain there whilst faced with increasing threats to their functional independence on the basis that the health services may be superior as opposed to what may be found in more suburban or rural areas.

Homes of kin

Moves to homes of kin members strongly relate to residential mobility as a result of the loss of a spouse or partner, or an adverse change in one's health or financial status. Walters (2000) refers to moves conducted to the homes of adult children or immediate family members (where family members may also accompany the move) as being classified as 'homes of kin' driven residential mobility. Kinship mobility is another form of assistance mobility. Walters states that these moves tend to be conducted over longer distances, often between urban areas. The hypothesised relationship between the distance of the move and social network change, specifically disruption, does not necessarily hold in this instance. Despite the fact that these moves are likely to be conducted over larger distances (Walters,

2000), movers are changing residence in order to reside within the home of kin thus the proximity and frequency of supportive interaction may actually increase in turn maintaining the supportive capacity of the mover's social network.

Institutionalisation

Directly aligned with 'third' moves, residential adjustments into care settings occur at oldest old ages. These movers are less associated with lower socio-economic circumstance as for many people becoming institutionalised is not attributable to individual resources such as financial circumstance and education; moreover it is a consequence of disability or particularly adverse health conditions which affects a significant proportion of older people as they age.

The chief motives driving institutionalisation are linked solely to health with individuals acting either proactively or reactively to the potential onset or presence of a debilitating illness which impinges on one's functional independence. Wiseman and Roseman (1979) acknowledge that there are varying degrees of institutionalisation; extra care housing to residential and nursing homes. They state that hospitalisation may precede institutionalisation.

Return mobility

Return moves are effectively second type moves whereby individuals residentially relocate to their place of origin. The meaning of the term origin in this context either equates to the area from which the individual moved away as part of a first type move, in other words, the reversal of amenity mobility or returns to areas of upbringing or places where one was previously engaged in the labour market. Wiseman and Roseman (1979) add that these return moves are often planned before the initial relocation away from the area of origin thus the intention to return is always present. In the case of those who return from amenity moves away from an area of origin (normally aged between 70 and 80 years), one would expect these movers to either be suffering from ill health or proactively moving in anticipation of becoming ill or disabled. There are obviously those who move around

retirement age for amenity purposes and foresee the need for care at middle old ages and beyond but factor this into these moves so that their destination caters for their needs later in life; whether the area is a retirement community with services and facilities appropriate to ageing or an area where the informal support of a social network can be found. However, it is also to be expected that less healthy, potentially widowed and financially unstable individuals could be making unplanned returns, back to areas where informal support, through the likes of family and friends could be sought.

Nonmetropolitan to metropolitan areas

Moves into urban areas in later life are associated with oldest old persons who are less likely to be married and more likely to be living in caring institutions or with children (Litwak and Longino, 1987). Rowles (1983) and Litwak and Longino label these types of moves as mobility of the second kind. Litwak and Longino in particular specify that metropolitan areas are resource-rich for older people and that those without children or younger supportive family are forced to either become institutionalised or move to these urban areas for support. This type of residential mobility is similar to trends of institutionalisation and moves for familial support but with the particular feature that the direction of these moves is towards metropolitan areas. For both interstate and intrastate movement in the U.S, Litwak and Longino found that individuals aged 60 and over who move from nonmetropolitan to metropolitan areas were less likely to be living independently and more likely to be suffering from a disability, along with an increased likelihood of being older and outside of a formal union than metropolitan to nonmetropolitan movers. It is agreed in the literature that metropolitan to non-metropolitan movers are more often first type movers (Litwak, 1984; Litwak and Longino, 1987; Rowles, 1983).

Movers from abroad

Movers at older ages who originate from abroad are likely to skip first type amenity moves and undertake second and third type moves. An important distinction between foreign-born movers and natives is that the former are more likely to live with their adult children in order to receive informal support, particularly movers who originate from Southern Europe where religions such as Catholicism are more prevalent and are renowned for more intimate familial nuclei characterised by intergenerational cohabitation. For this reason it is less probable that foreign-born older persons may become institutionalised (Litwak and Longino, 1987). They are also less likely to be disabled, probably due to their younger age distribution and good health as a result. This is evident in other research conducted on foreign-born movers (Green et al, 2009). According to Litwak and Longino's U.S study foreign-born movers were also poorer than native movers. This may explain the lower institutionalisation rates amongst foreign-born movers.

Moves in later life have been defined by their motives and the attributes of the move. More often than not as is evident from this typology, residential mobility at older ages is dictated by health, age and financial status; all of these are key coping resources in later life as well as primary determinants of moves. Later in the thesis in **chapter 7**, the role that coping resources play in mediating social network change is investigated. The typology presented here links with **chapter 5** which examines the determinants of moves in later life in the UK. An awareness of the main determinants of moves at older ages sheds light on the more common forms of residential mobility in later life and the characteristics of those movers which provides the basis for the analysis of coping resources in **chapter 7**.

Table 3: Typology of moves at older ages

Type of mobility	Motives	Attributes of the move		Mover characteristics			
		Distance	Destination	Age	Financial status	Health status	Marital status
Amenity mobility	Improve quality of life	Typically longer	Less populated areas with older age distributions; rural/coastal places	55-74	Good	Good	In union or cohabiting
Assistance mobility	Move closer to family or friends for receipt of care and support	Fairly short distance (unless long distance 'first' move was conducted)	Wherever caring social network is located	75-84	Average/good	Average/poor	More likely to be outside of union or not cohabiting
General residential adjustment mobility	Improve housing-fit	Often of a shorter distance	More appropriate housing	50+	No likely discernible association	No likely discernible association	Any
Loss of a spouse	Move closer to family or friends for receipt of care	Often of a shorter	Closer or into the home of family or	75+ 96	No likely discernible	No likely discernible	Outside of union

	and support	distance	friends.		association	association	
Sudden/substantial loss in income and/or adverse change in financial circumstance	Reduce maintenance/downsize property, purchase or rent a less expensive property, move into home of kin	Often of a shorter distance	To a less affluent area, possibly more urban than that resided at previously increasing proximity to a social network(s) with higher supportive capacity	65+	Poor	No likely discernible association	No likely discernible association
Mobility in preparation for ageing	Moving proactively in anticipation of decreased functional independence	Shorter distance unless a longer distance 'first' move has already occurred	Areas with preferable local council eligibility criteria and a community setting fit for older people or closer to potential providers of informal care	65-84	Varies depending on whether moves are made in preparation for an amenable retirement or declining health and functional	Varies depending on whether moves are made in preparation for an amenable retirement or declining health and	No likely discernible association

					independence	functional independence	
Local moves: suburbanisation	The seek out a more sparsely populated area, possibly with better quality housing	Short	Suburban areas	55-74	Average/good	Average/good	More likely to be in union or cohabiting
Inner city relocation	Residential adjustment due to poor housing-fit, most likely health related moves or general mobility	Very short	Inner city	50+	Average/poor	Average/poor	No likely discernible association
Homes of kin	Usually motivated by spousal loss or a sudden deterioration in health or financial status	Various, depending on distance between person and possibly familial care	Residence of adult children or other form of kin	70+	Average/poor	Average/poor	More likely to be outside of union
Institutionalisation	Motivated by serious ill	Dependent	Institution; full-time	80+	Average/poor	Poor	More

	health or disability	on the proximity of care settings	care setting, nursing or residential home				likely to be outside of union
Return mobility	Moves whereby older persons move back to where they had originated from at the beginning of retirement	Dependent on the distance of the initial move in retirement	Back to the place of origin meaning the starting before a undertaken amenity move in early retirement or in some cases a return to place of birth/upbringing	70+	Average/poor	Average/poor	Any
Nonmetropolitan to metropolitan areas	Often motivated by health reasons and the desire to be nearer to health and social care services	Dependent on distance of urban area in question – sometimes influenced	Metropolitan/urban areas	70+	Average	Average	No likely discernible association

		by an initial counter- urban move in early retirement					
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Source: author's summary of the literature (2011)

Chapter 3. Social network literature review

To begin, social networks are conceptualised with the main types of support systems introduced. Following this, further detail is offered as to the ways in which social support emanates from social networks examining in depth the role of size and the frequency of interaction, proximity and functions of members in influencing supportive capacity. The principal sources of social support across the network are also presented. The review then focuses on the relationship between social networks and health outcomes at older ages. To conclude the disruptive effect of residential mobility on social networks is discussed in the context of existing research, highlighting possible shortcomings in the literature.

Section 3.4 presents a typology of social network types in later life which provides the basis for the analysis in **chapters 6** and **7**. **Section 3.5** discusses the measurement of social support and how variables in the British Household Panel Survey are operationalised to quantify the perception of available informal support levels in later life.

3.1. Social networks

The core focus of this thesis is to investigate the disruptive effects of moving on social networks in later life and discuss the impact that this may have on formal health, social care and welfare use. This section of the literature review discusses previous research and literature on social networks. Firstly, the concept of a social network is introduced. Following this, some of the principal types of social networks are presented. The focus then narrows to a review and discussion of the literature which centres on social support from social networks in the context of the later life course and how these social support systems function as a product of their size, frequency of interaction, proximity and functions. The various sources of social support for older individuals are then introduced and the types of emotional, informational, and tangible aid which they provide.

Conceptualising social networks

A social network is a social structure consisting of individuals connected by forms of interdependency such as kinship, friendship, group membership, community involvement, formal interaction within organisations, informal inter-organisational relationships, romantic connections and other common interests just to mention a few of the types of systems which may exist. Social networks exist in many formats; as egocentric networks, computer networks, affiliative networks, social networking sites, research disseminative networks, financial exchange networks and religious networks are just a few examples. Whittaker and Garbarino (1983; p.4) describe networks as “interconnected relationships, durable patterns of interaction and interpersonal threads that comprise a social fabric.”

Types of social networks

Firstly it is important to identify some of the common types of social network. Milardo (1988) considers three main types; *networks of close associates*, *exchange networks* and *interactive networks*. The section concludes by examining Kahn and Antonucci's (1980) Convoy Model who present their version of social network structure.

Networks of close associates

These networks are comprised of collectives of people who are considered to be close, important or intimate to the primary ego. Issues arise regarding the interpretation of closeness and other such terms. Importantly, perceptions of closeness or intimacy may vary by gender, ethnicity, stage of the life course and historical periods. In fact, a noticeable number of academics found this to be the case (Bell, 1981; Degler, 1980; Dickens and Perlman, 1981; Gadlin, 1977; Johnson, 1982; Johnson, 1977; McCallister-Jones and Fischer, 1978; Peplau and Gordon, 1985; Scanzoni, 1979; Weiss and Lowenthal, 1975). Hammer (1984) provides a prime example of some of this modulation in interpretations of closeness of vertices in one's social network. Around half of the network members identified by females and only a fifth of males were said to be people known well. Neglected slightly in the literature, the social framework within which one perceives the concept of intimacy or

closeness may also affect how 'close associates' are viewed. Milardo (1988) does state that "the interpretation of close friendship undoubtedly varies both phenomenologically, in terms of the respondent's personal definition of closeness, and socially, in terms of the actual content of interaction." This raises an important issue, one which runs as a continuous theme throughout the thesis that one's perception of the supportive capabilities of a social tie may vary depending on an array of factors. The benefits of including quantitative (the size, frequency of interactions and the proximity of network constituents) versus qualitative (sociometry of social relations) methods in social networks research is discussed in the latter part of the literature review.

Gathering an appropriate constituency of network contacts (relevant to the network types) poses numerous challenges for researchers. Samples of close associates are typically assembled through name-eliciting procedures. In terms of methodology and implementation, networks which, though defined by loose univariate criterion which may yield ambiguous constituencies, are also simple and cost-effective to construct (Caeyers and Dercon, 2008; Milardo, 1988). These types of social networks are typically composed of both active and passive ties (Jackson et al, 1977; Shulman, 1975). Active ties are defined as social interactions between two vertices which yield considerable face-to-face communication (Milardo, 1988). Passive ties on the contrary are characterised by less frequent interaction. Although these ties are more typically superficial, they are also effective mediums for positive and negative regard as well as a channel for sharing information, goods and services. As is explained later in the review, social support can emanate from both active and passive ties. McCallister-Jones and Fischer (1978) found that the levels of social support which one might have expected to stem from close friendships, was much lower. Amongst the adults in their sample, only 18 per cent of identified close friends were individuals they felt they could rely on. Furthermore, only 34 per cent were mentioned as individuals they felt that they could consult about personal matters. On average around 45 per cent were nominated as individuals that they would consider 'especially close'. Approximately 35 per cent of these relationships were affective ties, those of which are less likely to induce any form of supportive exchange.

One of the principal drawbacks of networks categorised by close associates is that other important *alters* such as socially distant friends, neighbours, co-workers and other acquaintances are omitted. The differing interpretation of concepts such as 'closeness' or 'significant others' emphasises some of the challenges faced by researchers when collating sample members by using informants through name-eliciting techniques. Researchers need to carefully consider the concepts which they intend to measure. Network *actors* asked to name individuals they perceived to be close to themselves may feel the need to over report actual closeness or confuse this level of intimacy with passive relations, owing to the social stigma attached to loneliness. It was found in McCallister-Jones and Fischer (1978) that some participants in the study were identifying siblings as being 'close' simply due to their relation to each other when in reality, there was little social exchange between them that may have constituted forms of closeness. This is not the definition of closeness that sets the appropriate parameters for a social network which provides its ego with social support.

In sum, as stated by Milardo (1988) solely considering 'close associates' in order to ascertain the levels of support emanating through a network neglects important subgroups such as neighbours, friends and co-workers and due to issues regarding the perception of key notions, it also fails to recognise the difference between active and passive ties.

Exchange networks

Another type of social network acknowledged in the literature are exchange networks (Barrera, 1981; Fischer, 1982; McCallister-Jones and Fischer, 1978; Milardo, 1988; Phillips et al, 2000). This type of network constituency is used to describe social exchanges that are two-way. The sample is typically collated using highly structured interviews (Milardo, 1988). Social settings are offered to participants such as scenarios in the workplace, personal networks or communities (Fischer, 1982). As Milardo (1988) states, "a broad pool of potential network constituents are specified based on a set of explicitly defined criteria for their inclusion". This list of core network members is then supplemented by the informant's provision of names. Follow-up questions are employed in order to provide additional information about the relationship so as to ascertain the content of social ties and the level

of reciprocity. The notion behind this network type is that constituents are not only derived from intimate circles but also in the periphery of one's social network. In this way, more heterogeneous networks are identified which may help allude to the structural features of the network and avoid the inconsistencies of solely considering close associates as the only source of social support. This represents the more holistic approach to the conceptualisation of social networks without disaggregating into different systems characterised by the types of people (thus kinds of supportive exchanges) in the network. This approach informs the decision to aggregate several types of social network in **chapter 6**. Understanding the structural features of a social network is critical if one is to ascertain the primary characteristics of the network which in turn may contribute to typology formulation. The network type identification process is important if we are to understand how and why different levels of social support emanate from certain network characteristics. In the literature on exchange networks (Barrera, 1981; Fischer, 1982; McCallister-Jones and Fischer, 1978), methods of constituent collation were different to those employed by Fischer et al (1977), Johnson and Milardo (1984), Leslie and Grady (1985), Riley and Cochran (1985) and Wellman (1979) who utilised name-eliciting procedures. In the exchange network literature, studies had assessed the function and strength of social ties based on participant data provided about frequency and the nature of social interaction (Milardo, 1984). Owing to the capacity constraints of this PhD research, it is not been possible to investigate reciprocity in older people's social networks.

Interactive networks

The final type of social system considered by Milardo (1988) is the interactive network. These networks are characterised by interconnectedness between the ego and their kin, friends, acquaintances, neighbours and members of the community. The effective recruitment of network constituents is dependent on a clear conceptualisation of 'interaction' prior to data collection and an efficient method of collating the sample. This form of constituency identification is based on interaction (collection of activity data which enables the researcher to measure received social support; the British Household Panel Survey only collects data on functions that older people perform for their children and not

for others thus prohibiting the analysis of 'received' social support in the thesis) whereas others methods of network membership gathering have considered name-eliciting. Both are similar and primarily dictated by the specific function of the network that is being measured. Milardo (1983; 1984) states that usually interactive networks are identified by using questionnaires and 'diaries of social episodes' completed by the respondent (network ego). The interaction data is decided by the aggregation procedure and the recall process for respondents. Milardo is referring to the ways in which forms of interaction are categorised and counted and whether accounts by respondents are captured immediately (following incidence of the interaction in question) or in retrospect. In studies such as that of Cohen and Sokolovsky (1978) respondents were required to recall events that had occurred over a month previous to the time of the interview often with numerous constituents of their network. Bernard et al (1984) found that respondents who were required to recollect interaction with a number of network members over a longer period did not do so with any degree of accuracy. Collating social network data using methods such as this may prove more problematic when the primary network contact is older because of the higher probability that poor cognitive ability may impair their memory. These ensuing inaccuracies could be further exacerbated by increasing age. Bernard et al had only examined measures of interaction frequency and the network actors involved. Other studies investigated the accuracy of more detailed interaction; similar levels of recall bias were witnessed when respondents were asked to record the nature of their interactions (Burt and Bittner, 1981; Romney and Weller, 1984). Bernard et al (1982) found that incorporating an electronic method of recording social interaction proved to be more accurate in measuring social connectedness within social networks. Milardo (1988) suggests that veridical social network data can be produced but this requires a narrowing of the recall period and a reduction in the demands of the respondent to aggregate their social encounters with this responsibility transferred to the researcher. The findings in Conrath et al (1983) reiterate the point that contemporary reports are more accurate than methods of data collation which require respondents to recall events over longer time periods.

Self-reported records of interaction present the most effective means of building a network of constituents provided that the lag time is reduced and the aggregation of social

interaction kept to a minimum. One could argue that it is not correct to assume that one incidence of interaction between an individual and a network ego indicates that they must be part of the individual's social network. This notion is assumed in Nezlek et al (1983) where a social event occurring for over 10 minutes warranted recording and was considered to have originated from within the operatives of the social network. An older person might for example meet with someone for 30 minutes but this person turns out to be a sales representative offering the respondent housing insurance. Within these parameters this incidence of social interaction would be considered to be evidence of social connectedness as part of the 'interactive' social network. This highlights the risk in conceptualising all incidents of interaction as being possibly supportive.

Other means of collecting interactive social network data include conducting telephone interviews and inquiring about respondents' social activity with network members over a 24 hour period (Huston, 1982). The obvious advantages of this method of data collection is that the interaction records are not only contemporary but the respondent also has the responsibility of deciding which interactions were more supportive. This is important considering that one of the primary facets of one's social network and its functioning constituents is the perception of social support. Other authors have utilised electronic methods of capturing social interaction; respondents have been paged at random times of the day and asked to complete interaction reports (Larson and Bradney, 1988). This study aimed to obtain data on emotions associated with these various interactions in order to ascertain whether the informant felt positive or negative and how supportive the individual case of social exchange may have been. This method of sampling social experiences may prove to be most appurtenant to the study of the social networks of older people. These measures can consider both the occurrence and perception of social support. In incorporating the daily recording of social interactions, recall bias may also be reduced. Furthermore, older people may receive support from a range of sources with differing levels of emotive perception attached to each exchange; this form of network membership assembling is hypothetically more fitting than other methods. In reality, researchers do not have the luxury of purpose-driven studies into the supportive networks of older people. Rather, they rely on social interaction data that is retrospective and gathered not for the

sole purpose of assembling the social networks but as part of a larger survey where the dataset is multi-purpose.

Kahn and Antonucci's Convoy Model

Kahn and Antonucci present a theoretical model of a social support network. The model brings together the three types of networks presented by Milardo. It is ordered by three concentric spheres which represent the types of social contacts in one's network; these are classified by their perceived closeness to the network ego. Despite the use of self-reported closes to define the contacts within each circle, there is little acknowledgement unlike in Bell (1981) that perception has been found to vary by ethnicity and gender. Constituents in the inner circle are perceived by the network ego to be the most important support providers and significantly, recipients of support. This feature distinguishes Kahn and Antonucci's model from others; the consideration of reciprocity in social ties is not considered in the analytical chapters of the thesis but is acknowledged as a key determinant to the longevity and well-being of relationships. The types of social support exchanged within the inner circle are varied and remain relatively stable over the life course according to Antonucci and Akiyama (1987). As we see in Antonucci, Akiyama and Takahashi (2004), the inner circle is predominantly composed of close kin. The middle circle is comprised of individuals whose purpose surpasses role specific duties. As in the inner circle, this circle is likely to contain kin but also companions. The outer circle is typified by individuals who play a specified social role which can include co-workers along with family, friends and members of the community. A weakness of this model is that the functions and structure of contacts in the inner and middle circle are mostly defined by role-prescriptions in the outer circle. This limits detail as to the nature of social ties in the more intimate circles.

In **chapters 6 and 7**, kinship, companionship and community networks are conceptualised as separate entities. Networks are characterised by the type of constituents and this is intended to distinguish between the forms of social support provided. As the British Household Panel Survey only has capacity to capture the perception of social support and not received transfers, it was logical to focus less on emotional closeness and intimacy as

defining characteristics of different parts of the overall social network. Kahn and Antonucci (1980) conceptualised the social network by closeness to the network ego and role prescription. A further critique of this model is that it is not clear whether the ordering of supportive ties by their relative importance is based on perceived or received transfers of social support. Additionally, the model does not consider socio-economic circumstance and its effect on social networks. The focus on life course stage and health neglects the effects of historical and current income and wealth on social networks (the relationship between socio-economic circumstance and social network supportive capacity is explored in **chapter 6**). The Kahn and Antonucci model overlooks that lower socio-economic statuses are associated with lower human capital and poor health (Berkman et al, 2000; Ajrouch, Blandon and Antonucci, 2005). Socio-economic circumstance can mediate the effects of age on social networks. As affirmed in the literature (Banks et al, 2006), lower income and material wealth is associated with poor health and reduced opportunity for social interaction. What the convoy model does not factor is that for example lower financial circumstance might interrupt the predictive properties of life course on the structure and functions of the convoy model. Poor health may restrict the ability of a social network ego to maintain channels for face-to-face interaction which may alter the size of the network therefore the number of concentric circles. More adverse health associated with poorer socio-economic circumstance, may change the nature of supportive ties and restrict the ability of the network to reciprocate received social support. As discussed in Antonucci and Akiyama (1987), the social networks of older people are likely to be smaller than those of younger people. It may be the case that poor health associated with low financial status, acts to shrink social networks earlier in the life course than for individuals who have better health and more human and social capital. The convoy model does not consider socio-economic circumstance as a factor along with life course and health in shaping social networks.

Social networks at older ages

One of the more common forms of social network for an older person is the informal social support system. Social networks may serve more general functions such as to facilitate the transfer of information and advice or organise community events for older people. Social networks may exist at the voluntary level where a group of people are led by one or a few individuals and organise various types of events. However, the greatest demand of older people is that of the need for informal support as the physiological, financial and mental health strains of being at older ages begin to contribute to functional dependence. It is this aspect of the social networks of older people which is of prime concern in this thesis. Thus when the social networks of older people are referred to; it is assumed that the primary function is to support (most critically to assist in the undertaking of ADLs) therefore the social system in question is a social network which may create the perception of support.

Social networks have also been known to be considered as “natural support networks” (Hirsch, 1977) or “natural helping networks” (Froland et al, 1979). Social networks typically consist of approximately nine intimate individuals (Moorer and Suurmeijer, 2001). These figures or actors within the network may be ‘helpers’ such as kin, friends, neighbours or even people who hold particular positions that might lead them to come in contact with older people such as dentists, hairdressers or pharmacists. The ultimate functions of these networks are to provide esteem and emotional, informational and tangible aid. It is well lauded in the literature that the principal function of these networks is to offer support at times of crisis and great need (Epstein, 1961; Sauer and Coward, 1985; Unger and Powell, 1980). One might also argue that they serve a significant function over extended periods of less need. Maguire (1980) had the view that these networks not only help older people cope with physical problems and stress but also the transition to older age and some of the socio-emotional issues associated with this progression.

The social networks of older people serve a set of supportive functions for the focal older member. The primary aim of this support is to enable the network ego to maintain their functional independence. As mentioned earlier, this is achieved in a number of ways;

through direct instrumental (tangible) aid, informational support (assisting the network ego in maintaining existing social ties whilst also increasing the size of their network relative to their demands) and providing information related to the availability of formal agencies which may be needed to supplement existing informal support or in some cases substitute it based on the specific caring demands of the individual. There are many other more subtle roles carried out by constituent members of social networks.

Why is informal support important in later life?

Informal support is associated with positive health outcomes. Better functioning social networks are linked with improvements in physiological and psychological health. The relationship between social support and health is discussed in depth in **section 3.2**. Social support is unmistakeably vital for the well-being and welfare of older people. Caplan (1974) stated that an individual's response to difficult times (at older ages) is influenced not only by the extent of external stresses and individual ego's coping resource but also the quality of the emotional support provided within the ego's personal network. It seems as if social networks play the role of buffering and therefore mitigating the stresses of ageing. Importantly social networks also serve to supplement formal care services provided by the state or private means. Informal support in the UK saves the NHS considerable cost each year. In 2011, it was reported that informal carers save the UK Government around £119bn a year (Carers UK, 2011a). One must bear in mind that this saving only takes into account tangible aid. There are other functions of informal social networks which are impossible to value but likewise lessen pressure and demands on formal health and welfare services. The Old Americans Act of 1965 (Department of Health and Human Services, 2010) was established to promote equality and a fair access to health services for older people and similarly in the UK, the Commissioner for Older People Act (Legislation Government UK, 2011) provided a legislation with similar benefits for older people. Nevertheless, quite clearly these formal networks of statutory services could not sustainably provide for older people without the crucial duties that are undertaken within informal social networks. Sauer and Coward (1985) illustrate that the percentage of the total helping network that is informal even increases as age rises, further lessening the impact of age-related demands

on formal services at oldest old ages. Social networks clearly play an integral role in providing the necessary care for older people which helps mediate the stresses and strains of ageing. Further, knowledge of informal support provision inversely operates to inform resource allocators of the possible demands on formal health and welfare services. The corresponding sections below define in detail the social network and examines the literature on sources of social support and the characteristics of social networks.

Social support from social networks at older ages

Social support is defined by Cobb (1976) as 'information leading the subject to believe that he or she is cared for and loved, esteemed and a member of a network of mutual obligations'. Gottlieb defines social support as consisting of 'verbal and/or nonverbal information or advice, tangible aid, or action that is proffered by social intimates or inferred by their presence and has beneficial emotional or behavioural effects on the recipient' (Gottlieb, 1983; pp. 28-29).

More recently, geographical separation between adult children and their older parents has for the most part increased (Michielin and Mulder, 2007; Rogerson et al, 1993; Silverstein et al, 1998; Smith, 1998). Previously research in social gerontology has concentrated on social support yielded from close families and formal social agencies (Barnes, 1954; Bott, 1971; Mitchell, 1969). These traditional forms of informal support have become less prominent as increasing reliance has been placed upon friends, neighbours and volunteers (Sauer and Coward, 1985). From this an interest in the wider social network has developed.

It is well documented in the literature that social support is related to positive physical and mental health (Attneave, 1969; Auslander and Litwin, 1991; Caplan, 1974; Collins and Pancoast, 1976; Ell, 1984; Gallo, 1984; Whittaker and Garbarino, 1983). Community health researchers have since had an active interest in social support. To fully understand social support, it must be considered in its interwoven context within the wider social network. Hammer (1981) found that social systems both directly and indirectly promote good health amongst its members. These systems provide resources during periods of duress and

facilitate the transfer of advice and information about health services and appropriate behaviours in order to encourage physical and mental well-being. It has also been found that support systems directly nurture good health (Cacciatore et al, 2009; Hammer, 1981; Sakata; 1991; Stephens and Bernstein, 1984; Weinberger et al, 1986) For example; kin may help older people perform activities of daily living (ADLs) or administer medication. Primarily for these reasons, social systems have received increasing scrutiny in the literature (McDonald and Brown, 2008; Shanas, 1979; Thekkedath and Joseph, 2009).

When understanding how social support emanates from social networks, it is important to correctly conceptualise how informal support is located within the system and extract the relevant information accordingly. Many authors have considered a 'social support system' (Beels, 1979; Bloom, 1979; Cantor, 1975; Finlayson, 1976; Henderson, 1977; Pilisuk and Froland, 1978; Shanas, 1979) as its own entity with all ties within the system deemed to be supportive. Gottlieb (1981) argues that this approach neglects the often more complex nature of ties and networks. Firstly, he states that this method of conceptualisation considers support to be dichotomous which grossly simplifies the varying nature and levels of 'multifaceted' support in a social network. Secondly, that it is empirically unrealistic to assume that supportive ties are interconnected and form one integrated system and this completely overlooks the conflicts of interest inside a social network. It is likely that social support stems from different sections of a social network and as a result is distributed disproportionately.

Steering away from support systems theory, research since has focused on how informal support is operationalised as a part of an overarching social structure and social support is considered as part of a wider structural analysis (Hammer, 1981; Tolsdorf, 1976; Unger and Powell, 1980). As stated by Bloom (1979), this approach considers 'individual difficulties with characteristics of the social system'. The content of individual ties within a social network is instead perceived as a flow of resources. As Gottlieb (1981) puts it, 'the allocation of these resources is linked to large scale social phenomena'. Gottlieb provides a number of rationales as to why use of these methods are superior to the consideration of integrated 'social support systems'; supportive ties can be located anywhere within one's

social network. Supportive ties are considered as part of the broader range of ties which constitute the whole network and importantly network attributes such as the content, strength and symmetry of networks are assessed against the availability of varying levels of supportive resources exchanged between individuals. In this scenario, supportive and non-supportive ties are assessed amassing to the total supportive network. This point is explored in more detail in the next section. The following section of the literature review examines the components of social support within the wider social network framework. These components are broken down into the following; the content of ties, the inequality of ties and the structure of ties.

Content of ties

As adjudged from the literature, it seems that a number of authors when assessing the content of ties within a network, sought to detect only supportive ties (Henderson, 1977; Pilisuk and Froland, 1978). These authors considered all ties to be supportive thus in their research, the number of ties were interpreted as indicative of the level of available social support. Krause (1991) and Silberfield (1978) deemed all 'close ties' as supportive. Closer ties between nodes are more likely to facilitate the transfer of supportive resources but clearly not all close ties should be considered as providing a vehicle for informal support. The ways in which the concept of 'closeness' is presented by the researcher or data collector affects the respondent's perception of a close tie. Thus depending on the context, closeness may or may not be perceived as support yielding. Gottlieb (1981) argues that in solely seeking to locate supportive ties, one loses analytical capacity when it is more beneficial to consider ties which are also partially or not supportive. Essentially, social support is kept as the object of study and the social network becomes the subject. Moreover, Gottlieb recognises that the structure of networks may affect the quantity and quality of supportive resources available to the focal individual (the supportive capacity of the social network). For this reason also, unsupportive ties within the wider social network become an important part of the analysis. Time is still spent examining unsupportive ties which themselves may constrain other network constituent's activities. These ties may

impinge on an individual's remaining capacity to provide support. Gottlieb also states that unsupportive ties may provide access to other supportive ties in the network.

In Gillies (1968) focus turned to criteria other than support in order to indirectly identify supportive ties. Like in Krause (1991) and Silberfield (1978), Gillies distinguished close, 'intimate' ties. It was found that only 30 per cent of these ties provided support in emergencies whilst 22 per cent assisted in daily activities. This finding highlights the risks in assuming that the closeness of a tie (defined by geographical or emotional proximity, or frequency of contact) automatically spawns support. Similar findings are apparent in Fischer et al (1977), Laumann (1973), Shulman (1976) and Wellman (1979) where closeness of ties did not necessarily imply the transfer of supportive resources. Two pieces of research (Boissevain, 1974; Pool and Kochen, 1978) found that in Western social systems, typically individuals have some sort of contact with something between 1000 and 1500 persons with around 20 to 50 of these ties being significant. However, as iterated, not all of these significant ties are likely to be supportive. Furthermore, some ties might even be harmful for example in situations where demands are placed on the ego to provide support at a cost to their own supportive requirements. Baker and Faulkner (2004) also found that ties within social networks could prove to be harmful.

Information on the number of ties or 'close' ties within a relationship does not necessarily refer to the content of ties rather the content of the social network itself. In order to understand the nature and extent of a social tie, we need to understand the flow of resource. The number of social ties is believed to be a more effective measure of social integration (Chappell and Badger, 1989). Nadel (1957) declares that more than one relationship can link the same two nodes inside a social network and resultingly, more than one type of resource can flow between them. Gottlieb (1981) refers to these specific ties as 'multistranded'. Examples of the types of support that might be evident in social ties are; emotional help, personal care, material assistance, financial aid, social brokerage and empathetic understanding (Gottlieb, 1981; Jones and Fischer, 1978). Other types of informal support might constitute surveillance, transportation, the lending of items and pastoral care. Jones and Fischer (1978) noted that emotional-aid or affective ties were more likely to

be reciprocal and therefore representing mutual exchange whereas material-aid ties were asymmetric. The overarching consensus from the literature is that when examining the content of ties in search of social support exchange, it is imperative that one considers the broader social network.

Inequality of ties

Understanding the levels of social support available to an older person is to better comprehend the supportive capacity of their social network. The varying quality between ties tells us something about the amount and nature of support existing between two nodes. Importantly in the context of this research, an awareness of the supportive capacity of a network is imperative if we are to measure social network change. Indicators of supportive capacity could be used to identify certain network types and their individual susceptibility to change.

One assumes that the stronger a tie the more assistance that will likely flow through it; Wellman (1979) makes this point. Of course this surely depends on how strength is defined within the study. If a measure of strength is defined by the facilitation of support transfers then clearly 'stronger' social ties would exemplify higher transfers of supportive resources. Whereas if stronger was characterised by geographic proximity then it is possible that some of these social ties would not demonstrate a transfer of supportive resources.

There is a contrasting argument in the literature that weaker social ties may actually open metaphorical doors to new opportunities outside the more neatly interlocked and intimate, inward looking social networks. Boorman (1975) and Granovetter (1973) both state that weaker social ties can provide access to unique channels of information. Gottlieb (1981) mentions that weaker ties often provide more diverse support as typically they provide access to more sources of social interaction. In terms of information, advice, awareness of employment opportunities or available housing for example, it is less the quality of social ties which is important, rather the number of ties one has. Roberts (1973) proclaims that these weaker social ties may become stronger and therefore more broadly based, providing

a higher quality of support both in variety and volume above the level which would solely constitute an informative tie.

An important measurement of tie inequality is its symmetry. The extent to which informational, financial and emotional aid is evenly exchanged between two older persons offers insight into the degree of reciprocity which importantly implies the structure of the social network. Social networks that are characterised by close-knit ties of a reciprocal nature will likely exemplify a cluster shape appearance. Whereas, interpersonal ties linking social networks in Western Europe typify more stratified systems where there is more inequality in power and resources (Wellman and Leighton, 1979).

Structure of ties

There is a firm belief in the literature that the size of social networks is related to the availability of social support. Some researchers have preferred to purely examine the relationship between persons and focus on the frequency of contact, the functions of the tie, the type of contact and the distance between the individuals (Berkman and Syme, 1979). However, this as stated by Carrington (1981), Gottlieb (1981) and Howard (1974) neglects the likely effects of the structural features and size of a network on the nature of ties, particularly the limiting influence that personal networks might have on the behaviour of individuals (a limiting influence that could dictate the amount of social support available to older people). One of the more useful measures of social network structure might be to gauge the *density* of a network. However, density if anything is a more appropriate indicator of network supportive capacity. Nevertheless, high density would imply a nucleated social network. Contrastingly, a lower density measure would suggest a fragmented and uncoordinated network (Gottlieb, 1981). Gottlieb proposes that this measure would be best supplemented by also considering the number of clusters in the network and the presence of a central figure. One would argue that the structure cannot fully be understood without knowledge of the amount and types of support existing between social ties, the types of actors within the network and to an extent, data on the proximity of ties to the network ego.

Densely knit networks of interpersonal ties function in a different manner to those which are more loosely constructed. More dense social networks infer reduced proximity between nodes. As a result, resources are mobilised more quickly owing to the smaller distances between network constituents. Proximity between network members has been found to facilitate the speedier transfer of resources (Vidal and Kley, 2010). This is particularly evident in the 'locally integrated' networks (Wenger, 1991) of older people where the closeness of neighbours (who are likely to also be friends) and family that live locally lends itself to the faster mobilisation of support. In **chapters 6 and 7** social networks with higher proximity are given additional weighting toward supportive capacity. Gottlieb (1981) also asserts that densely contained networks help older persons to control and conserve their existing internal resources. One would assume this refers to individuals who retain a limited but fruitful selection of social ties which yield appropriate levels of social support without the intrusion of conflicting, external influences. This form of structure of a social network may be seen as a 'haven' amongst older people from external pressures (Lasch, 1977). A consequence of this is that the tighter boundaries of densely packed social networks restrict opportunities such as an individual's access to external resources. There is a problem with considering the density measure of a social network; as Gottlieb (1981) puts it, "densities can mask local inhomogeneities (p. 189)". In other words, density measures effectively take an average of the overall closeness of a social network however this ignores individual clusters or sets of social ties which might be more sparsely populated and of which the effects are offset and averaged across the social system by more tightly-knit clusters. The British Household Panel Survey does not permit the compilation of social network maps and as a result any individual proximity between the network ego and certain actors are calculated without data on the closeness of actors to each other.

Granovetter's (2004) study focuses on the higher number of social circles from which an older person with a more stratified social network structure may benefit. As mentioned previously, Granovetter acknowledges that weaker ties better facilitate the transfer of novel information. Tighter networks of people are more likely to lead to the overlapping of the same information from nodes that are not only in contact with the ego of the social network

but also interpersonally tied to each other. These types of networks are typified by shorter and longer distance ties with a wider range of actors operating within the social structure from a greater range of social spheres. It is this access to a more extensive range of social subgroups which gives rise to access to a wide variety of resources (Gottlieb, 1981).

Some authors have made the assumption that individuals belong to one solitary, unitary group or cluster which constitutes their social network or at least a significant part of it (Bender, 1978; Speck and Attneave, 1973; White and White, 1962). It is important that social support is considered in the context of the wider social network rather than solely assessing bundles of social ties or even individual ties for prevalence of social support. For this reason, supportive capacity is analytically considered holistically across different network types. Social support flowing between one focal and secondary node in the network may be influenced by the level of support travelling across another social tie. Over a particular time period, one network constituent may be required to undertake a certain duty to aid the focal member of the system because the specific duty was not assumed by another source as expected. The structure of a network can also for example constrain the levels of social support emanating between two individuals as the resource use of social transactions from other ties may detract.

Gottlieb (1981) finds that as social network researchers, we do better if we consider density in conjunction with other structural measures such as the number of clusters in the network or the extent to which the system relies on a central figure. *Clustering* has proved to be an effective method of ascertaining social network structure and the ways in which this is related to supportive capacity (Everitt, 1980). Perhaps the most notable feature of this method of social network analysis is that social ties are clustered based on the pattern of ties, the frequency of contact and the function of the social ties. This resists previous notions that densely-knit clusters are homogeneous in terms of their personnel. The belief had been held that for example these clusters contained solely kin or close friends (White and White, 1962). Also, this method allows the researcher to investigate the ways in which different clusters interact with each other, whether densely or sparsely populated, and how this facilitates the transfer of supportive resources. According to Gottlieb (1981), clustering

also enables one to better understand and compare the benefits of cluster characteristics such as density or strength with clusters that are more homogeneous, such as those which are affiliated with kin in order to see which has a greater bearing on the availability of social support.

Other authors discuss different methods of studying the structural forms of social networks. Chase (1980) and Davis (1979) investigated dyadic ties and the likelihood of the integration of a further social tie to form a triadic supportive structure. This slow building process may enable researchers to simplify their analysis of complex social structures. Other studies have focused on the *centrality* of social networks whereby the level of control that the focal network elderly member exerts over the access to supportive resources is assessed (Freeman, 1979). Unfortunately limitations in the BHPS data do not permit the capture of these concepts in the analysis. However, these concepts have been found to correlate with levels of perceived and received social support in later life in social networks; future consultations of UK social surveys which have modular focus on social systems should collect this information.

Sources of social support at older ages

Provision of informal support

There are numerous sources of informal support within an individual's social network. The origins of this support are likely to vary depending on the age of the recipient. Younger persons require different forms of support and as such, receive it from dissimilar sources to that of older people. The subgroups most commonly involved in providing informal support for older people are kin, friends, neighbours and members of the community. Individuals who have retired from the labour market lose the support of work associates, a source of informal support (principally social validation and informational support). Further, this weakens one's economic position and with the onset of age-related physiological deterioration threatens an older person's likelihood of retaining functional independence. As a result of these impending age-related issues pressure is exerted upon kin and other social acquaintances to provide support to compensate that which is lost through an older

person's inability to carry out everyday tasks. Sauer and Coward (1985) declare that support systems need to provide socialisation, help with activities of daily living (ADLs) and assist in times of need. Older people may also be in receipt of informal support from the third sector or through membership of official support groups. The type and level of support provided may differ depending on the provider(s), the needs of the older person and whether or not the individual is in receipt of formal support.

Kinship

In the hierarchy of support provision, older people cite kin as the main contributors over friends, neighbours and the local community (Scott and Wenger, 1995; Shanas, 1979b). This is partially due to the fact that one's kin often encompasses a broad range and number of individuals; spouses, siblings, children, parents and extended kin therefore an individual in an older person's network is more likely to be a relative of the focal member. With a wider range of sources of support, it is not surprising that kin rank highest in importance in terms of the extent to which they provide support for a focal elderly relative. Detail is provided below as to why kin are essential sources of informal support for older people and in many cases considered as primary providers of informal care.

Spouse

The spousal network is the most immediate source of social support in its proximity and reliability. There is a fair amount of literature on 'husband and wife networks' (Bigby, 1997; Johnson, 1983; Peters et al, 1987; Sauer and Coward, 1985; Shanas, 1979; Wenger et al, 2007; Whittaker and Garbarino, 1983). It is these conjugal ties that demonstrate the closest links with the focal older member of the network and are typically characterised by instrumental support. Hoyt and Babchuk (1983) conducted a study where they found that respondents aged 45 and over were 30 times more likely to include a spouse as their confidant than extended kin, 17 times more than siblings and 10 times more than adult children. Quinn and Hughston (1984) confirms this stating that spouses are the most important sources of intimate closeness, companionship and well-being. However, it is important to keep in mind that the availability of this support is of course fully conditional

on the age and helping capabilities of the spouse. Sauer and Coward (1985) state that marital support consists of that which is material, affectional and caregiving. Material support has not been discussed in any great depth in this review. This is mostly due to the fact that material assistance often comes under the heading of formal support such as that which is fiscal. The material support which flows between couples is usually dependent on their socio-economic position (Henretta and Campbell, 1976; Sauer and Coward, 1985). Those who are married or civil partnered are proven to be materially superior to those outside of civil union and better off in terms of both their morbidity and mortality outcomes (Gove, 1973; Helsing, et al, 1981; Schwartz, 2008; U.S. Census Bureau, 1981). Married couples are more likely to be able to provide each other with a safe, warm and comfortable environment to live and plentiful access to healthy foods and other activities related to well-being. Those who are married are also more likely to benefit from a greater sense of privacy. If an older person does not have the support of a spouse then this isolation can otherwise be experienced negatively.

Another facet of informal support which is accessible for older people through husband and wife networks is affectional support (Sauer and Coward, 1985). The authors state that few other support systems are as consistent and reliable as that which is provided by a spouse. This form of social support is likely to manifest itself as informational, emotional or tangible. Owing to the proximity, the loving responsibility, a lack of need for economic remuneration and the unwritten history of supportive exchanges, spousal support is the most flexible, dependable and favourable form of social assistance. Spouses provide that everyday support which is instrumental in ensuring that their 'other half' may maintain their functional independence. Although it is commonplace for married couples to begin to demand more from their supportive network, for older persons the significance of spousal support is only fully realised once it is diminished or lost due to health issues or death (or divorce) of (from) the spouse. Sauer and Coward (1985) raise an important point that as social beings we 'search for verification of our essential loveliness (p.71)' which goes beyond the notion that we search for social validation in order to gauge ourselves. To be recognised and loved is a key element of social support which no doubt serves to promote positive psychological health. It has often been mooted that our mental health exerts

influence over our physical health (Clarke, 2008; Rakel et al, 1993). Thus our happiness and life satisfaction are integral to our overall health and well-being. An area of study which is rather underresearched is the effect of sexual relations as an aspect of affectional support between spouses. Ludeman (1981) and Weg (1982) examined the sexual behaviour of older married couples however they did not focus on the possible health effects. This is perhaps an area of potential exploration in the future. A piece of research has, in early 2013, been commissioned to investigate sexual functioning in later life and how it is linked to health and well-being.

Representing one of the more tangible types of support, spouses typically provide care for the other or in some cases, each other. Characteristic of ageing, the onset of illness and disability exert significant strain on older couples. Owing to the nature of age-related morbidity and the negative effect it has on an older person's functioning ability, affectional and material support are often ineffective in mitigating its impact. Instead, older people are required to provide much more hands-on, instrumental support for their spouse. As health care problems at older ages are often more chronic rather than acute (Sauer and Coward, 1985), individual's status are usually dependent on the provision of everyday care. This is the type of instrumental care which one might find in institutionalised settings or retirement accommodation with formal carers on site. As a rule if there is the capacity for the receipt of care from a non-formal source then provided the older person is married or cohabiting, the spouse takes on the role of providing 24-hour care. As is evident below there are other sources of kinship support if the older person in question lacks a spouse or partner who can adopt this role. This is only one broad family of support-type and there are other forms of support which operate within a social network at any one time and will be sourced from many origins. Thus, if an older person benefits from the presence of a spouse, other kin and network constituents may provide different forms of support that are affectional, material or informational for example. It stands to reason that individuals outside of union or who are not cohabiting may rely more heavily on formal care agencies rather than searching for other sources of informal support within their network simply because they are not adept at receiving support from relatives. This point is discussed in the literature (Crossman et al, 1981; Sauer and Coward, 1985; Shanas, 1979).

Offspring

The intergenerational relationship between older people and their adult children has received plenty of attention in demographical and gerontological studies (Bonsang, 2009; Grundy, 2000; Ikkink et al, 1999; Lowenstein et al, 2007; Phillips and Reed, 2010; Sauer and Coward, 1985; Stuifbergen et al, 2010). These pieces of research have mainly focused on the flow of supportive resources from children to their parents in terms of the main drivers and how this is affected by period effects in social attitudes and demographics. Hanson and Sauer (1985) consider the relationship between older people and their children to be the 'hub' or 'critical core' of the extended kinship network. In informal support provision, older people turn to their adult children before siblings and other relations (Hoyt and Babchuk, 1983). Following the functioning or complete loss of a spouse through separation or death, it is frequently the offspring of the older person who become enlisted with the primary caring responsibilities. Commonly, this demographic change prompts elements of or all of the progeny to reduce the travelling distance between themselves and their dependent parents, in some cases cohabiting, with the adult children moving in with their older parents and vice versa.

There are distinct geographical patterns in proximity between older people and their children. These can vary depending on the age, health and caring demands of the older parents, the age of the care-giving children and the social class and income of both the parents and children. A number of authors have identified a positive correlation between income and the distance between adult parents and their children (Harris, 1975; Kerckhoff, 1966; Lacy and Hendricks, 1980). Proximity is at its greatest when older people live with their adult offspring. It is necessary to ascertain trends in parent-children cohabiting as the presence of a live-in carer so to speak is the most desirable option for an older person suffering from a progressive deterioration of their functional independence. Stehouwer (1965) found that around 42 per cent of older people in Great Britain share households with their children. This figure does seem rather high, though one must bear in mind that these trends are indicative of a society around 48 years previous to the current day. More recent analyses of data have shown that the share of older people who live with their children has

fallen. In 1994 (Wave 1 of the European Community Household Panel) of older persons 4 per cent of women lived with their spouse and children while 7 per cent lived with just children (ECHP, 1994). The respective figures for men are 9 and 3 per cent (ECHP, 1994). Grundy (2000) discovered that of those aged 55-64 in England and Wales the percentage who lived with their adult parents dropped from 3.7 to 2.9 per cent for males and 3.5 to 2.4 per cent for females. Trends in older people living with their adult children are declining (Shanas, 1979). Iacovou (2000) argues that Northern European and Protestant countries are less likely to exemplify trends in intergenerational cohabiting between older people and their adult children. In Indonesia for example, cohabitation between older persons and their adult children is common. In 2007, around 27 per cent of older people lived with their children (Johar and Maruyama, 2011). Culture and religion have connotations for attitudes towards intergenerational cohabitation. Chevan (1995) states, cohabitation amongst older people is difficult to measure. In many cases, older, single individuals may reside with their adult children however, still retain their previous residence and consider this home. For this reason much intergenerational cohabiting between older people and their adult children may be neglected by surveys and censuses. Overall it seems that in developed countries, despite the fact that the lowering of mortality rates has increased individual exposure to the adult children and older parent caring scenario, rates of cohabitation have dropped.

It is important to ascertain the prevalence of cohabitation between adult children and their parents as this likely affects access to informal support for older people and in turn their reliance on formal services. Some people may live significant distances from their parents and an increase in proximity may not be possible. Smith (1998) states that distance is a key factor in dictating the types and amounts of social interaction which is reciprocally exchanged between older parents and their adult children. Furthermore, intergenerational separation, geographically, is increasing due to globalisation, rises in migration rates and the affordability of and improving access to transport services.

There may be a reluctance in older people to reside in the homes of their offspring regardless of culture, religion and societal norms. This is primarily because of the perceived caring burden that they may impose on their adult children. It is widely acknowledged in the

literature that intergenerational cohabitation is normally initiated as a last resort, mostly when the subject experiences significant loss in functional independence. Typically, those that are ill, single, of a lower socio-economic status or at oldest old ages are the most likely to cohabit with their adult children (Kivett, 1976; Rogerson, et al, 1993; Silverstein, 1995; Troll, 1971). It has been found that adult children more likely to cohabit are those of a lower socio-economic position (Grundy, 2000). This could of course adversely affect the level and quantity of social support which they can provide. Informal caregiving (that which involves assistance with ADLs) is frequently dependent on both proximity and co-residence (Crimmins and Ingegneri, 1990).

The nature of this support is dependent on the needs of the older parent as well as the capabilities of the provider along with the geographical distance between both ends of the social tie. The quantity and directional flow of assistance depends on the availability of supportive resources and needs of both parties (Hess and Waring, 1980). The type of informal support provided is also conditional on the receipt of formal care. Children may be able to offer assistance with tasks such as shopping or house cleaning (Van Houtven and Norton, 2004). At the other end of the spectrum, offspring may also be providers of personal care (Romoren, 2003). Frequently, support from adult children comprises that which is emotional, concerned with companionship and household maintenance (Sussman and Burchinal, 1972). Some more specialist types of nursing for example may be beyond the remit of a family carer. In situations where the health condition of the older person in question deteriorates and further limits their functional independence, the reliance on formal care increases to the point where 'third moves' to institutionalised settings may be forced upon the older person (Litwak and Longino, 1987). Older persons who are childless do not benefit from this valuable source of familial support and may therefore derive informal support elsewhere such as from siblings or extended kin. This is not to infer that social support originates from one source at any one time as the reality is that different forms of support are sourced from various areas of one's social network. Dyadic relationships between parent and child must be considered as a part of the wider network within which they are imbedded (Uehara, 1990).

Siblings

The sibling relationship is the most prolonged of the life course. Provided one does not lose contact with a sibling, exposure could remain for a large proportion of the life course. Cicirelli (1995) reckoned that 85 per cent of people at middle-age have a living sibling while this reduces to 78 per cent for individuals aged 60 and over. As with offspring and their parents, the geographical proximity between siblings is important. In Bigby's (1997) qualitative study of 62 older people in Melbourne with intellectual disabilities, of those who had a sibling, 96 per cent saw them at least twice a year. Shanas et al (1968) found that 34 per cent of older men and 43 per cent of older women saw a sibling at least once a week and this increased to 39 per cent and 44 per cent respectively for monthly visits. Revised estimates show that prevalence of sibling interaction has remained at fairly high levels of frequency (Shanas, 1973; 1979a). More recent data is challenging to obtain. Contact rates likely vary based on the support needs of either or both siblings in addition to the proximity and caring resources available across the social tie. The fact that researchers have measured sibling contact by use of the telephone and postal service along with visits, infers perhaps the typical nature of liaison. Sibling support, especially at youngest old ages consists mainly of emotional support and social verification. Interesting, sibling contact apparently declines from middle-age to older ages (Rosenberg and Anspach, 1973). One would imagine that this trend is then offset by a rise in contact as dependency on the sibling increases with augmenting caring demands and a growing unavailability of informal support in other areas of the network, such as that which is spousal or possibly offspring related. An example of this would be the loss of a spouse; an older person's deprivation of this vital source of support may typically give rise to a need for caring duties to be undertaken by a sibling (Townsend, 1957). It seems that the kind of social support provided by siblings is dependent on the older person in question's stage of the life course. Forms of social support at youngest and middle old ages may consist of morale boosting, assistance with shopping, home repairs and finances as well as advice giving and help with decisions in the role of a confidant (Sauer and Coward, 1985). The role of siblings as auxiliary helpers is prone to upgrade to a more primary role depending on the availability of social support elsewhere in the network for the older person in question (Allan, 1977; Cicirelli, 1979). In these scenarios

siblings may alter their role as providers of psychological support to the mainstay of tangible support with duties including nursing and offering personal care. Older people who are childless are of course much more likely to rely on siblings for social support (Johnson and Catalano, 1981). In fact siblings often represent the first choice for social support following spousal loss for those older people without children.

Extended kin

The phrase 'extended kin' constitutes members of the family such as grandparents, grandchildren, aunts, uncles, nieces, nephews and so forth. Conceptualisation is based on the Western model of a nucleated family where a gap of more than one generation or an individual without direct lineage to the core familial unit is considered to be an 'extended' member of the family. Also referred to as 'distant' relatives, much of this is attributable to their geographical remoteness relative to the focal older individual. Bigby (1997) states that around half of her sample had sufficient contact with extended kin for them to be considered to be part of their social network. Not surprisingly social interaction with extended family tends to be mostly affective and dominated by traditional obligations to maintain relations with all parts of the family. This is again due to ease of access to the more proximal elements of the familial supportive network. Intergenerational living is not as prevalent in northern European countries which are predominantly Protestant thus in the UK for example, 'extended kin' are not naturally as proximal to the network ego. In more Catholic dominated countries these 'extended kin' may be more proximal to one another.

Neighbours

Informal support relationships between neighbours are characterised by reciprocity (Batson, 1993; Thomese, Tilburg and Knipscheer, 2003) rather than the mutual, obligatory relationships which bind relatives into caring formalities. The relationships between neighbours are considered to be exchange relationships (Mills and Clark, 1982). The exchange of goods and services between neighbours becomes quid pro quo. The role played by neighbours tends to be supplementary to existing pathways of care such as that of the family or formal services (Qureshi and Walker, 1989). This is widely recognised in the

literature with authors stating that help from neighbours (and friends) can lessen the burden of care on the family (Lowenthal and Robinson, 1976; Sauer and Coward, 1985).

Owing to the proximity of neighbours to each other, in practical terms they are the best placed to provide non-technical support (Sauer and Coward, 1985). This non-technical support can range from assistance with the shopping or transport to gardening (Bamford et al, 1998; Green, 1988; Hills, 1991; Sinclair, 1990; Twigg and Atkin, 1994; Wenger, 1984). Neighbours play an important role in acting as the first line of defence in a crisis (Wenger, 1990). Critically, neighbours are able to 'sound the alarm' in an emergency. Allan (1979) states that neighbours are 'most capable of immediate, idiosyncratic and unpredicted action'. Those sharing this geographical contiguity are more easily able to notice that their older neighbour has not been seen recently, that the grass has not been cut, the post has not been collected or that the phone has rung without being answered on more than one occasion. It could almost be said that neighbours play a surveillance role. Dono et al (1979) state that neighbours are vital at times of unpredictable or idiosyncratic need where fast and flexible decision making may be involved.

Wenger (1984) states that neighbours are more likely to be important to those who have never married, the middle class and those who moved away from family earlier in their life course. Sauer and Coward (1985) mention the older and frailer whose health problems may have been fairly sudden and short-lived. Thus the natural proximity of neighbours becomes useful in providing preliminary support before either kin or formal health services may need to be involved. Older persons who are childless are another subgroup who may be more likely to desire the support of neighbours.

The age of the neighbour dictates as to whether indeed they may be able to provide support (or expect to receive support) and what the nature of that support may be. For example, if both neighbours were aged between 70 and 75, married and fairly healthy, this might facilitate the mutual exchange of informal support which is also similar in kind. However, it is often more likely to be the case that neighbouring supportive relationships are imbalanced due to the fact that the respective neighbours differ in age, commonly for

example where the receiver of care is older than (and demonstrating lower functional independence) the neighbour. In this scenario, the receiver of care is more likely to have demands of a higher technicality and volume than the younger neighbour. Cantor (1979) found that of 1,552 persons in a sample of inner city New York, over half of neighbours that respondents were reported to have 'known well' were also much younger. Thomese, Tilburg and Knipscheer (2003) state that for the continual exchange of neighbourly supportive relationships there must be a balance in reciprocity. They did find that amongst a longitudinal study of independently living Dutch adults aged between 55 and 85 that continual rather than discontinued exchange was the more likely outcome regardless of whether reciprocity was evident. Nevertheless, evidence of supportive behaviour, equal in volume and direction further increased the probability of the continuation of exchange between neighbours. It is important to bear in mind that reciprocation varies by the type of support and the capabilities of both persons to be able to reciprocate (Stephens and Bernstein, 1984; Youmans, 1962).

Type of support provided

Cantor (1979) separates the support provided by neighbours into two categories; instrumental and affective. Instrumental tasks are those which concern assistance with daily activities such as shopping, transportation to desired locations and maintenance of the house or garden. Affective support involves that which offers the opportunity for an older person to socialise. Perhaps not quite to the extent that friendship is important, house visits from neighbours, forms of social interaction over the fence for example and other types of social liaison can act to validate one's social identity (Blau, 1973; Haas-Hawkins, 1978; Lee and Ihlinger-Tallman, 1980; Spakes, 1979; Wood and Robertson, 1978). It is this avenue for ego testing and reaffirmation of an individual's personal worth which serves to maintain good mental health (Cantor, 1979). Arling (1976) states that contact with neighbours might provide older people with feelings of usefulness and eliminate loneliness and worry. The presence of neighbours may reassure family and friends that their loved one is well monitored.

Sauer and Coward (1985) acknowledge the role which neighbours play in providing informal support. They recognise the value that neighbours may have in assisting with nonpersonal tasks such as the lending of items and helping with other chores around the house. Other authors in this area of the literature affirm this (Arling, 1976; Atchley, 1980; Bott, 1971; Langford, 1962; Philblad et al, 1975; Rosenmayr and Kockeis, 1962; Stephens and Bernstein, 1984; Stoller and Earl, 1983; Whittaker and Garbarino, 1983) along with the importance of the affective support from neighbours (visits, sitting and talking, eating together, shopping together and undertaking activities together (Cantor, 1979)). Croog et al (1972) and Sherman (1975) found that along with running errands for one another, neighbours would also look in on one another further emphasising the point that they play a surveillance type of role for each other.

It is clearly in the areas of socialisation and assistance with nonpersonal activities of daily living that neighbours become highly important providers of informal support. It must be emphasised that nonpersonal activities of daily living do not entail basic ADLs such as those which concern personal hygiene, dressing and feeding; as discussed, these tasks are more likely to benefit from the assistance of kin. In terms of socialisation, in particular the potential to contribute towards tension reduction for older people (Cantor, 1979) and provide affectional support, neighbours are at an advantage owing to their geographical proximity and duly supply support to their older neighbours, often as part of mutually beneficial exchanges.

Friendship

A friend has been defined as 'a person, not kin with whom you feel close, talk personally and on whom you can count' (Block, 1980). In social network analysis friends are best identified through the informant (Bigby, 1997). Nocon and Pearson (2000) found using British Household Panel Survey data that in 1996, 11 per cent of carers cared for non-relatives. Other studies have found that between 11 and 20 per cent of carers are not relatives (Bagshaw and Unell, 1997; Carers National Association, 1992, 1996; Wyn Thomas, 1990). It is extensively recognised in the literature that to have friends and acquaintances

within one's social network is associated with higher levels of morale and life satisfaction. Possession of a confidant is connected to reduced feelings of loneliness and concern (Arling, 1976; Whittaker and Garbarino, 1983). The role played by friends in the social network is similar to that of siblings. Friends and acquaintances are primary sources of emotional support, particularly during times of duress. However, their affectional functions are surpassed by spouses (Atchley, 1980). Friends are perhaps the most fitting members of the social network to provide companionship as they are age peers (Stueve and Gerson, 1977). This means that age-related experiences are shared. This commonality consolidates the advisory position of a friend and importantly helps to alleviate feelings of isolation (Arling, 1976) when they feel that certain stresses are shared and understood through similar experiences. Like with network constituents such as adult offspring and neighbours, the social ties between friends are reciprocal. It is this reciprocity which underlines the reason for the positive effects on morale, life satisfaction and the longevity of such relationships.

Wenger (1990) declares that friends at older ages act as a sounding board for self-validation. The affectional support offered by friends provides self-worth, self-perception and a shared trust and intimacy through later life (Bell, 1968). Importantly, it appears that the support of friends is less likely to be instrumental. This could be for a number of reasons; as specified earlier, friends are age peers and therefore are less likely to be able to provide for the other as they may be suffering from similar constraints to their functional independence. Another possibility is that owing to the nature of the relationship over time, an older person may be less inclined to accept personal care which could undermine the dynamics of a social tie which had always been reciprocal. Rather, older people are more likely to admit care from spouses or offspring, the latter representing a complete reversal of the parent-child relationship. In summary, friends as support givers tend to supplement as opposed to compete with assistance provided by kin, through the undertaking of nonpersonal tasks and playing the role of a confidant, or in cases where the social tie is not quite as strong, impart affectional support on a regular basis.

There are some shortcomings in this area of research. A sizeable amount of the literature has clarified the importance of friends in the social network and the roles which they play.

Interaction with friends is easily measured however as Sauer and Coward (1985) state, researchers know less about the content of friendships. For example, Strain and Chapple (1982) find that not all friends are confidants of the focal network member. This suggests that not all friendships can be considered to provide the types of affectional support discussed in this section. The study in this thesis assesses the importance of friends in the social network in terms of the content of their exchanges with the focal older network ego and how this contributes to overall measures of supportive capacity both in companionship networks and holistically, as part of social networks in later life.

Local community

The local community consists of voluntary organisations, social groups, religious settings and the wider neighbourhood (one's neighbours as a collective). Community activity relates to attendance at local events such as religious ceremonies or celebratory occasions. An older person's voluntary involvement is an important measure not just of this facet of social network interaction but a quantification of one's integration into his or her community. Involvement in the local community typically represents a reciprocal exchange. This gives the older person the opportunity to socialise, maintain a sense of social validation and usefulness (in some cases offering the chance to give something back to a community from which the older individual may benefit) and receive informational advice from esteemed members of the neighbourhood. Whittaker and Garbarino (1983) also acknowledge that members of the community such as local shopkeepers, pharmacists, postmen, milkmen and bus drivers just to mention a few, may interact with the elderly on a fairly regular basis. As discussed with regards to neighbours earlier in this section, these members of the community may play a surveillance role for older individuals with whom they are regularly acquainted. Moreover, they may offer emotional support but also information and advice in situations where for example, the 'gatekeeper' notices a decline in the physiological functioning ability of the older person. This idea was elaborated and applied to 'Southern Californian Rapid Transit' bus drivers who were trained to be able to detect age-related deterioration in the functioning ability of older people (Robinson and Regnier, 1980).

One would expect involvement in the local community to be a behavioural characteristic of a person aged between 50 and 79 years of age. Community-level interaction is somewhat dependent on functional ability, especially activities which are physical (this may include getting to and from the event). At ages 80 and over when typically the onset of age-related health issues may start to impede an older person's independence, a withdrawal from community activity is to be expected. However, the time invested in the community may reap reward as younger members of the community involved in voluntary work (commonly that which the older person in question may have previously been involved) may offer assistance with transport and at day centres, 'meals on wheels', house maintenance and so forth. Primarily the local community provides a source of emotional, informational and nontechnical support but importantly also gives rise to the opportunity for daily social interaction which may promote mental well-being. Phillipson et al (2001) state that the feeling of neighbourhood or community gives an older person a sense of place and belonging which, in turn, might alleviate sentiments of loneliness and social isolation.

Social networks and the macro-level context

In the following subsection of the literature review, we discuss changing macro-level contexts that may have affected the social networks of people in later life. This includes an examination of the literature around technology and social media, demographic change, changing family structures and extended working lives and geographic mobility.

Technology and social media

Technological advance has in the form of the internet and mobile technology, offered new channels for social contact. People can increasingly communicate across a diverse range of mediums. Of particular interest in this thesis is whether technology may provide a source of support for people in later life and how advances in technology have changed the shape of social networks since the 1970s and 1980s when a great body of social networks literature was authored.

There is little literature on older people's use of online social networks (Prieto and Leahy, 2012). Yet the volume of literature does not reflect the increasing trends of internet and social media use amongst older people. The Office for National Statistics show that internet use amongst persons aged 50 and over in Great Britain has increased sharply. In 2010 58.4 per cent of those aged 50 and over had used the internet before (Office for National Statistics, 2010b). This increased to 74.2 per cent in 2013 (Office for National Statistics, 2013a). A study in Ireland (Prieto and Leahy, 2012) found that staying in touch with family and friends is a primary driver for using online social networks amongst older people. The question should be raised; can online social networks increase an older person's capacity to receive social support? One might argue that for individuals with health issues that restrict the ability to leave their home, online social networking offers an opportunity to retain social contact that might be otherwise threatened. We know that mobility and health are inversely related to age whilst the prevalence of disability increases. Thus individuals in later life are less likely to be able to partake in social groups outside of the household, becoming more dependent on friends and family visiting them. Technologies such as TeleWindow offer a solution to older people who are rendered housebound due to ill health and low mobility (Gregg, 2001; Heeter et al, 2001). TeleWindow is a broader term for a technology that projects video onto large surfaces or screens. This video can be of conversations, typically with family and friends. Skype similarly offers the possibility of communicating with companions and kin (Royal Voluntary Service, 2012). Technology can have particular value for older people when geographical distances from for example adult children are great and this can be further exacerbated if they are housebound. Video communication offers a richer experience than that over the telephone. The advent of online technology has no doubt altered the dynamics of social networks however owing to the generational effect of a lack of exposure to technology, it remains to be seen how much technology has affected older people's social systems in the way that it has younger people's. The lack of data on technology and social media use in large-scale social surveys in this country, which includes the British Household Panel Survey, is indicative of this point. Michielin and Mulder (2007) find that geographical separation between adult children and their parents is increasing. This contextual change in conjunction with a shortening of the age-related digital divide is

likely to contribute to an increasing use of technology amongst the older population in the UK in future. The effect this might have on older people's social networks is still relatively unknown as we have yet to see prevalent internet use amongst people aged 50 and over in the UK (Office for National Statistics, 2013a). Further, it is known that socio-economic circumstance is inversely related to internet use (Age UK, 2013a) thus many older people in the UK may now and in the future be excluded from technology.

Despite the heralded benefits of technology for social support transfers in later life, should such interfaces be seen as a substitute for face-to-face human interaction? Not all forms of social support introduced in **section 3.1**, such as that which is tangible, or emotional and reliant on human contact, can traverse electronic mediums. For example, informal social support that helps an older person undertake activities of daily living cannot be facilitated electronically. Technology and social media can increase the number of social contacts that a person has in later life but the question begs, are these quality ties that offer the network ego a sense of social support; the type that may alleviate social isolation or loneliness and lead to improved health outcomes? Perhaps technology should be seen as having a supplementary role in adding to the overall supportive capacity of a social network as it offers the potential for a greater number of social ties along with face-to-face and telephonic interaction.

In the literature telemedicine (John, 2008), telehealth (Greenhalgh et al, 2013) and telecare (Bowes, 2012) are all mentioned as delivery mechanisms for formal forms of healthcare and social support for older people but are beyond the immediate focus of this thesis. The core remit of the thesis is informal sources of social support. There is undoubtedly a role for technology in the delivery of healthcare in improving accessibility, volume and quality. Patient-centric systems are being tested that comprise social aspects (Dhillon, Wünsche and Lutteroth, 2013). These web-based systems have social networking functionalities in the form of health communities and support groups aside their central purpose to facilitate autonomy and health management. The forms of social support that may traverse these mediums is likely to be informational but not tangible. Nevertheless, it must be acknowledged that telecare for older people and their carers may also provide avenues for

social support interventions. LaFramboise et al (2006) discuss the benefits of the Health Buddy for spousal carers and their older patients; in particular the promotion of healthy behaviour and stress mediation through information and emotional support. Telehealth can facilitate social support interventions yet the delivery of clinical care remotely is not a primary source of social support for people in later life and formal provision through these channels are not of primary focus in this thesis.

Has technological development changed the supportive capacity of social networks?

The development of video technology has enriched communication methods beyond that possible through telephonic devices, providing both voice and visual feed. Representing additional modes of communication, one might conjecture that this would encourage the expansion of an older person's social network. Yet, it should not be assumed that in all cases additional modes of communication are likely to supplement existing ties and create new relationships, rather video technology and the internet might in many cases replace the use of telephones as a way of communicating with family and friends. Video communication may present as a viable option for family and friends of an older person who otherwise do not have the means (both in terms of financial, temporal and health resource) to visit frequently but thought that regular telephone conversation was too impersonal. In scenarios such as these the alternative option that technology yields could be detrimental to the overall supportive capacity of the social network as channels of electronic communication that are seen as satisfactory substitutes may be exploited at the expense of face-to-face interaction. It is however documented that device-mediated communication has less capacity to provide social support in terms of volume, breadth and quality (Kraut et al, 1998; Lewandowski et al, 2011).

Online social networking and other forms of internet communication such as emailing, forums, chat rooms and blogs have given rise to other methods of communicating. There is no doubt that in fully functioning social networks, technology can add value to existing relationships by seemingly overcoming geographical distances and increasing the potential for higher frequencies of interaction along with improving the chance of meeting new

people. On the other hand, social networking tools can further compound feelings of isolation and loneliness whereby quantity of contacts as opposed to the quality becomes a fixation. In turn this may do very little to provide meaningful channels for informational and emotional support to be exchanged.

Internet communication and social media throw into question the validity of using social network size and proximity attributes to measure supportive capacity. As Gottlieb (1981) and Carrington (1981) describe, the size and structure of a social network is important in understanding the supportive capacity of a social network; in particular measures that consider density and proximity. Geographic separation does not constrain the frequency of online interaction as it might offline, thus is not a measure of interest. Furthermore, should online contacts be given the same weight as offline contacts? More research is no doubt required to answer this question. Authors of the late 1970s and early 1980s who considered the 'social support system' (Beels, 1979; Bloom, 1979; Cantor, 1975; Finlayson, 1976; Henderson, 1977; Pilisuk and Froland, 1978; Shanas, 1979) would not have envisaged the development in technology as now evident in the 21st Century. Technology has altered the composition of social networks and given rise to the need for new measures of online social networks, or attributes that encapsulate both online and offline contacts in social support systems. Regarding the effects of technology on social network supportive capacity, caution must be exercised when quantifying social ties and simply 'adding up' the number of social contacts. New research is needed to study the effects of engagement with online technology on social support receipt in later life. The BHPS does not benefit from data on social media use or other forms of internet communication except emailing (it should be noted that social surveys such as Understanding Society do now ask questions on this subject matter). However, it should be acknowledged that although social media and internet use are not directly measured in this thesis, the rise of technology-related communication amongst older populations in the UK may affect the prevalence of face-to-face and telephonic interaction. The effects that this might have on the results are discussed in **chapter 8**.

Demographic change, changing family structures and extended working lives

Decreasing mortality rates at older ages has contributed to increasing life expectancy in the UK (Office for National Statistics, 2011). These demographic changes have aged the UK population with the median age of all constituent countries at 39.7 years in 2010 (Office for National Statistics, 2012b). This has increased from 35.4 years in 1985. These macro-level changes have implications for the social networks of people aged 50 and over. Individuals in their 50s, 60s and 70s are increasingly likely to have living parents whilst those in their 80s and 90s are likely to have more lines of lineage. Persons around state pension age are increasingly likely to have dependant ascendants and descendants, earning them the label of the 'sandwich' generation (Grundy, 2006). This raises the probability of experiencing twofold demands to provide proximal social support and in some cases, dual caring responsibilities. Such demographic change may have a detrimental effect on the amount of social support 'tomorrow's pensioners' and those at younger old ages receive as their outward provision of espousal will not only inhibit receipt but also deplete existing stores.

Increasing life expectancy in combination with positive net migration has contributed to significant population increase in the UK. We can assume that across companionship and community networks, older people are likely to have larger networks, potentially consisting of a greater number of age peers. That said the relationship between social network size and perceived social support is not straightforward. The quality of social ties, as opposed to the quantity, is deemed to be a better predictor of perceived social support (McLaughlin et al, 2012). The notion that the brain's relationship-reckoning systems can process a maximum of 150 offline active contacts in one's overall social network (Ruiter, Weston and Lyon, 2012) is immaterial as on average across kinship, companionship and community networks, people do not possess close to this number (McLaughlin et al, 2012).

Historical changes in UK fertility rates are indicators of the likelihood that older people alive today have children, grandchildren and great-grandchildren. Total fertility rates in England and Wales have fluctuated over the last 75 years. Fertility rates have dropped below replacement level for sustained periods; from 1981 to 2002 rates were between 1.65 and

1.84 and were similarly below replacement level in the 1930s and during World War II (Office for National Statistics, 2010c). These population-level trends will have on the whole affected the British Household Panel Survey of older people in different ways. Persons in and around pre-retirement are likely to on the whole have less children than those at middle old and older old ages. Thus they may have fewer sources of social support from progeny. However, owing to the above replacement level fertility rates of their parents, they are more likely to have siblings. Individuals at older old ages are less likely to have children than those at younger and middle old ages. This will equate to a lower number of sources of social support from children. Changes in fertility rates over the last decade are indicative of the likelihood of having children amongst women of childbearing age which in the majority of cases will not affect the BHPS sample but may change the probability of BHPS sample members having children and siblings depending on their age.

Economic pressures are contributing to an increase in the prevalence of intergenerational living in the UK. With unaffordable house prices for first time buyers, younger people are struggling to purchase property or to be able to pay rent (Intergenerational Foundation, 2012) and as a result are moving back in with their parents, if they had moved away for higher education or are continuing to reside in the family home if they had never left. At the other end of the age spectrum, the cost of social care is pushing older parents into the homes of their adult children. Therborn (2004) coined the phrase “generational economics” to describe the interaction between generational dependence and economic resources. De Jong Gierveld, Dykstra and Schenk (2012) state that the cost of public residential homes, home care and residential care are macro-level economic factors that drive the occurrence of intergenerational cohabitation.

There is little research evidence in the UK that indicates that intergenerational living is becoming more common however there is some international literature on the subject. Tomassini et al (2004) find that the proportion of women aged 65 and over living alone has declined in Austria, Germany and Italy and this is partly attributable to children residing in the parental home for longer. Bezrukov and Foigt (2002) also find that there is an increasing prevalence of coresidence of older people and their adult children. There is a wealth of

social survey data that could be used to measure the changing prevalence of coresidence in UK households such as the Labour Force Survey or Understanding Society thus it is only a matter of time, before this subject receives academic scrutiny in the UK.

As far as can be seen, there is no literature that explicitly investigates the effects of increasing intergenerational cohabitation on social networks. However there is literature that focuses on social outcomes such as loneliness in the context of changing family forms (Chen and Short, 2008; De Jong Gierveld and Van Tilburg, 1999). Authors have suggested that the relationship between intergenerational cohabitation and loneliness is not straightforward. In Southern and Eastern Europe where intergenerational prevalence is more of a culturally accepted and traditional institutional arrangement, coresidence is associated with less older adult loneliness (De Jong Gierveld, Dykstra and Schenk, 2012). The inverse is apparent in Northern and Western Europe where coresidence is more likely to be driven by necessity than choice. Not surprisingly therefore, loneliness is more likely to be more prevalent not only amongst older parents, but adult children who coreside with them (De Jong Gierveld, Dykstra and Schenk, 2012). Weiss (1974) makes an important point that although intergenerational coresidence is a conduit for social support, it is not necessarily a substitute for the intimacy of a partner. However, this does assume that firstly bereavement will lead the widow or widower to immediately move into the residence of close kin. More to the point, unaffordable domiciliary care, whether or not funded by the recipients or close kin, is equally likely to push older partners into the homes of their adult children or other close kin, as single parents. The notion of the broader receipt of the term 'social support' through intergenerational living has received scant focus in the literature. Instead, studies have tended to centre more on tangible aid outcomes and loneliness as discussed. Hogon et al (1990) felt that social support was a more common product of coresidence amongst African American families than White families. This represents a similar divide as to the discussion in the European literature regarding East v West coresidence.

This thesis focuses on social networks outside of the network ego's place of usual residence (this is discussed in more detail in **chapter 4**). Therefore the increasing prevalence of intergenerational cohabitation does not directly affect older people's social networks but it

does have an indirect effect. Clearly, the increasing likelihood that older people reside with their adult children or parents (age depending), means that these kin in question are less likely to live outside of the household. This may also change the nature of relationships with companions as individuals who move in with their adult children likely to lose their independence and a place to call their own, which may have presented a more convenient location to socialise. Although the literature is light in this area, the increasing occurrence of intergenerational coresidence in the UK has changed the composition of the social networks reflected in the body of literature from the 1970s and 1980s (Davis, 1979; Chase, 1980; Everitt, 1980; Gottlieb, 1981). Though it has not been quantified at the population level, there is no doubt that the rising occurrence of coresidence provides older people, particularly with higher care needs, more proximal sources of social support than may of been the case thirty years previous.

The average age at retirement in the UK is increasing (Office for National Statistics, 2012c). As far as can be seen no literature explicitly explores the effects of extending working lives on social support in later life. Yet it is apparent that as people work longer and retire later, that they are more likely to have competing demands on their ability to provide support. This may be particularly problematic when individuals, more likely around State Pension Age, have demands on them to provide care to older relatives. There are benefits for informal carers such as respite care (Gov.UK, 2013) and Carer's Allowance (Gov.UK, 2013a) yet these are not always sufficient to safeguard a carer's health and quality of working life. Increasing pressures to stay in work may conflict with caring demands at different points of the older life course. Persons at middle and older old ages whose partner has care needs that do not satisfy state funding, may also find that they need to stay in work longer to support them. Increases in average life expectancy at birth are surpassing that of the rise in average retirement age which means that although people are working for longer, they are still spending more years in retirement. In this sense, the net opportunity to provide social support is positive.

In sum, we find a modest body of literature on the subject of social networks and demographic change. Consequently, this section represents as much a representation of the

statistical evidence on demographic change as it does a review of the literature. Higher average life expectancy at all ages increases the likelihood that older persons may exert social support demands on kin, friends and the community for a longer period of time as a greater percentage of the life course is spent in ill health; trends show that life expectancy increases are surpassing that of healthy life expectancy (International Longevity Centre, 2013). Decreasing mortality rates it is surmised may also result in a greater likelihood of being older and still having living parents. Increasing life span is likely to result in greater prevalence of upward and downward generational dependency. Population increase as a result of rising in-migration (Office for National Statistics, 2013b) and decreasing mortality rates increases the likelihood that older individuals may have larger companionship and community networks. Historical changes in fertility rates have at the population level, varying effects on the analytical cohort in the BHPS. Changing fertility rates alter the probability of sample members having children, grandchildren, greatgrandchildren and siblings. Although not quantified in the literature, the changing incidence of intergenerational cohabitation is likely to exact change on older people's social networks with adjustments to the types of supportive contacts within and outside the household. These demographic changes can all impact on social networks in ways that have been detailed in this section.

Geographic mobility

The UK population has become increasingly geographically mobile since the 1980s (Office for National Statistics, 2011a). This has implications for the social networks of older people, particularly where age-specific migration rates have changed. Persons aged 35 to 60 are increasingly likely to move. As remarked in a previous section, geographical separation between adult children and their older parents is growing on average (Michielin and Mulder, 2007; Rogerson et al, 1993; Silverstein et al, 1998; Smith, 1998). As adult children are more likely to move away from their parents, the social support that they provide becomes increasingly remote. The advent and growth of technology has facilitated supportive transfers over greater geographical distances but as explained, these forms of electronic and video communication do not have the capacity to transmit tangible

assistance towards personal tasks for example. As social support from progeny is less likely to be proximal, older people may become increasingly dependent on their partner or otherwise, other kin or formal care services for personal assistance. One might surmise that in many cases, as functional dependence declines with age, many progeny undertake moves to be closer to their older parents however this is not always likely to be the case. Michielin and Mulder (2007) state that the education of the parents is a predictor of the geographical distance from adult children. Higher levels of education are associated with greater geographical separation between adult children and their older parents. It is more probable that both those in need of social support with higher education levels and their adult children can afford to pay for formal care. Compton and Pollak (2009) find that it is the educational levels of the adult children that dictate the proximity between adult children and their mother. Both studies seem to neglect that the education levels of adult children are dependent of that of their older parents. The proximity of social contacts in one's network is positively correlated with the frequency of interaction (Kohli, Künemund and Lüdicke, 2005). Thus, greater geographical separation between generations is likely to inhibit more frequent face-to-face transfers of social support. Dykstra and Fokkema (2010) challenge the notion of an individualistic north and a familialistic south in Europe but recognise that on the whole the geographic distance between is increasing. Thus, the growing incidence of residential mobility, internally in the UK as evidenced (Office for National Statistics, 2011a), is reducing the proximity between kin in older people's social networks. As with intergenerational living, there is little evidence in the UK on this subject.

Explored in much greater detail in **chapter 7** are the effects of moving on social networks. This represents an underresearched area of social gerontology and is reflected in the lack of reviewed literature in this section. The review of the literature in **section 3.3** is concerned with changes to social networks and towards the conclusion, modifications in social network attributes as a result of migration and residential mobility.

3.2. Social networks and health outcomes in later life

It has been argued that the relationship between low levels of social support and undesirable health outcomes is almost as well documented as the link between smoking and poor health (Cassel, 1976; Cobb, 1976; House et al, 1988; Kaplan et al, 1977).

The relationship between social networks and health outcomes at older ages is similarly widely discussed in the literature (Attneave, 1969; Auslander and Litwin, 1991; Berkman, 1984; Bowling, 1994; Caplan, 1974; Collins and Pancoast, 1976; Dozier et al, 1987; Ell, 1984; Gallo, 1984; Gottlieb, 1985; House et al, 1982; Johnson, 1996; Levitt et al, 1986; Litwin, 2009, 2001, 1996; Medalie et al, 1973; Orth-Gomer et al, 1993; Schoenbach et al, 1986; Smith and Christakis, 2008; Umberson and Montez, 2010; Weinberger et al, 1986). Types of social network have been measured against various health outcomes of interest. In this way, one can establish the strength of the relationship between a social network and its effects on the health of the focal person and the surrounding constituents. This thesis does not aspire to empirically measure the relationship between the prevalence of support in social networks and the health outcomes of the ego. However, it is important that previous research which has been conducted to test this relationship is acknowledged. The purpose of this section is to discuss the evidence of the associated health benefits from the receipt of informal support; this offers credence to its focus in the thesis.

Also outlining the potential health consequences of social network attribute change gives validity to the research in this thesis. Without this applied significance of social networks and their characteristics, there would be less value in researching the disruption of social networks. Variation in health and welfare service use and diversification in health outcomes as a result of social network disruption are themselves products of interest and worthy of further study.

Health outcomes of interest

Health is of paramount importance at older age. Successful ageing could be perceived as a biological and social progression free of disability (Golden et al, 2009). Successful ageing is often deemed to be the result of social engagement rather than positive physical health in

later life (Depp and Jeste, 2006). Our health is dependent on many demographic and lifestyle factors and conditions across the life course. Our physical and mental well-being may vary depending on the range of health and welfare services which one receives. However, perhaps a little neglected up until the 1970s and 1980s, social relations and particularly collective networks of social interactions can act to improve the mental well-being and morale of its constituents and chiefly that of the network ego. Our physical health is reliant not only on exposure to relevant health services but also on the level of social support (supportive capacity of the network), information and advice provided by family, friends, neighbours and the wider community. Accordingly, our health outcomes of interest centre on mortality and morbidity at older ages. In this section measures such as activities of daily living (ADLs), subjective health, urinary or faecal incontinence and general functional independence are of primary interest.

How do social ties and networks influence the health of a focal older member?

Social relationships within social networks can benefit health in different ways; behaviourally, psychosocially, physiologically and supportively. Health declines at older ages are not necessarily predetermined or proportional. Some progress into older age being of relatively good health whilst others at youngest old ages may experience premature morbidity or disability (House et al, 1994). This diversification in health outcomes is attributable to numerous factors; access to formal health and social care services but also informal support as discussed in the following sections.

Social ties and behavioural influences

Attitudes and behaviour towards health can affect both morbidity and mortality. Behaviour within a collective social group may affect all constituents (though this is not a common occurrence at older ages) as well as the focal network member. Individuals are affected by the actions of kin, friends and neighbours within their network. Specifically, the attitudes of those closest to us towards diet, vices such as alcohol and tobacco consumption and exercise can exert significant influences on our health. There are a number of studies which identify the effects of behaviour on health and in turn the overall influences of the social

network on the health of the focal older member. According to McGinnis et al, (2002) around 40 per cent of premature mortality is attributable to health behaviour which also contributes to morbidity and disability. Attitudes towards health either positive or negative can maintain or undermine physiological well-being respectively. Importantly, there is an association between attitudes and behaviour towards health and consequent outcomes in physiological and mental well-being. Bomar (2004) indicates that social support provided through the socialisation of the family through social systems are associated with reduced mortality rates, accelerated recovery from illness and the increased use of health and welfare services. Berkman and Breslow (1983) showed that involvement with formal and informal social ties was associated with more positive health behaviours. Positive health behaviours are correlated with being married and having children (Denney, 2010; Musick et al, 2004; Waite, 1995) inside social system types described by Wenger (1996) as 'local family-dependent' social networks. Umberson et al (2010) state that social ties 'control' or influence our health habits. A spouse may for example regulate, monitor, facilitate or inhibit one's health behaviours (Waite, 1995). Equally, religious ties seem to have an effect on health behaviour through social control and adhering pressure on the focal network member to conform to certain norms.

Umberson et al (2010) claim that the relationship between social ties and health behaviour is best understood when examining one's habits and actions across the life course. Parents and close family members exert significant influences on the health behaviours of their young offspring (Haas, 2008; Palloni, 2006). In the adolescent years our behaviour and attitudes are more influenced by peers (Bearman and Bruckner, 2001; Gaughan, 2006). Umberson et al (2010) emphasise that it is these trajectories which dictate both our starting positions in terms of health and our future attitudinal pathways which bear influence into later life. According to the literature, the transition into adulthood, married or partnered life has a polarised effect on health. On the one hand, it is documented that the shift to married or partnered living is associated with a reduction in risky health behaviour such as smoking, problem drinking or drug abuse (Bachman et al, 2002). These behaviours are likely to lead to improved health outcomes. On the other hand, cohabiting and marriage are also associated with a lack of exercise and therefore obesity (The and Gordon-Larsen, 2009). A similar

relationship with obesity is evident amongst parents. The obesity risk for both men and women increases with each additional child (Weng et al, 2004). The transition to becoming unmarried amongst women (widowed or divorced) is associated with weight loss (Umberson, 1992) and an increase in alcohol consumption (Temple et al, 1991). Umberson (1992) found that an increase in alcohol consumption following a shift from being married to unmarried was only prevalent among men. Similarly, becoming widowed was also correlated with an increase in psychological distress (Avis et al, 1991; Harlow et al, 1991; Stone et al, 2013). However, in other studies no change in health behaviours was evident among widowed women (Avis et al, 1991; Schulz et al, 2001). Wilcox et al (2003) looked at the importance of social support for health habits amongst older people and specifically the widowed and similarly found little association between entering widowhood and a decline in positive health behaviours.

Umberson et al (2010) argue that social support and stress in social networks explain the behavioural effect of social ties on health outcomes. Social support within networks affects the health of individuals in a number of ways; emotional assistance provided by network constituents may maintain the mental health of a focal older member or alleviate stress whilst instrumental and emotional support may also encourage beneficial 'physiological sequelae' such as reduced blood pressure, heart rate and stress hormones (Uchino, 2004). In turn these positive effects themselves eradicate scenarios where older individuals may be more likely to turn to risky or unhealthy behaviour as a result of exposure to life stressors. On the other hand, biological evidence has emerged which suggests that there is an association between social networks and inflammatory markers; moreover Ford et al (2006) found a connection between C-reactive protein and social integration amongst a sample of adults from the U.S.

Instrumental and informational elements of social support also act to promote good health practices and facilitate the focal older member's necessary usage of health and welfare services. Berkman et al (2000) and Cohen et al (2004) investigated the more wholly effects of social networks on health behaviour through social support and found that health outcomes were positively affected. Social support can indirectly affect health habits;

emotional espousal can work to cultivate psychological well-being and alleviate 'physiological arousal' (Uchino, 2004). In the same fashion, social support buffers the impacts of stress (Cohen et al, 2004). It seems that social support has a two-way positive effect on the health behaviour of the focal older member of a social network (and its constituents). On the one side, the social support within mediates the undesirable effects of sudden events such as familial loss and becoming ill or disabled whilst social support also serves to promote and maintain healthy practices towards diet, exercise and health preservation regardless of external pressures. As mentioned there is a small amount of literature which investigates the adverse effects of social support on health behaviour such as that which encourages unhealthy habits such as overeating or heavy drinking (Berg and Seeman, 1994; Uchino, 2004).

The other dimension of influence upon the behavioural elements of social network health outcomes is stress. The onset of stress is associated with life disruptions such as divorce or illness which surpass one's individual coping strategies (Pearlin et al, 2005). Individual methods of dealing with stress often involve habits which are detrimental to health. Adolescents and young adults are more likely to turn to overeating, drinking and smoking or drug abuse during periods of stress. Older people may conversely undereat, smoke and adopt a more sedentary lifestyle in the face of life stressors, particularly when transitioning into widowhood. Stress may also be endured in maintaining multiple social ties as part of a larger social network (Repetti et al, 2002; Walen and Lachman, 2000). Umberson et al (2010) state that stress may even undermine ties that were originally supportive. For example, older individuals who become widowed may need to relocate due to financial constraints, health concerns or issues of property maintenance and upkeep and as a result lose supportive social ties which were originally based on geographic convenience, such as relationships with neighbours and friends.

A number of authors make reference to 'allostatic load' in the context of stress originating from social ties within broader social networks (Kusanol et al, 2007; Maselko et al, 2007; Seeman et al, 2004). Allostatic load refers to the accumulated effects of stress across the life course. Karlamangla et al (2002) elaborates; stating that allostatic load refers to 'physiologic

dysregulation across multiple systems'. This dysregulation affects health directly which in turn encourages negligent health behaviours. Whilst at the same time initial poor health behaviours were mostly likely sourced from stresses through social ties, which may have led to this preliminary dysregulation. Undesirable health behaviours may contribute to allostatic load (McEwen and Stellar, 1993). Umberson et al (2010) clarify that social ties foster various health habits, dictating the pace of ageing, morbidity and premature mortality in later life.

The literature concludes that the behavioural influences of social ties affect both healthy and unhealthy habits. The mechanisms through which social ties actually influence health behaviour are still relatively unknown, especially ways in which social factors interrelate with biological characteristics. Importantly the effects of social support, existing within social networks, on health outcomes are dependent on who is providing the support, the context and the ways in which the support is perceived (Umberson et al, 2010).

Social networks, loneliness and morale

The effect that social networks can exert upon health behaviours and in turn health outcomes has been discussed. The previous section in particular has focused on how this behavioural impact can influence physiological health. However, of equal importance is the bearing that social support may have on the mental health of older people. Numerous authors have found an association between weak or non-existent social networks and adverse mental health. Poor social relations have been linked with a higher than average risk of depression (Fiori et al, 2006; Oxman et al, 1992). Wenger (1996) using a study conducted in Wales, found that both isolation and loneliness were associated with social network type. Weak social ties have also been found to affect health behaviours but rather than result in an absence of beneficial exercise and diet related practices, poor social networks have provoked adverse health behaviour. Dennis et al (2005) found a lack of social relations to be linked with self-harm. Litwin (2001) found a relationship to exist between social network type and morale. As one might expect, older persons with a diverse network of friends and family reported higher morale than individuals who exemplified restricted networks consisting of mainly family members. As discussed in **section 3.1**, supportive

interaction with friends is related to self-esteem whereas similar relations with relatives are not (Lee and Shehan, 1989). Litwin (2001) makes an important point; the fact that friendships are voluntary, elected ties compared to the obligatory ties with kin, especially extended family members, is poignant. Reciprocity in supportive relationships has been found to improve morale and life satisfaction as well as alleviate feelings of loneliness (Stoller, 1984). It is often an older person's inability to reciprocate rather than their need for assistance which contributes to depressive symptoms. An exchange relationship, for example that between an adult and their older parent, if balanced will likely contribute to higher levels of well-being for both parties as part of the theory of equity (Lowenstein et al, 2007; McCulloch, 1990; Walster et al, 1978).

Social network type and health outcomes

A wealth of literature has examined the effects of various social network types on health outcomes. In this section, characteristics of social networks are assessed in terms of their impact on the health of the focal member. Some studies have cited the structural characteristics (size, clustering) of networks as being important in dictating health effects (Golden et al, 2009) whilst other research has claimed that other properties such as the supportive capacity of the social network or the content of social ties are more influential. Researchers have identified numerous types of social networks ranging from close-knit family intensive forms to wider types which are less underpinned by proximate geography. The identification of a network type is a useful process; typologies take into account the primary characteristics of the system such as its structure, size, density, quality of ties and supportive capacity all in one index. This index measure can then be considered relative to dependent health outcomes.

Work by Gallo (1982) acknowledged some of the major characteristics of social networks in conjunction with a compound index of health. The findings of the study indicated that the size of the network, directedness and proximity of its constituents exemplified a relationship with health outcomes. Stoller and Pugliesi (1988) recognised a relationship between a social network's supportive capacity and the self-perceived health score of its focal member.

Higher helping scores were associated with lower levels of self-perceived health, both physiological and mental. It must be assumed that the presence of higher levels of social support would indicate a greater need for it due to declining self-perceived health measures rather than the higher levels of social support explaining some causality between that and lower self-rated health. Heightened levels of social engagement were found to be significantly associated with health and well-being amongst community-dwelling participants aged 65 and over (Golden et al, 2009). These health outcomes were considered relative to a grouping similar to that employed by Wenger (1994) for locally integrated network types (those which entail interaction with family, neighbours and especially friends). Golden et al found that family focused networks were not associated with any improvement in health outcomes such as physical disability, cognitive impairment or general mental health. Thus it was concluded that social engagement was the prerequisite of health outcome association with network type.

Wenger (1994) designated five network types. These networks types were characterised by the size, supportive capacity, number (and closeness) of intimate ties, the content of social ties and the types of contacts in the network. Thus these methods of identification took into account the main variables in describing social networks. She found that high rates of cognitive impairment were present amongst focal older members of 'family dependent' social network types in England and Wales. Whereas, 'private restricted' networks were more likely to be associated with focal members who experienced problems with incontinence. Similarly, other health problems were found to be more prevalent amongst 'locally integrated' and 'local self-contained' network types. Litwin (1996) outlined five network types; 'diversified', 'friend and neighbour', 'narrow family focused', 'religious family types' and 'attenuated'. He found that the 'diversified' network type showed the lowest scores for all health measures meaning that older people in this grouping demonstrated the best health and in turn demanded less from their network members. It is more difficult to decipher whether these desirable health outcomes are testimony to the breadth of social support available or because positive health outcomes have enabled older people in this grouping to maintain a range of social ties. Oxman and Hull (1997) have noted that the association between social network types and health are not always unidirectional. Litwin's

findings are to be expected seeing as by its nature, this network type benefited from interaction with family, friends and neighbours; with focal network members likely to be married with at least one geographically proximate child. Constrastingly, Litwin found that older people in the 'attenuated' network type displayed the poorest health status among all health outcomes, particularly in terms of activities of daily living (ADLs), self-perceived health and incontinence. Of course unmarried, older and childless individuals positioned in this grouping would have been the most vulnerable. It is often the case however, that older individuals are also those who have weaker social support structures. The association between self-perceived health and social network type was found to be strongly correlated with a health outcome (Idler and Benyamini, 1997; Litwin, 1996).

Litwin (1996) stresses that there few studies which actually examine the effects of individual network variables on health outcomes, with most instead focusing on the overall effects of network types on health variables such as physical form, morbidity, disability and mental well-being. Of the literature reviewed in this section, nearly all has assumed that the health of the social network's focal member is reflective of the health of all its constituents. If one considers the health of the social network's 'ego' in isolation relative to the type of network within which the individual is placed, there is no problem in doing so. However, one should not assume that the health of all other constituents in the network is similar to that of the network focal member as this is unlikely to be the case. As has been discussed, often those providing social support for the focal network member are younger and of better health (such as offspring). Furthermore, each individual is a central figure of a different social structure which may be classified differently in a typology. It would therefore be erroneous to consider their health in relation to the network type of the focal member.

There are important conclusions to be drawn from the literature findings. Various authors have found individual socio-demographic characteristics to be coupled with proportional changes in health outcomes. A higher age and lower socio-economic status have been associated with lower self-reported functioning (Parker et al, 1994). Reinhardt (1996) found that lower levels of educational attainment were associated with 'poor adaptation to vision loss'. This is a highly researched field; other pieces of literature have also examined the

effects of age, gender and social class on the health of older people (Arber and Ginn, 1993; Broom, 1984; Halpert and Zimmerman, 1986; Victor, 1991). However, a noteworthy number of authors have found a link between social network types and health outcomes irrespective of socio-demographic characteristics (de Leon et al, 2001; Fratiglioni et al, 2004; Fung et al, 2001; Litwin, 2007; Mor-Barak and Miller, 1991; Stoller, 1984; Weinberger et al, 1987). Though a number of these have identified that certain social network types are linked with varying levels of social support which in turn impacts on the health of the focal older member.

3.3. Social network disruption

Individual social networks are constructed over time, often consisting of numerous ties between the network ego and various actors. As discussed in the typology, social networks differ in strength depending on the size, function, content of social ties, time elapsed since formation, the support demands of the ego, health status of the ego (and their ability to construct the network), life course effects (accumulation of friends and family), proximity of network constituents and the characteristics of the host population. Social networks are vulnerable to disruption and this susceptibility invariably depends on the type of network and its consequent strength. Disruption in this context refers to any form of change in the characteristics of the social network; alterations to the social structure, function, strength or size of the network which may in turn directly and indirectly negatively affect the outcome of interest.

Changes in social networks are caused by a number of different types of phenomena; natural and man-made disasters, residential mobility and evacuations. The disruptive effects of disasters on social networks are two-way; the direct impact of catastrophes such as volcanic eruptions, earthquakes, tsunamis, adverse weather conditions, terrorism and nuclear accidents, just to mention a few, on an individual's social network can be devastating. Individual's network constituents may be injured or killed during or in the aftermath of the disaster. As a result, the level of social support available to individuals is likely to decline. The adverse effects of natural disasters are not always truly experienced

until the initial stages of 'social support mobilisation' have passed (Kaniasty and Norris, 2004). Following this, a period named by Kaniasty and Norris as the 'deterioration of social support' commences. This signals the end of some of the 'heroics' following a disaster. Social support deterioration results when the need for assistance outstrips the availability of helping resources; thus levels of perceived social support decline and the actual supportive capacities of the community also fall. It is this that often forces those who have not already been displaced to move away from the area. When an individual moves, much of their social network is deconstructed. One would imagine that the true extent of the disruption is not usually realised until the relocation process is complete and a new social network constructed. Only then may the frailties become accentuated and the full perception of disruption realised.

The disaster literature touches on issues of relocation and social network disruption. However, discussion of this breakdown in social networks (and consequent lowering of social support availability) is more attributed to the initial effects of the catastrophe itself as opposed to the impact of relocation on social networks. The disaster literature mostly assesses the initial impact of death and injury on networks. The disruptive effects of residential mobility on social networks have received very little coverage in the literature. A few notable pieces of research have investigated the ways in which migration can induce changes in one's social network but without an explicit focus on older people (Sluzki, 1979; 1992; 1998). Other literature has examined social network disruption through marital change (Gerstel et al, 1985; McLanahan et al, 1981; Raschke, 1977; Wilcox, 1981), widowhood (Lopata, 1977; Wilcox et al, 2003) and changes in employment (Jones, 1991). Very little research has focused on life events in retirement and at older ages and social network disruption. More importantly, to date no research has looked at social network disruption specifically through moves at older ages.

Sluzki (1998) investigated the relationship between social network disruption and migration in a qualitative study with a Filipino family. Like other authors, he acknowledges that there is a lack of research recognising network disruption as a result of relocation. The family in question moved to United States from the Philippines where they had originally held a

dense network of friends and extended family. Following a move to the US, their interpersonal network collapsed. The family lacked the skills needed to rebuild their personal network quickly. Exacerbating the situation, the social class, ethnicity and culture of the host population in this region of the US was on average dissimilar to that of their origin; coupled with their lack of social rekindling skills, this impeded their chances of integration and therefore social network reconstruction. Similar findings are recognised elsewhere in the literature, that some host communities are more hospitable than others and therefore facilitate a speedier integration for incoming migrants (Jouneau and Vincent, 1981; Nuack, 1989; Sluzki, 1992). The extent of this depends on the characteristics of the migrants. Sluzki (1998) raises an interesting point; families that are more accustomed to being mobile across the life course, such as those which have their geographic location dictated to by the military, have better resources and skills to be able to rebuild their social networks through practice. The Filipino family lacked experience of migration and as a result were unprepared for the disassembling effects of relocation on their personal networks. The initial move itself as expected rendered many of their social ties lost (Sluzki, 1992) though of course with advances in technology our ability to retain relationships over longer distances has improved (Berardo, 1967; Litwak, 1960; Smith, 1998) through mediums such as the telephone and email as well as the internet. However, not all forms of social support are easily transmitted over larger distances, particularly types of assistance for older people which may require frequent face-to-face contact. Judging by the details of the qualitative study (Sluzki, 1998); perhaps the most significant disruption to the family was the loss of function (and supportive capacity) which their original network had provided. It is important to understand that network variables such as strength and size may be affected by residential mobility but eventually all of these characteristics conform to allow the network to function and provide a supportive capacity. Sluzki explains that many of the functions fulfilled by the families' initial network were not replaced following their move. Instead both the husband and wife expected the other to fill the void and provide the support which used to be sourced from friends and extended family members in their original network. These stresses further exacerbated the implications of a disruption to their personal network and had adverse effects on their children.

Sluzki's qualitative study (1998) highlights the broad set of issues which face individuals following a move. Focusing on international migrants sheds a different light on the integration process, one which includes concerns about cultural assimilation. A study such as this does give a detailed insight into the emotional experiences of the migrants and underlines the key issues in both the need for social support and its absence in newly created social networks. However, the study does not provide actual detail about the process of disruption through relocation in terms of the key network variables and how they are affected by the move.

One of Sluzki's earlier pieces of research acknowledges the need for studies which conceptualise and measures network disruption. Sluzki (1992) states that analysis must examine the structural characteristics of personal networks before and after network transition. He evaluates family dynamics during relocation mentioning that any potential period of mourning the loss of the original personal network is quickly bypassed because of the need to integrate in the new environment. Some constituents from the previous network are lost whilst contact with others is retained through phone calls, letters or email. Although this form of social contact may still provide emotional support and identity recognition, older people may have received tangible aid across similar interconnections. These are not easily replaced and rebuilt and are more than certainly dependent on the distance of the relocation as to whether they may be continued. Sluzki (1992) highlights an important point in his conclusive remarks; that the most complex task in establishing a new network is compensating for the functioning of the now invalid social network. Perhaps it is this which contributes the most towards the perceived feelings of disruption. Clearly, if the new network does not fulfil the interpersonal needs of the ego then to the individual in question, a move would be deemed to have caused greater disruption to the support functionality of their social network. Consequent stresses as a result may further contribute to the feeling of disruption and impede the likelihood of integration and network reconstruction after a move (Sluzki, 1998; 1992). It is important to also consider the relocation of family units and not just sole-movers. Sluzki does not specifically refer to older people but nevertheless, he underlines the stresses that arise between couples (which as mentioned may also transmit to the offspring) as a result of the unmet need of the social

network. Misunderstanding and miscommunication exacerbates these scenarios often leading to vicious cycles of strain within the relationship(s). It seems that the disruptive effects of relocation on social networks occur not only during the process of the move but also as an after-effect with the host environment and the perceptions and reactions of the primary network constituents holding significant influence over the probability of social network reconstruction and in turn, the perception of minimised network disruption.

The personal network is a 'living, dynamic system that evolves with time and circumstance' (p. 362, Sluzki, 1992). It is evident that often the network transition is not a clean one. The level of disruption is partly dependent on the inclusion of some remains from the earlier network. These new networks may consist of some constituents of the previous network who are contactable following a move, people moving in conjunction with the ego or moving family units where at least two individuals from the former network are retained. Sluzki (1992) also outlines the transfiguration between the respective networks; he expects that newly created personal networks are smaller. One would hypothesise that the number of years at residence is highly associated with the size and the resistance of the social network to change thus newly created systems by their inherent nature are likely to be smaller and weaker. According to Sluzki they are also more likely to stay in this state for longer. Conducting a geographical move not only renders the size and supportive capacity of one's personal network vulnerable to disruption but also the density and function of the new network. Networks following a move are likely to exemplify a lower density and reduced reciprocity between network constituents (Sluzki, 1992). The consequence of this imbalance is more than likely to be significant network overload. Social network deficiencies are most likely to lead to poor health outcomes and higher use of health and welfare services.

As far as is evident in the literature, only Perry (2006) makes any real attempt to measure disruption. The research centres on adolescents in foster care and their psychological health outcomes as a result of network disruption or discontinued access to established social ties. Disruption is measured using the number of network placements each adolescent experienced whether the residency was a group home placement, foster family care, kinship

care or another type of placement. The more placements which had occurred, the higher the assumed level of network disruption. One would assume that the author was using this measure as a proxy for repeated network disruption rather than an indicator of the level of disruption between two placement networks. Other research has utilised placement type as a proxy for disruption (Rosenfeld et al, 1997; Roy et al, 2000).

One might hypothesise that the network variable which exerts the most significant influence on the health of the focal older member is the supportive capacity of the network. This capacity to provide a perceived level of social support is dependent on the size, structure, content of social ties, proximity and frequency of interaction in the network. Indicators of network disruption need to take into account changes in these network characteristics following a move. This would be most effectively achieved by comparing network characteristics before and after a move. The measures used by Perry (2006) are more superficial. This is probably owing to the fact that the research is primarily focused on psychological outcomes related to the strength and frequency of contact in three network types; the biological family, foster care network and peer network. Network disruption has been factored into the analysis although not in any great detail.

The extent of disruption is likely to be far greater for older people partly because the emotional, informational and aid-inclusive functions of the previous network are more difficult to replace whilst at the same time, older individuals are less capable of rebuilding their personal network because they have fewer social opportunities owing to the likelihood of network attrition and reduced functional independence.

A fair hypothesis might be to suggest that stronger social networks types are more easily disrupted due to the fact that they are much more difficult to rebuild following a move. This is supported in the literature; Wilcox (1981) found that lower-density social networks are more easily adapted to disruption. The disparity between a strong network prior to a move and a newly created network following a move could be significant. There is more likely to be the perceived feeling of 'disruption' if the social network following a move does not match the previous network in terms of strength, size and function. Stronger networks may

be less susceptible to disruption. There may be elements of the network which could be easily retained or accessed from the previous social system following relocation. However, the measure of the strength of a social network does not necessarily consider the transferability of the network.

Analysis which looks at different social network types and their individual vulnerabilities to disruption is required. Furthermore, a more detailed analysis which investigates the effects of disruption on single network characteristics is needed. The analysis in **chapter 7** examines change in individual social network attributes. Perry's (2006) research indicates the need for the development of models which examine the relationship between network variables.

How might disruption to social networks affect health outcomes?

The positive relationship between social networks and health outcomes is well established as illustrated in previous sections of this review. Therefore it stands to reason that forms of disruption which can affect available levels of social support may also indirectly influence health outcomes. A geographical move leading to a change in usual residence may contribute towards an inimical modification in network supportive capacity. Simply put, any adverse change to the supportive capacity of the network, in this case the levels of social support available, is likely to have a negative effect on health outcomes for the network ego.

Some of the literature highlights the effects of network disruption on health outcomes. Network disruption such as that through separation, divorce or familial loss is associated with a six to seven factor increase in prevalence of depression (Mueller, 1980; Paykel, 1978). Perry (2006) found that network disruption was related to broader psychological issues and that the relationship was mediated by the strength of the restructured network. Not mentioned by Perry, the strength and the resulting functionality of a network are at the same level dependent on the structure of the social system in order to operationalise social support within the wider network. It is often changes in the frequency, size and proximity of the social system which in turn affects a network's resistance to change and supportive

capacity. Sluzki (1998) did not find that network disruption provoked any changes in physiological health. However, he did discover that network disruption negatively affects the family unit and in turn exerts stresses on and between couples which may materialise to become mental health issues. Overall there is little literature which actually assesses the indirect relationship between network disruption and health outcomes. Furthermore, as far as can be seen, there is no research which focuses on network disruption through residential mobility amongst older people. This is the gap in research that the analysis in this PhD thesis aims to fill.

As discussed earlier, some degrees of change in social networks through moves may not be detrimental to health outcomes. The effect on health outcomes is partially dependent on the motives driving the move. For example, using Litwak and Longino's (1987) classification of move types, 'second' moves are conducted whereby the older person or older family unit is seeking proximate familial support owing to the deterioration in their functional independence. In a scenario such as this, the older individual(s) is moving to increase their access to social support. Therefore, any change in network variables such as the functioning ability of the system following a move would potentially be positive. Thus not only would the move not have 'disrupted' the social network per se (rather 'altered' it), but health outcomes owing to the change in the social network would most likely be improved. It may be the case that negative variations in health outcomes materialise following a move however this would not necessarily be attributable to changes in network variables through residential mobility. Instead, negative health outcomes would be explained by the original motives driving the move. As the relationship between social networks and health outcomes has been widely ascertained and therefore the association linking network disruption and the latter recognised, this emphasises the need to understand better ways in which moving can exert changes on social network attributes.

Summary

As Cantor (1979) describes, the social support system consists of formal and informal functions and services. These functions and services serve the purpose of facilitating

independent living, allowing older people to remain in their communities for as long as is possible. It appears that the provision of informal support is influential on the demands of formal health and welfare services. Thus any disruption to the functioning of informal social networks may not just impact the health of its focal member but also affect the demand on formal services.

There is a need for further research to explore the disruptive effects upon social networks of marital changes, unemployment, other labour market oriented transitions, evacuations, displacements, migrations and residential mobility. The research in the thesis explores residential mobility at older ages and the disruptive effects that geographical relocation has on the social networks of older people. There is also plenty of scope for future research which focuses on health outcomes following network disruption. This is essential as the association between social networks and health outcomes has been widely proven and one would expect changes in the network's resistance to change and supportive capacity to have an impact on the mental well-being and physiological condition of its focal member.

Although this latter facet of research is not explored in the thesis, using the BHPS, changes in health and welfare service usage is to be examined. It is hoped this will allude to the impact on formal services that network disruption may cause. Furthermore, literature in this review has examined the characteristics of movers. This is essential as the profile of a mover may allude to the level of resource (both fiscal and health related) an individual may possess and therefore their coping means and thus capacity to mediate the effects of disruption in their existing social network or their ability to set up a new social network following a major disruption through geographical relocation.

There is very little literature which has attempted to measure network disruption (Perry, 2006). The research in this thesis investigates network disruption in detail but that which affects older people. Exploring different social network types (kinship, companionship and community), changes in key network attributes are measured before and after a move to ascertain the levels of disruption. **Chapter 7** explores the role that one's age, sex and change in partnership status play in mediating the level of change in social network attributes (by type) following a residential move.

3.4. Social network typology

Social networks are defined by their attributes; importantly the types of constituents within the network, the content of social ties (which insinuate the functionality of the network), the proximal nature of the network, the frequency of interaction and the overall size of the network. Thus a typology of social networks is a well-considered classification based on a wealth of information about an older person's social system. The purpose of this typology is two-fold; to highlight the facets of a social network which facilitate social support and to identify different types of social systems which are to be examined later in the thesis, for their susceptibility to change following a move. Typologies which effectively capture the attributes of social networks become useful in understanding the relationship between social support (and changes in supportive capacity) and health. Equally social network identification also becomes useful when measuring reconstruction and disruption and the types of social systems which are more or less susceptible to change.

There is some literature about the types of social networks that are prevalent amongst older people. Over the last 30 years, academics such as Wenger and Litwin have developed taxonomies of social networks. Variance in network size, proximity and the frequency of interaction in social ties is now more widely recognised and in particular how this can affect the supportive capacity of a support system which itself is correlated with health outcomes as discussed in **section 3.2**. However, other than these principal authors, there is scope for more detailed and recent typologies of social networks in later life, particularly specific to the UK. The following subsection introduces a typology of social networks derived from the literature. Unlike **section 2.4**, the descriptions of each network type are not presented in table format as a greater level of detail is needed to describe individual social systems.

Social network types

The constituent members within a social system allude to the type of network along with the attributes describing the network. For example, family oriented networks may be small but also proximal and characterised by tangible aid. Whereas, more dispersed networks

with diffused ties may substitute face-to-face contact with more irregular and less meaningful relations with network constituents resulting in lower levels of perceived social support for the network ego. These polarised network types are associated with a diverse range of demographic and health outcomes.

Litwin (1995) states that social networks are best analysed when considering size, the percentage of intimate ties, frequency of contact, duration of ties, geographic proximity and composition. Auslander and Litwin (1990) also saw value in investigating the content of social ties in the form of creating role relationship categories whilst Mugford and Kendig (1986) examined tie multiplexity. Wenger (1996) and Fiori et al (2006) consider in great detail, the community and activity involvement of the network ego and the volume of social support which emanates from the network depending on the structure of the system.

In the main this typology considers the research of Wenger (1991, 1996, 2002), Fiori et al (2006), Litwin (1995a) and Litwin (2000) who utilised samples from the Bangor Longitudinal Study of Ageing, the Berlin Aging Study, a study of older Soviet immigrants to Israel and a study of older persons residing in Tel Aviv respectively.

Family-oriented networks

Wenger (1991) characterised family dependent networks by the presence of proximal kin located within the social system. Moreover, these kin were more likely to be representative of the familial nucleus. In these family focused networks kin such as adult children and siblings are likely to reside either in the residence of the network ego or in a proximal location. Social support is most commonly received from the daughter.

Walker et al (1977) identified high density but small networks consisting of a homogeneous membership as key attributes of family-oriented networks. Wenger (1991) deemed family focused networks to be disassociated with neighbours and friends. Wenger (1996) unlike other authors included correlates such as social class, length of full-time education and

religious affiliation as defining attributes of social networks in later life. Wenger found that social class was negatively correlated with prevalence of family-dependent networks. Those of a lower social class were more likely to be centric to a family-dependent network. The relationship between attained education level and family-dependent network prevalence was also strongly negative.

Litwin (2000) differentiated between family-intensive networks and kin networks. Litwin's idea of a family-intensive network is comparable to that of Walker's; these networks are considered smaller and to be mostly comprised of adult children. Litwin found that only two thirds of ties within the social network were primary. Fiori et al (2006) recognised 'family focused' networks. Within their conceptual framework they considered participation in social organisations and activities as well as the marital status of the network ego as being defining characteristics of a family focused network. Of 96 adults aged 70 and over in the sample who had a 'family focused' network, all were married and the average participation in social activities was 4 of the 12 mentioned over a 12 month period. Primarily Fiori et al (2006) found that these networks were typified by frequent family contact. In a sample of over 250 older immigrants to Israel, Litwin (1995a) ascertained that on average in the family-intensive networks (n=59) almost 90 per cent of the total network consisted of a spouse, children and the extended family.

As is to be considered later in the thesis discussion, changes in social networks can be caused by life course attrition and residential mobility. Wenger (1996) illustrates data which shows that as age increases the higher the likelihood is that an older person becomes the focal member of a family-dependent network. The author elaborates further, explaining that the most common network shifts are to family-dependent networks from locally integrated or wider-community-focused networks.

Characteristics in summary: Family-oriented networks are concentrated with a high proportion of proximal alters (immediate family). The networks are smaller (approximately 10 persons) than those which are friend-focused or dispersed and are mostly composed of family members, especially immediate kin. Emotional support is more common than

instrumental support. Owing to the homogeneity of the network (Wenger, 1996) the forms of social support which emanate from the social system are more likely to be analogous. Participation in social activities is fairly high. It is also most likely that the network ego is married and of poorer health than egos of other network types. Family-oriented networks make up on average around 15 per cent of all social network types in the literature.

Kinship networks

Kinship networks are differentiated from family-oriented social systems by their composition. The majority of this network type consists of extended family such as siblings and grandchildren. In Litwin's (1995a) study of Soviet immigrants, almost two thirds of the members in this network type were extended family. Spouse and children are usually present in the network. Kinship networks are larger than the average social network for an older ego. Litwin (1995a) states that the mean network size was 8.4 persons. The proportion of ties within the network that could be considered to be intimate is high (67.9 per cent) but not to the magnitude apparent in family-oriented networks.

Not surprisingly the proximity of network members is fairly high though again not to the extent that network alters are proximal in family-oriented networks. Other authors did not differentiate between family-oriented and kinship networks.

Litwin (2000) examined social network types amongst individuals aged 75 and over in Tel Aviv, Israel. Interestingly, it was found that the percentage of intimate ties was higher in kinship networks (81.2 per cent) than in family-intensive networks (65.8 per cent). This is a reverse of the distribution of the proportion of intimate ties between family-intensive and kinship networks as is evident amongst the Litwin's (1995a) earlier sample. The average network size in the 75 and older sample was also higher at 9.5 persons per network in the 2000 sample.

Characteristics in summary: Kinship networks are larger than their familial counterpart and less proximal. This is likely to equate to more emotional than instrumental support with a greater disparity between the two than in family-oriented networks. The network ego is

typically younger than is the case in family-oriented networks and thus also more likely to be in better health.

Friend-focused support/wider community focused networks

As with family-oriented networks, it is the composition of the system which typifies the labelling of this support structure. Fiori et al (2006) and Litwin (1995a, 2000) recognise the existence of friend-focused networks. The majority of the network is composed of friends with a noticeable proportion in the 'other' category (Litwin, 2000).

Litwin (1995a) found that two thirds of the network membership was comprised of friends with a further 31 per cent constituting family members and a small proportion of neighbours and others (3 per cent).

Friend-focused networks are typically moderate in size. Litwin (2000) found that the average size of a friend-focused network was 8.9 persons. Fiori et al (2006) disaggregated friend-focused networks between those that were supported and unsupported. It was ascertained that the average network size varied from 10.03 for the former to 10.82 persons for the latter per network. Litwin (1995a) identified friend focused networks as being smaller at around 5.6 persons on average.

As mentioned, Fiori et al (2006) used detail on functions to distinguish between different friend focused support systems. This is most likely due to the ambiguous nature of this network type. As a result of the mixed composition of the social network, the resulting levels of social support which emanate are likely to vary both in quantity and quality. This is apparent in Fiori et al's (2006) sample from the Berlin Aging Study; of friend focused networks, a significant range in received support is evident. Instrumental assistance in 'supported' friend focused networks averaged 1.94 of 3 activities with emotional assistance averaging 2 of the 3 activities. On the other hand, in the unsupported network mean instrumental assistance was 0.45 of 3 activities with the comparable figure for emotional assistance at 1.33 of 3 activities. Patently there are inconsistencies in received support levels amongst this heterogeneous network type.

Interestingly, according to Fiori et al (2006) friend-focused unsupported networks consisted of unmarried network egos. On the one hand this is perhaps to be expected as of course by their labelling, prevalence of a spouse is likely to be low. However, unsupported friend-focused networks are also more associated with younger network egos (average 79.8 years of age) and as a result one would expect these individuals to more likely be married. Friend-focused networks were more associated with an older network ego (average 88.7 years of age) and were found to have unmarried networks egos. Family-dependent networks more often than not infer dependence on other family members than a spouse and this may be expected as they are associated with older network egos.

Wenger (1991, 2002) does not consider network membership composition to be defining and therefore does not recognise social networks specified by this characteristic. Wenger does however recognise a network type which is akin to the friend-focused network concept; wider community focused networks. These networks display similar levels of heterogeneity to friend-focused networks and as a result are largely associated with instrumental as opposed to emotional aid. Wider community focused networks are defined by weaker ties with lower levels of intimacy. They are on average slightly larger than friend-focused networks. Walker (1977) agrees with the existence of this network type.

Characteristics in summary: Friend-focused and wider community networks are moderately sized with a high network membership proportion of friends and a noticeable segment of 'other' network alters. These networks comprise a greater number of social ties but each with less intimacy. Varying levels and forms of social support derive from this network type. Owing to the heterogeneity of friend-focused networks discussed in the literature; some facilitated very little instrumental and emotional support to the ego whereas other similar social structures were able to transfer a quantity and quality of social support only comparable to that of family-focused networks.

Diffuse ties/diverse network

Another social network type which is characterised by its composition is the diffuse ties (Litwin 1995a, 2000) or diverse social network (Fiori et al, 2006). The distribution of network members is fairly even between close family, kin, friends and other subgroups. Litwin (1995a) ascertained that extended family comprised around a quarter of this social network type, a fifth were children and spouse, another fifth constituted others and a further third consisted of friends and neighbours. In Litwin's (2000) later study of persons aged 75 and over in Tel Aviv, the distribution of the network composition had shifted slightly. Relatives made up over 56 per cent of the social network, a greater proportion than was evident amongst the older Soviet immigrant sample (Litwin, 1995a). Friends made up only one sixth of the membership distribution (Litwin, 2000) compared to almost a third in the Israel sample (1995a). Interestingly, the percentage of 'others' was also lower at just over five per cent.

These network types tend to be significantly larger than family, friend and restricted networks. Fiori et al (2006) identified average network sizes of around 22 persons. Litwin (2000) thought that diffuse ties networks were typically smaller at approximately 11 persons per network. Again in Litwin's (1995a) Israel sample, the average size of diffuse ties networks was also around 11 persons. According to the literature, not only are diffuse ties and diverse networks larger but also a more prevalent network type at older ages. In Litwin's (2000) sample, the diffuse-ties networks constituted 42 per cent of all networks. Litwin (1995a) and Fiori et al (2006) stated that these networks were representative of 20 per cent and 13 per cent of all networks respectively.

Unlike family-focused networks, diffuse ties support structures are not associated with intimate interconnections or long durations of social ties and high proximity and frequency of contact with network alters. Only a quarter of ties in diffuse ties networks in the Israel sample were considered intimate (Litwin, 1995a). These networks are characterised by older egos who have a wide range of contacts within the social system however these ties also lack any supportive depth. In Litwin's (1995a) sample this is proven by the fact that diffuse

ties of all network types emit less emotional, instrumental, affirmational and advocacy assistance. As expected, network egos in diffuse ties tend to be younger; Fiori et al (2006) found that 88 per cent were young-old (75-84 years of age) compared to 59 per cent in family-focused and 28 per cent in friend focused-supported networks.

Characteristics in summary: These are large networks with numerous but diffused ties. Network egos tended to be younger. The proportion of intimate ties is typically low with few proximal or frequent contacts. Diffuse ties networks also represent one of the more prominent support structures amongst older people.

Private/restricted networks

Private and restricted networks are mainly defined by their size and limited access to network constituents. These networks are generally smaller in overall size, particularly restricted-nonfamily-unsupported networks at around four persons per network (Fiori et al, 2006). Restricted-nonfriends-unsatisfied networks averaged sizes around seven persons. Wenger (1996) states that the composition of private and restricted networks is associated with an absence of proximal kin but also a lack of friends and neighbours. Frequency of contact with family in restricted networks is noticeably lower than is the case in other network types (Fiori et al, 2006). Community involvement is also low with around 89 per cent of egos stating that they never become involved in activities (Wenger, 1996). Fiori et al support this concluding that on average network egos engaged in an average of 2.84 and 3.09 activities of 12 annually for nonfamily-unsupported and nonfriends-unsatisfied restricted networks, respectively. This is not only the lowest activity participation rate of all network types but it equates to under half the rate of activity evident in the diverse-supported network, the most active of the social structures in terms of network ego participation rates.

As with friend-focused networks, Fiori et al (2006) differentiated between nonfriends-unsatisfied and nonfamily-unsupported networks. Both these network types score low on emotional support with nonfriends-unsatisfied structures recording 0.63 of 3 types of support received. Similarly, nonfamily-unsupported networks recorded 0.57 of 3 types of

emotional support received. Restricted network types scored slightly higher for instrumental support relative to other types of social structure.

One of the more common network transitions at older ages is from locally integrated and wider-community-focused networks to private restricted networks (Wenger, 1996). Wenger shows that the increase in prevalence of private restricted networks of all social structures increases markedly from ages 65-69 at 8 per cent of the total share to 27 per cent at age 90+. This is as a result of the natural social network attrition which occurs in later life. The research in **chapter 7** aims to find out whether residential mobility exacerbates this natural decrease in network supportive capacity or in some cases is the primary cause. A higher percentage of private restricted network egos were also unmarried; 30 per cent in Wenger's (1996) North Wales sample and 92 per cent and 95 per cent respectively for nonfriends-unsatisfied and nonfamily-unsupported networks (Fiori et al, 2006).

Characteristics in summary: Private and restricted networks tend to be smaller in size and as a result are less likely to consist of a wide range of constituents. Proximity to network alters is typically low with little consequent supportive interaction within the network. Received levels of emotional and instrumental support are as a result fairly low. These restricted network types are more common among individuals at oldest old ages (85 years of age and over).

The typology has introduced a number of key social network types in later life from the literature. Friend and family focused, restricted and diverse network types all display differing characteristics which influence the volume of perceived social support available to the older network ego. Emotional and instrumental support stem more freely from family focused and locally integrated networks whereas unsupported networks such as those which are private or diffused are associated with lower levels of social support.

The use of variables such as size, frequency of interaction and proximity has informed the research design in this thesis. The social structures identified in this chapter are referred to in **chapter 6** when introducing the social networks of older people in the UK using the British

Household Panel Survey. In **chapter 7**, the susceptibility of social networks to change following a move is to be investigated; common network shifts owing to reconstruction, network attrition and residential mobility are observed.

3.5. Measuring social support

In the literature there is a slightly unfounded consensus that all interaction yields social support (Bloom, 1979; Cantor, 1975; Finlayson, 1976; Shanas, 1979). As Gottlieb (1981) argued, this is a gross simplification of what is a complex system of ties not all of which are supportive. In fact, in some cases ties may even be counter-supportive. This section examines the methods used in contemporary research to conceptualise and measure social support. The scrutiny of recent research informs the methodology in **chapter 4** where the measures of social networks from the literature are operationalised using the British Household Panel Survey for the data analysis in **chapters 6 and 7**.

Reis and Collins (2000) stake the claim for a multi-method approach to the measurement of social support. “Multiple operationalism” in this context was first discussed by Webb et al (1966). Reis and Franks (1994) outlined three main methods of recording social support; self-reported questionnaires, behavioural observation and naturalistic diaries. Some of the discussion in the early part of **section 3.1** looked at methods which acknowledged network construction in order to measure social support. The aim of encapsulating more than one method of data collection is to limit the weaknesses of individual methodological approaches to measurement, whilst getting a better comprehension of variance which is substantive thus eradicating a greater amount of procedural bias.

Like a number of other authors (Haber et al, 2007; Prati, 2010; Wills and Shinar, 2000) they breakdown social support into perceived and received subcategories. Perceived support pertains to the level of informal espousal which one would expect to receive from another person. Received social support constitutes a form of assistance which is actually accepted and obtained.

From the literature a number of different approaches to social support measurement are apparent. Some of these measures are uni-dimensional whilst others are composite. The multidimensional scales and indices are most akin to the method used in this thesis. The proceeding section is divided into different measurement techniques for collecting social support data from the literature.

Uni-dimensional measures

Measurement methods are often dictated by the resources for and the purpose of the study. As a result there is a numerous variety of measures for social support all of which have enriched the methodological approach in the thesis. Perceived social support can be quantified with a single measure. This could constitute a compound index score or uni-dimensional measures. A few authors have employed solitary assessments of perceived support. Chiefly, uni-dimensional measures of social support are acquired from questionnaire responses (Reis and Collins, 2000). Seeman and Berkman (1988) produced single measures of perceived social support, specifically emotional and instrumental aid. Two loaded questions were asked of respondents; one which inquired whether the individual could rely on someone for emotional support, someone to whom they felt close. The responses to this were dichotomous. A simple yes or no response affirmed the presence of a confidant in one's social network. The amount of potential (or perceived) emotional and instrumental support available to the network ego was scaled based on the number of sources. To do this circumvents the notion that all ties (or all constituents in the network) are supportive. Instead, the respondent is asked to confirm ties which are either emotionally or instrumentally supportive. This emphasises the point that it is important to consider the types of support available to the ego in the wider context of the structural characteristics of the network. It is crucial that one understands the individual's wider social network as the levels of perceived social support are completely dependent on the attributes of the social network and its capacity to facilitate social support. Williams et al (1992) utilised a composite index to indicate the presence of a confidant. The index correlated positively with improved outcomes in individuals with heart problems. Composite indicators, particularly those comprised of numerous variables, are more robust measures of perceived social support. At the same time, such indicators obscure the

relationship between the individual facets of the indicator and the health outcome in question and as a result, it is useful in analysis to present the descriptives of the single components of the index in correlation with health outcomes before applying the composite indicator to the analysis. In this example, Williams et al include marital status as part of the index and its unique relationship with the health outcome is lost. Marital status, along with other indicators such as household composition, is often used as a proxy to measure social isolation and disconnectedness (Campaign to End Loneliness, 2013). It has been stated in the literature that marital status should be considered as a structural concept (Reis and Collins, 2000). The inclusion of marital status in measuring social networks in the analysis in the thesis is preferred and the structure of the network and the content of social ties are considered in conjunction.

Multidimensional inventories

Multidimensional measures encapsulate a number of sources of social support. A number of detailed inventories exist in the literature. Cohen and Hoberman (1985, 1983) compiled a 40-item inventory (Interpersonal Support Evaluation List (ISEL)) which asks questions that identify emotional and instrumental support along with companionship and self-esteem in an individual's social network. Statements are offered such as; 'when I feel lonely, there are several people I can talk to.' Response values scale from 0 'definitely false' to 4 'definitely true'. Aggregated values which comprise all supportive aspects of one's network are then compiled. Values are correlated with health outcomes in order to ascertain whether buffer relationships with certain health outcomes exist. The ISEL has been used in health-related research (Wills, 1991; Wills and Filer, 2000) and has yielded high Cronbach alpha values which insinuate greater likelihood of an underlying latency in construct between the items of the inventory. The Cronbach alpha value provides a coefficient of reliability. Cohen and Hoberman (1985) identified an alpha reliability of around .90 and .75 for subscales. An internal consistency reading of $>.70$ is considered to be a significant measure of the reliability of the coefficient. A criticism of the ISEL is that it does not contain a scale which indexes advice and guidance (Reis and Collins, 2000). Furthermore, the scale does not consider the origins of the social support or how the levels of support relate to the overall

network structure. Multidimensional measures do not necessarily consider measures of both the network composition and the perceived emanation of support from the network.

The Social Support Behaviors Scale (SS-B) does endeavour to identify where it is that the perception of social support originates. The scale is, like the ISEL, highly detailed - entailing 45 items which also include those that concern financial assistance and socialisation.

Internal consistency measures for the scale are high at 0.85 (Vaux et al, 1987). Importantly, this scale is reversible in that it can also capture received social support. However the scale which aspires to collate incidence of social support only does so using measures of functions (content of social ties). There is also no indication of the regularity of this interaction and how this relates to the size of the network and the proximity of these ties the latter being a function of the frequency of interrelations. The Social Provisions Scale (SPS) (Cutrona and Russell, 1987) like the two previous scales mentioned captures the principal categories of social support but also measures attachment and social integration, both of which are measures relevant to the more extensive social network. Its incorporation of both functional and structural elements make it a more appropriate measure of support from social networks and further, it provides a good basis for the composite index scores employed in **chapters 6 and 7**. The scale's worth is emphasised by its inclusion in intervention research (Mallinckrodt, 1996). Although the index is less effective at detecting the effects of individual functions and health outcomes and overall network functionality and strength (due to its 24-item range), its more complete scale is a much fuller measure of social support within social networks.

Network-based inventories

Barrera developed the Arizona Social Support Interview Schedule (ASSIS) in 1981. The entailed inventory is defined by the intention to record not only the types of support available to the network ego but where in the social network the support had originated from. Furthermore, the measures offer an impression of the adequacy and availability of support to the network ego. The functioning elements of a network which the ASSIS captured concerned material, physical and intimate aid, social participation, positive feedback and guidance. Questions in the interview schedule asked the respondent to initial those who they felt would provide them with the types of support suggested in various

statements in the last 30 days. An unlimited number of sources of support were available to choose from. From this, one imagines that researchers using the ASSIS would be able to calculate the overall size of the network as well as the origin of different types of espousal and the frequency of interaction. The study did not however gauge the proximity of network constituents; this would allude to the structure of the social network and is itself a function of interaction frequency both of which are important components of the social network. Dunkel-Schetter and Bennett (1990) employed similar techniques for measuring social support. What distinguished their approach from others was the scenario-based method of data collection. The researchers offered a social problem to the respondent who was then required to provide examples of who may offer them support to counter the particular issue. The study also gathered information on the reciprocity of social ties and the amount of social support which flowed in individual relationships between the network ego and alters.

Measures of social support which either consider the multifaceted nature of social networks in single composite indices or numerous indicators are more effective in capturing the functioning ability of social structures at older ages. Measures of this nature comprise what Reis and Collins (2000) named 'network-based inventories'. A good test of the effectiveness of such measures in capturing social support both quantitatively and qualitatively is to consider the health outcomes associated with these indices. A positive relationship between social support indicators and health outcomes suggests more effectual estimates. The measures applied in the thesis which are evaluated in **chapter 4** and utilised in **chapters 6** and **7** gauge both the levels of social support and the function of the social network itself. It is necessary to consider the volume, type and quality of support available to the network ego in light of the function of the overall network. In doing this, the sources of informal support are better understood which can inform the predictability of future support levels available to the network ego. Equally, an understanding of how the wider social network provides support for its network ego will assist in understanding how changes to these social network dimensions following a move consequently affect the flow of support.

Chapter 4. Data, measurement and methods of analysis

This chapter introduces the British Household Panel Survey, the sampling and survey methods used, the sub-samples and the survey's applicability for studying residential mobility and social networks in later life. The advantages and disadvantages of using general purposes longitudinal surveys are discussed along with issues of participation which must be considered when studying older people. The second section of the chapter presents the two samples for analysis; a paired years and a cross-wave sample and their suitability for exploring the analysis strands in the thesis. Then the section focuses on the measurement of residential mobility and social networks using the BHPS. The final part of the chapter details the methods of analysis which are used in **chapters 5, 6 and 7**.

4.1. The British Household Panel Survey

The British Household Panel Survey (BHPS) is a longitudinal, multi-purpose study which aims to deepen our understanding of demographic, economic and social change at both the individual and household level (Institute for Social and Economic Research, 2007). The first wave (a) of data collection commenced between 1990 and 1991 with the final wave (r) of fieldwork operating between 2007 and 2008. Additional samples of 1,500 households in each of Scotland and Wales were added to the main sample in 1999, and in 2001 a sample of 2,000 households was added in Northern Ireland, ensuring that the BHPS had a UK-wide representation. On average, each wave (including the extension samples) contains around 10,000 households with 14,000 individuals of which 4,300 individuals are aged 50 and over. In the thesis an 'older' person is defined as an individual aged 50 years or over as specified in the Office for National Statistics' Focus on Older People release (2005). In doing this, the study captures the residential mobility behaviours and changes in social networks of individuals prior to state retirement age in the UK (50 to 60 through to 64 years of age depending on sex) along with individuals at State Pension Age. This subgroup in the UK is significant in size and as a result the characteristics and demands of individuals in this sample are important to central government, policy makers, local authorities, council services and resource allocators. It is hypothesised that much of the behaviours of these

individuals is conducted with preparedness for retirement. This population sub-group is also particularly heterogeneous, despite the assertions of the likes of David Willets that this group are highly resilient and well prepared for retirement. More recently, the BHPS has been superseded by the UK Household Longitudinal Study (also named Understanding Society) which has conducted data collection from January 2009 (Understanding Society, 2008) at a larger scale with around 22,000 individuals being interviewed in wave one of which approximately 10,000 are aged 50 and over. At the commencement of the research in the thesis, data collection for wave 1 of the Understanding Society survey had yet to begin. As a result, the survey was not considered for use in this thesis.

There are issues with erroneous data when utilising social survey statistics and some of these are unique compared to registration or census data. Respondents may not understand the original question, be aware of the appropriate type of answer or be prepared to respond to the question. On the other hand, the interviewer may not interpret the participant's response correctly and there can be issues during the transcription process. There are further risks of errors occurring during data coding where processors and editors may make mistakes in data entry. In the BHPS, efforts are made to offer details of individual interviews and whether there were any issues in terms of response and data recording (Institute for Social and Economic Research, 2007).

It must be acknowledged that older respondents may have a lesser propensity to participate in a general purpose survey (Lynn, 2012). Using the first two waves of the UK Household Longitudinal Study (UKHLS), Lynn finds that individuals aged 70 and over were less likely to participate in some elements than those aged between 60 and 69. They were less likely to complete the post-interview self-completion questionnaire and participate in a second interview in the following wave. It is important to understand the possible reasons for the lower propensity to participate in the UKHLS in order to determine the likelihood of similar levels of underrepresentation of older people in the British House Panel Survey as there are shared commonalities between the datasets. Lynn cites declining cognitive function as a prime factor in protracting the time taken for older respondents to complete the questionnaire. Similarly, age-related deterioration in motor skills, hearing and vision may

inhibit an older respondent's ability to complete the questionnaire or participate in telephone and face-to-face interviews. Less relevant areas of the study such as those which concern employment may be of less interest to older people and may deter them from taking part. One would assume that these age-related barriers to survey participation also impact on the propensity of older respondents to partake in the BHPS. Unlike in the UKHLS, the age of non-respondents is not known rendering it impossible to empirically investigate whether participation rates amongst older people in the BHPS are lower.

The following sections outline the different types of cases present in the BHPS and the principal sampling and survey methods which have been used to collate respondents in the survey. Taylor et al's (2010) technical report on the BHPS is used for reference purposes.

Original Sample Members (OSMs), Temporary Sample Members (TSMs) and Permanent Sample Members (PSMs)

The initial sample consists of 10,264 members with 3,759 of these aged 50 and over. Of these Original Sample Members (OSMs), subsequent samples consist of all adults in households which contain at least one member from the original sample. Additionally, individuals who were contacted for inclusion in Wave One but did not partake for whatever reason were contacted in Wave Two provided they had not moved from their original address at Wave One. Offspring born to an OSM, persons located in households to which OSMs have moved or persons who moved in with an OSM are included in consequent waves. Adult members in households containing an OSM are considered Temporary Sample Members (TSMs). Owing to the age parameters of this research, natural descendants to OSMs are not included in the samples for analysis. A subset of Temporary Sample Members (TSMs) become Permanent Sample Members (PSMs) regardless of whether or not they reside with a OSM.

Sub-samples

There were four significant additions to the British Household Panel Survey sample between 2001 and 2007; the ECHP sub-sample, the Scotland and Wales Extension Samples and the Northern Ireland Household Panel Survey all of which are described below (Taylor et al, 2010).

ECHP sub-sample

From wave seven (2007) the BHPS provided data towards the United Kingdom European Community Household Panel (ECHP). In return, the BHPS received a sub-sample of the UKECHP which included all responsive households in Northern Ireland and a 'low-income' sample from the Great Britain sample. Provided all adult members within a wave seven ECHP household responded at the previous wave and the household reference person was unemployed at interview or within the last year, was in receipt of lone parent or means tested benefit or resided in rented accommodation, incorporation in the BHPS was authorised. Of these new entrants at wave seven, their British Household Panel Survey membership status depends on their status within the ECHP. Original respondents in the ECHP sample in 1994 are considered to be OSMs in the BHPS. Respondents who joined ECHP households after the first wave are defined as TSMs. As with TSMs in the BHPS, a selection may become PSMs.

Scotland and Wales Extension Samples

As mentioned at the beginning of the chapter, Scotland and Wales were given better representation in the BHPS by increasing the number of households that were sampled in each country. This permits independent analysis of the two countries. Furthermore, the intention was to assist analysis between England and the two countries in order to examine the impact of devolution. Prior to wave nine, the BHPS sample consisted of around 400-500 households from each country. From wave nine onwards, the target sample size in each country was 1,500 households. Questionnaire and fieldwork arrangements for the extension

samples are identical to that used in the BHPS. As with incorporated ECHP members, respondents in wave nine from the Scotland and Wales Extension Samples were treated as OSMs. Non-contactable and refusal households at the second wave of the extension samples were approached again and became OSMs if successfully recruited.

Northern Ireland Household Panel Survey

The Northern Ireland Household Panel Survey (NIHPS) was added to the BHPS in wave eleven in order to permit comparative analysis between Northern Ireland and the UK. The target sample size was 2,000 households. As with the Scotland and Wales Extension Samples, questionnaire and fieldwork arrangements had to be identical to those utilised in the BHPS. Those who were recruited at the first wave of the NIHPS are treated as Original Sample Members in the BHPS and standard rules apply to the defining of TSMs and PSMs. The overriding rationale for boosting the sample sizes of Northern Ireland, Scotland and Wales is to improve the UK representativeness of the BHPS sample. By wave eleven, all three countries had inclusion relative to that of households in England in the BHPS. This representativeness is important in examining the social networks of older people at the UK level.

Sampling and survey methods

The BHPS uses a two-stage clustered probability design and systematic sampling to select households. The Postcode Address File (PAF) provides the frame for the selection of sample units. At the initial sampling stages, 250 postcode sectors were selected as Primary Sampling Units (PSUs). Each PSU contains on average 2,500 addresses otherwise known as delivery points. The population of delivery points was stratified by region and three socio-demographic variables. In order to ensure an Equal Probability of Selection Model (EPSEM) sample, systematic selection procedures are employed whereby independent sampling occurs within each strata. So as to be selected from each strata at random, PSUs were chosen with a random integer start and a systematically applied sampling interval. According to Taylor (2010), the size of each PSU was estimated slightly differently for

England and Wales and Scotland. In England and Wales the total number of delivery points was used to indicate the size of the PSU. In Scotland, the sum of the number of Multiple Occupancy Indicators (MOI) indicated the size of the PSU. An MOI is an estimate of the number of separate units or households at a specific delivery point (Taylor, 2010).

Stages of stratification and the PSU selection procedure

All PSUs comprised of a minimum of 500 households. The population of these postcode sectors was ordered into 18 different regions. There were cases where PSUs did not reach the required size; in these instances the regions were grouped with their nearest adjacent region. Primary Sampling Units were ordered by the proportion of heads of households in socio-economic groups 1 to 5 and 13. Using estimates of the number of delivery points, PSUs were split into major strata of equal size. **Table 4** details the number of major and minor strata per region and how PSUs were ranked.

Within each major strata PSUs were ranked again by the proportion of the population at pensionable ages. Problems of periodicity were avoided by sorting the ordered population in ascending and descending fashion within major strata which in turn improves the heterogeneity of the sample. Periodicity is an inherent concern in systematic random sampling whereby a cyclical pattern can develop which may bias estimates (Finney, 1950). As is evident in **table 4** major strata were then split into two minor strata of approximately equal size. In each minor strata PSUs were again ranked using serpentine listing; (in non-metropolitan areas) by the proportion of the employed PSU population working in agriculture and (in metropolitan areas) by the proportion of the PSU population under State Pension Age and living in single person households (Taylor et al, 2010).

Table 4: Definitions of regions and strata

Region	Major Strata	Minor Strata	PSUs Ranked By
Inner London	2	2	SPH
Outer London	3	2	SPH
Rest of South East	3	2	AGEMP
South West	3	2	AGEMP
East Anglia	2	2	AGEMP
East Midlands	3	2	AGEMP
West Midlands Conurbation	2	2	SPH
Rest of West Midlands	2	2	AGEMP
Greater Manchester	2	2	SPH
Merseyside	2	2	SPH
Rest of North West	2	2	AGEMP
South Yorkshire	2	2	SPH
West Yorkshire	2	2	SPH
Rest of Yorkshire and Humberside	2	2	AGEMP
Tyne and Wear	2	2	SPH
Rest of Northern England	2	2	AGEMP
Wales	2	2	AGEMP
Scotland	3	2	AGEMP

Source: Taylor et al (2010)

Address selection

Once all 250 PSUs on the frame were ordered and regional representativeness in England and Wales assured, address or delivery points were selected. As mentioned, using systematic sampling methods it was intended that on average 33 addresses would be selected from each PSU. Taylor et al (2010) acknowledge that the sizes of PSUs may vary slightly between the first and second stages of selection as a consequence of changes in the Postcode Address File (PAF). In total, 8,166 delivery points were selected. The number of addresses selected in each sector ranged from 21 to 36.

In the England and Wales sample around 250 PSUs were selected from each ordered listing of the population on the frame. According to Taylor et al (2010) the probability of selection was proportional to the size of the PSU and was conducted using a random integer start and

applying a sampling interval. The random integer start was chosen from the range of 1 up to a value equal to the interval. As mentioned, changes in the PAF may affect the size of PSUs. To adjust for this, the new sector size was divided by the intended number of delivery points (c.33 in each PSU) and then amended using a ratio of the previous sector size to the new sector size. These adjustments allowed for any changes in the PAF up to and between the first and second stages of address selection. In the Scotland sample random start integers and a sampling interval were employed as with the England and Wales sample. Delivery points were selected with the probability being proportional to its Multiple Occupancy Indicator.

Selection of households within Delivery Points

Households and separate units were considered as residential addresses. Non-residential addresses were excluded from the BHPS sample; this includes institutions and businesses. In Taylor et al (2010), an institution was defined as a place where four or more unrelated persons sleep within an establishment which is run by a person(s) who is employed by an owner for this purpose. The custodians of the BHPS use the Office for Population Censuses and Surveys' (OPCS) standard definition of a household, defined as one person living alone or a group of people sharing living accommodation or at least one meal a day (OPCS, 1986).

At each delivery point, three addresses were selected for inclusion in the sample. If more than three households were present at the delivery point then a random selection procedure using a Kish Grid on a Multi-Household Selection Sheet was employed to choose the addresses from the total number of households at the delivery point (Taylor et al, 2010). It was also a requirement that the prospective respondent had spent six continuous months residing at the address during the year. Household Reference Persons (HRP) were recognised by identifying the individual who legally or financially held responsibility for the accommodation and in cases where this was shared, the oldest person became the HRP.

4.2. Measuring residential mobility and social networks using the BHPS

Samples for analysis

This section of the chapter introduces two samples which are derived from the BHPS.

Discussed first is a pooled years dataset where 17 waves of the survey are amalgamated in order to create a constant coefficient model. Following this, a cross-wave sample of two waves in 2002 and 2006 is introduced. The rationale for use of both samples is considered.

Pooling longitudinal data: paired years sample

A sample was derived from British Household Panel Survey data. Waves from 1991 (a) to 2007 (q) (amassing 17 years in total) were pooled creating a sample of 60,915 cases. This dataset makes use of the entirety of the BHPS's longitudinal nature omitting only wave 'r' (2008) as this was made available after the analysis in the thesis was undertaken.

Owing to the array of variables available consistently throughout the BHPS it was possible to investigate the socio-demographic determinants to residential mobility amongst older people across all waves. This has significant advantages for analysis and representation of behavioural outcomes over a larger time period. Period effects are more likely to be accounted for if interview data covers a longer time period. Findings from individual waves may vary significantly from each other as a result of political, environmental and economic contextual changes and fluctuations in individual social-demographic characteristics which deviate from more protracted averages.

Pooled designs are common in comparative political economy (Becks and Katz, 1996, 1995; Hicks, 1994; Stimson, 1985). More relevantly, pooled datasets have been implemented in studies concerning the determinants of migration in Germany (Karras and Chiswick, 1999), determinants of internal migration patterns in Pakistan (Khan and Shehnaz, 2000), housing adjustments of older households in Europe (Tatsiramos, 2006), residential mobility of the European Elderly (Angelini and Laferrère, 2011) and the importance of manufacturing wages

in U.S immigration (Berger and Webb, 1987). Pooled (time-series-cross-section) datasets consist of N (the number of spatial units) multiplied by T (the time period). The derived sample present in this thesis is “cross-sectional dominant” (Stimson, 1985) as it contains a greater number of cross-sectional units to its temporal length. Pooled analysis of the BHPS offers a number of advantages over single year analysis. Both time and cross-sectional studies are vulnerable to issues of small sample sizes. Pooling multiple waves of the BHPS augments the sample size available for analysis. As pooled analyses are both time series and cross-sectional, one is able to test the impact of numerous predictors of change in social network characteristics within the framework of a multivariate analysis. Larger sample sizes increase statistical power and accommodate for the use of more advanced methods of statistical analysis such as logistical regressions, like those employed in **chapter 5**. Inherently, the study of older populations particularly mobile individuals, are often fraught with issues regarding sample size. Smaller sample sizes reduce the power of statistical inferences and the representativeness and generalisability of the findings. The pooling of BHPS waves as evident in **chapter 5** is important in alleviating these issues particularly when focusing on subsets of older people.

Pooled datasets permit the observation of both time and cross sectional records simultaneously. This allows the study of causal dynamics across multiple cases (Stimson, 1985). For example, cross-sectional analysis is possible when controlling for individual waves, likewise adjacent waves may be examined in order to observe changes in social network structure and the level of perceived support against determinants in the previous wave. Pooled analysis considers the 17 waves of the BHPS as one large dataset thus comprises the contextual effects of almost two decades but also considers 16 pairs of consecutive years. This enlarges the sample size and importantly provides the opportunity to assess a plethora of determinant-outcome associations.

Table 5: Data structure for pooled cross-sectional/time series data

		Variable 1: X_1	Variable 2: X_2	Variable N: X_N	Dependent variable: Y
Time ₁	N ₁	X_{111}	X_{112}	X_{11N}	Y_{11}
	N ₂	X_{211}	X_{212}	X_{21N}	Y_{21}
	.				
	.				
	.				
Time ₂	N _N	X_{N11}	X_{N12}	X_{N1N}	Y_{N1}
	N ₁	X_{121}	X_{122}	X_{12N}	Y_{12}
	N ₂	X_{221}	X_{222}	X_{22N}	Y_{22}
	.				
	.				
	.				
	N _N	X_{N21}	X_{N22}	X_{N2N}	Y_{N2}
	.				
Time _x	.				
	.				
	.				
	N ₁	X_{1x1}	X_{1x2}	X_{1xN}	Y_{1x}
	N ₂	X_{2x1}	X_{2x2}	X_{2xN}	Y_{2x}
	.				
	.				
	.				
	N _N	X_{Nx1}	X_{Nx2}	X_{NxN}	Y_{Nx}

Source: adapted from Menard (2002)

The table above illustrates the data structure of the pooled BHPS sample where cross-sectional and times series data are joined. As documented in Menard (2002), time periods (i.e. 1991-1992, 1992-1993 etc) are stacked and thus considered as one set of paired years despite their temporal differences. All X s in the table represent observations. N represents cases with the same respondent also observed at time₂ with variables 1 and 2 and an outcome dependent variable. The subscripts for each X observation display the case, time period and variable. Change variables such as 'a change in partnership status' are constructed by taking into account marital status at both time₁ and time₂. If there is change between time₁ and time₂, it is the status at the second time point that is identified as the circumstance to which the respondent has transitioned. The same approach is used to measure a change in economic status, health status and GHQ-12. The majority of covariates are measurements at time₁. The variable 'change in financial position since last year' is a

retrospective measure already present in the BHPS. It is therefore valid to measure this at time₂.

Table 6 demonstrates that for each N case, information on the same variable is received at t_1 and t_2 . For example, case N_1 is observed at t_1 (1991) and t_2 (1992) with variables X_t and X_{t+1} respectively.

Table 6: Data structure

Time period	Case	Variable 1: t_1	Variable 1: t_2
1991-1992	$N_1, N_2.. N_N$	X_t	.
		.	X_{t+1}
.			
2006-2007	$N_1, N_2.. N_N$	X_t	.
		.	X_{t+1}

Source: author's own analysis (2012)

Statistical properties of the dataset

In the pooled dataset between 1991 and 2007, 1,940 residential moves took place in the preceding year, of an overall sample size of 60,915 cases which equates to a percentage of 3.2. The distribution of movers fluctuates from between 2.4 and 4.2 per cent per annum across the 17 waves. Below, the rows in blue highlight the waves in which the BHPS received booster samples (discussed in **section 4.1**). It is apparent that the percentage of movers was lower in the year following their inclusion. From 2002 to 2006 the proportion of movers was lower than it had been pre-2002 and meandered between 2.4 and 3.0 per cent.

Table 7: Sample sizes by wave and mover status over the preceding 12 months

Year	Mover status		Total
	Non-mover	Mover	
1992	2,653 (97.3%)	74 (2.7%)	2,727 (100%)
1993	2,497 (96.5%)	90 (3.5%)	2,587 (100%)
1994	2,473 (96.3%)	96 (3.7%)	2,569 (100%)
1995	2,528 (96.9%)	82 (3.1%)	2,610 (100%)
1996	2,568 (96.4%)	97 (3.6%)	2,665 (100%)
1997	2,599 (95.8%)	113 (4.2%)	2,712 (100%)
1998	3,288 (96.6%)	115 (3.4%)	3,403 (100%)
1999	3,286 (96.2%)	130 (3.8%)	3,416 (100%)
2000	4,699 (96.6%)	163 (3.4%)	4,862 (100%)
2001	4,680 (96.5%)	172 (3.5%)	4,852 (100%)
2002	5,025 (97.3%)	138 (2.7%)	5,163 (100%)
2003	4,964 (97.0%)	153 (3.0%)	5,117 (100%)
2004	4,855 (97.0%)	151 (3.0%)	5,006 (100%)
2005	3,378 (97.6%)	82 (2.4%)	3,460 (100%)
2006	4,747 (97.0%)	148 (3.0%)	4,895 (100%)
2007	4,735 (97.2%)	136 (2.8%)	4,871 (100%)
Total	58,975 (96.8%)	1,940 (3.2%)	60,915 (100%)

Source: British Household Panel Survey data, 1991-2007

Note: the table does not display the number of movers in 1991 (who had moved between 1990 and 1991) as the individual and social network characteristics of individuals cannot be determined in 1990 without a corresponding wave.

Drawbacks to pooling data

Pooled dataset designs are however associated with weaknesses and errors. In logistic regression for example, observations in different waves are treated as independent of each other. However, some consequent observations are dependent of previous occurrences. Age for example at $t + 1$ is dependent on age at t . Likewise the structural characteristics of a social network at time2 may be reliant on corresponding attributes at time1. Socio-demographic and social oriented characteristics also tend to be interdependent across time.

In pooling waves of the BHPS, issues may also surround blurring heteroscedasticity where increased variance in values in some waves relative to others is lost. For example, one wave may comprise a more heterogeneous subset which could contribute to greater sample

variance between waves which in turn is overlooked as a result of the pooling of waves and the neglect for period effects. This can be overcome by the inclusion of a year dummy.

As mentioned, a paired years dataset presents the opportunity to investigate the determining effects of characteristics on move propensity at older ages. Some variables derived from the BHPS capture change in individual characteristics between t_1 and t_2 . When concurrently examining evidence of a move between t_1 and t_2 , it is not known whether the change in the characteristic occurs before or after the move within the one year period. An assumption is made that any observed changes take place before the move. This is a consequence of the one year time-lag between the waves of the BHPS.

With each new wave cases are lost, there may also be issues making contact with the sample cases and further problems with respondent consent. The main concern is that the cases lost as a result of attrition or non-response may be non-random and therefore bias the findings. Attrition rates are often high in longitudinal surveys, particularly a study as long as the British Household Panel Survey. This issue is compounded when studying geographically mobile older people as they are also inherently more difficult to locate, moving home is one of the key factors associated with loss to follow-up. Furthermore, attrition rates due to deaths may also be high, particularly when studying older persons who are susceptible to higher mortality rates. A result of this is likely to be that annual mobility rates in the sample are underestimated. Clustering and stratifying the sample means that unlike in a simple random sample, the observations are more likely to be similar as there is less geographical variation. As a result of the clustering, the precision of the estimates will be further reduced. The extension samples added to the main sample in 1999 and 2001 have meant that the probability of selection is now unequal owing to the fact that cases are over-represented in Northern Ireland, Scotland and Wales. Weights however can be used to restore representativeness to the sample.

Waves I (2002) and p (2006)

Some variables in the British Household Panel Survey do not exist across all waves. In terms of data relevant to the study of social networks specific questions were included in waves

2001(k), 2002(l) and 2006(p). Thus waves in 2002 and 2006 present natural choices for the analysis of change in social network characteristics relative to the incidence of residential mobility. Wave 'k' (2001) lacks the breadth of variables pertaining to social networks. Waves 'l' and 'p' are inclusive of information which relates to the number of network constituents, their proximity, frequency and nature of interactions with the centric older ego. Importantly, wave 'l' contains additional information regarding one's friends of which is not present in wave 'k'. Thus waves 'l' and 'p' were deemed appropriate for this study. As is discussed below in, variables are derived from the BHPS which encapsulate the notion of size, frequency, proximity, function and overall supportive capacity in social networks in later life. Wave 'k' of the BHPS does not comprise the necessary variables for analysis in order to construct concepts which capture both proximity and network functions.

Wave 'l' of the BHPS offers an array of variables which complement those available in wave 'p'. However, whilst there are gains in variable consistency between the two waves, there is also an increase in temporal duration between the two waves, with a four year gap t_1 and t_2 . This is problematic for a number of reasons; the strength of associations are potentially reduced due to the time lag. As is the case when examining the determinants to the risk of an event occurring, a reduced time lapse between the two points of observation is important for inferential power. Thus the level of change in a social network relative to a causal factor such as the incidence of a move is more effectively ascribed between consecutive waves. As the time lapse increases, it becomes necessary to control for multiple factors. The size of an individual's social network between 2002 and 2006 may naturally decline, independent of the incident of geographic relocation. For this reason, the effects of residential mobility on changes in social network characteristics between 2002 and 2006 are slightly more difficult to determine.

The table below illustrates the various samples that are used in different chapters of the thesis with the array of variables which have been factored into the analysis.

Table 8: Summary of samples and variables applied in chapters 5, 6 and 7

Location	Sample	Variables
Chapter 5	1991 (a) to 2007 (q) paired years (t_1 and t_2) – 60,915 cases	Present at present address last year, age at interview, sex, marital status, changes in partnering status over the last 12 months, whether living with spouse or partner, general health over the last 12 months, changes in health status over the last 12 months, limiting long-term illness, change in General Health Questionnaire score, disability status, financial situation, prospective financial situation, retrospective financial situation, economic status, change in economic status over the last 12 months and housing tenure.
Chapter 6	2006 (p) – 5,193 cases	Household size, cohabitation status, marital status, household composition, meeting other people, meeting neighbours, telephoning/emailing/seeing mother, telephoning/emailing/seeing father,

		telephoning/emailing/seeing son/daughter, distance to where mother lives, distance to where father lives, distance to where son/daughter lives, children - help deal with personal affairs; decorate, garden, repair; give financial help; give lifts in car; help with personal needs; provide or cook meals; shop for respondents; wash, iron or clean, how often see friends, how far away friends live, attend local groups/voluntary organisations and not in household: mother/father/son/daughter.
Chapter 7	2002 (l) and 2006 (p) – 5,003 cases	Resident at present address last year, social network size, social network frequency, social network proximity and social network functions.

Source: author (2011)

Measuring residential mobility, social networks and social network change (dependent factors)

Residential mobility and social network change are the two outcome variables of interest in the thesis. In this section of **chapter 4** these dependent concepts are examined in detail;

moreover how they are conceptualised from the literature and operationalised using the BHPS. Furthermore, this section describes in depth how social networks are measured; making references to the literature, and specifies the main building blocks for conceptualising and quantifying these systems.

Residential mobility

Conceptualising residential mobility from the literature

Mandič (2001) envisions residential mobility (also referred to as housing adjustment) as an adaptive mechanism whereby individuals and households adjust their housing choices according to push and pull preferences such as those that concern employment opportunities, economic gain, health, household structure, life history, housing or neighbourhood reasons, mobility and tenure. Residential mobility at older ages, particularly amongst those above State Pension age is less influenced by labour market engagement but more health, retirement aspirations, the life course, familial motives, housing and neighbourhood reasons. Other authors (Litwak and Longino, 1987; Wiseman, 1980) define the geographical movement of older people in a similar fashion. Motives to move originate from these push and pull preferences. If the motives outweigh any potential barriers to a move, then it is more likely that a move will occur. As this has already been discussed in **sections 2.1** through to **2.3**, there is no need to reconsider the determinants to residential mobility and the complex decision-making process which prospective older movers undertake. In **chapters 5, 6** and **7**, the culmination of the interaction between motives and intervening factors is evident in the form of a sample of movers, those of which are assessed in more depth in **chapter 5**.

The concept of residential mobility has been defined in order for it to be operationalised using the BHPS. As discussed in **section 2.1**, there are distinct differences between residential mobility and migration; for example the former is inclusive of moves across one's street. The study of migration considers moves across spatially defined areas such as between counties, Government Office Regions, countries or continents. In the thesis,

incidence of residential mobility at the micro-level is considered to be a change in one's usual residence within the last year. Owing to the pairing of the dataset for analysis, it was necessary to examine moves within the previous year in order to identify associated determinants. The variable 'resident at present address last year (plnew)' in the BHPS is used as a mover flag in order to identify these geographically mobile individuals. If respondents stated 'yes' as a response then it was apparent that they had not conducted a move in the last year thus the individual was considered a non-mover. A response value of 'no' means that the individual had moved within the last year.

The concept of residential mobility is operationalised differently in **chapter 7** (to be discussed in more detail in the following section). A residential mobility event is as in **chapter 5** recognised as a permanent change in usual address. Due to the four year disparity between waves 'l' and 'p', changes in social network characteristics between the two waves are not wholly attributable to moves within the last year in 2006 (t_2). Rather moves that may have occurred between waves 'l' and 'm', 'm' and 'n' and 'n' and 'o' may also impact on changes in social network characteristics between t_1 (wave 'l' – 2002) and t_2 (wave 'p' – 2006). For this reason all moves within the elapsed period between waves 'l' and 'p' are considered in the analysis. This has a number of advantages; it augments the sample size of movers which permits the use of more robust forms of statistical analysis and importantly it increases the inferential capacity of the findings. It also offers an opportunity for the level of change in social networks to be assessed relative to the recency of moves. This format allows for the observation of social network reconstruction whereby the number of years since a move may allude to a period by which an older person may re-establish their network. Conducting the analysis in this way also permits the bilateral conceptualisation of the number of years at residence. The number of years at residence at t_1 before a move occurs can be an indicator of the social network's resistance to change or that of the network ego (their coping resources) following a move. At the same time, it can also signify the supportive capacity of the social network. One might hypothesise for example that the longer the duration of residence, the more established a social network may be and therefore the more resistant and adaptable to change following a move. This may either be owing to the transferability of supportive resources or perhaps the reconstructive

capabilities of the network; the latter may be particularly evident amongst more mobile older persons.

There are disadvantages to using this analytical approach; multiple moves may occur between 2002 and 2006 which are not detectable by analysing social network characteristics between 2002 and 2006. Instead a separate analysis as can be found in **chapter 7** is required in order to investigate the effects of residential mobility within the four year period on social networks in 2006. A study which solely aggregates all moves between 2002 and 2006 will not provide all the detail needed to explore the relationship between residential mobility and social networks. Moves that for example take place between 2003 and 2004 may not contribute towards changes in social network characteristics in 2006 as might be the effects of a move which occurs between 2005 and 2006. The impact of a move that occurs over a year previous to the outcomes of interest may be mitigated by the protracted time period. A greater time lag between a move and subsequent changes in social network characteristics increases the possibility that extenuating factors such as health and age may be implicated.

Analytical sample of movers and non-movers

The analytical sample for **chapter 6** consists of the 5,193 cases available in wave p (2006) of the BHPS. In **chapter 7** the analytical sample of movers consists of respondents aged 50 and over, present at all waves between l and p who moved in the four year period from 2002 to 2006. The BHPS offers two variables which can be used to measure residential mobility; `wplnew` provides data as to whether a respondent has moved within the last year. The variable `wplnowy4` captures the year that a move occurs so that it is possible to retrospectively identify a move which may have been undertaken more than one year previous. Unfortunately, the different variables do not produce exactly the same results when aggregating the number of movers despite the fact that they are measuring the same thing. **Table 9** below portrays the number of moves made by respondents using the `wplnew` variable which yields 565 movers undertaking 649 moves. This number of movers and moves is different to that yielded by the `wplnowy4` variable which produces 527 movers. The

former variable has an unexplained 78 missing cases which may contribute to the lower number of unique movers it displays.

Table 9: Number of moves between BHPS waves, 2002-2006

Number of moves between wave l and wave p	Number of cases (<i>wplnew</i>)
1	487 (86.2%)
2	72 (12.7%)
3	6 (1.1%)
Total number of unique movers	565 (100%)
Total number of moves	649
Non-movers	4,799

Source: author's own analysis of British Household Panel Survey data, 2002-2006

Owing to the reliability of the variable in measuring both mover incidence and the waves between which the move occurred, it was decided that *wplnowy4* should be used as a migrant flag. The drawback to this is that in **chapter 5** the *wplnew* variable is utilised to identify moves resulting in a slight disparity in the mover sample between the two analytical chapters. The non-mover sample consists of respondents aged 50 and over present in waves l, m, n, o and p who did not move between the five waves.

Table 10: Number of movers between BHPS waves, 2002-2006

Number of annual movers between waves	Movers (<i>wplnowy4</i>) (mover prevalence rate)	Non-movers
L to M (between three and four years previous)	165 (3.3%)	4,838
M to N (between two and three years previous)	134 (2.7%)	4,869
N to O (between one and two years previous)	102 (2.0%)	4,901
O to P (within the last year)	126 (2.5%)	4,877
Total number of movers between L and P	527	

Source: author's own analysis of British Household Panel Survey data, 2002-2006

The table below shows the age distribution of movers. It is important to convey this as we know from the literature that age is a determinant of later life migration (Litwak and Longino, 1987; Speare and Meyer, 1988; Warnes, 1992). It is well documented that age as a

predictor of life course stage can explain the motives driving moves which in turn can account for the type of move which is conducted. As **table 11** shows the majority of the mover sample changed usual residence when aged between 50 and 64 (50.7 per cent) with the remaining two quarters of the sample attributed to respondents aged 65 to 74 and 75+. In accordance with Litwak and Longino's developmental framework, the bulk of moves in the sample can be considered to be 'first' moves.

Table 11: Age profile of movers

Age group	Number of movers by age group (age in 2006)
50-64	267 (50.7%)
65-74	133 (25.2%)
75+	127 (24.1%)
Total	527 (100%)

Source: author's own analysis of British Household Panel Survey data, 2006

The UK sample is utilised for all network types except kinship networks. Owing to routing in the wave I questionnaire, respondents in the England and Northern Ireland samples were not asked questions about parents and offspring. Due to this, it was decided for all kinship network attributes to treat England and Northern Ireland cases in wave p as missing.

Table 12: Geographical coverage in the analytical sample

Social network type	Attribute	England coverage in the analytical sample	Wales coverage in the analytical sample	Scotland coverage in the analytical sample	Northern Ireland coverage in the analytical sample
Kinship network	Size		x	x	
	Frequency		x	x	
	Proximity		x	x	
	Function		x	x	
Companionship network	Size	x	x	x	x
	Frequency	x	x	x	x
	Proximity	x	x	x	x
Community networks	Size	x	x	x	x
	Frequency	x	x	x	x

Source: author (2013)

Kinship network attributes derived from the British Household Panel Survey only have coverage in Wales and Scotland. Variables must be present between both wave I and p in order to measure change. In the case of the variables required to construct the kinship network attributes, these did not exist in wave I for English and Northern Irish sample members.

Derivation of variables

A theme discussed in the literature review is the notion that recent changes in characteristics at t_2 , so essentially changes in such attributes between t_1 and t_2 , are more likely to contribute to changes in residential mobility rates at older ages at t_2 . The associative strength of the determinant to a mobility outcome is higher in scenarios where other determinants are controlled for (as in the logistic regression analysis in **chapter 5**) and where the characteristic of interest has recently changed preceding the incidence of a move. Attributes that do not change prior to a move can also be considered to determine the propensity for residential mobility to occur however not perhaps to the same extent that a change in an individual level characteristic prompts a move. Another factor which strengthens the association between a determinant and an outcome is the minimisation of the elapsed time between the two events.

A number of variables were derived in order to construct measures which capture changing circumstance and different examples of residential mobility. These are presented in **table 13** below:

Table 13: Derivation of residential mobility variables

Variable	What the variable measures	Why the variable was derived
Resident at present address last year (non-derived)	Discerns whether the respondent changes their usual address between the time of observation and a year previous.	n/a
Moved in last four years (derived)	Ascertains whether the respondent changed their usual address between 2002 and 2006.	Owing to the four year disparity between the two waves of interest 'l' and 'p', it was necessary to aggregate moves.
Years since move (derived)	Identifies moves which occur between 2002 and 2006. In this way it is possible to glean the number of years since a move occurred.	Identifying the occurrence of moves by wave allows for the assessment of the disruptive effects of residential mobility on social networks and their capacity to be rebuilt.

Social networks

Conceptualising social networks from the literature

This section of the methodology describes how the concept of a social network is operationalised using the British Household Panel Survey and the evidence base from the literature. In reference to **section 3.1** where the notion of a social network is conceptualised using the literature, waves 'l' and 'p' of the BHPS offer an array of variables which enable the construction of individual components that capture the size, frequency, proximity and function of older people's social networks.

In considering the wider social network using an analytical network approach as opposed to perceiving a single support system which only takes into account supportive ties as part of a larger single integral structure, the analysis is open to consider the social network as a medium within which social support can flow. Once the functioning capacity of a social network is ascertained it may be possible to hypothesise how the level of perceived support available to a network ego may fluctuate following a move.

Research in the existing literature has attempted to develop typologies of the social networks of older people. These taxonomies are organised by social network attributes, those which help form an idea of the level and types of perceived informal support available to the network ego in varying social networks. Researchers have realised the importance of categorising social networks that allude to the volume of received and perceived social support available to the older network ego. The following social network elements are discussed in the literature; size, frequency, proximity and function and these are operationalised in the research using the BHPS.

Social network size

Gottlieb (1981) recognises the importance of size in determining the supportive capabilities of a social network. He acknowledges the structure and density of social networks relative

to their size. In a study of 15 networks in East York each consisting of six persons, the relevance of size in the level of perceived support available to the older ego is noted. Mugford and Kendig (1986) recognise the importance of size in identifying network types amongst older cohorts. Litwin (1995, 2000) delineates his network typology amongst older immigrants utilizing size as a key component. Different network sizes were found to be characteristic of certain types of network in Litwin's study of older persons in Tel Aviv. Fiori et al (2006) consider size a determining characteristic of a social network as is evident in its inclusion in their network typology. A rationale is not given for its place in this typology however but one may assume owing to its prominence in being a primary descriptive for network types, that the authors believe it to be an influential attribute in dictating the availability of social support through the system and consequent health outcomes for the network ego. Wenger (1991) considered the importance of size in defining social networks and identified older persons who were likely to possess networks of various sizes. It was found that the size of the network along with other attributes such as network composition were defining and had varying implications for social policy. Golden et al (2009) also employed Wenger's size measure amongst others, in forming a social network typology. In later research Wenger (2002) did not acknowledge network size as an identifying attribute, rather focused on the content of the network and its social ties.

Evidently in the literature, the use of network size in defining network types is widespread. It is recognised as an important measure of overall social network structure in the analysis in **chapters 6 and 7**. The size of a network provides an indication of the number of potential sources of informal support. However, its usefulness is only fully apparent when as a measure of social networks it is considered in conjunction with other characteristics such as network frequency and proximity.

As the intention is to encapsulate all those in one's network who the ego may perceive to be supportive or offer assistance in times of need, the social network size measure needs to be inclusive of all potential sources of espousal across the network. The role relationship between the network ego and node intimates inclusion in the notion of the 'social network'. For example, one would presuppose that an older person's family are likely to offer various

forms of informal support. The proximity of some network constituents makes them more obvious choices for inclusion in the overall social network. As this is not a qualitative piece of research, it is not possible to identify 'close associates' as recognised by the network ego. Instead we build proxies for social network characteristics that according to the literature can facilitate social support. The size dimension of an older person's network utilised in the analysis does not include the number of persons living in the household. As the objective of this thesis is to conceptualise a social network which may facilitate support, those who are considered in the system, it is assumed are potentially supportive to the older network ego. Thus the supposition cannot be made that all individuals who reside in the household of the respondent are in some way supportive; cohabitees may provide tangible aid on a 24-hour basis, could be available in emergencies or acknowledge the respondent each day, the latter constituting a form of social validation (considering that various living areas are usually shared). However, this assumption could give rise to some error in the estimation of the perceived volume of supportive resources available to the network ego. The BHPS does not offer the level of detail to ascertain whether social ties within the household may be supportive.

It was important to consider the marital status of respondents in conjunction with their cohabiting status. To assume that a married individual resides with their spouse is slightly flawed. Thus it is necessary to identify those who are married but do not live with their spouse in order for these persons to be included in the overall framework of the social network. Johnson's research (1983) on post-hospitalised people aged 65 and over accentuates the importance of spousal support over other forms of kinship. 'Husband and wife' networks are considered to be more reliable and comprehensive than other network type and this finding is further endorsed by Quinn and Hughston (1984). **Section 3.1** has outlined the focus in the literature on spouse networks and with this in mind, it was deemed necessary to incorporate spouses who reside outside of the household of the network ego. Spouses who live outside the household are likely to be in regular contact with each other whether the form of this interaction is face-to-face, telephonic or electronic. It must be acknowledged that this is an assumption; not all married or partnered individuals are likely

to be in contact with each other or likewise some individuals may be in the process of divorce or separation and at this point the type of interaction might not be considered as necessarily supportive. Owing to questions asked in the respondent interviews, it is not possible to include persons who are civil partnered to the network ego but do not reside with them in the cross-wave comparisons. The 'present legal marital status' variable only considers individuals who are civil partnered in waves 'p' and 'q'. Thus it is not possible to consider these persons and assess their role in the social network between wave 'l' and 'p'.

The social network size measure takes into account network membership outside the household so as to assemble other elements of the social system. Mothers and fathers who reside outside the household are enumerated as part of the overall social network. Parents are a major source of emotional and informational support and companionship for older persons. However due to current life expectancies in the UK, many persons aged 50 and over are less likely to have living parents than younger cohorts. This will be evident in **chapter 6** where the number of mothers and fathers living outside the household is low. Despite the actuality that data on the composition of households is not available in the BHPS, one would assume that a lesser number of parents also reside with their adult children who are aged 50 and over. In order to discern the supportive capacity of kin contacts, as emphasised in **section 3.1**, presence of mothers, fathers, sons/daughters in one's active social network is weighted by a factor of three. Shanas (1976b) is one of a number of authors who cite the volume and quality of supportive transfers from kin to older people as more substantial than that received from companions or other people in one's social network. Much of the collated literature which strengthens this argument was authored in the 1970s and 1980s. Although forms of interaction have altered owing to the advent of technology, the relative importance of kinship ties compared to other contacts has stayed fairly constant over the last 30 years (as discussed in **section 3.1**). The same argument applies when we consider the types of constituents in social networks and the size of social networks with regards to levels of perceived social support.

The social network size measure includes sons and daughters who live outside the household. The variable 'not in household: son(s)/daughter(s)' alludes dichotomously to whether or not there is a presence of either offspring outside the household but without separating them. Sons may vary in the types of support they can offer in comparison to daughters and vice versa and the relevance of this may vary depending on the sex of the older respondent. Thus, a weakness of the BHPS is that it is not possible to discern between the two. It is essential that one is able to quantify the number of close family members that an older respondent has; the greater the number of potentially supportive nodes in the network the greater the amount of perceived support that the network ego may be able to call upon in times of need. For this reason the variable 'progeny not in household: how many' is used as it presents the number of offspring that the older respondent has who reside outside the household. This in conjunction with the 'how often R contacts son/daughter by telephone' variable alludes to whether progeny outside the household should be considered as potentially supportive to the respondent. There is no way to identify those children in the household who are in contact with the respondent.

Coresidence in later life is discussed in **section 3.1**. Some of the literature reviewed was authored over 40 years ago. For example, Stehouwer in 1965 found that intergenerational conhabitation in Great Britain was common. Although not quantified, prevalence of coresidence is likely to be lower in the 21st Century as mentioned in **section 3.1** despite a possible upturn more recently due to financial pressures. Therefore, use of the BHPS to conceptualise kinship networks outside of the household is unlikely to neglect a sizeable portion of social networks where coresidence is present. The BHPS offers no information as to whether siblings reside with the respondent. As with sons and daughters, close family such as siblings provide support to older persons. Wave '1' does not offer the 'not in household: brother(s)/sister(s)' variable and the BHPS as a whole does not include any information on the frequency of interaction with siblings thus it is not possible to conceptualise them in the analysis. Shanas (1973) and Johnson and Catalano (1981) highlight the importance of siblings in providing support, particularly amongst older people who are childless and without a spouse or partner. In terms of offspring, their youthfulness over the parent means that they may be better equipped to provide tangible support such as services which help maintain personal hygiene, maintenance of premises and the

undertaking of activities of daily living (ADLs). Importantly, the presence of mothers, fathers, sons and daughters outside of the household is not sufficient information on its own to ascertain whether or not the family member is present in the older respondent's social network. These family members are considered to exist within the social network structure only if they are in contact with the network ego. Without any form of contact, there is no means for the provision of informal support. Although the proximity that the older network ego has to a family member may affect the volume and quality of informal support that they receive, closeness in one's geographical location relative to the centric figure does not necessarily infer any interaction.

The variable 'how often see x closest friend' is used to indicate the presence of a friend in the older person's social network. The BHPS only provides data on interaction with up to three friends. As it is the respondent who considers the individual a 'friend', it is postulated that the indication of this role relationship is highly likely to infer supportive social tie content. Friends play an important role in providing emotional support and companionship in later life. A weighting factor of two is applied to companionship contacts, recognising their likely higher supportive capacity over community network contacts but lesser than kin. Owing to the likelihood that they are of a similar age, oldest old respondents may be less likely to call upon them for more technical informal care. Incidence of interaction between older respondents, neighbours and other people is also incorporated in the social network size composite index measure.

The final component of the social network size measure comprises information regarding the older respondent's attendance at local groups and voluntary organisations and interaction with neighbours and other people in the community. In wave 'p' information on local group attendance and voluntary work is considered as one variable whereas in wave 'l' the data is separated into two. The average frequency in local group attendance and the interaction with voluntary organisations is taken in order for the response value to be comparable with wave 'p'. A consequence of this is that in wave 'l' one loses the finer detail as to the respondent's participation in local groups and voluntary organisations. It may be the case that in wave 'l' the older respondent participates with local groups but not

voluntary organisations. In wave 'I' involvement in one type is considered as engaging in both forms of activities. In the wave 'p' questionnaire, the question was asked of whether the respondent participated in either type of activity so to amalgamate the responses in wave 'I' is a suitable approach. Arling (1976) and Bolt (1971) reiterate the importance of neighbours in performing nonpersonal tasks, often as part of reciprocal exchanges though this is dependent on the health of the network ego. The perceived supportive role of neighbours is different to that of kin and companions and for this reason it was deemed appropriate to conceptualise and measure them separately. The discussion of social validation is a concurrent theme throughout the literature (Lee and Ihlinger-Tallman; Litwak and Szelenyi, 1969) and can be considered an operational concept across both ties with neighbours and other people in the community. Social validation is the effect of the behaviour of others acting as affirmation for an individual's own behaviour, representing a source of social support. It is more common in social groups and between acquaintances for social validation to be a significant output from a social tie (Mojzisch et al, 2008). For this reason, neighbours were conceptualised with other members of the community. As in Kitchovitch and Lio (2011), community networks included neighbours and a broad-spectrum of contacts such as members of local groups and forums. Thus the composition of community networks (neighbours, members of voluntary organisations and local groups and others in the community) has been steered by the literature evidenced in this section.

Owing to shortcomings in the BHPS data, it was not possible to include information on religious affiliation. Questions regarding religion are not asked in wave 'I'. Despite the fact that Berkman and Syme (1979) amongst others had acknowledged religion as an important facet of one's social network, it was not possible to consider this in the social network size composite index.

The social network size measure is finalised simply by totalling the relevant components mentioned across the kinship, companionship and community domains. In doing this, an index is formed which encapsulates the total size of an older respondent's social network. It is noted by Fiori et al (2006) that simply 'adding up' social ties and nodes is not a sufficient process to take into account the supportive capacity of social networks. There needs to be

additional detail as to the relative importance of social ties in quality and function over others. Hence the application of weights to discern kinship contacts from those of companionship or the community.

Table 14: Components of the social network size measure

Social network size components	
Variable	Label
HHSIZE	Number of people in household
LVCH	Not in household: Son(s)/daughter(s)
LVMA	Not in household: Mother
LVPA	Not in household: Father
PATEL	How often R contacts father by telephone
MATEL	How often R contacts mother by telephone
CHTEL	How often R contacts son/daughter by telephone
FRNA	Frequency of talking to neighbours
FRNB	Frequency of meeting people
MASTAT	Marital status
SPINHH	Whether living with spouse or partner
NET1PH	How often see 1st closest friend
NET2PH	How often see 2nd closest friend
NET3PH	How often see 3rd closest friend
LACTK (wave I)	How often: Attend local groups
LACTL (wave I)	How often: Do voluntary work
LACTK (wave p)	Attend local groups/voluntary organisations

Source: British Household Panel Survey, 2002 and 2006

Social network frequency

The frequency of interaction between nodes and the older network ego is indicative of the volume of social support available to the centric figure. The more commonly a family member, friend or person in the community interacts with a network ego, the higher the level of perceived support that they may receive from that person. Golden et al (2009) using Wenger's (1997) and Wenger and Tucker's (2002) typologies, acknowledged the importance of being aware of the level of interaction between the network ego and various members of one's social network if it is the intention to understand how the network structure facilitates the flow of social support throughout the network. In particular they examined contact

frequency with neighbours, friends and relatives and the frequency of participation in religious and non-religious community events, clearly supposing these constituents and affiliations to be important sources of informal support in later life. Wenger (1989) also identifies the level of interaction between older persons and their families, friends, neighbours and so forth to be important in assisting the transfer of social support to the network ego. In some of Wenger's other works (1997, 1991) the purpose of creating such components was to design a typology of social networks which could be compared with various health and other outcomes for the network ego. Lee and Ishii-Kuntz (1987) found higher levels of interaction frequency with friends to have a positive effect on morale amongst older people. A similar relationship was found between increasing interaction frequency with neighbours and morale. In Litwin's study of older Israelis (2001), contact frequency with adult children, neighbours, friends and the occurrence of attendance at social clubs and religious institutions were used to delineate different types of social networks. Litwin (1997, 1995) also employed frequency of contact as part of a six-component delineation of social network types. Fiori et al (2006) differentiated between contact frequency with friends and family with measures for both contributing towards the formation of a typology of social networks.

In this thesis, the purpose of designing a composite index to measure interaction frequency within a social network is to numerically represent the network structurally and quantify of the perception of social support availability and how these measures may change upon interaction with residential mobility in later life. One might postulate that the frequency of interaction within a network is partly a product of the cumulative proximity of the constituents along with other factors such as the nature and content of individual social ties. The measurement of function and the quality of social support is discussed later in this chapter. In the literature, the regularity and frequency of interface between older people and their family, friends, neighbours and community has been recognised as being an important feature of a supportive network in later life. The BHPS offers information on the frequency of interaction with mothers, fathers, sons/daughters, friends, neighbours and the community. Coinciding with the types of person who comprise the network composition as part of the social network size component, it is logical to where possible ascertain the

occurrence of interaction between these individuals and the network ego. Detail is given as to the nature of these interactions; there is differentiation between telephonic communication, emailing and face-to-face contact. As the aim is to construct a structural measure which accurately denotes the supportive content of the network, it is important to weight accordingly the types of interaction which may be conducive in facilitating greater levels of social support. As far as can be seen, the relevance of different forms of interaction is not distinguished in the literature (Litwin, 2001, 1997; Moorer and Suurmeijer, 2001; Wenger and Tucker, 2002; Wenger, 1997, 1991, 1989). Fiori et al (2006) do state that their data distinguishes between visits, telephone and letters but there is no indication as to how they considered these different forms of contact in their measurement and taxonomy of social networks. It was decided that face-to-face interaction was likely to be the most contributory in facilitating the transferral of all types of social support. Information, emotive support and companionship are feasibly transferred electronically or telephonically. However, this is not necessarily the case with more tangible types of aid. Rather hands-on care and assistance in maintaining personal hygiene and the undertaking of daily activities of living (ADLs) is only possible through face-to-face contact. Likewise, telephonic communication is more personal; for example an older person can hear their daughter's voice over the phone whereas over email, emotional support for instance, particularly in times of stress is far less easily transferred.

In the BHPS, response values for frequencies offered are; 'daily,' 'at least once a week,' 'at least once a month,' 'several times a year,' 'less often' and 'never'. Numeric values are reversed and read 5, 4, 3, 2 and 1 respectively in order to create a positive scale for measuring social network components whereby higher values indicate greater supportive functioning capabilities of the network. Three times the weighting is given to different frequencies of face-to-face contact, two times the weighting for telephonic communication and the frequency of electronic communication is factored by one. In both Kraut et al (1998) and Lewandowski et al (2011) it is agreed that device-mediated communication has less capacity to facilitate high volume and quality supportive transfers and importantly, many types of personal care are not easily transferred through these mediums. Consequently in the conceptualisation of social network supportive capacity, face-to-face interactions are

weighted higher than telephonic and electronic communication. The relationship between the frequency of social interaction and the volume of supportive transfers is documented (Chalise, Kai and Saito, 2010) and shaped the decision to give greater weight to higher frequencies of interaction. As mentioned, frequency of contact with mothers, fathers, sons/daughters, friends, neighbours and others is available. Furthermore, the regularity of participation in local groups and voluntary organisations as a source of informational and emotional support and companionship is also considered in the overall social network frequency measure.

Table 15: Components of social network frequency measure

Social network frequency components	
Variable	Label
CHMAIL	How often R contacts son/daughter email
CHSEE	How often R sees son/daughter(s)
CHTEL	How often R contacts son/daughter by tel
MAMAIL	How often R contacts mother by email
MASEE	How often R sees mother
MATEL	How often R contacts mother by telephone
PAMAIL	How often R contacts father by email
PASEE	How often R's sees father
PATEL	How often R contacts father by telephone
FRNA	Frequency of talking to neighbours
FRNB	Frequency of meeting people
NET1PH	How often see 1 st closest friend
NET2PH	How often see 2 nd closest friend
NET3PH	How often see 3 rd closest friend
LACTK	How often attend local groups/voluntary organisations

Source: British Household Panel Survey, 2002 and 2006

Social network proximity

The distance between the node and ego in a social network may determine the amount and type of perceived support. It could be surmised that the closer the proximity of a node to the network ego, on average the higher the level of perceived support available. Of course longer distances may be overcome by greater desires to provide support but on the whole lesser proximity may have an inertial effect on perceived support to the network ego. Crises at older ages for example may require recurrent face-to-face support which could be

hindered by a lack of closeness between the network ego and nodes. Neighbours by their very nature share a geographical proximity. These social ties provide a prime example of the advantages to such proximity; neighbours may play a particularly important surveillance role (Dono et al, 1979).

Electronic and telephonic communication alleviates the need for greater proximity between individuals to facilitate certain types of informal support. As discussed previously, informal support such as that which is emotional or informational may be transmitted without the need for face-to-face contact. The proximity of network members to the ego is more important when considering tangible support from children that involves assistance with transportation, house maintenance, up keeping personal hygiene and helping with other ADLs. Further, face-to-face interaction is conducive to higher volume supportive exchanges (Lewandowski et al, 2011). Longer distances between an older person and providers of such support may negatively affect supportive transfers in both frequency and volume Johnson and Pattie (2011) state that encounters with others are spatially constrained. In particular they quote the time, cost and effort required to overcome “the friction of distance”. Here it is acknowledged that geographical distance between a network ego and an actor in a social network can impact on the frequency of interaction. Therefore in the conceptualisation of social networks, the proximity of networks constituents is considered. The authors do not however specifically mention the effects of health on mobility and thus the contributory inertial effects of distance on social interaction. Tilly (1982) details the application of a time taken to reach people indicator as a measure of distance. There is no mention that this better captures the proximity of constituents than using geographical distance measures as opposed to time taken.

The BHPS questionnaires collect information on the proximity of one’s mother, father, son(s)/daughter(s) and three closest friends. Information on sibling proximity is lacking in wave ‘I’ and as a result is not included in the analysis. It was first necessary to determine whether close family such as mothers, fathers and sons or daughters were present in the household of the older respondent. Only if the family member was not present in the household was their proximity to the network ego considered. In the survey questionnaire,

proximity is determined by the amount of time that it would take the respondent to get to the network member in question. Response values are; '<15mins,' 'between 15 and 30mins,' 'between 30mins and an hour,' 'between one and two hours,' 'more than two hours' and 'lives abroad (volunteered)'. As with frequency of interaction, response values are reversed so as to give higher scores to shorter distances as we hypothesise that greater proximity is more likely to facilitate more social support in volume, quality and frequency.

Table 16: Components of social network proximity measure

Social network proximity components	
Variable	Label
LVMA	Not in household: Mother
LVPA	Not in household: Father
LVCH	Not in household: Son(s)/daughter(s)
MAFAR	Distance to where R's mother lives
PAFAR	Distance to where R's father lives
CHFAR	Distance to where R's son/daughter lives
NET1LV	How far away 1 st closest friend lives
NET2LV	How far away 2 nd closest friend lives
NET3LV	How far away 3 rd closest friend lives

Source: British Household Panel Survey, 2002 and 2006

Social network functions

In the literature, the importance of understanding the types of social support which filter to the network ego is stated. Fiori et al (2006) separated types into instrumental and emotional support and used these measures to typify different social networks.

The functions measure of a social network captures the types of espousal that the network ego perceives to be available to them. In conjunction with the social network size, social network frequency and social network proximity measures, it is a very useful gauge of the level of perceived support which emanates throughout the social network. The BHPS only provides information on the range of instrumental tasks undertaken by offspring. It would be useful to have data on the types of support an older network ego may perceive to be available from siblings, friends and neighbours. No data is collected on informational and emotional support, solely instrumental assistance.

Table 17: Components of social network functions measure

Social network functions components	
Variable	Label
CAIDUA	From children: get lifts in their car
CAIDUB	From children: shop for you
CAIDUC	From children: provide or cook meals
CAIDUD	From children: help with personal needs
CAIDUE	From children: wash, iron or clean
CAIDUF	From children: deal w personal affairs
CAIDUG	From children: decorate, garden, repair
CAIDUH	From children: financial help
CAIDUI	From children: anything else

Source: British Household Panel Survey, 2002 and 2006

Social network change

The principal hypothesis in the thesis is that changes in social network characteristics affect the level of perceived support available to the network ego. The analysis in **chapter 7** seeks to investigate whether a relationship between social network change and residential mobility exists. If indeed the level of perceived support throughout the network is correlated with the characteristics of the network, this will likely have consequences for the health outcomes of the ego and consequently their level of dependence on formal health and social care services.

In **chapter 7** changes in social networks are measured by examining shifts in characteristics between waves in 2002 and 2006. Individuals who move are identified using response values to the ‘resident at present address last year’ variable. A sub-sample of moves is formed (649 moves in total); social network characteristics of individuals who move between waves are measured in 2002 and 2006.

As referred in **section 4.2**, change in social networks is measured by examining size, frequency, proximity and function attributes at t_1 (2002) and t_2 (2006). The simple formula below depicts this for social network size;

$$\text{Size}_{t_2} - \text{size}_{t_1} = \text{change in size}$$

Simple bivariate and multivariate cross tabulations display change in network attributes by various socio-demographic characteristics. Varying levels of change in social network attributes amongst movers are cross tabulated against individual characteristics such as age, health, marital and economic status.

Determinants to residential mobility and social network change (independent factors)

Table 18: Derived variables present in the analysis in chapter 5

Variable	What the variable measures	Why the variable was derived
Change in partnership status in the last year	Detects changes in partnering status within the last year. It recognises individuals who were newly; partnered, widowed, divorced or separated.	It is hypothesised that recent changes in partnership status may act to trigger a move as found in Evandrou et al (2010) that these varying characteristics may become age-related stressors.
Change in health status in the last year	Recognises positive or negative changes in health status within the last year of two points or more on the likert scale. For example, if an older respondent's health status transitioned from 'fair' to 'excellent', this would be coded as an improvement in self-perceived health.	Formed in order to ascertain whether noticeable positive or negative changes in health status act to affect the propensity to move in the next year.
Change in economic status in the last year	Identifies changes between economic statuses before a move such as adjustments	As with changes in partnership and health statuses, it is hypothesised

	from employment to unemployment or self-employment statuses.	that a change in economic status may act to prompt a move in the next year amongst older people.
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Source: author (2012)

4.3. Methods of analysis

Two main forms of analysis are undertaken in the thesis. Logistic regression analysis is employed to analyse the effect of certain socio-demographic factors in determining residential mobility in later life by examining odds ratios that explain variance in the prevalence of moves at t_2 relative to characteristics at t_1 and t_2 . Change analysis is also conducted to measure transformations in social networks following a move both in a logistic regression analysis and multivariate contingency tables; the outputs from this analysis are present in **chapter 7**.

Logistic regression analysis

The principal forms of analysis in **chapter 5** are presented in the form of bivariate and multivariate cross tabulations which display residential mobility rates at t_2 by the older person's characteristics such as their age, sex, health, partnership or economic status, financial circumstance and housing tenure at t_1 . In this way, it is possible to assess the determinants to residential mobility which are significantly associated (p value <0.05) with higher or lower moving rates in the next year. The contingency tables in **chapter 5** present two-way and three-way bivariate and multivariate analyses of the associations between socio-demographic characteristics and residential mobility rates and comprise the descriptive analysis which underpins the use of logistic regression later in the chapter.

As the response variable is binary and nonlinear relative to the socio-demographic characteristics of the older persons in the sample, the use of logistic regression analysis was deemed appropriate to predict the likelihood of a move occurring based on various determining factors. This form of analysis holds a number of advantages over other forms of discriminant analysis. In logistic regression, explanatory variables such as age, sex and

marital status do not need to be normally distributed or have equal variance in each group. Furthermore, logistic regression unlike linear regression does not require independent and dependent variables to be linearly correlated with each other (Harrell, 2001). Importantly, the dependent variables in question (moved in the last year and social network supportive capacity change) do not need to be normally distributed in a logistic regression analysis and there is no homogeneity of variance assumption.

The covariates for the model were selected on the basis of the results from the bivariate and multivariate associations in the preceding sections in **chapter 5** and **chapter 7**. Variables found to be significantly associated with the dependent outcome were entered into the models to investigate whether their predictive property held when controlling for other variables. These variables (covariates) are entered into a forward conditional stepwise model. The model starts empty including only the intercept. Covariates are then added individually provided they satisfy the 0.05 entry and 0.10 removal value criteria. This approach enables the analyst to discern the effects of the addition of each covariate, independently, on the model fit. The final step includes all covariates that satisfy the entry criteria, in highest to lowest order of the amount of explained variance in the dependent variable.

There are some considerations when employing logistic regression analyses. There is a need to have a larger sample size. Any samples with less than 500 cases are prone to be vulnerable to overestimated odds ratios. However, the pooled BHPS dataset used in the analysis in chapter 5 comprises almost 2,000 moves which is sufficient to overcome any overestimation and importantly beta coefficients are closer to true population values. Furthermore, the number of independent variables inclusive in a logistic regression model is restricted to the number of outcome events. Menard (1995) states that it is necessary to have at least 10 events per independent variable in a logistic regression model. As the research herein is comprised of almost 2,000 events, logistic regression models may accommodate for up to 300 predictor variables.

Chapter 5. Determinants of residential mobility in later life in the UK, 1991-2007

5.1. Introduction

The determinants of residential mobility in later life have been discussed in the literature review in **section 2.3**. A number of studies have examined individual characteristics that are associated with a change in residence at older ages (Biggar, 1980; Conway and Rork, 2010; Conway and Rork, 2008; Evandrou et al, 2010; Heaton et al, 1981; Lee and Roseman, 1999; Marr and Millerd, 2004; Uren and Goldring, 2007). This component of the chapter offers an insight into the determinants of residential mobility in later life using pooled data from the British Household Panel Survey. The pooled data is derived from 17 consecutive annual waves covering the time period 1991 to 2007. The study areas are England, Wales, Scotland and Northern Ireland, with a focus on individuals aged 50 and over. Approximately 3.4 per cent of the sample moved in the 17 year period. This equates to 1,940 moves in the sample of 60,915 persons.

The data presented herein permits the study of annual transitions owing to the temporal proximity of the waves in the British Household Panel Survey. Previous research undertaken in the UK by Uren and Goldring (2007) and Glaser and Grundy (1998) used the Office for National Statistics Longitudinal Study (ONS LS) and thus were limited to investigating the determinants to moves in a ten year period. Furthermore, Glaser and Grundy did not examine the determinants to moves amongst those aged 50 to 64 rather solely focusing on those individuals above State Pension Age. The research in this chapter builds on their work by considering movers aged 50 and over and allows for explicit links to be made between life course events such as retirement or adverse changes in health and migratory moves in later life. The data solely focuses on incidence of residential mobility within the community and excludes moves to institutional settings.

Planners need to know who is likely to move in order to plan the effective provision of services. It is these mover profiles which alert policy makers, planners, age-specific service

providers, local government, demographers, the National Health Service and social care organisations to mention a few subgroups, to the needs of these older movers, particularly those which relate to health requirements. The determinants of older movers convey their coping resources for mediating the effects of moving on their informal social networks which themselves act to alleviate the demand on formal health services and social care organisations. An understanding of the characteristics which are more or less associated with moving in later life can assist in the creation of predictive tools in estimating residential mobility rates and mover profiles. Identifying geographically mobile older persons also enables demographers to project population redistribution by distinguishing those who are more and less likely to move in later life. An important facet to this research is the overall aim of bringing the findings into context with the existing typologies of residential mobility (group by determinants to moves) in order to see whether there is evidence that these need to be revised.

Research question one: What are the determinants to residential mobility in later life?

The primary aim of this chapter is to shed more light on the profiles of older movers with a particular focus on the various characteristics at the individual level which increase or decrease the propensity to move in the next year. The findings in this section help answer the questions; who are these older movers and what are their potential coping resources for mediating social network disruption? The following results section presents residential mobility rates by individual characteristics in the year before a move. The chapter is organised by these factors; age and sex, marital and partnering status, health and socio-economic circumstance.

Descriptive statistics of the pooled paired year sample (1991-2007)

Before exploring the determinants to residential mobility in later life, it is important to outline the key attributes of the cases in the analytical sample. Introduced in **section 4.2**, the following subsection summarises some basic descriptives in the pooled paired year

sample; the age and sex distribution and the socio-economic circumstance of respondents at the aggregate level across the dataset.

Table 19: Age distribution, sex distribution and National Statistics Social-Economic Classification (NS-SEC) of members in the pooled paired year sample

Age groups	Number of cases in the paired years sample	Sex	Number of cases in the paired years sample	RG Social class: most recent job	Number of cases in the paired years sample
50-54	12,429 (20.4%)	Males	27,131 (44.5%)	Professional occupation	2,386 (3.9%)
55-59	11,135 (18.3%)	Females	33,784 (55.5%)	Managerial and technical occupation	15,682 (25.8%)
60-64	9,515 (15.6%)	Total	60,915 (100%)	Skilled non-manual	13,898 (22.9%)
65-69	8,695 (14.3%)			Skilled manual	12,071 (19.8%)
70-74	7,963 (13.1%)			Partly skilled occupation	9,883 (16.2%)
75-79	5,884 (9.7%)			Unskilled occupation	5,081 (8.3%)
80-84	3,550 (5.8%)			Armed forces	57 (0.1%)
85-89	1,410 (2.3%)			Never employed	1,857 (3.0%)
90+	334 (0.5%)			Total	60,915 (100%)
Total	60,915 (100%)				

Source: author's own analysis of pooled paired year BHPS data, 1991-2007

The age distribution of the paired years sample is mostly representative of the UK population as recorded in the Office for National Statistics mid-year population estimates for 2007 (Office for National Statistics, 2009). Slight discrepancies are attributable to the fact that BHPS data samples households in the community whereas ONS population estimates include those who are living in residential and nursing home settings, prisons and other non-residential institutions. The proportion of the sample in younger quinquaries is higher and this share decreases as age increases. The mean age in the sample is 64 years and 4.1 months whilst the median age is 63 years. The larger share of the sample were in

managerial or technical occupation positions in their current or most recent employment at 25.7 per cent. A further 22.8 per cent of the sample were in skilled non-manual positions and just under a fifth (19.8 per cent) in skilled manual roles. Only 3.9 per cent of the sample were in a professional occupation. An even smaller share of the sample (3 per cent) had never been employed. Amalgamated, over a quarter of the sample (44.2 per cent) were in 'blue-collar' positions.

5.2. Age and sex

Biological age signifies one's stage of the life course; it is a useful proxy for health, socio-economic position and employment status. It might be postulated for example that persons at pre-retirement ages (50-64 years) are more likely to be healthier and engaged in the labour market than their older counterparts. The parameters of life course stages are more often than not dictated by age (Basting, 1998; Elder and Giele, 2009). Different stages of the life course may be more associated with specific motives and determinants to moves and consequently a varying susceptibility to social network change following a move. Litwak and Longino (1987) found that amongst older people the motives for moving varied significantly depending on age. There may be value in determining which stages of the life course are more or less associated with varying levels of health and financial circumstance to isolate a connection between phases of the life cycle and mover characteristics and in turn coping resources to counteract social network change after a move.

Table 20: Percentage of older persons who moved within the following year by age and sex at the start of the period, UK, 1991-2007

Age	Males***		Females***		All***	
	% moving	Number in sample	% moving	Number in sample	% moving	Number in sample
50-54	4.3	5,741	3.7	6,688	4.0	12,429
55-59	3.5	5,107	3.7	6,028	3.6	11,135
60-64	3.5	4,315	2.9	5,200	3.2	9,515
65-69	2.8	4,001	2.6	4,694	2.7	8,695
70-74	2.3	3,557	2.2	4,406	2.3	7,963
75-79	2.6	2,429	2.6	3,455	2.6	5,884
80-84	1.8	1,353	3.6	2,197	2.9	3,550
85-89	2.9	515	4.6	895	4.0	1,410
90+	4.4	113	4.1	221	4.2	334
Total	3.2	27,131	3.1	33,784	3.2	60,915

Source: author's own analysis of pooled paired year BHPS data, 1991-2007

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

Table 20 presents residential mobility rates by quinary age group and sex. There is a negligible disparity in move rates by sex with 3.2 per cent of males and 3.1 per cent of females moving between the two waves. However controlling for sex, there are age-specific patterns in residential mobility rates. For both sexes, a U-shaped relationship with age, as documented by Champion et al (1998), Conway and Rork (2010), is apparent. The percentage that move between waves is high at ages 50 to 64 for both males and females at 3.8 per cent and 3.5 per cent respectively and at ages 90 and over at 4.4 per cent for males and 4.1 per cent for females. Whereas at ages 70 to 79 only 2.4 per cent of males and 2.4 per cent of females moved between waves. This means that relatively, persons are more likely to move in pre-retirement and at oldest old ages than at middle old ages. As is shown in **tables 24** and **table 31** later in the chapter, health and financial circumstance illustrate a particular relationship with age. A higher proportion of persons moving at oldest old ages may potentially denote a greater number of movers who are ill-prepared for changes to their social networks. Older persons at pre-retirement and youngest old ages, who along with not imposing significant demands on formal and informal sources of support due to their likely more desirable health conditions compared to their older counterparts, may have the capabilities to more effectively and quickly reconstruct their social network following a move or resist adverse changes to the availability of informal support within

their network following a move. Individuals at these ages are likely to have the functional capacity to socialise more frequently, integrate into their new community more quickly and overcome distances between themselves and other members of their social network more easily. This hypothesis is explored further in **chapter 7**.

It is evident from **table 20** that females are more likely than males to move at oldest old ages. At ages 80 to 84, females are over 1.5 times as likely to move between waves as males. Females are also more likely to move at ages 85 and over than males. This finding is supported in the literature (Cheung and Liaw, 1987; Rogers, 1988). Marr and Millerd (2004) and Calvo et al (2009) found that residential mobility rates decreased as age increased and were lower at oldest old than youngest old ages. Their findings are contrary to those presented herein from the British Household Panel Survey as there is no evidence, regardless of sex that move rates are lowest at oldest old ages relative to older ages (50 years of age and over).

5.3. Marital and partnering status

Marital and partnering statuses are susceptible to change through the life course. In 2008, 11.2 persons per 1,000 married people got divorced in England and Wales (Office for National Statistics, 2008). Our living circumstances are prone to fluctuation. The British Household Panel Survey data allows for the capture of changes in marital, partnering or cohabiting status. It is possible to examine moving rates between waves in relation to these statuses at t_1 . The marital status as opposed to legal marital status variable in the BHPS allows for the recognition of non-marital cohabitation along with details of marriages and dissolutions. In the case of the potential determining effects on residential mobility and its presence as a coping resource in mediating social network change following a move, it is the presence of another person in the household which is of interest rather than the legality of the union.

Table 21: Percentage of older persons who moved within the following year by marital status and sex at the start of the period, UK, 1991-2007

Marital status	Males***		Females***		All***	
	% moving	Number in sample	% moving	Number in sample	% moving	Number in sample
Married	2.9	20,409	2.8	19,509	2.8	46,280
Living as a couple	6.2	954	5.1	786	5.7	2,054
Widowed	3.0	2,402	3.4	8,583	3.3	13,354
Divorced	6.1	1,405	4.8	2,612	5.3	4,745
Separated	7.5	279	5.8	413	6.5	832
Never married	2.8	1,679	2.4	1,880	2.6	4,364
Civil partnered	33.3	3	0.0	1	25.0	4
Total	3.2	27,131	3.1	33,784	3.2	60,915

Source: author's own analysis of pooled paired year BHPS data, 1991-2007

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

The likeliness of moving in the next year is high amongst divorced and separated individuals (5.3 and 6.5 per cent respectively) compared to the sample moving rate of 3.2 per cent (supports findings in Hugo (1986), Klinger (1986), Ledent and Liaw (1986), Rogers (1988), US Bureau of the Census (1981)). Divorced and separated males demonstrate noticeably higher moving rates than females. This could be due to the fact that the latter are less likely to want to uproot social networks or in cases where dependants are still living in the family home (more likely to be the case amongst pre-retirement and youngest old individuals), disturb the familial nucleus. Aside those who were never married, married persons have the lowest moving rates between waves both amongst males and females. This was found to be the case in Rogers (1988) where moving rates amongst married persons were found to be slightly higher at 2.9 per cent than the 2.8 per cent in the BHPS sample. Meyer and Speare (1985) also found that married persons were less likely to move than people outside of union. A number of authors concur that marriage has the effect of increasing the geographical anchorage of couples (Poulain (1986), Speare and Goldscheider (1987), Warnes and Rees (1986)). Interestingly, cohabiting individuals were more likely to move between waves than married persons thus it may be that marriage has more of an anchoring effect in increasing place attachment than simply sharing a property with another

person. Older persons who are widowed or never married exemplify moving rates that are around the sample mean. This is contrary to findings in Calvo et al (2009), Hugo (1986), Klinger (1986) and Ledent and Liaw (1986) where it was discovered that unmarried individuals were more likely to move at older ages. This is not the case in **table 21** where widowed and never married persons do not demonstrate higher mover rates than married persons. However, separated and divorced individuals do show higher mover rates between waves. This finding perhaps accentuates the fact that marital dissolution may have the effect of pushing individuals away and thus encouraging greater residential mobility amongst this subgroup.

Individuals who are outside of union are more likely to be living on their own and due to the ages in the sample, residing without dependants in the household. This results in a higher likelihood of moving as due to the reduction in place attachment at origin with the views of only one person and the physical movement of a single individual to consider, moves are more easily actuated. Counteracting this, the financial situation of a single mover may not be as comfortable as that of a couple in union which might inhibit a move depending on the motives. 'Assistance' moves (Meyer and Speare, 1985) which are usually dictated by impending or actual health concerns are less affected by financial circumstance, at least this is not the primary motive for the move whether a pull to a destination or a push from origin. In terms of policy, the fact that individuals who might be living on their own are also more likely to move is important. These movers are more likely to be lacking social support as a result which is a consideration for social and health care services in areas where older people are more likely to move to within the UK. Older persons outside of a formal union or a civil or cohabiting partnership at t_1 are upon moving more likely to live on their own at their place of destination at t_2 (unless conducting second moves where the intention is to reside with other family members). In these scenarios the network ego lacks an intimate and regular source of social support which in turn may have adverse effects on the level of overall informal support available to them. Older persons living on their own may find it more difficult to rebuild their personal networks following a move. In terms of the level of change in the social network before and after a move, a less noticeable level of disruption between the network at t_1 and the corresponding network at t_2 may occur as there is likely

to be less variation in social network measures with the network ego at t_1 already living alone and the network scoring similarly low on integral supportive capacity components after the move. Nevertheless, the demands on formal health and welfare services are more likely to be higher at t_2 as it may have been at t_1 due to shortcomings in one's informal social network.

Surprisingly, the percentage of newly widowed movers is not much higher than the mean sample moving rate between waves. Perhaps it is the case that recently widowed respondents are too sensitive and respectful to move shortly following the loss of a spouse. Based on the literature, the propensity to move is said to be higher amongst newly widowed persons (Bonnet et al, 2010; Chevan, 1995; Evandrou et al, 2010; Rogers, 1988). The table below does agree with these findings illustrating that recently becoming widowed has a greater effect on residential mobility rates in the next year and this is statistically significant at the 0.1 per cent level.

Table 22: Percentage of older persons who moved within the following year by partnership status and sex at the end of the period, UK, 1991-2007

Partnership status	Males***		Females***		All***	
	% moving	Number in sample	% moving	Number in sample	% moving	Number in sample
Newly partnered	25.0	140	16.1	149	20.4	289
Continuing couple	2.9	21,060	2.7	19,832	2.8	40,892
Newly widowed	4.6	263	4.2	544	4.3	807
Continuing widowed	2.8	2,326	3.3	8,363	3.2	10,689
Newly divorced/separated	20.1	139	10.3	243	13.9	382
Continuing divorced/separated	5.2	1,529	4.5	2,776	4.7	4,305
Never married	2.7	1,674	2.3	1,877	2.5	3,551
Total	3.2	27,131	3.1	33,784	3.2	60,915

Source: author's own analysis of pooled paired year BHPS data, 1991-2007

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

A change in partnership status is highly associated with an increased propensity to move in the next year. Becoming newly partnered is inclusive of those who are newly married, living as a couple or in a civil partnership. Males who had recently become partnered were over 8.5 times more likely to move in the next year than those who were part of a continuing couple. Males who were newly divorced or separated were much more likely to move in the next year (20.1 per cent) than those who remained divorced or separated (5.2 per cent). The effect of becoming partnered or divorced on the likelihood of moving, is not as pronounced amongst females with 16.1 per cent moving in the next year. The connotations of this finding are potentially critical for widowers and the newly divorced or separated. If those who have recently exited formal union are also more likely to move, their resulting social network before the move will be weakened with this further exacerbated following a move as the distance from the previously constructed network will be larger thus reducing the proximity, frequency of interaction, size and therefore the overall supportive capacity of the social network at t_2 .

Table 23: Percentage of older persons who moved within the following year by cohabiting status at the end of the period, UK, 1991-2007

Whether living with spouse or partner	% moving	Number in sample
Yes	2.9	41,422
No	3.7	19,493
Total	3.2	60,915

Source: pooled paired year BHPS data, 1991-2007

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

The table above clearly illustrates the effects on moving rates if an older person does not reside with a spouse or partner. Around 0.8 per cent more of those who do not live with a spouse or partner, moved in the next year than is the case for older persons who cohabit (p value < 0.001). As discussed in Meyer and Speare (1985), Poulain (1986) and Warnes and Rees (1986), residing with another person has an intertial effect on residential mobility intentions and actuation. Again this raises the interesting point of the significance of the type of the union within the household, as evidently in **table 21** this is significant in dictating move rates.

5.4. Health

The role of the health of a network ego is potentially three-fold; one's state of healthiness can dictate the need for informal support or further, formal health services depending on the extent of the demand. On the other hand, the health of the network ego is an outcome of the network's supportive capacity and it can permit or prohibit an older person's capacity to access both formal and informal care.

Table 24: Percentage of older persons who moved within the following year by health status at the start of the period, UK, 1991-2007

Age	50-59**		60-69		70-79		80+	
Health	% moving	Number in sample	% moving	Number in sample	% moving	Number in sample	% moving	Number in sample
Excellent	4.0	4,687	2.5	3,198	2.3	1,708	1.5	8
Good	3.3	10,358	2.9	7,960	2.4	5,772	3.1	2,082
Fair	4.0	5,591	2.9	4,833	2.5	4,254	3.6	1,729
Poor	4.6	2,284	3.7	1,726	2.2	1,592	3.6	693
Very poor	5.6	644	4.5	493	3.1	521	4.9	247
Total	3.8	23,564	3.0	18,210	2.4	13,847	3.3	5,294

Source: author's own analysis of pooled paired year BHPS data, 1991-2007

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

In examining the effects of health as a determinant of moving in the next year, we are especially interested in the possible existence of a U-shaped relationship between self-perceived health and residential mobility. This relationship is noticeably evident at pre-retirement ages where individuals who had excellent (4 per cent) or poor and very poor health (4.6 and 5.6 per cent respectively) were more likely to move than those who expressed more intermediate health. This finding correlates with that of Litwak and Longino (1987) who supposed that either good or bad health (or becoming of better or worse health) would result in increased residential mobility. Better health facilitates and pulls people to move (first type moves) whilst worse health pushes people to move (third type moves). Patrick (1980) and Heaton et al (1981) agree that poor health motivates moves whilst Biggar (1980) found that good health also increased the likelihood of a move occurring. As identified in the literature review, the notion that factors such as health can

act to both push and pull individuals from and to areas of residence is supported in the data presented here.

Interestingly the existence of this shape of relationship disappears as age increases. Instead what is more apparent is that as age increases, measures of self perceived health have a more obvious increasing gradient in the prevalence of residential mobility as health worsens. Amongst youngest old and middle old persons, around 2.4 per cent of people move in the next year with excellent health and a higher percentage moved with very poor health at around 3.8 per cent (this finding is not statistically significant). This highlights the lower prevalence of persons with excellent self-perceived health at these ages but also the fact that health becomes more of a push factor, coercing older people to move. The deterioration gradient between declining health and increased residential mobility rates is most accentuated at oldest old ages.

Concerns that the oldest of the older movers are less likely to be healthy are vast, particularly those which concern social and health care services. Firstly, those of lower health are less likely to mediate the adverse effects of moving on their personal networks in that they may find it more challenging to rebuild a proximate network of supportive contacts. If the discrepancy between support networks before and after a move in terms of social support availability is larger it may be experienced more adversely by the network ego. The possible health burden upon receiving areas of middle old and oldest old individuals who are more likely to consider themselves as being of poorer health and lower functional independence is potentially overbearing. These individuals may also be less likely less likely to be able to rely on informal care from family and friends. Certainly, the probability is that they are more likely to be outside of marriage or other forms of union which itself increases the dependence on state services. These less healthy individuals are also not as likely to contribute to the third sector as their health is likely to inhibit activities beyond those which concern basic maintenance of functional independence.

Table 25: Percentage of older persons who moved within the following year by change in health status at the end of the period, UK, 1991-2007

Change in health status	50-59		60-69		70-79*		80+	
	% moving	Number in sample	% moving	Number in sample	% moving	Number in sample	% moving	Number in sample
Improved	4.6	611	3.6	475	4.2	358	3.0	200
Stayed the same	3.7	22,189	2.9	17,150	2.4	12,961	3.2	4,818
Worsened	5.1	764	3.6	585	1.1	528	5.4	276
Total	3.8	23,564	3.0	18,210	2.4	13,847	4.4	5,294

Source: author's own analysis of pooled paired year BHPS data, 1991-2007

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

Table 25 demonstrates that a change in one's health status is more likely to induce a move in the next year than no change, verifying the relationship between health and residential mobility in later life. This conceivably illustrates that health can act as a trigger to residential mobility decision-making and in cases; result in a form of residential adjustment. As discussed above, health can be viewed as a determinant of residential mobility prior to a move. However, isolating recent changes in self-perceived health allows us to identify a more explicit relationship between health and residential mobility, hypothesising that a change in health status exerts a direct influence on the propensity to move in the next year. Percentages of those who moved in the next year were unanimously higher for those who experienced an improvement in self-perceived health except in the 80+ age group. This might suggest that improvements in health have facilitated moves that may have previously been restrained by undesirable health conditions or at the very least the absence of good health. In pre-retirement and at youngest old ages it is likely that these health improvements are adjoined with a higher socio-economic position and a disengagement from the labour market culminating in positively selected 'amenity-driven' moves. It is moves conducted against a backdrop of deteriorating health that are more evident amongst those aged 80 and over. This should be of concern to policy makers and in particular the health and social care system in certain areas that experience a higher intake of persons conducting 'third' moves. At oldest old ages, persons who experience deterioration in their self-perceived health between waves over 1.5 times as likely to have moved as individuals who endured no change. Interestingly, at middle old ages individuals who experienced a

worsening of their health were less likely at 1.1 per cent to move in the next year than those whose health stayed the same (2.4 per cent). It may be the case that a sizeable proportion of persons at middle old ages will have already conducted a 'second (assistance) move' and consequently do not undertake further forced moves whilst their adverse health could be sufficiently debilitating to hinder residential adjustment. As far as can be seen, no research has investigated the effects of recent changes in self-perceived health and the effects that this may have on residential mobility propensity. This is an area for further scholarship in order to better understand the link between health and residential mobility.

Table 26: Percentage of older persons who moved within the following year by change in GHQ-12 at the end of the period, UK, 1991-2007

GHQ-12 change in the last year at t_2 (likert)	50-59		60-69***		70-79*		80+***	
	% moving	Number in sample	% moving	Number in sample	% moving	Number in sample	% moving	Number in sample
Very positive change	4.1	9,613	2.9	8,563	2.5	5,928	2.8	1,980
Positive change	3.5	11,452	2.7	8,192	2.2	6,707	3.2	2,735
Negative change	4.3	2,026	3.8	1,233	2.9	1,066	4.2	506
Very negative change	4.2	473	8.1	222	5.5	146	12.3	73
Total	3.8	23,564	3.0	18,210	2.4	13,847	3.3	5,294

Source: author's own analysis of pooled paired year BHPS data, 1991-2007

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

There is slight evidence of a U-shaped relationship between mental health and residential mobility amongst persons in pre-retirement but no indication of this relationship from ages 60 and over. Rather, as evident amongst persons at middle old and oldest old ages and self-perceived health, the percentage of those who moved increases where the GHQ-12 change between waves is negative. The GHQ-12 measure takes into account morale and confidence; two important personal characteristics that facilitate the building and maintaining social networks. It is worrying that older persons who exemplify a negative or very negative change in GHQ score are also more likely to move in the next year as their

ability to reconstruct personal networks following a move may be inhibited. As far as is evident from the literature, no attempt has been made to explore the effects of changing GHQ-12 measures on the propensity to move in later life.

Table 27: Percentage of older persons who moved within the following year by limiting long-term illness at the start of the period, UK, 1991-2007

Health limits daily activities	50-59***		60-69***		70-79***		80+**	
	% moving	Number in sample	% moving	Number in sample	% moving	Number in sample	% moving	Number in sample
Yes	4.7	4,917	3.8	4,689	3.1	4,409	4.2	2,264
No	3.6	18,647	2.7	13,521	2.1	9,438	2.6	3,030
Total	3.8	23,564	3.0	18,210	2.4	13,847	3.3	5,294

Source: author's own analysis of pooled paired year BHPS data, 1991-2007

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

In each age group, those who suffered from a limiting long-term illness (LLTI) had a higher probability of moving in the next year than if they were not suffering from an LLTI or an illness which was not limiting. Interestingly, the percentage who moved in the next year of those suffering from an LLTI decreases as age increases until age 80 and over where it again increases. The effect of suffering from an LLTI is greatest in pre-retirement on residential mobility rates. The mover rate at 4.2 per cent amongst those aged 80 and over is also significantly higher than the mean mover rate. In these cases moving could possibly constitute a coping strategy and indicate a 'second' or 'third' move. However, with the data here, it is not possible to deduce whether the LLTI was recently contracted which would otherwise allows us to more strongly attribute the health condition with higher residential mobility rates. Older persons who move with an LLTI are likely to seek institutionalised care settings to live such as nursery homes or assisted living facilities and this is an important consideration for the housing industry and those who provide age-specific residential care.

Table 28: Percentage of older persons who moved within the following year by disability status at the start of the period, UK, 1991-2007

Registered disabled***	% moving	Number in sample
Yes	4.0	8,000
No	3.1	52,915
Total	3.2	61,915

Source: author's own analysis of pooled paired year BHPS data, 1991-2007

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

Unsurprisingly, the percentage of those who moved in the next year was higher among disabled individuals at 4 per cent than those who were not registered as disabled at 3.1 percent. This finding correlates with that of Conway and Rork (2008) who using the Integrated Public Use Microdata Series (IPUMS) discovered that disability leads to higher rates of residential adjustment and this effect is increasing over time. More specifically, they had focused on ways in which disability encouraged a need for assistance which often led to a need to move. The conclusion that disability status is associated with increased rates of residential mobility is also evident in other research utilising the Longitudinal Study on Aging (Choi, 1996; De Jong et al, 1995; Longino et al, 1991; Speare et al, 1991).

5.5. Socio-economic circumstance

The socio-economic position of an older person can be measured by looking at an individual's housing tenure, their RG Social Class (measured using most recent job), economic status and financial expectations. Income is also commonly used though data is not always available owing to the sensitivity of the subject and the higher probability of response bias. When researching older people, gauges of socio-economic position tend to be less focused around employment orientated measures and more on housing tenure, financial expectations and other incomes such as those sourced from pensions or savings.

The following section gives details of changes in financial situation and expectations, economic status and housing tenures of older persons in the BHPS and how these relate to residential mobility rates. In the literature changes in financial situation are associated with

an increased chance of moving in the next year. The following tables demonstrate whether or not similar findings are evident using the BHPS.

Table 29: Percentage of older persons who moved within the following year by economic status and sex at the start of the period, UK, 1991-2007

Economic status	Males***		Females***	
	% moving	Number in sample	% moving	Number in sample
Employed	3.3	8,291	3.2	8,847
Self-employed	4.2	2,886	5.0	917
Unemployed	5.4	698	6.8	382
Retired	2.7	13,145	2.9	17,892
Long-term sick/disabled	2.4	85	4.2	48
Other	4.1	2,026	3.4	5,698
Total	3.2	27,131	3.1	33,784

Source: author's own analysis of pooled paired year BHPS data, 1991-2007

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

As expected, unemployed males and females were more likely to move in the next year compared to those who were employed due to the removed anchorage of being engaged in the labour market. Similarly, self-employed older persons were more likely to move compared to the employed; one might surmise that their work premises are more likely to be geographically mobile and they may have a greater need to move to continue to find work. As part of the older sample, individuals aged between 50 and 64 are more likely to still be in employment. Therefore some of these moves may be employment oriented and as a result the older movers in question may contribute to the local economies into which they move.

Table 30: Percentage of older persons who moved within the following year by change in employment status and sex at the end of the period, UK, 1991-2007

Change in economic status	Males***		Females***	
	% moving	Number in sample	% moving	Number in sample
Newly self employed	6.6	331	4.9	205
Continuing self employed	3.7	2,441	2.8	674
Newly employed	4.0	573	4.8	546
Continuing employed	2.9	7,217	2.7	7,710
Newly unemployed	6.0	299	7.7	235
Continuing unemployed	4.5	310	11.8	93
Newly retired	4.9	1,294	4.7	2,322
Continuing retired	2.7	12,613	2.9	16,583
Newly long term sick	4.4	1,785	4.6	1,554
Continuing long term sick	3.7	54	0.0	22
Other	7.5	214	3.0	3,840
Total	3.2	27,131	3.1	33,784

Source: author's own analysis of pooled paired year BHPS data, 1991-2007

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

A change in economic status is associated with a higher probability of moving in the next year. To become newly self-employed exemplified the most significant increase on residential mobility rates amongst males with 6.6 per cent moving in the next year. Older males who were newly unemployed or newly retired also exemplified a higher likelihood of moving in the next year at 6 per cent and 4.9 per cent respectively in comparison to other employment status changes or constants. The findings for females are comparable; in most cases a change in economic status is associated with a higher likelihood of moving within the year. The one exception is females who are 'continuing unemployed' between t_1 and t_2 . The risk of moving in the following year is 35 per cent higher for females who remain unemployed as opposed to those who became unemployed within the year. This is an interesting finding which would benefit from being unpicked through large-scale qualitative research.

Table 31: Percentage of older persons who moved within the following year by financial status at the start of the period, UK, 1991-2007

Financial situation***	% moving	Number in sample
Living comfortably	2.6	22,857
Doing alright	3.1	18,650
Just about getting by	3.7	15,986
Finding it quite difficult	5.0	2,394
Finding it very difficult	6.5	1,028
Total	3.2	60,915

Source: author's own analysis of pooled paired year BHPS data, 1991-2007

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

Looking at **Table 31** there is a clear increasing gradient in the likelihood of moving in the next year as the financial situation of the individual deteriorates. Over twice as many older persons moved who in the year previous stated that they were 'finding it very difficult' with regards to their financial situation compared to the total rate of moving for the sample. Those who were 'living comfortably' or 'doing alright' exemplified lower mover rates in the next year than the sample average. More concerning therefore is that the self-perceived poor were more likely to move at older ages. Moves undertaken amongst those with less desirable income and wealth may have arisen due to financial worries and pressures. Reactive moves of this ilk are less likely to be undertaken in mind of informal sources of support. The relationship between health and wealth in later life is well affirmed (Banks et al, 2006) thus one might surmise that older persons also in poorer health may not be able to fund their social care if not eligible for state funded support or benefiting from informal support. The functional independence and health of these individuals may as a result be threatened. If eligible for local authority provided care, local health and social services in areas with a higher than UK average inflow of older movers need to be aware that lower self-perceived financial circumstance is associated with a higher likelihood of moving.

Adding to the information on age, health and marital status, we are building a picture not just of the characteristics of movers at the time of their move but also a knowledge base of some of the factors that might facilitate or inhibit moves which in turn can assist in forecasting (both in terms of the types of people likely to move but also improving the

possibility of accurate projecting for future trends in volume and composition of older residential mobility flows).

Table 32: Percentage of older persons who moved within the following year by financial expectations at the start of the period, UK, 1991-2007

Financial expectations for year ahead***	% moving	Number in sample
Better than now	6.1	6,589
Worse than now	3.3	8,702
About the same	2.7	45,624
Total	3.2	60,915

Source: author's own analysis of pooled paired year BHPS data, 1991-2007

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

The percentage of those who moved in the next year was 3.4 per cent higher amongst those who had positive financial expectations for the year ahead (6.1 per cent) than for those who perceived no change in their financial circumstance (2.7 per cent). Those who forecasted a negative change in their financial circumstance in the forthcoming year also epitomised a higher likelihood of moving in the next year (3.3 per cent) than persons who expected no change.

Table 33: Percentage of older persons who moved within the following year by change in financial status at the end of the period, UK, 1991-2007

Change in financial status in the last year***	% moving	Number in sample
Better off	6.2	8,707
Worse off	3.7	13,649
About the same	2.3	38,559
Total	3.2	60,915

Source: author's own analysis of pooled paired year BHPS data, 1991-2007

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

The above table tells a similar story to that previous in that an improvement in financial circumstance is more likely to be associated with a higher move rate. The retrospective figures displayed above are very similar to the data provided in **table 32** regarding one's

forecasted financial circumstance. As we have seen with the double-effect of health upon residential mobility behaviour, financial status can on the one hand make it possible to actuate moves that may be initiated through choice (such as amenity or pre and early retirement moves) but can also be a reason for needing to move such as for example in circumstances where the individual does not have the resources to reside in their present location and as a result needs to move. Clark and White (1990) found that individuals who expressed higher (amenity moves) and lower (assistance moves) financial statuses were more likely to move than their middle-income counterparts.

Table 34: Percentage of older persons who moved within the following year by housing tenure at the start of the period, UK, 1991-2007

Housing tenure***	% moving	Number in sample
Owned outright	2.4	31,547
Owned with mortgage	3.2	14,574
Local Authority rented	3.2	9,728
Housing Association rented	4.8	2,315
Rented from employer	10.3	435
Rented private unfurnished	9.9	1,932
Rented private furnished	18.6	334
Other rented	16.0	50
Total	3.2	60,915

Source: author's own analysis of pooled paired year BHPS data, 1991-2007

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

A significantly higher percentage of older persons move in the next year if they had been renting either privately (11.2 per cent) or through an 'other' source (16 per cent). Older persons who owned their property outright were less likely to move in the next year with 2.4 per cent moving. Only 3.5 per cent of older persons who lived in local authority or housing association properties, moved in the next year. One would imagine individuals living in rented accommodation are more likely to move as leaving rented residence is a speedier process than the more cumbersome contractual wrangles and dependence on others in the housing market, which makes it more difficult for owner occupiers to move. The finding that

older owner occupiers are less likely to move than older renters is supported in the literature (Cuba and Hummon, 1993; Uren and Goldring, 2007). Cuba and Hummon state that owner occupiers build a stronger feeling of place attachment due to the establishment of a more permanent home and as a result are less likely to move. Renters are more likely to require further rented accommodation when they move thus exerting pressures on this sector of the market. Older persons living in rented accommodation may also be less financially stable than individuals who lived in owned property. As these renters are over 4.5 times more likely to move in the next year compared to owner occupiers, the repercussions of their possibly less stable financial circumstance must be noted; this could have a knock-on effect on their ability to obtain forms of health and social care which they may increasingly require with age.

Financial status is not a primary coping resource in mediating the effects of moving on social networks and therefore not a significant function in the demand for formal and informal support amongst older people. Nevertheless, those of a higher financial status one may hypothesise are more likely to be of better health (Banks et al, 2006). Thus financial status is less a coping resource but rather a proxy for minimal social support demand, be it informally or formally sourced. Additionally, older persons of a higher financial status but with poor self-perceived health may be more likely to seek support from formal services where they can guarantee the quality of the health care and in turn lessen the burden on family, friends and neighbours to provide care.

5.6. Life course transitions and residential mobility in later life

Residential mobility in later life is associated with a number of events across the life course. The logistic regression model below illustrates these events and their significance in determining residential mobility rates in later life. As detailed in the bivariate and multivariate contingency tables earlier in the chapter, covariates display varying levels of association with moving. In order to test the significance of odds ratios for residential mobility by different life course events, a forward conditional stepwise model method of logistical regression is used. It was found that housing tenure (t_1) was most significantly

associated with moving in the next year along with partnership and economic status changes and fluctuations in financial circumstance within the last year. As hypothesised changing life course events act as triggers in influencing the residential mobility decision-making process.

Table 35: Odds ratios of moving between t1 and t2, persons aged 50 and over, 1991-2007, UK

Covariate		Odds ratio (Exp (B))	95% confidence interval
Housing tenure at t ₁ ***	Owned outright (r)	1.00***	
	Owned with mortgage	1.151*	1.01 – 1.31
	Local Authority rented	1.141	0.988 – 1.318
	Housing Association rented	1.69***	1.367 – 2.09
	Rented from employer	4.528***	3.246 – 6.316
	Rented private unfurnished	3.804***	3.194 – 4.530
	Rented private furnished	7.19***	5.295 – 9.762
	Other rented	6.83***	3.114 – 14.983
Partnership status at t ₁ and t ₂ ***	Continuing couple (r)	1.00***	
	Newly partnered	15.287***	8.844 – 26.425
	Newly widowed	1.939***	1.342 – 2.801
	Continuing widowed	2.989***	1.871 – 4.773
	Newly divorced/separated	7.175***	4.872 – 10.567
	Continuing divorced/separated	3.023***	1.875 – 4.876
	Never married	1.973**	1.205 – 3.231
Economic status at t ₂ ***	Continuing retired (r)	1.00***	
	Newly self employed	1.178	0.944 – 1.469
	Continuing self employed	1.373*	1.006 – 1.874
	Newly employed	1.836**	1.242 – 2.714
	Continuing employed	2.135***	1.476 – 3.087

	Newly unemployed	1.819**	1.171 – 2.827
	Continuing unemployed	2.084***	1.704 – 2.548
	Newly retired	1.451**	1.174 – 1.795
	Newly long term sick	1.385**	1.113 – 1.722
	Continuing long term sick	0.923	0.223 – 3.815
	Other	1.527***	1.286 – 1.814
Age at t_1 ***	50-59 (r)	1.00***	
	60-69	0.817**	0.71 – 0.94
	70-79	0.631***	0.53 – 0.76
	80+	0.729**	0.59 – 0.91
Financial situation at t_1 **	Living comfortably (r)	1.00**	
	Doing alright	1.151*	1.021 – 1.297
	Just about getting by	1.219**	1.075 – 1.382
	Finding it quite difficult	1.353**	1.087 – 1.684
	Finding it very difficult	1.584**	1.190 – 2.107
Financial expectations for year ahead at t_1 ***	About the same (r)	1.00***	
	Worse than now	1.696***	1.494 – 1.926
	Better than now	1.029	0.893 – 1.185
Change in financial position last year at t_2 ***	About the same (r)	1.00***	
	Worse off	2.422***	2.155 – 2.723
	Better off	1.427***	1.265 – 1.611
Whether living with spouse/partner at t_1 ***	Yes (r)	1.00***	
	No	0.4***	0.255 – 0.628
Change in GHQ-12 measure in last year between t_1 and t_2 *	Positive change (r)	1.00*	
	Very positive change	1.148**	1.037 – 1.27
	Negative change	1.037	0.876 – 1.227
	Very negative change	1.254	0.928 – 1.695
Health limits daily activities at t_1 ***	Yes	1.00	
	No (r)	1.269***	1.136 – 1.419

*** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$

N=60,915 cases

Source: author's own analysis of pooled paired year BHPS data, 1991-2007

Note: covariates entered in forward conditional stepwise model in the following order: housing tenure (t_1), change in financial position in the last year (t_2-t_1), change in partnership status (t_2-t_1), financial expectations for the year ahead (t_1), change in economic status (t_2-t_1),

age (t_1), health limits daily activities (t_1), whether living with spouse or partner (t_1), financial situation (t_1) and change in GHQ-12 (t_2-t_1).

Sex (t_1), a change in health status (t_2-t_1) and disability status (t_1) were not significant thus were not entered in the model.

The Nagelkerke R Square value is 0.079.

In sum, the primary determinants of residential mobility in later life are age, the health and financial status of the mover, partnering status (or changes in), changes in employment status, incidence of a limiting long-term illness (LLTI) or disability and housing tenure.

Specifically residential mobility rates are higher amongst persons of pre-retirement age who are of very good or very poor health and suffer from an LLTI or some form of disability.

Older persons who are struggling financially along with those who lived in private rented as opposed to owned property, who are outside of any type of formal union, are more highly associated with increased residential mobility rates in the next year. These findings are discussed in more detail in **chapter 7** with some of the determinants of residential mobility at older ages considered as coping resources for the network ego in mediating social network change following a move.

Chapter 6. Social networks in later life in the UK, 2006

This chapter examines the social networks of older people in the UK using data from the British Household Panel Survey. By means of data from wave p (2006), measures are derived which encapsulate the size, frequency, proximity and functions of three different social network types in later life; kinship, companionship and community. In the literature, the social networks of older people have been categorised by the types of relations to the ego of which they are comprised and their functions (Cantor, 1979; Nocon and Pearson, 2000; Wenger, 2002, 1991). Owing to the {heterogeneity of the BHPS sample} multiplicity of social ties in later life, it is necessary to separate networks into different types. Distinguishing between offspring or even an extended family member and a member of the community that one might interact with in similar frequency is crucial. We would expect the quality, breadth and volume of support received from these different network contacts to vary greatly. Hence, in the analysis rather than assume that persons aged 50 and over have one social network, conceptually they are considered to possess multiple networks which constitute part of the wider social network. A key advantage of conceptualising kinship, companionship and community networks separately is that different weighting can be applied to members of an older person's social network depending on the perceived volume, breadth and quality of social support that they may provide to the network ego. In the analysis presented herein, contacts in a kinship network yield a score two times greater than those in companionship networks and three times greater than contacts in community networks. In this way, social network index scores better reflect supportive capacity which in turn impacts upon the ego's perception of available support. This weighting is informed both a priori and by the literature

Research question two: What are the social networks of older people in the UK?

In trying to address research question two, it is important to enquire for what reasons we are interested in the social networks of older people. This is best answered in two parts; in terms of the usefulness of understanding social networks and how they vary across older age groups and sex amongst other socio-demographic factors as this will inform the analysis

in **chapter 7**. Furthermore, there are poignant policy implications that arise through a better understanding of the social networks of older people. Firstly before interacting social networks with residential mobility, we must identify the types of ego-centred networks that exist in later life and how persons of different ages and sex may be more or less associated with belonging to these types of networks. This exercise will help to build measures which take into account the characteristics of these networks and the supportive capacity which may be generated as a result of the size, frequency of interaction, proximity of persons and the functions of networks. Secondly, as detailed in the literature review in **section 3.2**, there is a plethora of research that provides evidence of a strong relationship between physical and mental health and social networks and support in later life (Litwin, 2009, 2001, 1999; Umberson and Montez, 2010). The analysis seeks to ascertain the extent to which varying levels of perceived social support are apparent across different types of social networks and whether there may be a high prevalence of networks amongst older people which are associated with lower levels of perceived support. Having fewer sources of informal social support in later life, especially that which is tangible such as assistance with instrumental activities of daily living (ADLs) or financial aid, can have particularly adverse effects for older people. Increased reliance on local authority provision of social care may result; at present there is no spending cap on how much social care may cost over the lifetime and the means tested (savings and income (includes valuation of property if the costs include a care home place)) threshold for care currently stands at £23,500 (Local Government Association, 2012). However even if a person's means test is below £23,500, they are still required to contribute towards the costs of their own care. Paying for one's care in later life is expensive and a lack of sources of informal social support mean that older people are more likely to have to fund their own social care. In extreme and unfortunate circumstances, people have to sell their homes and move into residential care to fund this and it is reported that this is the case for around 40,000 older people each year (Kent Care Forum, 2012). Owing to budget restraints, some local authorities have stopped providing social care for individuals with lesser needs (Local Government Association, 2012). Many older persons with low or moderate need for social care provision do not therefore have local access to such services and as a result may not be able to receive the domiciliary care that they require which could in turn stop them from being able to live independently or worse have adverse effects on their health if they

continue to live without a satisfactory level of care. Greater demand on social care provision stresses a welfare system already in desperate need of funding and reform. Informal support plays an integral role in alleviating pressure on an already overstretched welfare system. It is thus essential that we have an understanding of social networks which are primary sources of informal support in later life.

The presentation of results in the chapter is ordered by network type. The components of size, frequency, proximity and function measures for kinship, companionship and community networks in wave p are displayed in cross tabulations with composite measures indicating prevalence. The size, frequency, proximity and function of all networks types amalgamated are then considered with a brief exploration of the relationships between these social network measures. To conclude the chapter we discuss the supportive capacity of social networks in later life using BHPS data and the policy implications of the findings presented in the chapter.

6.1. Kinship networks

In answering the research question *‘what are the social networks of older people in the UK?’* we present the first of three different types of social network, kinship networks. Discussed in depth in **chapter 4**, BHPS data allows us to construct kinship networks which include a mother, father, spouse, sons and daughters. The data does not contain information on other close family members such as siblings and grandchildren. A household size measure is not utilised to strengthen the kinship network measure as there is no data which alludes to the composition of these domestic units. The following section presents the commonness of kinship networks of different sizes, degrees of frequency, proximity and function which will provide evidence to ascertain the social networks of older people in the UK.

Kinship network size

The results below display the prevalence of mothers, fathers and spouses who live outside of the household in wave p. The majority of older respondents did not have a contacted mother, father or spouse living outside of the household (as explained in **chapter 4**,

individuals who have face-to-face, telephonic or electronic (through email) interaction with the network ego are considered to be ‘contacted’). Moreover, it is probable that this is because most of the aged 50 and over sample do not have a living parent. For older people who have a living parent, the direction of social support is likely to be towards the mother or father, thus these kin do not represent a primary source of perceived social support. The types of social support that an older person might receive from their older parents are likely to be emotional, informational and associated with companionship. There is likely to be some incidence of intergenerational cohabitation within households in the BHPS however it is not possible to determine to what extent this is the case owing to the lack of data on household composition. In terms of measuring social networks, the capacity for perceived support across various network types and the effects of residential mobility, the number of people in a household within which an older person resides is still added to the overall size measure of the network.

A slightly larger proportion of the sample had a contacted mother or father residing outside of the household at 10.2 per cent and 3.7 per cent respectively. A very small proportion of the sample at 0.03 per cent had a spouse living outside of the household.

Table 36: Components of kinship network size measure (wave p)

Response	Contacted mother outside of household	Contacted father outside of household	Contacted spouse outside of household
No	5,733 (89.8%)	6,145 (96.3%)	6,363 (99.97%)
Yes (x3)	651 (10.2%)	239 (3.7%)	2 (0.03%)
Total	6,384 (100%)	6,384 (100%)	6,365 (100%)

Source: author’s own analysis of British Household Panel Survey data, 2006

Note: individuals who had face-to-face, telephonic or electronic interaction with the network ego within the last year constituted being ‘contacted’

Table 37 displays the number of contacted progeny outside of the household. Noticeably, over a third of older persons in the sample had no contacted offspring outside of the household. One would assume that of this significant proportion of the sample, a number live with their offspring. This does not divert from the point that a number of these older respondents are also childless. For individuals without a spouse, typically offspring are the primary providers of social support. Hanson and Sauer (1985) state that progeny are the

‘hub’ or ‘critical core’ of the kinship network. As far as can be seen there is no research which attempts to extricate the number of children who live inside or outside the household. Fiori et al (2006) found that in the Americans’ Changing Life Study that in family networks the average number of children was 6.45 per respondent. **Table 37** illustrates the contacted number of progeny living outside of the household; the average number of children per older respondent is 1.92 which is much lower than found by Fiori et al (2006). Even though this only includes children outside the household, the figure is still low. The remaining almost two-thirds of the sample had one or more offspring living outside of the household. Of these older persons with contacted progeny outside of the household, 13.7 per cent had one child, 26.6 per cent two children, 13.2 per cent three children and 9.2 per cent four or more children. The implications for older persons who do not have a contacted child outside of the household may be fairly grave assuming they do not reside with their offspring.

Table 37: Component of kinship network size measure (wave p)

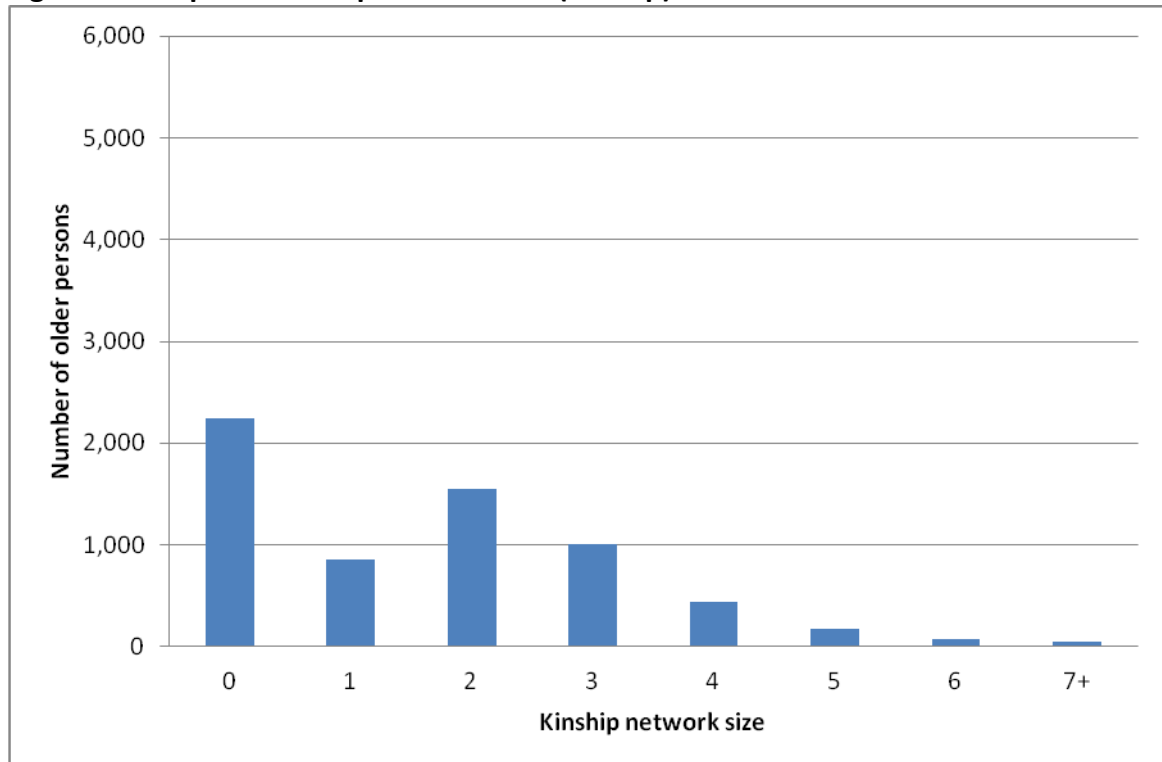
Number of contacted progeny outside of the household (x3)	N
0	2,390 (37.3%)
1	876 (13.7%)
2	1,697 (26.6%)
3	843 (13.2%)
4	338 (5.3%)
5	129 (2.0%)
6+	111 (1.9%)
Total	6,384 (100%)

Source: author’s own analysis of British Household Panel Survey data, 2006

Note: individuals who had face-to-face, telephonic or electronic interaction with the network ego within the last year constituted being ‘contacted’

The proportion of the sample that did not have a kinship network to call upon for potential sources of informal support is small at 35.1 per cent. According to **figure 6** older network egos with two or three members in their kinship network were more common with 24.3 per cent and 15.9 per cent respectively displaying this characteristic. Around 13 per cent of the sample had one person in their kinship network and the remaining 11.2 per cent had four or more persons.

Figure 6: Composite kinship network size (wave p)



Source: author's own analysis of British Household Panel Survey data, 2006

Note: kinship network size is unweighted

Kinship network frequency

The amount of support that an ego may receive (perceived) is partly dependent on the level of interaction with individuals in their network. More frequent interaction is likely to provide the means for greater facilitation of supportive transfers. One might hypothesise that the frequency of interaction within egocentric networks will vary according to the network type. Kinship networks we might expect for example to be characterised by higher levels of interactions between members and the ego. The table below presents levels of interactions between the ego, their mother, father, sons and daughters. There is no data in the BHPS which indicates the frequency of interaction with a spouse or partner as it is assumed that the vast majority of people reside with them. As **table 36** shows, a very small proportion of the sample had a contacted spouse or partner who resided outside of the household.

As one would expect owing to the ages of the sample members, around 86.5 per cent of the sample have no living mother whilst over 95 per cent have no living father. There is noticeably a low incidence of interaction with mothers and fathers of respondents with a living parent. Only 15.8 per cent of those with a surviving mother see their mother on a daily basis and this is lower at 10.9 per cent of respondents who see their fathers. Over 60 per cent of the sample see their mother between once a week and once a month whilst the equivalent figure is higher for respondents who see their father at 64 per cent. A very small proportion of the sample never saw their mother (2.1 per cent) whilst 3.2 per cent never saw their father. One per cent of the sample never saw their son or daughter. Interaction between the network ego and sons and daughters is higher. A low proportion of the sample had a son, daughter or both who was not alive in 2006 at 18.3 per cent. Almost 23 per cent of respondents saw their offspring on a daily basis. Over 61 per cent of older respondents saw their offspring between once a week and once a month whilst 15.7 per cent saw their progeny several times a year or less.

Table 38: Components of kinship network frequency measure (wave p)

Frequency of interaction (x3)	Frequency of seeing mother	Frequency of seeing father	Frequency of seeing son(s)/daughter(s)
Daily (5x3)	105 (15.8%)	27 (10.9%)	912 (22.6%)
At least once a week (4x3)	295 (44.4%)	106 (42.9%)	1,884 (46.7%)
At least once a month (3x3)	105 (15.8%)	52 (21.1%)	607 (15.0%)
Several times a year (2x3)	106 (16.0%)	39 (15.8%)	460 (11.4%)
Less often (1x3)	39 (5.9%)	15 (6.1%)	133 (3.3%)
Never (0x3)	14 (2.1%)	8 (3.2%)	39 (1.0%)
Sub-total	664 (100%)	247 (100%)	4,035 (100%)
Not alive (0x3)	4,277	4,694	906
Total	4,941	4,941	4,941

Source: British Household Panel Survey data, 2006

The table below illustrates the level of interaction between older network egos and their mothers, fathers, sons and daughters by telephone. There is little research in the literature

on interaction between close family members using a telephone except in Shanas (1973; 1979a) who investigated the level of interaction between siblings and the frequency of telephonic contact. As the BHPS does not contain data on sibling interaction and as far as is evident there is no literature on interaction between close family members; there is no comparable evidence to use as reference.

In later life as a form of interaction with close kin, telephoning is more prevalent than face-to-face interaction. Contact via telephone was much more common between older people and their son or daughter than with their mother or father. Over a third of older respondents (34.5 per cent) contacted their son or daughter daily compared with 28.3 per cent who contacted their mother and 17.4 per cent their father. Of respondents who had living close kin from the following in **table 39** below, 16.1 per cent, 14.2 per cent and 3.4 per cent respectively never contacted their mother, father or son(s) or daughter(s) by telephone.

Table 39: Components of kinship network frequency measure (wave p)

Frequency of interaction (x2)	Frequency of telephoning mother	Frequency of telephoning father	Frequency of telephoning son(s)/daughter(s)
Daily (5x2)	188 (28.3%)	43 (17.4%)	1,391 (34.5%)
At least once a week (4x2)	284 (42.8%)	109 (44.0%)	2,082 (51.6%)
At least once a month (3x2)	52 (7.8%)	37 (15.0%)	264 (6.5%)
Several times a year (2x2)	18 (2.7%)	13 (5.3%)	96 (2.4%)
Less often (1x2)	15 (2.3%)	10 (4.1%)	65 (1.6%)
Never (0x2)	107 (16.1%)	35 (14.2%)	137 (3.4%)
Sub-total	664 (100%)	247 (100%)	4,035 (100%)
Not alive (0x2)	4,277	4,694	906
Total	4,941	4,941	4,941

Source: British Household Panel Survey data, 2006

Forms of social support can be broken down into that which is emotional, tangible and informational. Arguably, emailing between close family permits the exchange of all these types of social support. Emotional and informational support can be facilitated through text

without spoken words. The offering of advice and other forms of informational support are easily transferred via email albeit with less emotiveness than in face-to-face or telephonic interaction. Forms of tangible assistance such as that which is monetary may also be transferred indirectly via email if appropriate information is exchanged. However, as with telephonic interaction, emailing is not a sufficient substitute for face-to-face interaction in terms of the quality and level of emotive support which one may expect to receive through this form of social interface.

Table 40 illustrates the frequency of electronic interaction between older network egos and their close kin in wave p. Electronic communication by email at any level frequency was not particularly common between close family members. Across all family members and the network ego, only 686 respondents of 4,946 (13.9 per cent) used email as a form of interaction. There is no incidence of daily interaction between older respondents and their mothers or fathers. However, 0.7 per cent of the sample do interact with their son or daughter via email on a daily basis. Around 10 per cent of the sample use email to contact sons or daughters between at least once a week and at least once a month. Prevalence of this same frequency of interaction is higher between network egos and fathers (2.4 per cent) than with mothers (1.5 per cent). Use of email to interact with mothers or fathers is very low with 97.7 per cent and 96.8 per cent never communicating with mothers and fathers respectively, in this way. Almost 83 per cent of older respondents never emailed their sons or daughters. These figures are high partly owing to the prevalence of internet access in later life. Email communication requires two persons to have a device with internet access. Respondents in the sample are at least 50 years of age and their mothers and fathers will of course be older than this. Latest Office for National Statistics (2012) findings show that internet use declines rapidly with age from 55 upwards.

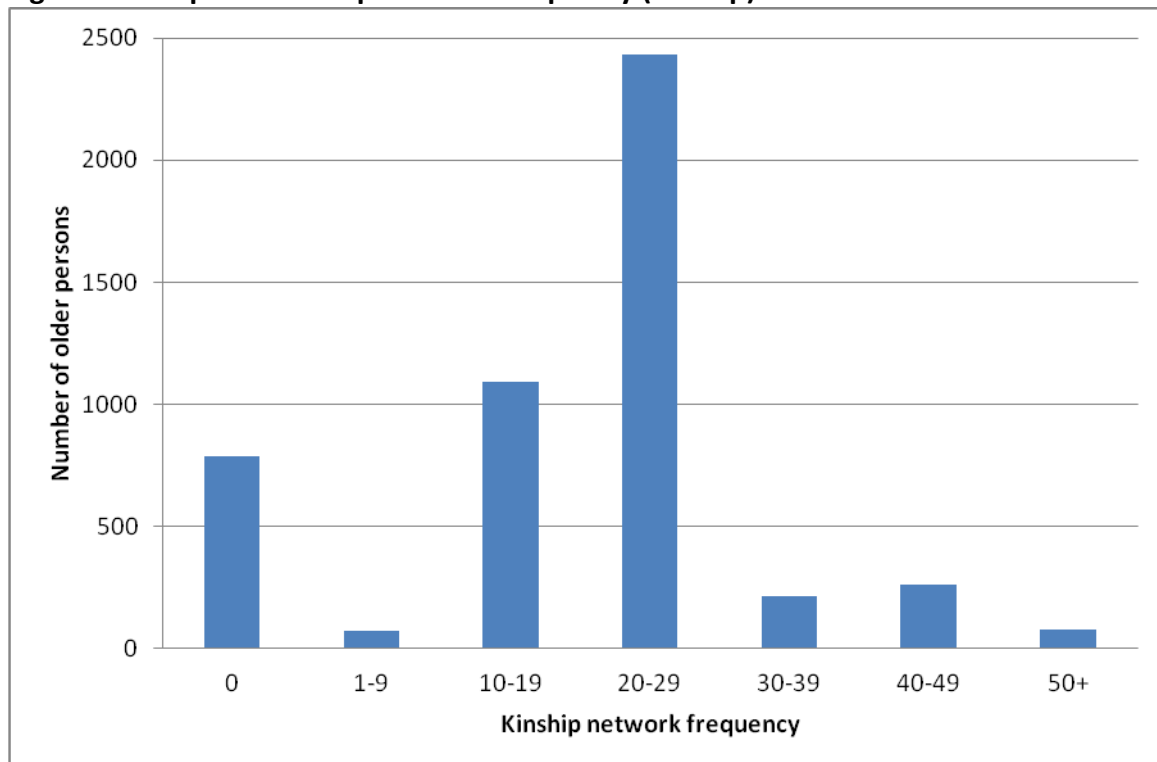
Table 40: Components of kinship network frequency measure (wave p)

Frequency of interaction (x1)	Frequency of emailing mother	Frequency of emailing father	Frequency of emailing son(s)/daughter(s)
Daily (5x1)	0 (0%)	0 (0%)	30 (0.7%)
At least once a week (4x1)	6 (0.9%)	4 (1.6%)	238 (5.9%)
At least once a month (3x1)	4 (0.6%)	2 (0.8%)	162 (4.0%)
Several times a year (2x1)	1 (0.2%)	1 (0.4%)	148 (3.7%)
Less often (1x1)	4 (0.6%)	1 (0.4%)	115 (2.9%)
Never (0x1)	649 (97.7%)	239 (96.8%)	3,342 (82.8%)
Sub-total	664 (100%)	247 (100%)	4,035 (100%)
Not alive (0x1)	4,277	4,694	906
Total	4,941	4,941	4,941

Source: British Household Panel Survey data, 2006

The figure below illustrates the distribution of kinship network frequency in wave p (2006). The mean kinship network frequency score is 19.2. The proportion of the sample respondents who had no or very low frequency of interaction with close kin was 17.3 per cent; at almost a fifth of the sample this is a worrying finding. Little or no frequency of interaction with close family could be detrimental to an older person's well-being, contribute to feelings of loneliness and increase their dependence on social care and health services as a result of this lower receipt of informal support. A further 53.4 per cent of the sample exhibit a medium level of interaction frequency with close kin and a composite score of between 20 and 39 in their kinship network. Another 6.9 per cent of the sample exemplify high levels of interaction frequency within kinship networks with composite scores of greater than or equal to 40.

Figure 7: Composite kinship network frequency (wave p)



Source: author's own analysis of British Household Panel Survey data, 2006

Kinship network proximity

The closeness in which kin are positioned in relation to the network ego provides an impression of the geographical structure of a social network. The frequency of interaction between its members and the older centric figure is partially dependent on their distance to the network ego. The following section details the proximity of close kin to the network in 2006 in order to answer the overarching research question; what are the social networks of older people in the UK?

Proximity to family is expressed using the time taken to reach the network ego which is a more meaningful measure than distance which equates differently depending on local geography and mode of transport. Close kin who were the most proximate (lived within 15 minutes) to the older respondent were attributed a score of 6. Conversely close kin who were the least proximate (lived abroad) were allocated a score of 1.

The prevalence of highest proximity to sons or daughter was highest at 46.6 per cent, whilst 39.6 per cent of the sample lived within 15 minutes of their father and 38.5 per cent their mother. As the proximity score decreases, prevalence of that specific distance category decreases at a fairly similar rate for mothers, fathers, or sons and daughters until proximity categories of more than two hours where the percentages are 16.9, 13.4 and 11.8 respectively. We can deduce from this that between close family kin there is little variation in the distribution of distances to the network ego. The direction of social support is likely to be outward towards mothers and fathers and less oriented around the perception of received support. Closer proximity facilitates more frequent transfers of support thus greater volume overall. It will be interesting to see how the proximity of kin compares with that of close friends in **table 46**.

Table 41: Components of kinship network proximity measure (wave p)

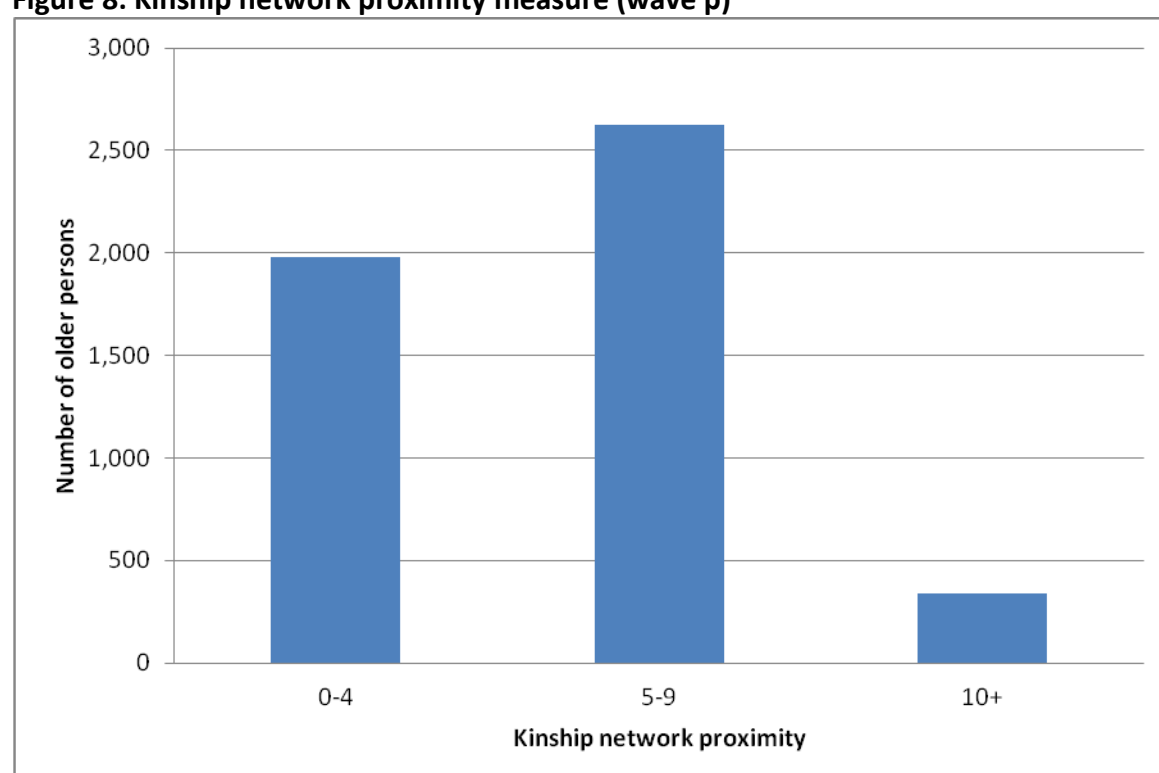
Proximity	Proximity of mother	Proximity of father	Proximity of son(s)/daughter(s)
Less than 15 minutes (+6)	255 (38.5%)	47 (39.6%)	1,870 (46.6%)
Between 15 and 30 minutes (+5)	132 (19.9%)	25 (21.0%)	832 (20.7%)
Between 30 minutes and one hour (+4)	91 (13.7%)	14 (11.8%)	419 (10.4%)
Between one and two hours (+3)	61 (9.2%)	11 (9.2%)	308 (7.7%)
More than two hours (+2)	112 (16.9%)	16 (13.4%)	475 (11.8%)
Lives abroad (volunteered) (+1)	12 (1.8%)	6 (5.0%)	112 (2.8%)
Sub-total	663 (100%)	119 (100%)	4,016 (100%)
Not alive (0)	4,277	4,809	906
Total	4,940	4,928	4,992

Source: author's own analysis of British Household Panel Survey data, 2006

Figure 8 below illustrates the distribution of composite kinship network proximity scores in wave p (2006). Evidently a greater portion of the sample have a proximity score of between

5 and 9 at 53.2 per cent than any other grouped scoring. This scoring represents a kinship network with a low to intermediate proximity of close kin to the network ego meaning that constituents live at least one hour away. A further 6.8 per cent have a proximity score of greater than or equal to 10 which equates to around on average a 1 hour 8min journey to close kin. The remainder of the sample either had close kin who lived very long distances from them or had an absence of such constituents. As discussed in **section 3.1**, family members are an integral part of one's social network in later life. A significant portion of the sample lack this fundamental source of social support.

Figure 8: Kinship network proximity measure (wave p)



Source: author's own analysis of British Household Panel Survey data, 2006

Kinship network functions

The last measurement of kinship networks gauges the types of functions which children perform for their parent. There is no BHPS data which reports on the forms of social support that older people receive from their parents. **Table 42** displays a range of tangible functions which children undertake for their parents including those which concern transportation,

domestic activities, monetary assistance and other forms of general support. A score of +1 is attributed to each task that children undertake for their parent.

The following tables illustrate the material elements of social support which respondents receive from their children. Unlike social network size, frequency and proximity measures which encapsulate the network ego's level of perceived social support, social network functions capture actual received transfers of support. **Section 3.5** describes the distinction between perceived and received in this context. These transfers of informal support can be invaluable to an older person. Other than spouses, offspring constitute a primary source of physical support in later life. The level of informal day and domiciliary care that progeny can provide may alleviate the need to request local council services for domiciliary care. To understand what the functional aspects of the social networks of older people are in answering the second research question we need to establish what the proportion of older respondents is who receive support from their offspring and following this determine the prevalence of various functions in these social networks in 2006.

The table below presents the received functions performed by the older respondent's children in 2006. The most common support receipt relatively speaking was receiving lifts from children in their car (occurred in 27.3 per cent of kinship networks). Almost 20 per cent of older respondents had their children go shopping for them. Other more common activities which children undertook were culinary support (13.7 per cent) and house and garden maintenance (13 per cent). In the case of each activity, prevalence was low with no type of support present in much more than a quarter of kinship networks.

Table 42: Components of kinship network function measure (wave p)

Function	From children: get lifts in their car	From children: shop for you	From children: provide or cook meals	From children: help with personal needs
No (0)	3,590 (72.7%)	3,956 (80.1%)	4,263 (86.3%)	4,887 (98.9%)
Yes (1)	1,351 (27.3%)	985 (19.9%)	678 (13.7%)	54 (1.1%)
Total	4,941 (100%)	4,941 (100%)	4,941 (100%)	4,941 (100%)

Function	From children: wash, iron or clean	From children: deal with personal affairs	From children: decorate, garden, repair	From children: financial help	From children: anything else
No (0)	4,706 (95.2%)	4,587 (92.8%)	4,297 (87.0%)	4,827 (97.7%)	4,875 (98.7%)
Yes (1)	235 (4.8%)	354 (7.2%)	644 (13.0%)	114 (2.3%)	66 (1.3%)
Total	4,941 (100%)	4,941 (100%)	4,941 (100%)	4,941 (100%)	4,941 (100%)

Source: author's own analysis of British Household Panel Survey data, 2006

As a result of this low prevalence of received functions from children, the proportion of social networks with no such function is high at 59.4 per cent meaning that only 40.6 per cent of network egos in the sample in 2006 received at least one task from their children. The most common number of functions received by the network ego from their children was one representing 15.5 per cent of the sample. The mean kinship network function score is 0.9 thus on average across the sample, older respondents were in receipt of one supportive task from their children.

Table 43: Composite kinship network function (wave p)

Kin network functions	N
0	2,938 (59.4%)
1	768 (15.5%)
2	554 (11.2%)
3	355 (7.2%)
4	182 (3.7%)
5	81 (1.6%)
6	39 (0.8%)
7	20 (0.4%)
8	3 (0.1%)
9	1 (0.1%)
Total	4,941 (100%)

Source: author's own analysis of British Household Panel Survey data, 2006

6.2. Companionship networks

The next section of this chapter provides detail about people's companionship networks in later life. The British Household Panel Survey has data on respondent's friends including how often they see them, how far away they live and for how long they have known them. In this section, the data illustrates the size of these networks, the frequency with which older people see their friends and how far away these friends live. The BHPS does not provide data on the function of which friends undertake for the network ego. Companions are an important source of social support for older people in later life. Social interaction is positively associated with better physical and mental health (Umberson and Montez, 2010). Social support is said to alleviate loneliness and social isolation (Wenger, 1996; Whittaker and Garbarino, 1983). Friends in later life are more likely to provide what is debatably equally important yet less tangible support in later life. Rather they take up the role of a confidant; friends are likely to be age peers and for this reason may command respect for their similar experiences. On the other hand, owing to their age they may be less likely to provide more physical support of that which offspring may otherwise be more able to offer. However, Nocon and Pearson (2000) found that 11 per cent of carers cared for non-relatives whilst Bagshaw and Unell (1997) believed the figure to be somewhere between 11 and 20 per cent.

Companionship network size

The table below shows the distribution of companionship network sizes in 2006.

The BHPS does not collect information on more than three friends thus disproportionately sheds light on older persons with smaller companionship networks. As is evident below, the majority of the sample have a network size which includes three companions with smaller proportions with two (9.3 per cent) and one (8.8 per cent) friend(s). As discussed previously, friends are an important source of multifaceted support in later life. A double weighting is applied to friends in order to capture their importance as a source of perceived social support. Referring back to the rationale for weighting cases by the relationship to the network ego, friends are given an intermediate weighting, higher than that of community members but lower than for kin. The interview for wave p does not offer the respondent the opportunity to say that they have no friends.

Table 44: Composite companionship network size (wave p)

Companionship network size (x2)	N
1	396 (8.8%)
2	420 (9.3%)
3	3,682 (81.9%)
Total	4,498 (100%)

Source: author's own analysis of British Household Panel Survey data, 2006

Companionship network frequency

The frequency of interaction within a companionship network is classified utilising the same conceptualisation as kin networks. As the variable captures face-to-face interaction, a weighting of times three is applied for each frequency. Respondents who had for example face-to-face interaction with a friend on most days had a score of 4 (frequency of interaction) multiplied by 3 (type of interaction) attributed to their composite frequency score. No weighting was discerned between the closeness of friends and the network ego.

The closeness of friends is positively associated with higher frequencies of interaction. The percentage of the sample who interacted with a friend ‘on most days’ is higher for the 1st closest friend at 33.1 per cent, lower at 22.4 per cent for 2nd closest friends and at 19.2 per cent for 3rd closest friends. It is more common for an older person to see their friend once a week but more frequently than once a month with almost a half of the sample demonstrating this frequency of face-to-face interaction regardless of the closeness of the companion. The mean frequency score for 1st friends is 9.2, 2nd friends 8.6 and 3rd friends 8.1. It is not possible to compare the interaction frequency of companionship networks with kinship networks as the response values are distributed differently with the most frequent at ‘most days’ for friends where it is ‘daily’ for family members.

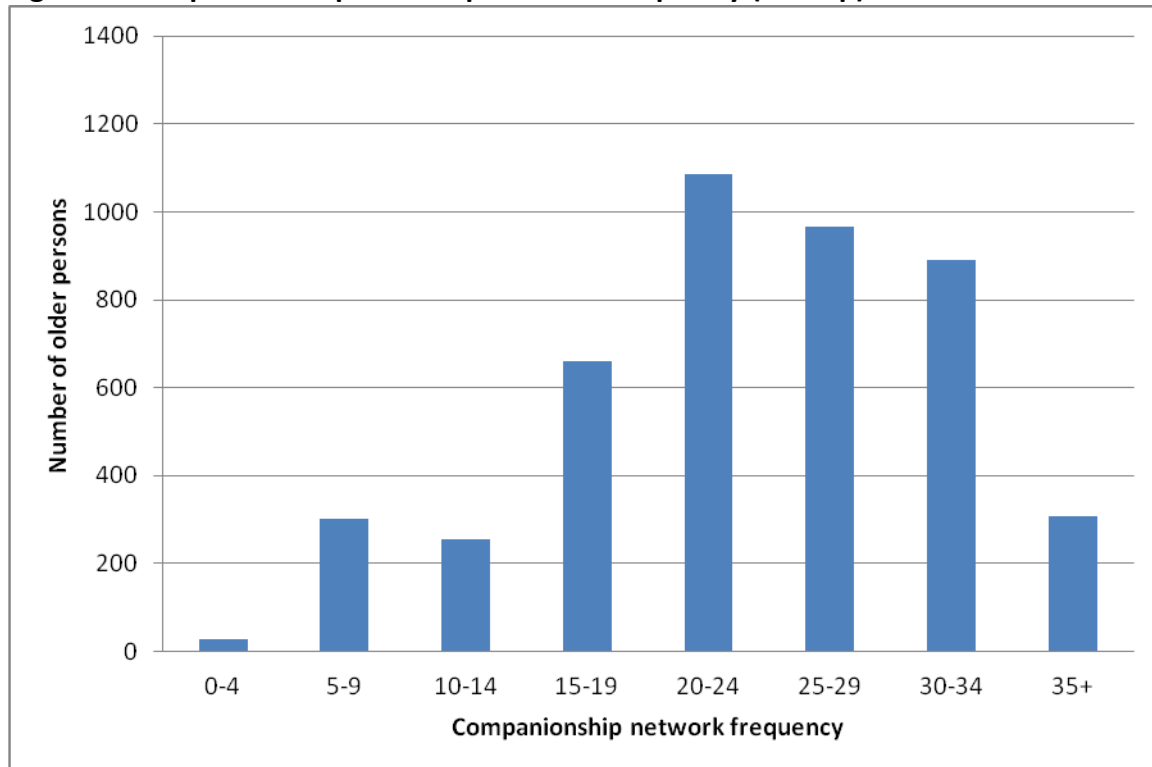
Table 45: Components of companionship network frequency measure (wave p)

Frequency of interaction (x3)	Frequency of seeing 1 st closest friend	Frequency of seeing 2 nd closest friend	Frequency of seeing 3 rd closest friend
Most days (4x3)	1,487 (33.1%)	919 (22.4%)	710 (19.2%)
Least once a week (3x3)	2,071 (46.1%)	1,986 (48.4%)	1,592 (43.2%)
Least once a month (2x3)	677 (15.1%)	897 (21.9%)	1,004 (27.2%)
Less often (1x3)	256 (5.7%)	298 (7.3%)	385 (10.4%)
Total	4,491 (100%)	4,100 (100%)	3,691 (100%)

Source: British Household Panel Survey data, 2006

The figure below presents composite companionship network frequency in wave p. The mean frequency score is 23.7. The minimum and maximum across the distribution of networks is 3 and 36 respectively. One can see from the figure below that the distribution is positively skewed meaning that there are a larger number of social network scores above the mean than below it. A small portion of the sample possess a companionship network with no or a very low level of interaction (≤ 19) frequency at around 13 per cent. However, the BHPS data has demonstrated that older people are on the whole more likely to have larger and more frequently functioning companionship networks than kinship networks. The next section investigates the proximity of friends to the network ego amongst the social networks of older people in 2006.

Figure 9: Composite companionship network frequency (wave p)



Source: author's own analysis of British Household Panel Survey data, 2006

Companionship network proximity

In this section we examine the geographical proximity of friends in the social networks of older people in wave p of the British Household Panel Survey. Unlike in the presentation of the proximity of kin earlier in the chapter, the concept for companions is measured slightly differently in the BHPS. Arguably a slightly less useful measure of proximity, the distance to the network ego is measured in miles as opposed to time taken (**table 41**). Five miles distance to a friend in a rural area where transport links are poor may take longer than the same distance in an urban area where geographical mobility is better facilitated. This means that the comparability of companionship proximity between social networks across the sample is unfortunately lower; the time taken to reach a network constituent is a more meaningful and transferable statistic.

The table below illustrates the prevalence of the social networks of older people with varying proximities of companions. Scores between 1 and 6 were attributed to older respondent's social networks depending on the closeness of the friend with companions who lived less than one mile away adding a proximity score of 6 to overall supportive capacity scores whilst friends who lived abroad were given a score of 1. Noteworthy proportions of the sample resided less than a mile away from a 1st, 2nd or 3rd friend at 30.5 per cent, 29.2 per cent and 28.5 per cent respectively. Emotionally closer friends were also likely to live nearer to the network ego as is evident from the table below. The mean proximity score exemplifies this; 4.76 for 1st friends, 4.74 for 2nd friends and 4.7 for 3rd friends. None of the sample had a 1st, 2nd or 3rd friend who lived more than 100 miles away or abroad.

Table 46: Components of companionship network proximity measure (wave p)

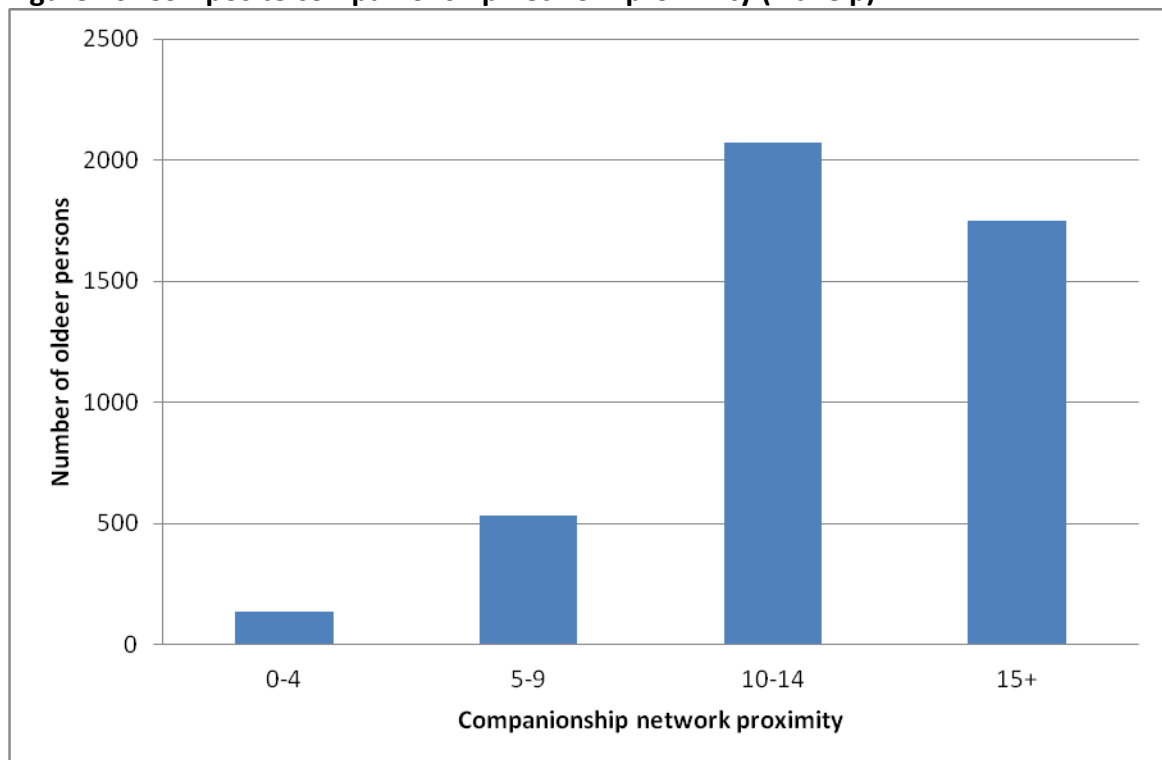
Proximity	Proximity of 1 st friend	Proximity of 2 nd friend	Proximity of 3 rd friend
Less than 1 mile (+6)	1,365 (30.5%)	1,202 (29.2%)	1,037 (28.0%)
Between 1 and 5 miles (+5)	1,306 (29.1%)	1,237 (30.1%)	1,091 (29.6%)
Between 5 and 50 miles (+4)	1,209 (27.0%)	1,085 (26.4%)	1,004 (27.1%)
Over 50 miles (+3)	602 (13.4%)	592 (14.4%)	566 (15.3%)
Total	4,482 (100%)	4,116 (100%)	3,698 (100%)

Source: author's own analysis of British Household Panel Survey data, 2006

In the figure below we see the distribution of companionship network proximity scores, in turn helping to determine the social networks of older people. The mean proximity score for the sample is 13. The minimum proximity score across the sample is 3 and the maximum 18. There are few social networks with a score of between 0 and 4 (3 per cent of the sample). A large proportion of the sample (46.1 per cent) had a companionship network proximity score of between 10 and 14 with a further 39 per cent demonstrating a score of 15 or greater. A significant proportion exemplifies companionship networks of a dense structure with friends living on average a short distance away from the network ego. This

geographical closeness is more likely to enable higher frequency of interaction and thus facilitate more regular transfers of informal support as evident in **table 45**. Greater levels of interaction frequency and proximity of network constituents enables the ego to more rapidly operationalise support throughout the network if and when required.

Figure 10: Composite companionship network proximity (wave p)



Source: author's own analysis of British Household Panel Survey data, 2006

6.3. Community networks

The third type of social network examined in this chapter are community networks. These social networks include neighbours and people in the community. At this point it must be acknowledged that there may be some overlap between the constituents in community networks and those in kinship and companionship networks as the questionnaire asks how often you see 'people' and this may include relatives and friends. This is unfortunate as the questionnaire also prompts the respondent to state their frequency of interaction with relatives and friends separately. As a result there is no single measure of interaction with members of the community such as local shopkeepers, service providers and other key persons such as doctors, dentists, hairdressers and so forth. The community network

measures also considers whether the respondent attends evening classes, local groups and if they do voluntary work.

If we refer back to the principal forms of social support (Willis, 1991); informational, emotional, financial and tangible, one would postulate that from the types of interaction which the community measure captures that the first two forms of support are most relevant. However, it is important to acknowledge that neighbours are also a vital source of non-technical support and may help the network ego go shopping or perhaps assist them in maintaining their garden. Attendance at evening classes, local groups and participation in voluntary work offers older people the opportunity to interact with other people in turn providing a vital source of espousal in the form of emotional or informational support which may sequentially, positively affect well-being.

This section details the size of community networks amongst the sample and the frequency of interaction within them. The British Household Panel Survey does not contain information on the proximity of members of the community to the network ego. Nor does the survey contain data on functions that community members may conduct for the network ego. The former however is a far less telling statistic; neighbours will inherently be located closer to the network ego although the proximity of other community members or local activities may be related to the frequency of interaction.

As far as is evident from the literature, no studies have attempted to investigate the frequency of interaction within community networks of a set of community contacts such as demonstrated in **table 48**. Litwin (2001) did examine the frequency of interaction with neighbours in 'neighbour' networks and he also explored the concept of 'diverse' networks. We will refer to these findings when examining the frequency of interaction within the community networks conceptualised here. Fiori et al also identified diverse networks. Both pieces of research did not consider the size of these networks. As far as can be seen from the literature no study has endeavoured to investigate how community networks are affected by residential moves; one would hypothesise (depending on the characteristics of

the move) that the effects on network characteristics would be greater felt than in kinship or companionship networks.

Community network size

In order to be included in the quantification of social network size, the network ego must to some degree interact with the constituent of the community member. If for example the network ego does not interact with their neighbour on any level then they are not included in the analysis. The network ego must interact with their neighbour a minimum of 'less often than once a month' in order to be included. BHPS data does not collect information on the number of neighbours who the network ego has contact with.

In wave p the majority of the sample had within their community network, at least a neighbour (98.5 per cent) and another person in the community who they made contact with at a minimum frequency of less than once a month (99.7 per cent). Attendance at evening classes, local groups or voluntary participation is less prevalent amongst the social networks in the sample. Just over a third (30.2 per cent) of older respondents stated that they attended local groups or voluntary organisation meetings at a minimum frequency of once a year or less; if this criteria is attained, a score of +1 is attributed to the respondent's community network size measure. An even lower proportion of the sample attended evening classes (20 per cent) or partook in unpaid voluntary work (20.6 per cent).

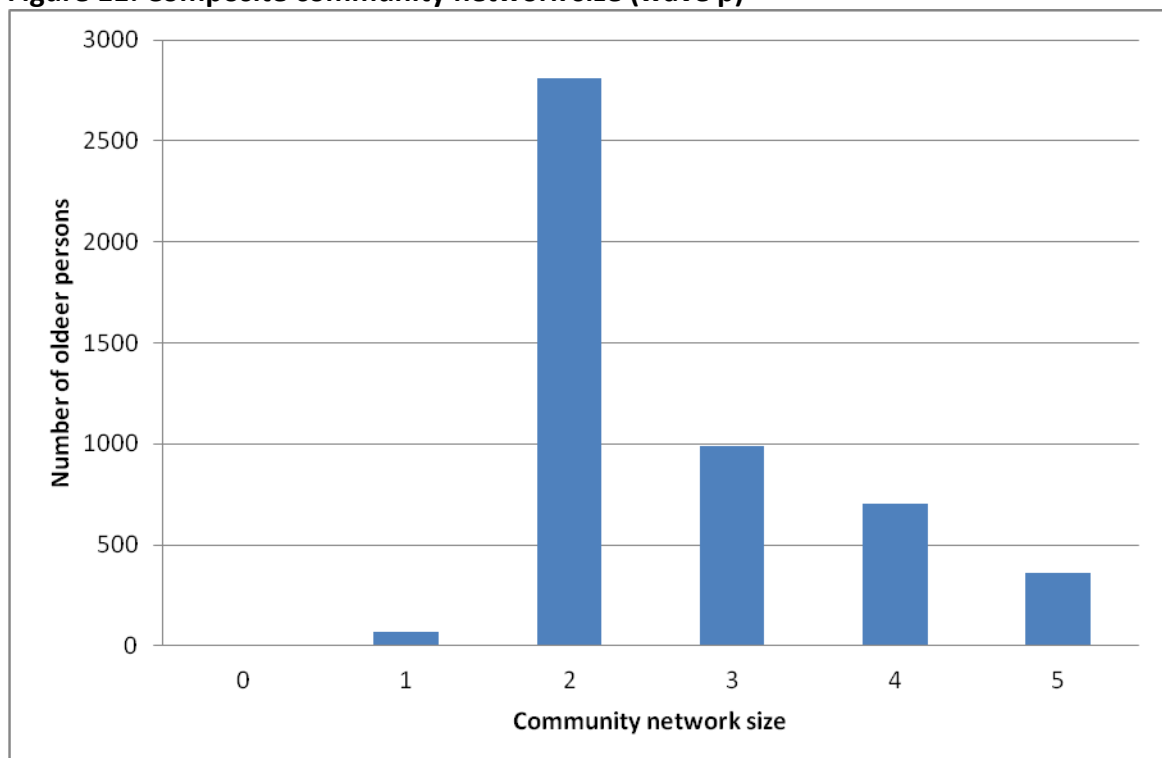
Table 47: Components of community network size measure (wave p)

Response (contribution to network size)	Contacted neighbour	Interaction with people in the community	Attend evening classes (keep fit, yoga etc)	Attend local groups/voluntary organisations	Do unpaid voluntary work
No (0)	75 (1.5%)	13 (0.3%)	3,951 (80.0%)	3,451 (69.8%)	3,921 (79.4%)
Yes (1)	4,866 (98.5%)	4,928 (99.7%)	990 (20.0%)	1,490 (30.2%)	1,020 (20.6%)
Total	4,941 (100%)	4,941 (100%)	4,941 (100%)	4,941 (100%)	4,941 (100%)

Source: author's own analysis of British Household Panel Survey data, 2006

Below the distribution of composite community network sizes in wave p is presented. Only one respondent had a community network size of 0. A small proportion of the sample at 1.4 per cent had a community network size of 1. Around 56.9 per cent of the sample had a community network size of 2 and over a fifth (20.1 per cent) a size of 3 and not surprisingly the mean score sits between these at 2.7. Over a fifth of the sample had a community network size of 4 or more.

Figure 11: Composite community network size (wave p)



Source: author's own analysis of British Household Panel Survey data, 2006

Community network frequency

The data below presents the frequency with which older respondents interact with members of their community. All forms of interaction detailed below are face-to-face. One would hypothesise that the incidence of interaction between a neighbour and the network ego is positively correlated to the supportive capacity of the social tie assuming that the relationship is a supportive one. Acknowledging the potential for a slight diminishment in the level of perceived support through the social tie at higher frequencies, overall we would

expect the occurrence of interactions over a specified time period to be positively related to the supportive capacity of the relationship.

In the table below the frequency distributions of interaction levels with community members in wave p is evident. The distribution interaction frequency percentages are of those who interacted (excluding never) with the network constituent. A score of 5 is assigned to the most frequent interaction (on most days) and 2 to the lowest (several times a year). The scores are weighted by a factor of 3 to give credence to the form of social interaction which in this case is face-to-face. Levels of interaction with neighbours and other people in the community is higher than the frequency of participation at evening classes, local groups or in voluntary work. Over half the sample talked to a neighbour on most days with 42.1 per cent of the sample meeting other people in the community on most days. The mean frequency score at wave p with neighbour interaction is 9.8. The frequency distribution for face-to-face interaction with other people in the community is similar. More of the sample met people at least once a week (42.8 per cent) than they did neighbours with a slightly smaller portion meeting people on most days (42.1 per cent). The mean frequency score is slightly lower at 9.7. Almost two thirds of the sample at 66.2 per cent attended evening classes 'at least once a week'. Despite this however, the mean frequency score at 2.02 is low as 80 per cent of the sample never attended evening classes. Partaking in unpaid voluntary work represents the least frequent forms of community interaction across the sample with the mean score at 1.8.

Table 48: Components of community network frequency measure (wave p)

Frequency of interaction (x3)	Frequency of talking to neighbours	Frequency of meeting people
On most days (5x3)	2,457 (50.5%)	2,073 (42.1%)
At least once a week (4x3)	1,724 (35.4%)	2,112 (42.8%)
At least once a month (3x3)	470 (9.7%)	580 (11.8%)
Several times a year (2x3)	215 (4.4%)	163 (3.3%)
Never (0x3)	75 (1.5%)	13 (0.3%)
Total	4,941 (100%)	4,941 (100%)

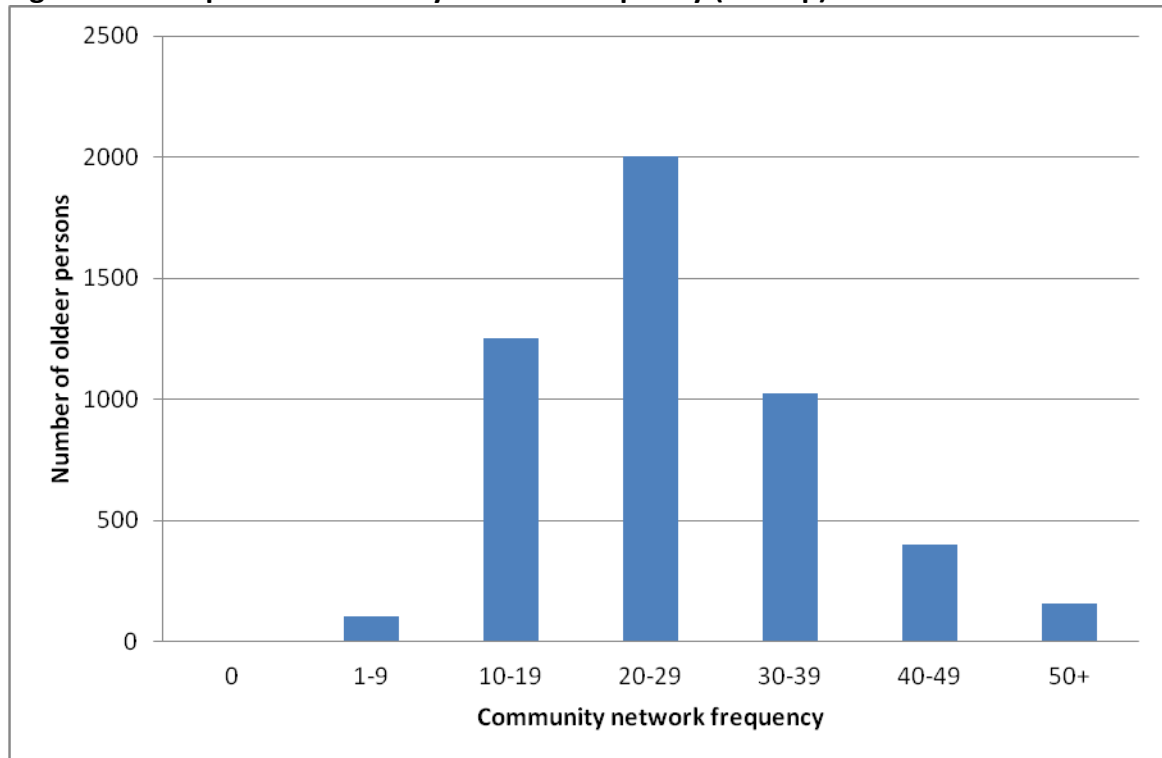
Frequency of interaction (x3)	Frequency of attendance at evening classes (keep fit, yoga etc)	Frequency of attendance at local groups/voluntary organisations	Frequency of undertaking unpaid voluntary work
At least once a week (4x3)	655 (66.2%)	445 (29.9%)	441 (43.3%)
At least once a month (3x3)	148 (14.9%)	554 (37.1%)	241 (23.6%)
Several times a year (2x3)	80 (8.1%)	317 (21.3%)	206 (20.2%)
Once a year or less (1x3)	107 (10.8%)	174 (11.7%)	132 (12.9%)
Never (0x3)	3,951 (80.0%)	3,451 (69.8%)	3,921 (79.4%)
Total	4,941 (100%)	4,941 (100%)	4,941 (100%)

Source: British Household Panel Survey data, 2006

The spread of community network frequency scores in wave p is fairly normally distributed with a slight positive skew. Only 0.02 per cent of the sample had a community network with no interaction between members and the network ego; this correlates with the portion of the sample who had no community network in **figure 11**. Around 2.1 per cent of the sample had a score of between 1 and 9. A low score of between 0 and 9 indicates that the community network is probably low in both size and frequency. One would hope that for those older respondents who demonstrate a small community network with low levels of

social interaction that their kinship and companionship networks yield a greater supportive capacity. Noticeably over 11 per cent of the sample exhibit a score of 40 or greater. The mean community network frequency score for the sample in wave p is 25.9.

Figure 12: Composite community network frequency (wave p)



Source: author's own analysis of British Household Panel Survey data, 2006

6.4. Social networks of older people

To conclusively answer the research question posed in this chapter, it is necessary to bring together the three types of social network. The constituents in kinship, companionship and community networks are independent of each other in the sense that they entail different types of social interaction. As indicated earlier, it was important to segregate these to better understand the nuances between them and this becomes particularly important in **chapter 7** where different types of network are interacted with residential moves. A holistic approach is now needed to appreciate the social networks of older people in later life. The tables below present standardised social networks scores with descriptions of how the attributes of each network fit in the relative distribution of the sample scores.

Table 49: Social network size typology

Social network size score	Description
0	“Very small social network” – respondents who have between zero and seven sources of social interaction from close kin, friends and members of the community
1	“Small social network” – respondents who have between eight and 15 sources of social interaction from close kin, friends and members of the community
2	“Medium social network” - respondents who have between 16 and 23 sources of social interaction from close kin, friends and members of the community
3	“Large social network” - respondents who have 24 or more sources of social interaction from close kin, friends and members of the community

*Source: author (2012)***Table 50: Social network frequency typology**

Social network frequency score	Description
0	“Very low interaction network” – respondents who have a frequency score between zero and 29 from close kin, friends and members of the community
1	“Low interaction network” – respondents who have a frequency score between 30 and 59 from close kin, friends and members of the community
2	“Medium interaction network” - respondents who have a frequency score between 60 and 89 from close kin, friends and members of the community
3	“High interaction network” - respondents who have a frequency score of 90 or more from close kin, friends and members of the community

Source: author (2012)

Table 51: Social network proximity typology

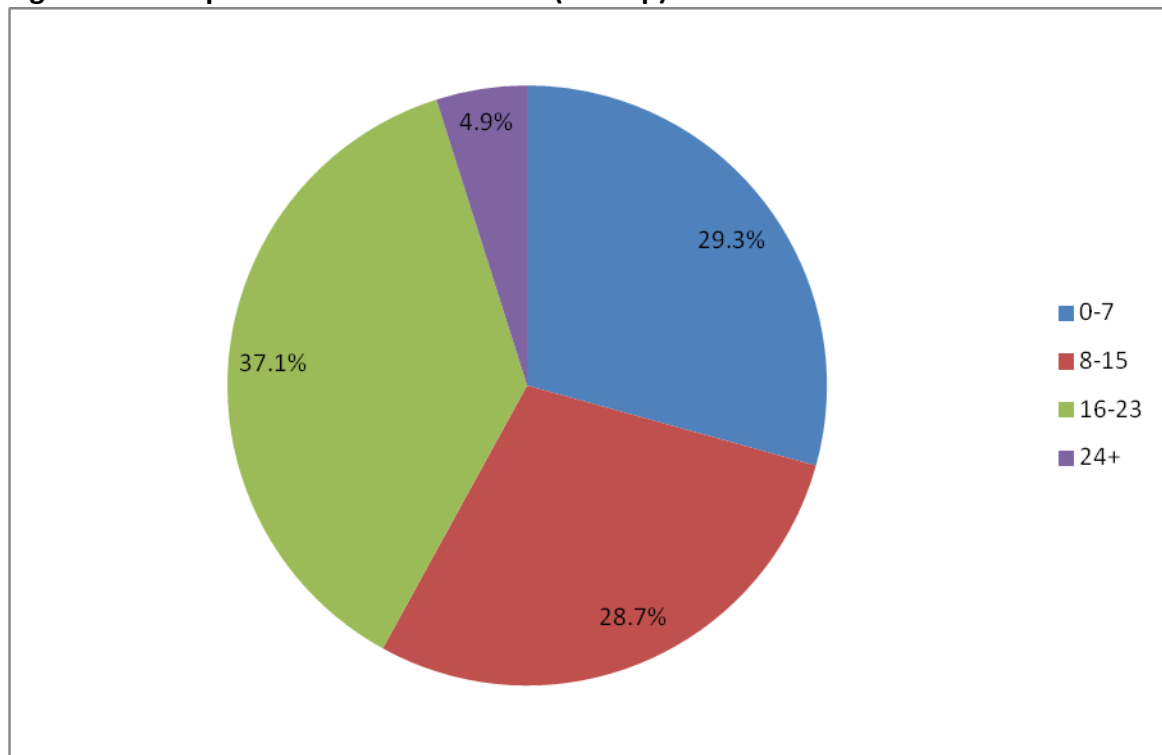
Social network proximity score	Description
0	“Very low closeness network” – respondents who have a frequency score between zero and eight from close kin, friends and members of the community
1	“Low closeness network” – respondents who have a proximity score between nine and 17 from close kin, friends and members of the community
2	“Medium closeness network” - respondents who have a proximity score between 18 and 26 from close kin, friends and members of the community
3	“High closeness network” - respondents who have a proximity score of 27 or more from close kin, friends and members of the community

Source: author (2012)

Social network size

The typology presented above display the range of scores from the addition of kinship, companionship and community networks taking into account their size, frequency and proximity attributes. In order to create a measure of the supportive capacity of a social network in later life, it is necessary to standardise the scores so that ‘very low’, ‘low’, ‘medium’ and ‘high’ scoring attributes for size, frequency and proximity characteristics can be easily merged. The charts below illustrate the distribution of social network characteristics across the sample.

Figure 13: Composite social network size (wave p)



Source: author's own analysis of British Household Panel Survey data, 2006

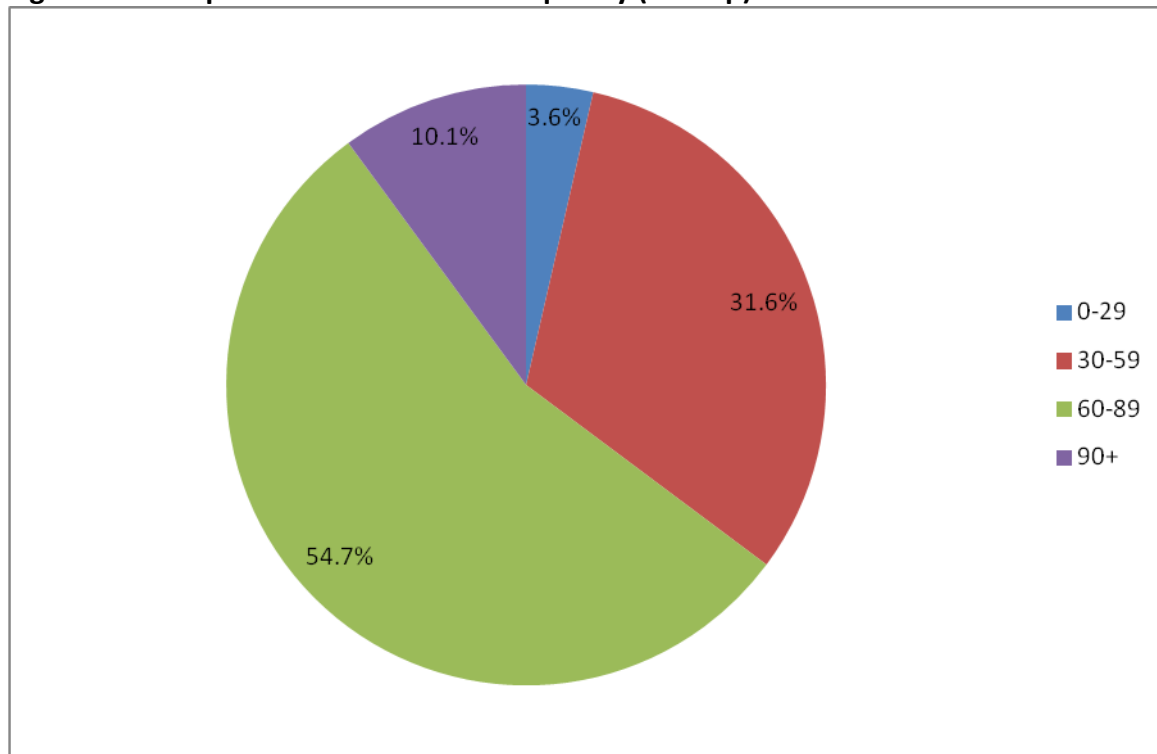
The chart above depicts the spread of social network sizes in the sample. Almost 30 per cent of the sample had a 'very small social network'. A slightly smaller portion had a 'small social network' at 28.7 per cent of the sample. With well over a third of the sample possessing a medium sized social network (37.1 per cent) and a further 4.9 per cent a 'large social network', it could be said that the majority of social networks of older people in the UK in 2006 were healthily sized. The mean size score for a social network in wave p is 12. The main concern must lie with the fact that a very noticeable proportion of the sample had no social network or at least a network that was very small in size. Unlike across the different types of network where an absence of constituents may be compensated in a different network, these measures encapsulate all possible types of contacts one may have in later life. Thus, the absence or very low number of network constituents could be very problematic for an older person and their physiological and mental health along with their overall well-being. Older persons with small or nonexistent social networks are also likely to experience a lower cumulative frequency of interaction and proximity of constituents.

Section 6.5 investigates the characteristics of network ego relative to their social networks; this will give an indication of whether an older person is more or less likely to be dependent

on an informal social network for support and hence if their social circle(s) are sufficiently supportive.

Social network frequency

Figure 14: Composite social network frequency (wave p)

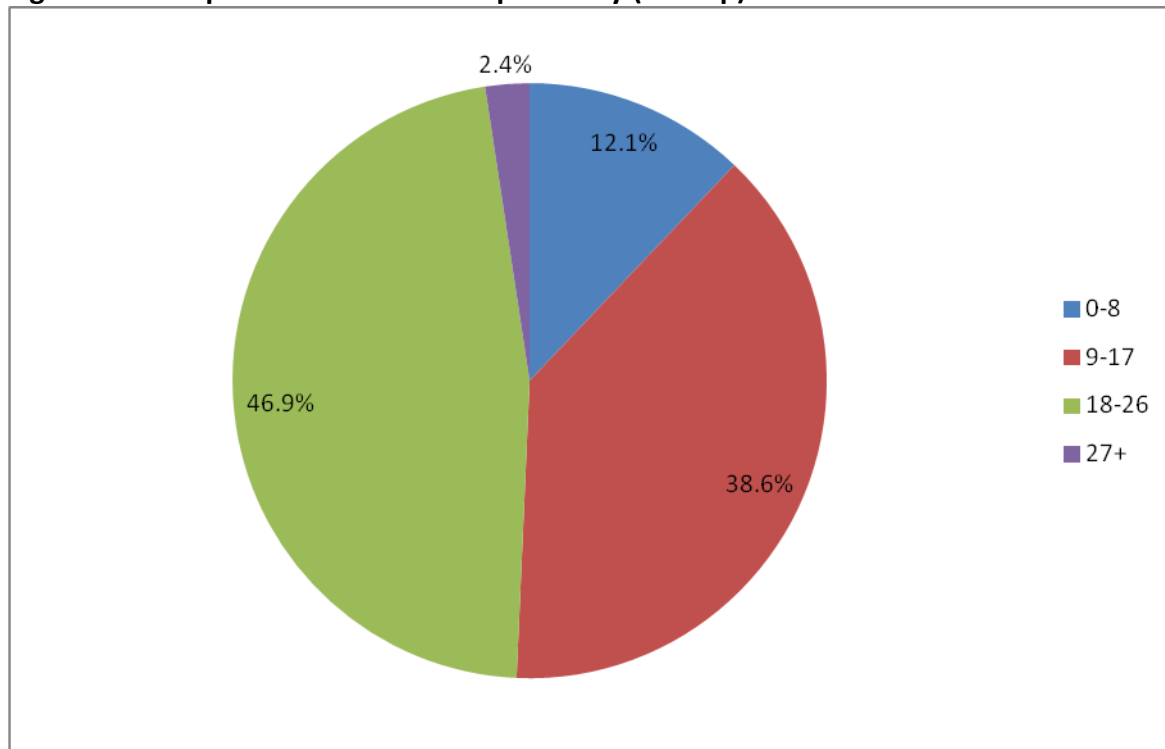


Source: author's own analysis of British Household Panel Survey data, 2006

In comparison to the distribution of social network size scores in **figure 13**, a much smaller portion of the sample possess networks with a very low frequency of interaction at 3.6 per cent. From this one can deduce that although for a greater number of older respondents they either had social networks which were very small or did not possess one altogether this does not equate in **figure 15** where the vast majority of 'very small' social networks evidently exemplified no less than 'low' levels of interaction. In other words, it seems that in a number of cases the size of the network did not inhibit the frequency of interaction within social networks to the degree expected. Almost a third of the sample had a social network frequency score of between 30 and 59. The greatest share of the sample (54.7 per cent) had a 'medium interaction network'. A further 10.1 per cent of the sample had a social network frequency score of equal to or greater than 90. The mean frequency score for a social network in wave p is 66.7.

Social network proximity

Figure 15: Composite social network proximity (wave p)



Source: author's own analysis of British Household Panel Survey data, 2006

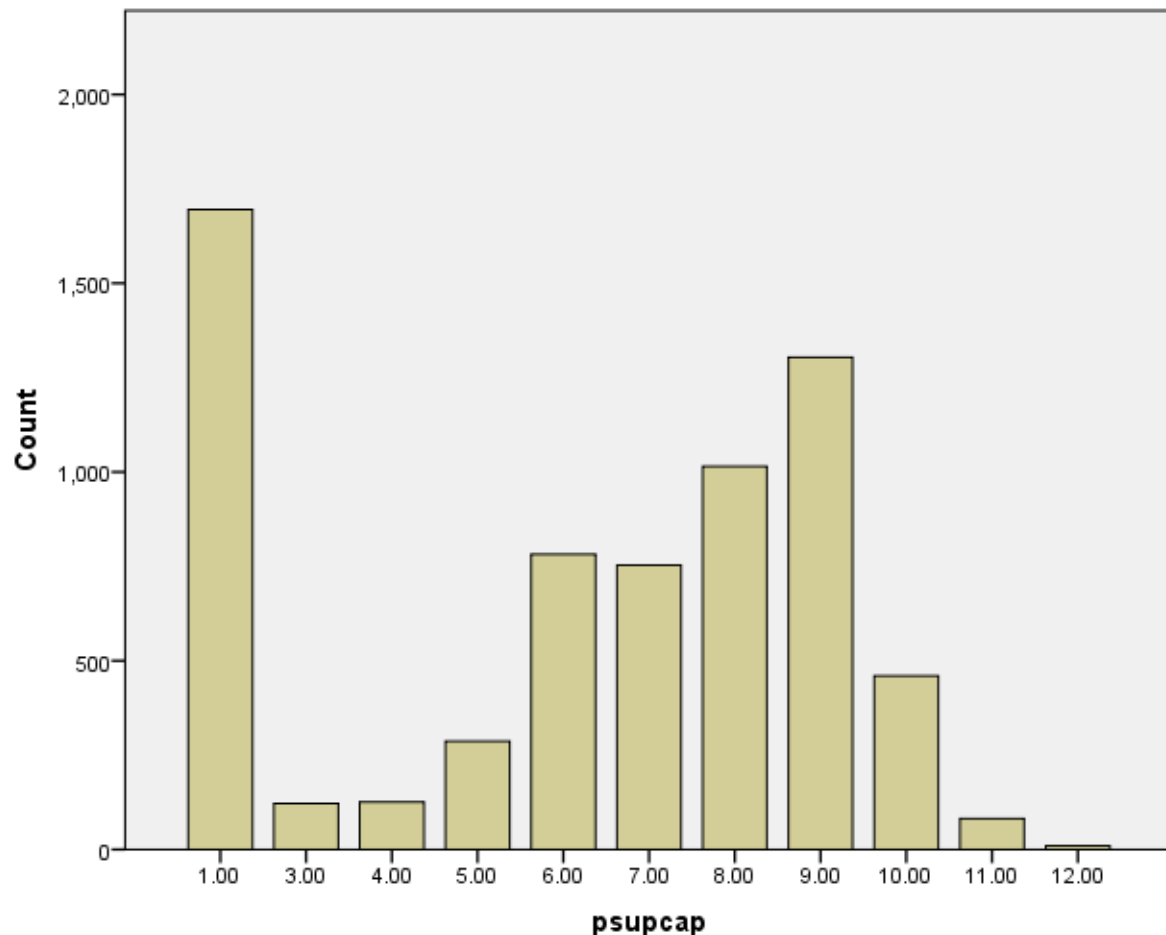
Figure 15 presents the distribution of social network proximity scores in wave p. A larger proportion of the sample (12.1 per cent) presented the lowest score category than is apparent in **figure** . The vast majority of the sample at 85.5 per cent had a social network with 'low' or 'medium' closeness. As expected, the distribution of scores between social network frequency and proximity are similar. The strong correlation between social network frequency and proximity is substantiated in **chapter 7**. The mean social network proximity score in wave p is 16.4.

6.5. Perceived supportive capacity of social networks in later life

The sizes of social networks along with the interaction frequency and proximity of its constituents are now standardised with the attributes quantified on a scale of between 0 and 3 with the lowest score representing a network with lower levels of perceived support and the highest score equating to higher levels of perceived support being available to the network ego. The perceived supportive capacity of a social network is calculated by

combining the standardised size, frequency and proximity scores. A higher value denotes a greater perceived supportive capacity for a specific social network. Berkman (2010) utilised a similar scoring system for residents in the Health and Retirement Study (HRS).

Figure 16: Supportive capacity of social networks (wave p)



Source: *author's own analysis of British Household Panel Survey data, 2006*

The figure above illustrates the distribution of the supportive capacities of social networks in the sample. A large percentage of the sample in wave p demonstrate a 'very low' supportive capacity (27.3 per cent) of between 1 and 3. Over a quarter of the sample had a supportive capacity score of 1. A low score indicates little social interaction within the network; referring back to the literature review it has been found that a lack of social interaction has a similar level of effect on one's health as smoking (Cassel, 1976; Cobb, 1976). It is a concern that such a large portion of the respondents in the sample have social networks with particularly low supportive capacities. This is a notable finding meaning that for a large

portion of older people, their social networks have a very low capacity to provide social support to them. Older people without a network for support are more likely to be in poorer health or disabled and worse off financially and as a result of this social isolation, vulnerable, lonely and cut off from access to public services and formal care paths. For individuals who are better connected and have low to moderate care needs, a lack of informal support from family and close friends might increase dependence on local authority social care. Or worse still, force people to sell and/or move out of their homes into nursing or residential care as they either cannot afford the costs of domiciliary care, the eligibility criteria of local council social services is not sufficient or their care needs are too great to remain in their own home. Oddly, there is not a single case of a social network with a supportive capacity value of 2 in wave p. Approximately 18 per cent of the sample in wave p have a 'low' supportive capacity score of between 4 and 6, 46.3 per cent of the sample had a score of between 7 and 9 and a further 8.3 per cent a supportive network score of between 10 and 12. The mean supportive network score for wave p is 5.94 with a standard deviation of 3.26. Thus we can conclude that on average an older person's social network in the UK in 2006 had a low supportive capacity.

Characteristics of network egos by social network supportive capacity

The chapter has outlined how components which are pertinent to social support are amalgamated to construct measures of network supportive capacity using the BHPS wave p sample. Owing to the array of social contacts accrued over the life course, it was necessary to disaggregate complete social networks into clusters, types of networks defined by the people in them. Analytically it was considered more efficient to divide up social networks in this way. Conceptually, the social ties between older people and their family, friends and community are different as are the types of support one can expect to receive from these subgroups. Supportive capacity translates differently depending on the type of social network, a kinship network might for example be considered as highly supportive provided there is a moderate frequency of interaction between the network ego and their child(ren) yet a community network would need interaction with neighbours and a high level of community involvement in order to satisfy the same criteria. The weighting of different

types of interaction across a range of network constituents and consequently relative contributions to network supportive capacity accentuates the need to breakdown the social system into separate collectives.

In the final section of this chapter, these collectives are brought together and the socio-demographic characteristics of sample members are presented by the supportive capacity of the whole social network for wave p. From this it can be gauged whether those with lower supportive capacity in their networks are for instance also in poor health and deprived financial circumstance. It cannot be ascertained as to whether these characteristics are determinants or outcomes to the particular level of supportive capacity in social network or both. What this section does allude to is who in the UK is more or less likely to possess a social network of a certain supportive capacity in answering the second research question; *'what are the social networks of older people in the UK?'*

The following five tables present row percentages in **black** and column percentages in **red**. The row percentages illustrate the likelihood that a person of a certain socio-demographic (such as being married) will display a social network of a certain supportive capacity. This is important as it emphasises the associations between the characteristics and the likelihood of demonstrating a certain level of social network supportive capacity. Whilst the column percentages demonstrate the socio-demographic composition of different social network supportive capacities and this is essential in knowing who to target in terms of policy and resource allocation and what their additional circumstances may be. These percentages are of course affected by the number of people who display each characteristic so the predictive properties of these statistics are reduced (hence the need to display row percentages as described). Nevertheless, for example if it is the case that there are more widowed persons with a lower social network supportive capacity compared to other marital statuses partly because there are more widowed people, this still means more of those with this level of supportive capacity are likely to be widowed. In sum, these column percentages allude to who has what in terms of social network supportive capacity in turn answering research question two and are considered in more detail in **chapter 8**.

Table 52 presents social network supportive capacity by age. Those in the youngest and oldest old age groups are more likely to exemplify social networks with a lower supportive capacity. Of those aged 75+ 8.4 per cent and 31.7 per cent exhibit very low and low supportive capacity respectively compared with 6.3 per cent and 20.6 per cent of those aged 50 to 64. High supportive capacity networks were more prevalent proportionally amongst younger old age groups with 13.4 per cent of 50 to 64 year olds displaying a network such as this yet only 5.2 per cent of those aged 75+ did so. Age is an effective proxy for health and financial circumstance. As discussed in **section 3.2** a lack of social support can lead to poorer health outcomes. Assuming that respondents who are older are also more likely to be in poorer health, the ability to maintain one's social network may be restricted. At much older ages, the demand for tangible support that is best provided by kin might be at its greatest, exerting huge pressures on low supportive capacity networks. Many people at older-old ages may not have an informal network or at least one of sufficient size and may also reside in a local authority which does not provide for their needs rendering them without satisfactory care to maintain functional independence in the home, as stated earlier, in many cases forcing a move into residential or nursing care.

Table 52: Social network supportive capacity by age group

Age group	Social network supportive capacity				Total
	Very low supportive capacity	Low supportive capacity	Medium supportive capacity	High supportive capacity	
50-64***	150 (6.3%) (40.1%)	488 (20.6%) (40.8%)	1,413 (59.7%) (46.0%)	316 (13.4%) (57.2%)	2,367 (100%) (45.6%)
65-74***	113 (7.5%) (30.2%)	288 (19.1%) (24.1%)	937 (62.3%) (30.5%)	167 (11.1%) (30.3%)	1,505 (100%) (29.0%)
75+***	111 (8.4%) (29.7%)	419 (31.7%) (35.1%)	722 (54.7%) (23.5%)	69 (5.2%) (12.5%)	1,321 (100%) (25.4%)
Total	374 (7.2%) (100%)	1,195 (23.0%) (100%)	3,072 (59.2%) (100%)	552 (10.6%) (100%)	5,193 (100%) (100%)

Note: row percentages in **black**, column percentages in **red**

Note: ***significant at (p<0.001), **significant at (p<0.01), *significant at (p<0.05).

Source: author's own analysis of British Household Panel Survey data, 2006

According to **table 53** men are more likely to possess social networks with lower supportive capacity than women. This is quite marked with 31.6 per cent of men experiencing very low or low supportive capacities in their social networks. In contrast, under a quarter of the sample of women (24.5 per cent) exhibit very low and low supportive capacity. This is surprising considering that the sample of females in the BHPS is disproportionately older than the male sample as, seen in **table 52**, older ages are associated with lower social network supportive capacity. However, as is hypothesised in **chapter 7**, men are likely to invest less time and effort in sustaining their social networks in later life and as evidenced in the table below, this counteracts the fact that the male sample are disproportionately younger than the female sample.

Table 53: Social network supportive capacity by sex

Sex	Social network supportive capacity				Total
	Very low supportive capacity	Low supportive capacity	Medium supportive capacity	High supportive capacity	
Males***	117 (5.2%) (60.6%)	589 (26.4%) (49.3%)	1,338 (60.0%) (43.6%)	188 (8.4%) (34.1%)	2,232 (100%) (44.5%)
Females***	76 (2.7%) (39.4%)	606 (21.8%) (50.7%)	1,734 (62.4%) (56.4%)	364 (13.1%) (65.9%)	2,780 (100%) (55.5%)
Total	193 (3.9%) (100%)	1,195 (23.8%) (100%)	3,072 (61.3%) (100%)	552 (11.0%) (100%)	5,012 (100%) (100%)

Note: row percentages in **black**, column percentages in **red**

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

Source: author's own analysis of British Household Panel Survey data, 2006

As in the table above, **table 54** presents socio-demographics that will later in **chapter 7** be explored as possible coping resources in mediating change in social network attributes following a move. Illustrated below, with the exception of respondents who were separated, married individuals and those living as a couple were less likely to display social network attributes which contribute to very low or low supportive capacity. Conversely, those who were widowed, divorced or never married displayed much lower supportive capacity. This is partly to be expected as marital status is a component of the kinship network supportive capacity measure. Nevertheless, the aggregated social network measure does comprise

numerous facets and aside the question of whether marital status can act as a determinant to differing levels of social network supportive capacity or if it constitutes an outcome, there are policy implications to the fact that older people living are more vulnerable to receiving lower levels of informal support.

Table 54: Social network supportive capacity by marital status

Marital status	Social network supportive capacity				Total
	Very low supportive capacity	Low supportive capacity	Medium supportive capacity	High supportive capacity	
Married***	200 (6.1%) (53.7%)	629 (19.1%) (52.6%)	2,077 (62.9%) (72.1%)	392 (11.9%) (71.0%)	3,298 (100%) (63.5%)
Living as a couple***	7 (5.0%) (1.9%)	25 (17.9%) (2.1%)	97 (69.2%) (3.4%)	11 (7.9%) (2.0%)	140 (100%) (2.7%)
Widowed***	84 (8.2%) (22.5%)	263 (25.8%) (22.0%)	581 (56.9%) (20.2%)	93 (9.1%) (16.8%)	1,021 (100%) (19.7%)
Divorced***	24 (6.3%) (6.4%)	94 (24.8%) (7.9%)	21 (60.0%) (0.7%)	49 (12.9%) (8.9%)	379 (100%) (7.3%)
Separated***	2 (3.9%) (0.5%)	15 (29.4%) (1.3%)	27 (53.0%) (0.9%)	7 (13.7%) (1.3%)	51 (100%) (1.0%)
Never married***	56 (18.6%) (15.0%)	168 (55.8%) (14.1%)	77 (25.6%) (2.7%)	0 (0.0%) (0.0%)	301 (100%) (5.8%)
Total	373 (7.2%) (100%)	1,194 (23.0%) (100%)	2,880 (59.2%) (100%)	552 (10.6%) (100%)	5,190 (100%) (100%)

Note: row percentages in **black**, column percentages in **red**

Note: ***significant at (p<0.001), **significant at (p<0.01), *significant at (p<0.05).

Source: author's own analysis of British Household Panel Survey data, 2006

Although not a surprising set of findings, the table underneath which conveys self-perceived health status by social network supportive capacity generates some concerning revelations. If we are to assume that health and functional independence are correlated, the statistics below suggest that those who are in greater need of support (older persons with lower self-perceived health) are also more likely to possess social networks with lower supportive

capacity. Sample members who stated their health was excellent were more likely to exhibit high network supportive capacity (12.1 per cent) and less likely to experience very low network supportive capacity (5.2 per cent) than respondents with very poor self-perceived health; 6.5 per cent and 15.8 per cent respectively. This finding has substantial connotations; individuals with greater need for social support are much less likely to receive this from friends, family and the wider community which will result in more demand on the state to provide this support. In many cases those with what may constitute low and moderate needs are not able to receive the care they need from their local authority.

Table 55: Social network supportive capacity by self-perceived health status

Health	Social network supportive capacity				Total
	Very low supportive capacity	Low supportive capacity	Medium supportive capacity	High supportive capacity	
Excellent***	47 (5.2%) (12.6%)	172 (18.9%) (14.4%)	582 (63.8%) (18.9%)	110 (12.1%) (19.9%)	911 (100%) (17.5%)
Good***	139 (6.4%) (37.1%)	480 (22.3%) (40.1%)	1,285 (59.6%) (41.9%)	252 (11.7%) (45.6%)	2,156 (100%) (41.6%)
Fair***	96 (6.8%) (25.7%)	363 (25.7%) (30.4%)	820 (58.1%) (26.7%)	133 (9.4%) (24.1%)	1,412 (100%) (27.2%)
Poor***	63 (11.9%) (16.8%)	129 (24.3%) (10.8%)	293 (55.3%) (9.5%)	45 (8.5%) (8.2%)	530 (100%) (10.2%)
Very poor***	29 (15.8%) (7.8%)	51 (27.7%) (4.3%)	92 (50.0%) (3.0%)	12 (6.5%) (2.2%)	184 (100%) (3.5%)
Total	374 (7.2%) (100%)	1,195 (23.0%) (100%)	3,072 (59.2%) (100%)	552 (10.6%) (100%)	5,193 (100%) (100%)

Note: row percentages in **black**, column percentages in **red**

Note: ***significant at (p<0.001), **significant at (p<0.01), *significant at (p<0.05).

Source: author's own analysis of British Household Panel Survey data, 2006

The association between self-perceived financial circumstance and social network supportive capacity is not straightforward. One might have hypothesised that older persons who stated that they were struggling financially would also be associated with lower social network supportive capacity as individual fiscal circumstance is a good proxy for age which

we know is a predictor of health condition. **Table 56** does show that sample members who were financially more comfortable were also less likely to possess social networks with very low supportive capacity compared to those who were financially less stable. However, 14.9 per cent of these who expressed the most adverse financial circumstance also exhibited high supportive capacity in their social network, higher than for any other financial situation including those who stated they were ‘living comfortably’. The sample size is however small at only 47 persons who stated that they were ‘finding it very difficult’ in answer to a question regarding their financial situation.

Table 56: Social network supportive capacity by financial situation

Financial situation	Social network supportive capacity				Total
	Very low supportive capacity	Low supportive capacity	Medium supportive capacity	High supportive capacity	
Living comfortably*	101 (5.0%) (33.8%)	432 (21.6%) (36.2%)	1,246 (62.3%) (40.6%)	223 (11.1%) (40.5%)	2,002 (100%) (39.2%)
Doing alright*	109 (6.2%) (36.5%)	446 (25.2%) (37.5%)	1,035 (58.3%) (33.8%)	182 (10.3%) (33.0%)	1,772 (100%) (34.7%)
Just about getting by*	67 (6.0%) (22.4%)	264 (23.5%) (22.1%)	662 (59.0%) (21.6%)	129 (11.5%) (23.4%)	1,122 (100%) (22.0%)
Finding it quite difficult*	18 (11.0%) (6.0%)	42 (25.6%) (3.5%)	94 (57.3%) (3.1%)	10 (6.1%) (1.8%)	164 (100%) (3.2%)
Finding it very difficult*	4 (8.5%) (1.3%)	8 (17.0%) (0.7%)	28 (59.6%) (0.9%)	7 (14.9%) (1.3%)	47 (100%) (0.9%)
Total	299 (5.9%) (100%)	1,192 (23.3%) (100%)	3,065 (60.0%) (100%)	551 (10.8%) (100%)	5,107 (100%) (100%)

Note: row percentages in **black**, column percentages in **red**

Note: ***significant at (p<0.001), **significant at (p<0.01), *significant at (p<0.05).

Source: author's own analysis of British Household Panel Survey data, 2006

Following the assessment of social networks in later life in answering research two, one finding must be highlighted for policy purposes. Over a quarter of the sample in 2006 (25.5 per cent) demonstrate a supportive capacity score of 1. These older persons are likely to be more vulnerable owing to their social isolation. Inherently due to this social isolation, they

are also more likely to be hard to reach and represent those who may not take up welfare benefits, receive health or social care services and other local council services. Policy interventions must find ways of reaching these vulnerable groups who may remain disadvantaged unless they become more connected and integrated in their community and in turn build informal networks of support which may help alleviate their likely hardship.

Chapter 7. Social networks and residential mobility between 2002 and 2006: Evidence from the British Household Panel Survey

7.1. Introduction and background

The British Household Panel Survey has proven to be a useful source of data to measure the social networks of older people as evident in **chapter 6**. Equally, owing to the availability of mover flags in the data, the BHPS is also effective at identifying moves (**chapter 5**). This chapter intends to investigate the relationship between social networks and residential mobility at older ages.

There is little research in the literature which investigates residential mobility and the effects of moving on social networks. Oishi et al (2012) more recently examined residential mobility and people's attitudes towards their social networks in terms of expectations towards the possible effects of moving on the number of friends and closeness of family. Sluzki (1998) studied the effects of migration on personal networks in a qualitative investigation of how a family coped and adjusted to their new social context following a move. In another research article Sluzki (1979) looked at the consequence of migrating on families and their social networks. As far as can be seen from the literature, no study has attempted to quantify the social networks of older people and in turn their supportive capacity using social survey data and investigate an interaction with moving.

As referred in **section 3.2**, the support that emanates from social networks has been found to be associated with better health outcomes; both physiological and mental. The interface between social networks and residential mobility is an understudied but important area of social gerontology. One might hypothesise that moves exact adverse effects on personal networks whilst occurring at a time where the need to cope and adjust (partly attributable to rigours of social network change) is particular problematic for the individual or family, coinciding with a social network at its weakest and probably least supportive.

The table below presents a series of hypothesised relationships between residential mobility and the attributes of the three types of social network; kinship, companionship and community. The aim of this chapter is to answer the following research questions;

- RQ3: What is the association between the direction of social network attribute change and network type by mover status and age?
- RQ4: Is there evidence of varying levels of change in social network attributes depending on the length of elapsed time since a move?
- RQ5: Are sex and a change in partnership status associated with positive and negative change in network supportive capacity?

It is important to determine whether there is an association between a change in social network attributes and residential mobility. Though not as to suggest causality, it may be possible to identify residential mobility as a predictor of social network attribute change. This research question is answered by testing for a correlation between social network change and residential mobility. Following this we test for the existence of an association between the direction of change in specific social network attributes by mover status and how these associations are affected by the age of the network ego.

By running a Pearson correlation as detailed below, it is evident that there is a very low correlation between social network supportive capacity change (by network type) and mover status. The correlation between kinship network supportive capacity change and mover status represents the only significant relationship (p value <0.05) however it is still very weak with an R value of .064. Relationships between mover status and the other two network types are also very weak. The findings support the need to investigate this further. It is possible that a more noteworthy relationship exists if we add granularity by examining the direction of change in specific network attributes such as size, frequency and proximity by social network type and age.

Table 57: Pearson correlation between change in social network supportive capacity and mover status

Change in social network type	Bivariate (Pearson) correlation between supportive capacity and mover status
Kinship network	.064*
Companionship network	-.007
Community network	-.001

Source: author's own analysis of British Household Panel Survey data, 2002-2006

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

A priori expectations

Table 58: Hypotheses

Type of social network	Effects of moving on network attribute	Direction and description of change (no residential mobility) between 2002 and 2006	Direction and description of change (move occurred) between 2002 and 2006
Kinship network	Size	A slight decrease in size owing to age-related kinship network attrition.	Unless a move undertaken was of a very large distance from point of origin and destination to remove all contact with close kin, one would expect little variation dissimilar to that of kinship network size change when no move occurred.
	Frequency	The frequency of interaction is most likely to remain constant between the waves but any expected change would be positive owing to the network ego's age-related, increasing need for informal support with family members responding to this by increasing contact,	The frequency of interaction between close family members and the network ego is likely to be highly sensitive to a move occurring. <i>The frequency of interaction in kinship networks is directly proportional to the proximity of kin to the network ego (.854**).</i> The motives behind the move, thus

		possibly facilitated by greater proximity to the network ego.	the distance and directions towards or away from family, will affect whether frequency increases or decreases. Youngest old movers are likely to experience a decrease in proximity and frequency of interaction attributes, middle old movers a slight increase on average and oldest old movers a definite increase.
	Proximity	The proximity of close kin is most likely to remain constant between the waves but any expected change would be positive owing to the network ego's age-related, increasing need for informal support with family members responding to this by moving closer.	As with interaction frequency, the proximity of kin to the network ego is likely to be highly sensitive to residential mobility. As in table 78 , over half the sample of movers are aged between 50 and 64 (first moves), and it is expected that movers in this age group would be more likely to experience a decrease in kinship network proximity whereas movers aged 65 and over are more likely to move closer to kin.
	Functions	The number of functions is most likely to remain constant between the waves but any expected change would be positive owing to the network ego's age-related increasing need for informal support.	As frequency of interaction is highly related to proximity, the number and types of functions that the respondent's offspring undertake for them is likely to be dependent on their proximity and thus the frequency of interaction which acts as a vehicle.

Companionship network	Size	As people age it is expected that the majority of companionship networks stay constant in size and any change is likely to occur with age-related network attrition.	If moves are conducted of a sufficient distance to restrict contact (likely to be pre-retirement moves), then there may be some incidence of a relationship between decrease in companionship network size and residential mobility.
	Frequency	Networks are expected to remain fairly constant in the frequency of interaction.	Moves are likely to induce decreases in the frequency of interaction in networks of those in pre-retirement as they are likely to be conducting amenity moves which will increase the distance to close friends.
	Proximity	It is expected that proximity to close friends will decline as age increases. Network attrition occurs as people age and it is more difficult to maintain networks as functional independence becomes threatened at oldest old ages. However, this decline is not likely to be as accentuated as amongst respondents who moved, where moves to strengthen kinship ties or into institutional care settings may inadvertently mean moving away from	It is hypothesised that fewer moves are likely to be undertaken with the aim of moving closer to friends in response to care needs as close kin are generally the primary source of informal support, especially that which is physical. Moves conducted in pre-retirement and early retirement (amenity moves) might reduce the proximity to friends as the primary purpose of these types of moves is often to move towards sparsely populated areas such as those which are rural or coastal (often counter-urban moves and/or away from place of

		companions.	origin/birth/upbringing).
Community network	Size	The size of community networks is expected to stay fairly constant when a move does not occur. Owing to the way in which the measure is constructed, respondents who stop attending evening classes and so forth (and are more likely to do this as they age) will present as a decrease in community network size.	Community network size is hypothesised to be highly sensitive to a move particularly those which are towards rural or coastal areas, places less populated than the point of origin. This will be particularly apparent for amenity moves in pre-retirement. Likewise moves undertaken at ages 65+ which may be towards less populated areas; much is dependent on how community-rich the point of destination is and the network ego's ability to reconstruct this part of the network following a move.
	Frequency	The same is applicable to community network frequency as mentioned above for size.	As above, community network frequency is highly dependent on size and will be susceptible to change as a result of a move occurring.

Source: author (2013)

Kinship network measures consist of mothers, fathers, sons and daughters. Males may have a spouse or partner many years their junior and could conceivably gain offspring at any age however this is fairly uncommon when men are in their 60s, 70s, 80s and 90s. The fecundity of a female is age-limited and prior to the emergence of assisted reproductive technology (ART), women were not able to reproduce beyond menopause. However with the development of ART women may reproduce in their 50s; more recently a female aged 66 years gave birth to a child in Spain (The Telegraph, 2013). Again, this is rare and on the whole it is to be expected that few older respondents would be having offspring at ages 50 and over. However, owing to the way that the kinship network data is collected, only contacted kin outside of the household are considered thus respondents may theoretically

gain network size without having more children if interaction had previously been non-existent.

Regarding, the number of parents that an older respondent may have in their kinship network, in real terms this can only decrease from birth. In a few cases, as with the offspring of respondents it may be that for whatever reason the respondent regained contact with a close family member between 2002 and 2006 and this will present as an increase in kinship network size. On the whole, if there is any change it is expected that a respondent's kinship network size may decline in the four years from 2002 to 2006 where a move did not occur. Factoring in residential mobility, one would expect little significant variation in kinship network size change from that of a respondent who did experience residential mobility unless a move conducted was of such a distance that the frequency of contact within the last year was constricted to less frequently than 'less often' to the extent that the respondent classified the occurrence of contact as 'never'.

When no move occurs between 2002 and 2006, we might expect the level and direction of change in kinship network frequency and proximity to be age-related (linked to Litwak and Longino's developmental perspective which is discussed later). Kinship network frequency and proximity between 2002 and 2006 are likely to be sensitive to a move occurring. A move will almost certainly alter the distance that the network ego lives from their parents and children. Whether or not this distance increases or decreases is likely dictated by the type of move which is itself usually best explained by the underlying motives driving it. Though members of close kin should not be assumed to be a geographical collective, moves will affect average distances from all close kin. As Litwak and Longino (1987) established and as documented in **section 2.4**, moves in later life can be separated into a typology of three types; first, second and third moves. First moves are characterised by youngest old ages (50 to 64 years of age), occurring in and around pre-retirement which are widely acknowledged in the literature to constitute amenity moves. Second moves occur at middle old ages (65 to 74 years of age) and are motivated by future health concerns which may require proximal informal support (inversely family members may move closer to the network ego). Likewise, life course stressors such as becoming widowed may trigger moves into the homes of adult

children or at least return moves to become closer to kin in order to strengthen ties (Warnes, 1992). Third moves are typically conducted at the end of the life course (75 years and over) and are mostly health oriented. If an individual's health condition inhibits functional dependence and care needs surpass that which can be provided informally, it may become necessary to move into an institutional care setting. It is this typology of moves which offers apriority to inform our hypotheses. Depending on the age of the mover, we would expect the frequency and proximity of the kinship network to vary in line with this typology. The frequency of interaction within a kinship network is strongly and positively correlated with the proximity of kin; the Pearson correlation coefficient is 0.857 (p value <0.01) (see **appendix**). As kinship network frequency and proximity are highly related, one would expect the effects of moving to affect both network attributes. If we consider Litwak and Longino's developmental perspective, one would hypothesise that youngest old movers are likely on average to conduct moves away from close kin thus a decrease in kinship frequency and proximity will be accentuated. This is not to say that 'first moves' are driven by a desire to distance one's self from kin but rather that health concerns and the need for proximal support are not motivating factors and do not dictate the destination of moves. Conversely, moves conducted by persons aged 65 and over are more likely to be towards close kin and we would expect to see frequency and proximity measures increase more than is visible amongst non-movers, particularly amongst those aged 75 and over who might be conducting what Litwak and Longino coined 'third moves'.

The volume and type of functions that offspring perform is related to their proximity to and in turn frequency of interaction with the network ego. We hypothesise kinship network frequency and proximity to be sensitive to residential mobility; the function of the network is equally dependent on these two attributes. The Pearson correlation coefficient between kinship network frequency and function is 0.267 (p value <0.01). The equivalent statistic between kinship network proximity and function is 0.261 (p value <0.01) (see **appendix**). It is probable that a greater proportion of networks endured an increase in kinship network functions than did non-movers between 2002 and 2006. As with kinship network frequency and proximity, the number and types of functions performed by offspring for the network ego are likely to vary by age amongst movers between the two waves. One would

hypothesise that non-movers are more likely than movers to experience no change in the number of functions they receive from offspring between 2002 and 2006. It is possible that non-movers at youngest old ages are more likely to experience an increase compared to movers and that movers are more likely to experience an increase at ages 65 and over.

There is unlikely to be much variation in change in companionship network attributes from 2002 to 2006 between movers and non-movers. Age-peers in companionship networks are, compared to close kin, less likely to be a source of tangible, age-specific informal support in later life. Moves towards and away from friends in relation to social support needs are most likely uncommon and for this reason we might not expect moves to be conducted with proximal sources of informal support from companions in mind. Nevertheless, some moves may occur to reduce distances to friends if close kin are not living or in contact with the network ego. For the most part however, it is not expected that moves will affect companionship network size, frequency and proximity any differently to if a move did not occur. It is expected that the sizes of companionship networks will for the majority of the sample stay constant. If there is a more prominent direction of change, decreases in companionship networks in line with age-related attrition may be noticeable. Network frequency and proximity are presumed to exhibit similar trends to size amongst the sample.

Community networks consist of neighbours, participation at evening classes, voluntary work and local group involvement and interaction with other members of the neighbourhood. The frequency (and therefore size) of community networks will be highly dependent on the network ego's proximity to the population district in question. Non-movers would be expected to experience little or no change in community network size and frequency between 2002 and 2006. As discussed in **chapters 4 and 6**, for the inclusion of evening class participation, voluntary work and local group involvement in a community network, the respondent must report involvement at least 'several times a year'. Therefore it is possible that a change in desire or perhaps owing to the limitations of ageing, a respondent may stop attending or undertaking in these opportunities between 2002 and 2006 which would present as a decrease in community network size or frequency. Movers on the other hand, are likely to experience greater levels of change in community network size and frequency.

However, the direction and extent of this change is dependent on the availability of social amenities at the point of origin and destination. For example, an older person could move from an amenity-rich urban to a sparsely populated rural area where the opportunities to attend evening classes or engage in voluntary work are limited. This would present as a decrease in both community network size and frequency. Conversely, a respondent who moves to a more populated area and engages with the social opportunities relevant to community networks would experience increases in size and frequency attributes. It is fully expected that community network size and frequency will prove to be sensitive to residential mobility. The primary hypothesis for the chapter is presented below and underpins the context within which the findings are considered against the research questions.

H_0 – there is no relationship between residential mobility and network attribute change
 H_1 – there is a relationship between residential mobility and network attribute change

Structure of the chapter

The chapter is split into three main sections; an analysis of companionship networks (*size, frequency, proximity and supportive capacity*), community networks (*size, frequency and supportive capacity*) and kinship networks (*size, frequency, proximity, function and supportive capacity*). In each section, multivariate cross tabulations present the direction of change in network attributes by mover status and age group to answer research question three. The concept of social network reconstruction and disruption is also introduced using a binary logistic regression analysis. The wave at which a move occurred is used to determine the time elapsed since move at wave p (2006). This permits the presentation of social network attribute change by the number of years since a move and amongst non-movers in answering research question four. Sex and a change in partnership status are also investigated in a binary logistic regression analysis as covariates which may explain social network supportive capacity change across the three network types. The results from this analysis will answer research question five.

The first two sections present findings from the UK-wide sample. Despite the emphasis on kinship networks throughout **section 3.1** and the introduction to this chapter as a key provider of informal support to people in later life, the BHPS does not permit a UK focus on kinship networks between 2002 and 2006 (see **table 12**). For this reason, England and Northern Ireland sample members have been excluded from the analysis of change in kinship network attributes. The analysis of companionship and community networks benefits from UK geographical coverage and represents the analytical focus of this chapter. The analytical sample for the kinship network analysis consists of 1,386 cases in comparison to the 4,192 cases available to examine companionship networks and 4,761 cases community networks. Thus these latter two network types represent the core UK sample focus of the chapter. The chapter will conclude with a subsection on kinship networks in the Scotland and Wales samples.

7.2. Companionship networks

As mentioned in **table 58**, one supposes that the attributes of companionship networks will not be as changeable as those of kinship networks. Over three quarters of the whole sample possessed a companionship network where the size stayed constant between 2002 and 2006. Disaggregating the findings by age, respondents in pre-retirement are most likely to endure stability in the size of their companionship network (82.6 per cent) and as age increases; the size between the two waves becomes more variable. Likewise, the size of companionship networks is not particularly sensitive to incidence of residential mobility at least at ages 65 and over.

There is a significant (p value <0.001) relationship between residential mobility and companionship network size change. Moving has a destabilising effect on size with 74.4 per cent of the sample experiencing no change, 9.2 per cent less of the sample than compared with non-movers. This lack of stability is further elaborated by the fact that of movers, more networks experience a significant decrease or increase in size. Let us first consider mover networks where a decrease in size was more likely compared with non-mover networks; it is very likely that this occurrence is due to people undertaking 'amenity' moves either solely or

with a partner and the fact that they move away from friends is not considered a strong enough pull factor to inhibit the move. The prevalence of this is significant as friends are an important source of espousal in later life. It is often more difficult for older people to rebuild networks and make friends as they age owing to growing physical constraints and dwindling opportunities to socialise and meet people. Companionship is positively related to better mental health (Fiori et al, 2006; Oxman et al, 1992; Wenger, 1996) thus is an important facet of our life as we age. Another explanation for the increased association with change amongst movers may be that moves are not directly contributing to network size increase or decrease; rather those who move are more likely to gain or lose friends for an unidentified reason. In pre-retirement, the proportion of movers who experienced an increase in size is also higher than for non-movers and these networks could represent movers who intend to reduce distances (likely to positively affect size) to close, emotionally speaking, friends. At ages 65 and over there is very little variation in the distribution of size change between movers and non-movers.

Table 59: Change in companionship network size between 2002 and 2006 by mover status and age

Age group (age in 2006)	Change in companionship network size between 2002 and 2006	Did not move between 2002 and 2006	Moved between 2002 and 2006	Total
50-64***	Decreased	166 (9.6%)	32 (14.1%)	198 (10.1%)
	Stayed constant	1,450 (83.6%)	169 (74.4%)	1,619 (82.6%)
	Increased	118 (6.8%)	26 (11.5%)	144 (7.3%)
65-74	Decreased	134 (11.9%)	12 (10.2%)	146 (11.7%)
	Stayed constant	883 (78.4%)	92 (77.9%)	975 (78.4%)
	Increased	109 (9.7%)	14 (11.9%)	123 (9.9%)
75+	Decreased	148 (17.0%)	16 (15.8%)	164 (16.9%)
	Stayed constant	614 (70.5%)	71 (70.3%)	685 (70.4%)

	Increased	109 (12.5%)	14 (13.9%)	123 (12.7%)
Total	Decreased	448 (12.0%)	60 (13.5%)	508 (12.2%)
	Stayed constant	2,947 (79.0%)	332 (74.4%)	3,279 (78.5%)
	Increased	336 (9.0%)	54 (12.1%)	390 (9.3%)
Total		3,731 (100%)	446 (100%)	4,177 (100%)

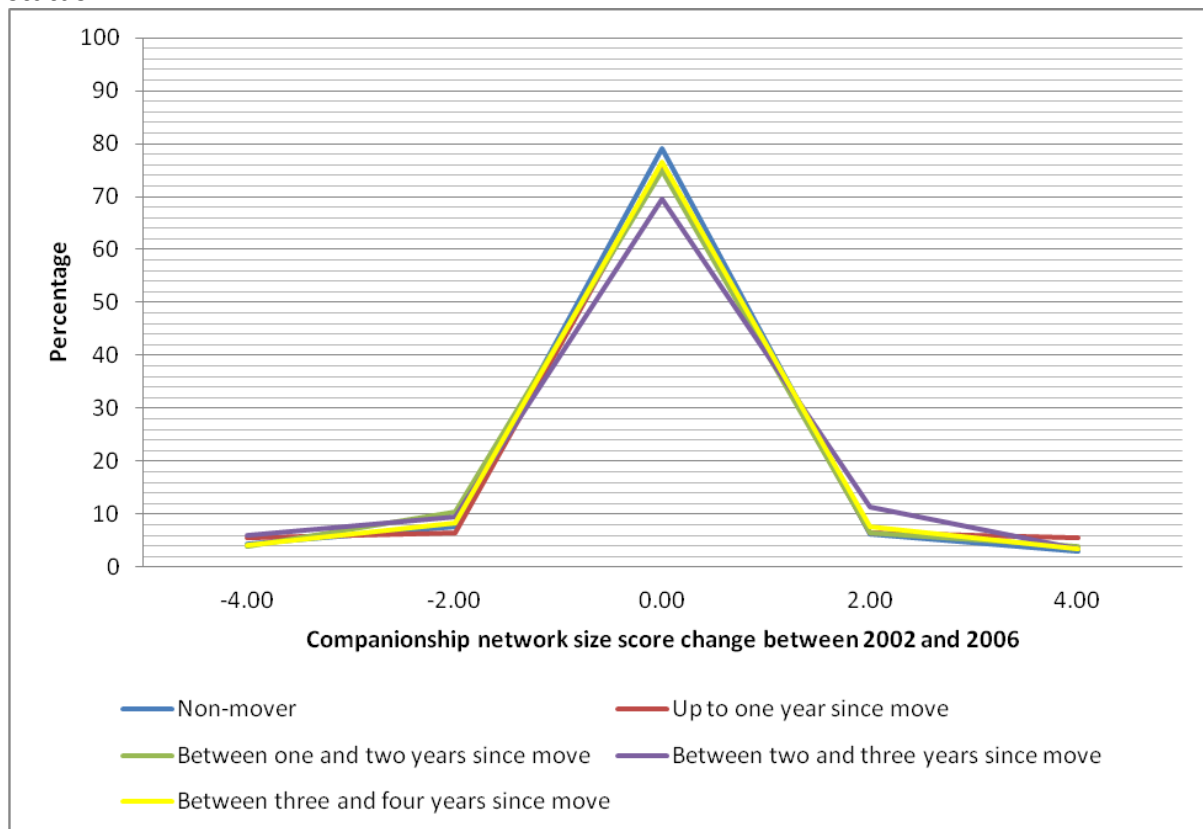
Source: author's own analysis of British Household Panel Survey data, 2002-2006

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

At this stage, it seems appropriate to introduce the notion of network disruption and reconstruction. The purpose of identifying the time at which a move occurred against consequent change in network attributes is to better understand the relationship between social network change and residential mobility. This is not further disaggregated by age owing to the small sample of movers. We might expect to see that moves which have occurred more recently to wave p (2006) are associated with greater levels of change compared to non-movers. As more time elapses after a move, one might suppose that networks have time to recover as the effects of the move wear off whilst the network ego reconstructs their network. In this chapter, we examine network attribute change for all social network types to see if there is a relationship between the recency of the move and the level of change in comparison to that of non-movers.

As seen in **figure 17** the distribution of companionship network size change is normal for all mover statuses. As has been discussed, networks are more likely to stay constant in size; in exploring further we find that there is no discernible trend to suggest that more recent moves are associated with a greater probability of change.

Figure 17: Change in companionship network size score between 2002 and 2006 by mover status



Source: author's own analysis of British Household Panel Survey data, 2002-2006

According to **table 59**, companionship network size was more likely to stay constant than demonstrate any level and direction of change. This might lead one to suspect that a similar trend would be apparent when studying companionship network frequency score however this is not the case as networks, regardless of mover status, look to be more likely to endure a change in frequency score. In other words, despite the fact that in the majority of cases change in companionship network size is rare, the frequency of interaction with existing friends is more likely to increase with the number of friends usually staying constant as opposed to the addition of more friends to one's network. In pre-retirement, movers are more likely to experience a decrease in frequency score (43.6 per cent) than non-movers (37.4 per cent). This corresponds with the life course approaches to later life migration (Walters, 1990; Warnes, 1992; Litwak and Longino, 1987) regarding 'first moves'. Clearly some moves are made without one's friends in mind. Similarly, moves conducted at oldest ages (75+) were also more likely associated with a negative change in frequency score at 47.5 per cent compared with non-movers at 40.8 per cent. At these ages, where persons are

likely to be in poorer health, assistance moves (towards close kin) and moves in response to severe disability (usually into institutional care settings) are undertaken regardless of the negative effects it may have on the frequency of interaction with friends. It seems that a weakening of companionship ties is often an inevitable and unavoidable consequence of moving in reaction to one's health needs.

Table 60: Change in companionship network frequency between 2002 and 2006 by mover status and age

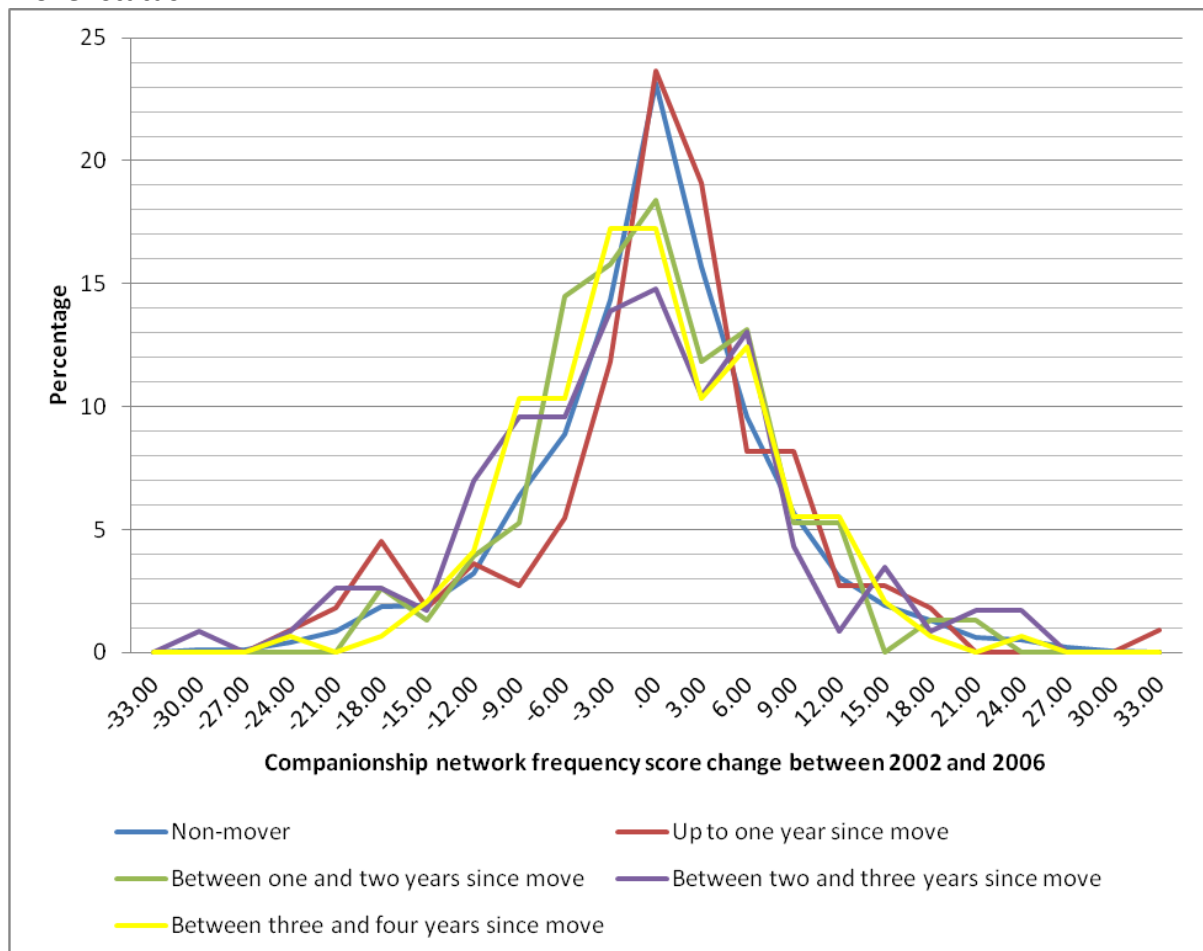
Age group (age in 2006)	Change in frequency of interaction in companionship network between 2002 and 2006	Did not move between 2002 and 2006	Moved between 2002 and 2006	Total
50-64	Decreased	649 (37.4%)	99 (43.6%)	748 (38.2%)
	Stayed constant	436 (25.2%)	47 (20.7%)	483 (24.6%)
	Increased	649 (37.4%)	81 (35.7%)	730 (37.2%)
65-74	Decreased	420 (37.3%)	44 (37.3%)	464 (37.3%)
	Stayed constant	258 (22.9%)	23 (19.5%)	281 (22.6%)
	Increased	448 (39.8%)	51 (43.2%)	499 (40.1%)
75+	Decreased	355 (40.8%)	48 (47.5%)	403 (41.5%)
	Stayed constant	169 (19.4%)	12 (11.9%)	181 (18.6%)
	Increased	347 (39.8%)	41 (40.6%)	388 (39.9%)
Total*	Decreased	1,424 (38.2%)	191 (42.8%)	1,615 (38.7%)
	Stayed constant	863 (23.1%)	82 (18.4%)	945 (22.6%)
	Increased	1,444 (38.7%)	173 (38.8%)	1,617 (38.7%)
Total		3,731 (100%)	446 (100%)	4,177 (100%)

Source: author's own analysis of British Household Panel Survey data, 2002-2006

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

Change in companionship network frequency score appears to be normally distributed with a slight negative skew. With the higher likelihood of change amongst movers compared with non-movers (as evident in **table 60**), it is surprising that recent movers (up to one year since move) were the most likely to display network stability between the two waves (**figure 18**). Around 43.6 per cent of those who made a move up to one year previous experienced a positive change in frequency score whereas only 38.7 per cent did so amongst non-movers. On the other hand, a lower percentage of respondents who made a move up to one year previous experienced a negative change in frequency score (32.7 per cent) than was the case amongst non-movers (38.2 per cent).

Figure 18: Change in companionship network frequency score between 2002 and 2006 by mover status



Source: author's own analysis of British Household Panel Survey data, 2002-2006

As evident in the table below, the proximity of friends in companionship networks to the network ego is sensitive to a move occurring. Moves are more associated with increased

proximity scores (39.7 per cent) than is the case amongst non-movers (34.9 per cent). Likewise, moves are more associated with decreased proximity scores with 45.3 per cent of networks demonstrating this direction of change compared with 38.8 per cent of non-movers. As one would expect the composition of directional change across the whole sample is similar to that which is apparent for companionship network frequency scores between 2002 and 2006.

The effect of moving on proximity score seems to be bi-directional amongst those in pre-retirement and at youngest old ages. In pre-retirement, moving was, compared to non-movers more likely to exert both a significant (p value <0.001) decrease (46.7 per cent against 38.7 per cent) and an increase (40.4 per cent against 33.5 per cent) in proximity score. Likewise at youngest old ages moving compared to not moving was more likely to exert both a significant (p value <0.05) decrease (46.6 per cent against 37.4 per cent) and an increase (39 per cent against 37.3 per cent) in proximity score. At middle and oldest ages (75+) moving is not associated with a greater proportion of decreased proximity scores compared with non-movers but interestingly is related to a higher likelihood of having a network with an increased proximity score (38.8 per cent against 34.8 per cent).

It is valid to conclude that for those in pre-retirement and at youngest old ages that there is a significant correlation between companionship network proximity score change and residential mobility. It is less likely to be the case that movers are more prone to losing friends for reasons other than the fact that they are moving. A more sensible supposition would be that respondents whose moves exert a decrease in the proximity of close friends (amenity movers) may not do so to distance themselves from these companions; if this was the intention they would not be mentioned as friends. As for respondents who experience an increase in proximity score, the intention of the move is highly likely to become geographically closer to emotionally close friends and owing to their age (50 to 74 years) this would be as likely to be attributable to an increasing need for physical support as a need for emotional support and companionship.

Table 61: Change in companionship network proximity between 2002 and 2006 by mover status and age

Age group (age in 2006)	Change in proximity of network constituents in companionship network between 2002 and 2006	Did not move between 2002 and 2006	Moved between 2002 and 2006	Total
50-64***	Decreased	668 (38.7%)	105 (46.7%)	773 (39.6%)
	Stayed constant	481 (27.8%)	29 (12.9%)	510 (26.1%)
	Increased	579 (33.5%)	91 (40.4%)	670 (34.3%)
65-74*	Decreased	419 (37.4%)	55 (46.6%)	474 (38.3%)
	Stayed constant	283 (25.3%)	17 (14.4%)	300 (24.2%)
	Increased	418 (37.3%)	46 (39.0%)	464 (37.5%)
75+	Decreased	354 (40.8%)	42 (40.8%)	396 (40.9%)
	Stayed constant	211 (24.4%)	21 (20.4%)	232 (23.9%)
	Increased	301 (34.8%)	40 (38.8%)	341 (35.2%)
Total***	Decreased	1,441 (38.8%)	202 (45.3%)	1,643 (39.5%)
	Stayed constant	975 (26.3%)	67 (15.0%)	1,042 (25.0%)
	Increased	1,298 (34.9%)	177 (39.7%)	1,475 (35.5%)
Total		3,714 (100%)	446 (100%)	4,160 (100%)

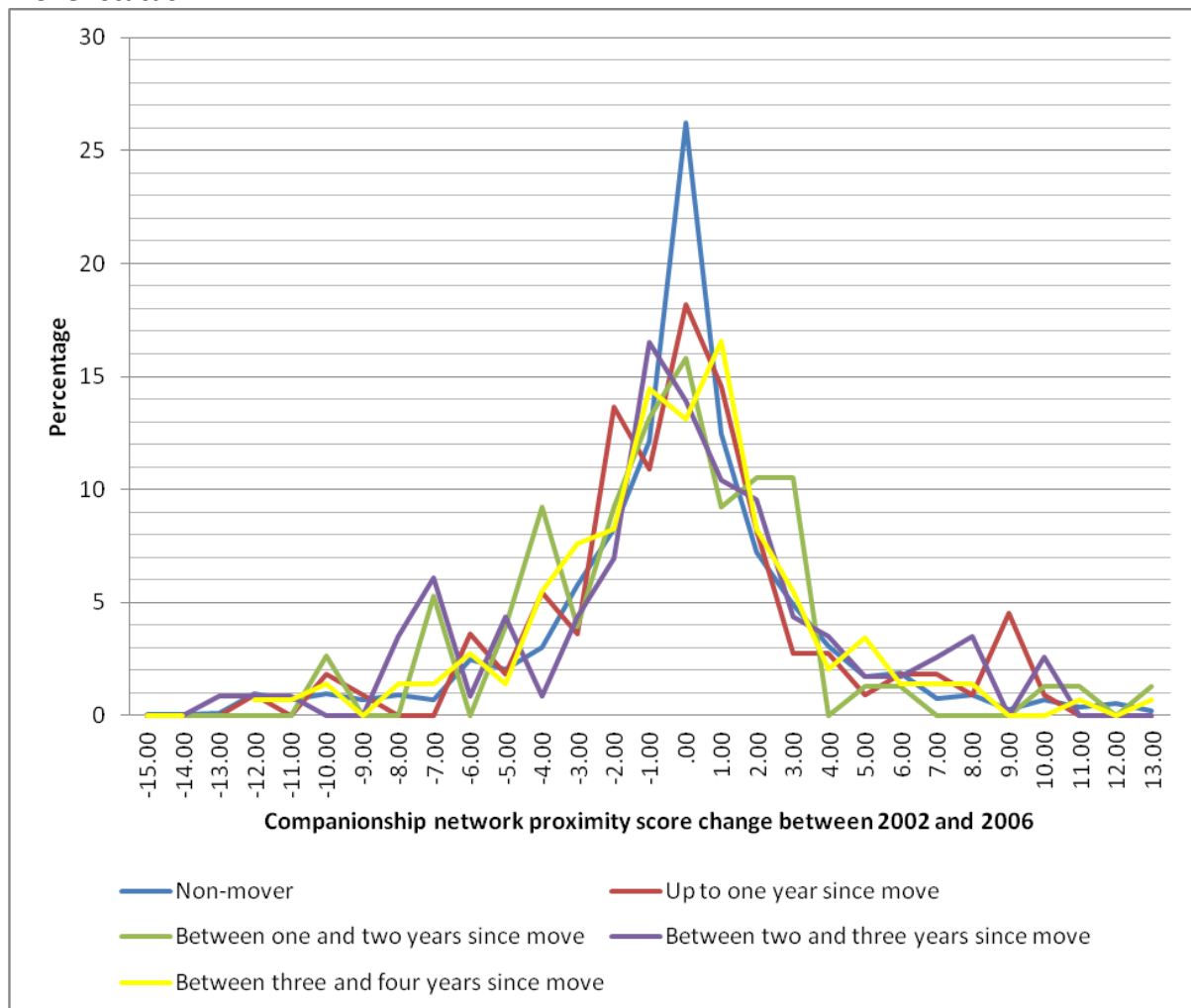
Source: author's own analysis of British Household Panel Survey data, 2002-2006

Note: ***significant at (p<0.001), **significant at (p<0.01), *significant at (p<0.05).

According to **figure 19**, perhaps unexpectedly the most stable networks are those which had endured a move up to one year previous and particularly no move at all. This is a similar finding to that of **figure 18** where non-movers and recent moves are highly associated with no change in companionship network frequency except that in the figure below, the

absence of residential mobility has more of a stabilising effect on moves. The relationship between proximity score change and mover statuses is unclear. There is no clear evidence of reconstruction where scores are more positive as the time elapsed since the move increases and equally there is no obvious gradient to suggest that there is any disruption (apparent if the proportion of decreased scores falls as the time elapsed since the move increases) related to mover status. Despite the apparent association between companionship network proximity score change (particularly a decrease in) and residential mobility, there is no evidence for a relationship between the exact timing of the move and the direction of change in proximity score.

Figure 19: Change in companionship network proximity score between 2002 and 2006 by mover status



Source: author's own analysis of British Household Panel Survey data, 2002-2006

It is important to construct a holistic measure of the capacity for the social network to provide a level of perceived social support for the network ego. It is essential that we understand the relationship between residential mobility and the attributes of companionship networks which in conjunction facilitate a perception of a sufficient level of social support to the network ego. The table below illustrates that in pre-retirement respondents who conduct moves are more likely to experience a decrease in the supportive capacity of their network with 51.8 per cent of movers enduring a decline in the network score compared with 46 per cent of non-movers. Moving clearly has a disruptive effect on companionship networks. The companionship networks of respondents aged 65+ are more associated with increases in supportive capacity. It is evident that companionship networks are particularly changeable regardless of whether or not a move occurs.

Table 62: Change in companionship network supportive capacity between 2002 and 2006 by mover status and age

Age group (age in 2006)	Change in companionship network supportive capacity between 2002 and 2006	Did not move between 2002 and 2006	Moved between 2002 and 2006	Total
50-64*	Decreased	798 (46.0%)	118 (51.8%)	916 (46.6%)
	Stayed constant	161 (9.3%)	9 (3.9%)	170 (8.7%)
	Increased	777 (44.7%)	101 (44.3%)	878 (44.7%)
65-74	Decreased	495 (43.8%)	52 (44.1%)	547 (43.8%)
	Stayed constant	116 (10.3%)	5 (4.2%)	121 (9.7%)
	Increased	519 (45.9%)	61 (51.7%)	580 (46.5%)
75+	Decreased	402 (45.8%)	48 (46.6%)	450 (45.9%)
	Stayed constant	79 (9.0%)	7 (6.8%)	86 (8.8%)
	Increased	396 (45.2%)	48 (46.6%)	444 (45.3%)
Total**	Decreased	1,695	218	1,913

		(45.3%)	(48.5%)	(45.6%)
	Stayed constant	356 (9.5%)	21 (4.7%)	377 (9.0%)
	Increased	1,692 (45.2%)	210 (46.8%)	1,902 (45.4%)
Total		3,743 (100%)	449 (100%)	4,192 (100%)

Source: author's own analysis of British Household Panel Survey data, 2002-2006

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

It was not possible to run a logistic regression model to explore the explanatory effects of age, sex, time elapsed since a move and change in partnership status on companionship network supportive capacity increase as only the latter was statistically significant in a forward conditional stepwise model. Thus it was deemed appropriate to explore the relationship between a change in partnership status and companionship network supportive capacity increase with a multivariate cross tabulation. It would not be fitting to run a logistic regression model with a categorical dependent variable and a single categorical dependent variable.

None of the cross tabulations between a partnership change status, mover status and a positive change in companionship network supportive capacity were found to yield a statistically significant association. Nevertheless we see some interesting findings; newly widowed respondents who moved were more likely (68.2 per cent) to experience companionship network supportive capacity increase than non-movers (52.2 per cent). Related to this finding, respondents who had recently become divorced or separated were also more likely to experience a positive change in companionship network supportive capacity if they moved (58.3 per cent) than if they did not move (48.3 per cent). Of note here is that individuals who had recently found themselves out of union are more likely to experience an increase in the supportive capacity of their friend network. This may point towards the likelihood that these moves are support seeking following the recent loss or dissolution of a partnership where respondents increase the proximity to companions. In answer to research question five, a change in partnership status does not have a significantly mediating effect on the relationship between companionship network

supportive capacity change and mover status. The findings, although only indicative, do suggest that a recent loss of partnership may in conjunction with a move (a loss of partnership is significantly associated with a higher likelihood of moving as seen in **chapter 5** and Evandrou et al (2010)) be related to an increase in companionship network supportive capacity.

Table 63: Change in companionship network supportive capacity between 2002 and 2006 by mover status and change in partnership

Change in partnership status	Change in companionship network supportive capacity between 2002 and 2006	Did not move between 2002 and 2006	Moved between 2002 and 2006	Total
Continuing couple	Stayed constant or decreased	1,375 (9.3%)	136 (3.9%)	1,511 (8.7%)
	Increased	1,176 (44.7%)	129 (44.3%)	1,305 (44.7%)
Newly partnered	Stayed constant or decreased	14 (51.9%)	9 (75.0%)	23 (59.0%)
	Increased	13 (48.1%)	3 (25.0%)	16 (41.0%)
Newly widowed	Stayed constant or decreased	76 (47.8%)	7 (31.8%)	83 (45.9%)
	Increased	83 (52.2%)	15 (68.2%)	98 (54.1%)
Continuing widowed	Stayed constant or decreased	297 (57.1%)	40 (66.7%)	337 (58.1%)
	Increased	223 (42.9%)	20 (33.3%)	243 (41.9%)
Newly divorced, separated	Stayed constant or decreased	15 (51.7%)	5 (41.7%)	20 (48.8%)
	Increased	14 (48.3%)	7 (58.3%)	21 (51.2%)
Continuing divorced, separated	Stayed constant or decreased	123 (55.7%)	28 (58.3%)	151 (56.1%)
	Increased	98 (44.3%)	20 (41.7%)	118 (43.9%)
Never married	Stayed constant or decreased	125 (62.8%)	11 (44.0%)	136 (60.7%)
	Increased	74	14	88

		(37.2%)	(56.0%)	(39.3%)
Total		3,706 (100%)	444 (100%)	4,150 (100%)

Source: author's own analysis of British Household Panel Survey data, 2002-2006

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

The logistic regression results below present companionship network supportive capacity negative change as the dependent variable (positive change and no change are equal to 0, whilst negative change is equal to 1). Unlike in **table 63**, more than one covariate was significantly associated with negative change in companionship network supportive capacity. The time elapsed since a move was not significant in explaining negative supportive capacity change whilst controlling for sex and a change in partnership status. In answering research question five, it is evident that sex and partnership status change do not mediate the relationship between residential mobility and a negative change in supportive capacity. Nevertheless, **table 62** illustrates that a move is significantly associated (p value < 0.01) with a change in supportive capacity. For example, amongst people aged 50 to 64, a move was 12.6 per cent more likely to yield a negative change in supportive capacity than if no move occurred (p value < 0.05).

The regression model finds that males are 1.14 times more likely to experience a decrease in companionship network supportive capacity score between the two waves than females as hypothesised in **table 58**. Remaining widowed is around 1.3 times more likely to be related to a negative change in supportive capacity between wave I (2002) and wave p (2006) than continuing in a couple (the reference category). Continuing as never married between the four waves is also significantly associated with negative change; this partnership status is associated with a 1.3 times higher likelihood of negative supportive capacity change than amongst people who are part of a continuing couple. Unlike in **table 63**, where exiting a form of partnership status such as becoming divorced or widowed was more associated (albeit not significantly) with a positive change in companionship network supportive capacity, remaining outside of union was more associated with negative change in supportive capacity. Perhaps friends are likely to rally around persons who have recently endured a recent partnership loss but the amount of operationalised social support wanes over time.

Table 64: Logistic regression model of companionship network supportive capacity negative change by covariates change in partnership status and sex

Covariate		Odds ratio (Exp (B))	95% confidence interval
Change in partnership status	Continuing couple (r)**	1.00	
	Newly partnered	1.46	0.78 – 2.76
	Newly widowed	0.76	0.55 – 1.03
	Continuing widowed**	1.31	1.10 – 1.58
	Newly divorced, separated	1.02	0.55 – 1.89
	Continuing divorced, separated	1.21	0.94 – 1.56
	Never married***	1.31	1.00 – 1.72
Sex	Male*	1.14	1.00 – 1.29
	Female (r)	1.00	

*** p<0.001 ** p<0.01 * p<0.05

N= 4,150 cases

Source: author's own analysis of BHPS data, 2002-2006

Note: covariates entered in forward conditional stepwise model in the following order: change in partnership status (wave p), sex (wave p).

Age (wave p) and time elapsed since a move (wave p) were not significant thus were not entered in the model.

The Nagelkerke R Square value is 0.007.

7.3. Community networks

As is evident in companionship network size between 2002 and 2006, community networks exhibit lower levels of change. Interestingly, the proportion of networks whereby size stayed constant decreases as age increases. Of both movers and non-movers, a decrease in the size of networks is more prominent than an increase. There are a greater proportion of networks amongst the pre-retirement mover sample with decreased size (30.6 per cent) and it is suspected that this is because of the prevalence of amenity movers towards more sparsely populated areas. However, interestingly the proportion of the non-mover sample that endured a decrease in size in the same age group is also fairly high at 27.1 per cent and higher than it is at ages 65+. The possible reasons for this are unclear but whatever the motives, non-movers in pre-retirement compared with non-movers of an older age were still more likely to endure a shrinking of their community networks.

As one might expect moving is more associated with a change in community network size between 2002 and 2006 than not moving. As mentioned around 30.6 per cent of movers in pre-retirement experienced a decrease in the size of their community network compared with 27.1 per cent of non-movers. This corresponds to the hypotheses set out in **table 58**, younger old movers may be conducting moves away from family and friends to sparsely populated areas. There is little variation in the proportion of community networks with decreased size between non-movers and movers at ages 65 to 74 but at ages 75+ movers are more likely to experience decrease (28.3 per cent) than non-movers (22.8 per cent). One might hypothesise that this higher likelihood of network size decrease is attributable to moves into institutional care settings and other forms of retirement housing.

Table 65: Change in community network size between 2002 and 2006 by mover status and age

Age group (age in 2006)	Change in community network size between 2002 and 2006	Did not move between 2002 and 2006	Moved between 2002 and 2006	Total
50-64	Decreased	514 (27.1%)	78 (30.6%)	592 (27.5%)
	Stayed constant	1,062 (55.9%)	133 (52.1%)	1,195 (55.5%)
	Increased	323 (17.0%)	44 (17.3%)	367 (17.0%)
65-74	Decreased	279 (22.2%)	27 (21.3%)	306 (22.1%)
	Stayed constant	757 (60.2%)	73 (57.4%)	830 (60.0%)
	Increased	221 (17.6%)	27 (21.3%)	248 (17.9%)
75+	Decreased	252 (22.8%)	34 (28.3%)	286 (23.4%)
	Stayed constant	708 (64.2%)	70 (58.4%)	778 (63.6%)
	Increased	143 (13.0%)	16 (13.3%)	159 (13.0%)
Total	Decreased	1,045 (24.5%)	139 (27.7%)	1,184 (24.9%)
	Stayed constant	2,527 (59.4%)	276 (55.0%)	2,803 (58.8%)

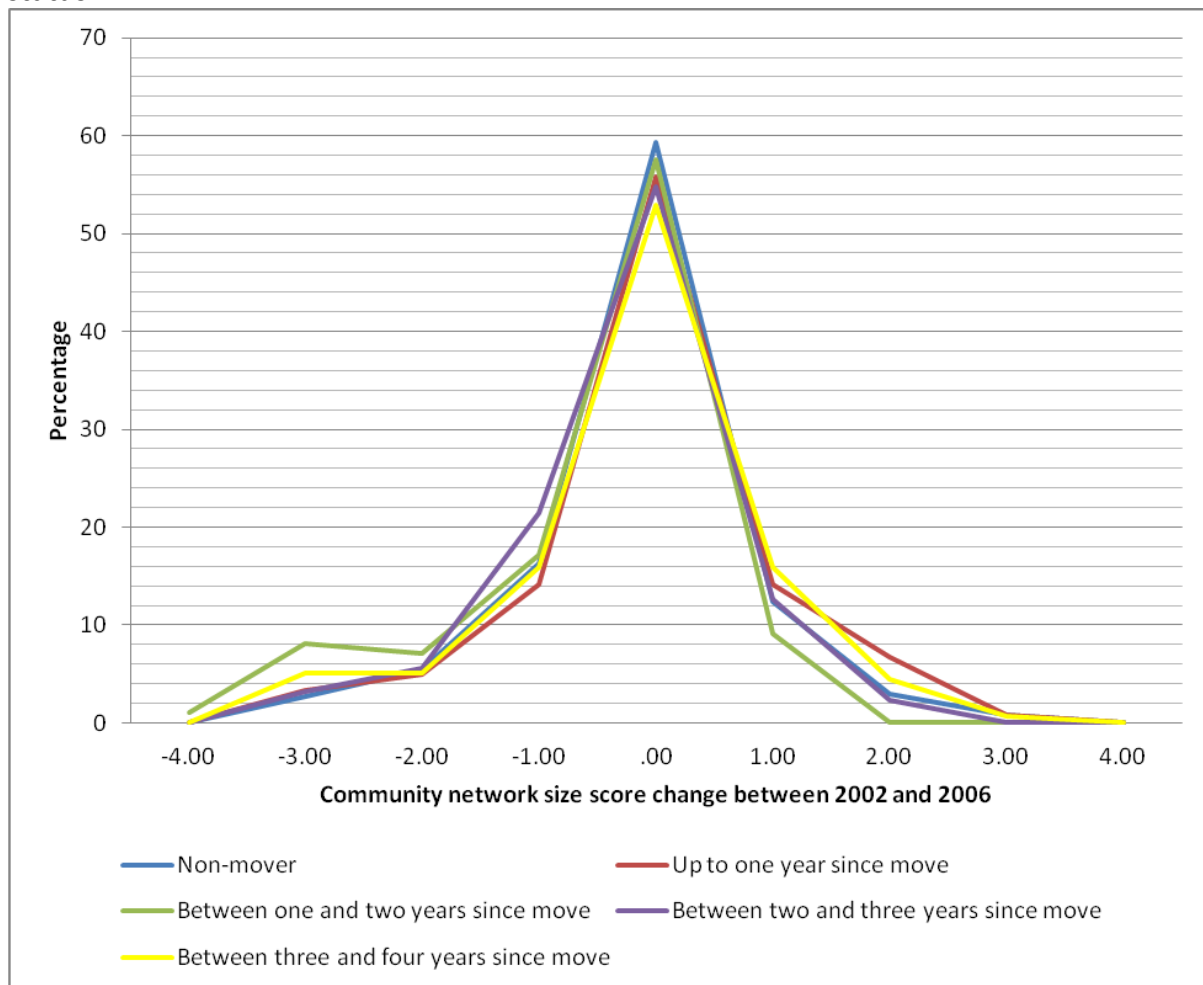
	Increased	687 (16.1%)	87 (17.3%)	774 (16.3%)
Total		4,259 (100%)	502 (100%)	4,761 (100%)

Source: author's own analysis of British Household Panel Survey data, 2002-2006

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

There is little discernible trend in **figure 20** between mover status and network size score change between 2002 and 2006. The distribution of score change is fairly uniform between the different mover statuses and non-movers. As shown above, more light is shed when we disaggregate change by age. Nonetheless, there is still a degree of variation by mover status. Recent moves are not more correlated with higher levels of size score change despite the association between moving and the greater likelihood of change in community network size as seen in **table 66**. Likewise there is no gradient to suggest that residential mobility has a particularly disruptive effect on community network size; as a matter of fact the percentage of networks with a decreased score increases as the time since the move increases. Conversely, the prevalence of positive change in the size score does not increase as the time since the move increases.

Figure 20: Change in community network size score between 2002 and 2006 by mover status



Source: author's own analysis of British Household Panel Survey data, 2002-2006

An examination of community network frequency change and residential mobility yields some intriguing findings. Surprisingly considering the findings in **table 66**, movers in pre-retirement are not overly associated with networks which exhibited decreased frequency scores compared with non-movers. In **table 66**, moves were associated with a greater proportion of networks that experienced a reduction in size yet the probability of frequency score decrease, as shown in the table below, is lower amongst movers (40.7 per cent) compared to non-movers (42.2 per cent). Furthermore, the likelihood of frequency score increase is higher amongst movers (42.4 per cent) than non-movers (36.7 per cent). Nevertheless, it seems that looking at the composition of network change for the sample overall, a higher percentage at 42 per cent experienced a decrease in the frequency of interaction in their community network, no doubt as a result of the fairly high prevalence of

networks which decreased in size (**table 66**). Despite the smaller number of community networks which exhibited an increase in size (16.3 per cent of the sample on average, see **table 66**), 36.4 per cent of the sample as evident below endured an increase in the frequency of interaction in their network and we know from the bivariate analysis of attributes that community network size and frequency are highly correlated (Pearson correlation coefficient is .886 with significance <0.001 – see **appendix**). What is apparent in all age groups is that moving is associated with the higher probability of a community network with an increased frequency of interaction than amongst non-movers. In pre-retirement, it may be the case that a noticeable share of moves undertaken were to areas which were amenity-rich but also allowed the network ego not only to sustain the frequency of attendance at evening classes, interaction with neighbours and so forth but to increase this. It is strange that not moving is associated with a greater decrease frequency score in that age group. The higher likelihood of mover networks which exhibited an increase in frequency score compared to non-mover networks at youngest old ages (41.7 per cent against 38.7 per cent) and oldest old ages (35 per cent against 31.4 per cent) may be mostly attributable to an increase in interaction frequency with neighbours as the need for proximal support becomes greater with age.

Table 66: Change in community network frequency between 2002 and 2006 by mover status and age

Age group (age in 2006)	Change in frequency of interaction in community network between 2002 and 2006	Did not move between 2002 and 2006	Moved between 2002 and 2006	Total
50-64	Decreased	802 (42.2%)	104 (40.7%)	906 (42.0%)
	Stayed constant	400 (21.1%)	43 (16.9%)	443 (20.6%)
	Increased	697 (36.7%)	108 (42.4%)	805 (37.4%)
65-74	Decreased	483 (38.4%)	43 (33.9%)	526 (38.0%)
	Stayed constant	288 (22.9%)	31 (24.4%)	319 (23.0%)

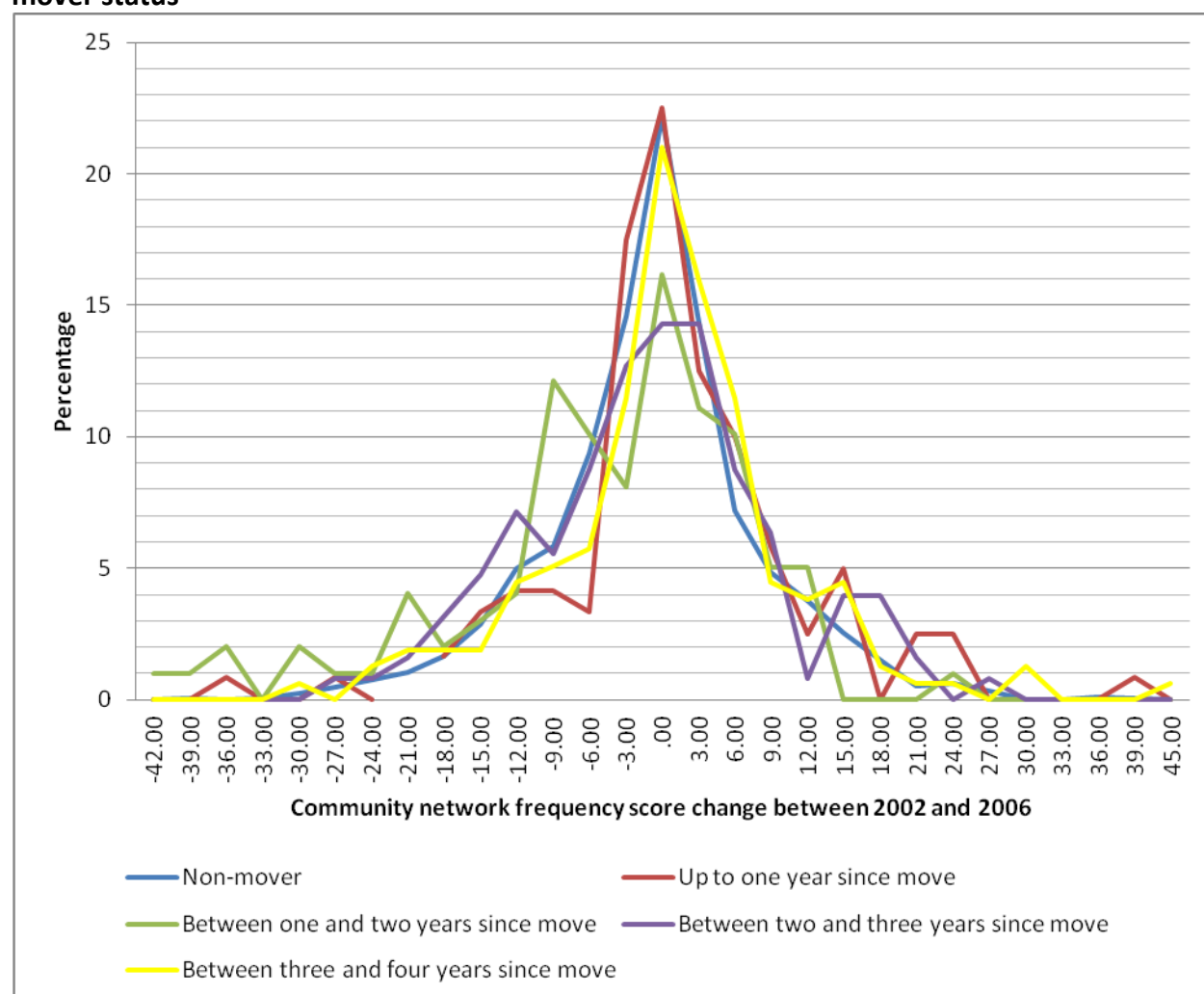
	Increased	486 (38.7%)	53 (41.7%)	539 (39.0%)
75+	Decreased	500 (45.3%)	58 (48.3%)	558 (45.7%)
	Stayed constant	257 (23.3%)	20 (16.7%)	277 (22.6%)
	Increased	346 (31.4%)	42 (35.0%)	388 (31.7%)
Total	Decreased	1,785 (41.9%)	205 (40.9%)	1,990 (41.8%)
	Stayed constant	945 (22.2%)	94 (18.7%)	1,039 (21.8%)
	Increased	1,529 (35.9%)	203 (40.4%)	1,732 (36.4%)
Total		4,259 (100%)	502 (100%)	4,761 (100%)

Source: author's own analysis of British Household Panel Survey data, 2002-2006

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

As the figure below shows, there is no trend between mover status and community frequency score change between 2002 and 2006. The distribution of score changes is normally distributed.

Figure 21: Change in community network frequency score between 2002 and 2006 by mover status



Source: author's own analysis of British Household Panel Survey data, 2002-2006

The table below shows the supportive capacity score change of community networks by mover status and age. Of the whole sample, moving is more associated with an increase in supportive capacity (41.3 per cent) than not moving (36.6 per cent). In all age groups, moving is likely to increase the supportive capacity of one's community network. Only for movers aged 75+ is the supportive capacity of one's network more likely to decrease compared with a non-mover network in the same age group.

Table 67: Change in community network supportive capacity between 2002 and 2006 by mover status and age

Age group (age in 2006)	Change in community network supportive capacity between 2002 and 2006	Did not move between 2002 and 2006	Moved between 2002 and 2006	Total
50-64	Decreased	840 (44.2%)	108 (42.4%)	948 (44.0%)
	Stayed constant	345 (18.2%)	37 (14.5%)	382 (17.7%)
	Increased	714 (37.6%)	110 (43.1%)	824 (38.3%)
65-74	Decreased	495 (39.4%)	44 (34.6%)	539 (38.9%)
	Stayed constant	269 (21.4%)	29 (22.8%)	298 (21.5%)
	Increased	493 (39.2%)	54 (42.6%)	547 (39.6%)
75+	Decreased	508 (46.1%)	59 (49.2%)	567 (46.3%)
	Stayed constant	242 (21.9%)	18 (15.0%)	260 (21.3%)
	Increased	353 (32.0%)	43 (35.8%)	396 (32.4%)
Total	Decreased	1,843 (43.3%)	211 (42.0%)	2,054 (43.2%)
	Stayed constant	856 (20.1%)	84 (16.7%)	940 (19.7%)
	Increased	1,560 (36.6%)	207 (41.3%)	1,767 (37.1%)
Total		4,259 (100%)	502 (100%)	4,761 (100%)

Source: author's own analysis of British Household Panel Survey data, 2002-2006

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

In the table below, we explore the relationship between the covariates age and a change in partnership status and the dependent outcome, a positive change in community network supportive capacity. As in **table 64** mover status is not significant thus not entered into the logistic regression model though evidently in **table 67** there is a significant relationship between community network supportive capacity change and residential mobility when

controlling for age. As can be seen from the table below, age significantly explains positive change in community network supportive capacity. Individuals who were aged 75 and over were 25 per cent less likely than those aged 50 to 64 to experience an increase in the supportive capacity of their community network between 2002 and 2006. However as **table 67** shows, persons aged 75 and over were still more likely to exhibit positive change in the supportive capacity of their community network if they moved. Across the four waves, for all respondents aged 50 and over, a large proportion of the sample (43.2 per cent) experienced a decrease in the supportive capacity of their community network; this translates to a lower frequency of engagement with social activity, local groups and voluntary work on average across the whole sample. This is mediated by moving as seen in **table 67** as the model below shows, becoming widowed compared to continuing as a couple between 2002 and 2006 resulted in a 1.67 times higher likelihood of exhibiting an increase in community network supportive capacity (significant at the 1 per cent level). Thus in answer to research question five, it is found that becoming widowed and being in pre-retirement is significantly associated with the increased likelihood of experiencing a positive change in community network supportive capacity between 2002 and 2006; to test for the mediating effects of age and a change in partnership on the relationship between residential mobility and community network supportive capacity change is not possible in the one model presented below as mover status was not found to be significant in the logistic regression. Nevertheless, as found in **chapter 5**, becoming widowed is found to be associated with a 25.6 per cent higher likelihood of moving in the next year (**table 22**). **Table 68** shows that becoming widowed is associated with a higher risk of enduring positive change in the supportive capacity of one's community network. As is evident from **table 91** in the **appendix**, becoming widowed is associated with a slightly increased likelihood of exhibiting community network supportive capacity increase if a move occurred. This finding is expected and correlates with the finding in **table 63** that individuals who become widowed are more likely to see an increase in the supportive capacity of their social network; following recent bereavement, it is not surprising that individuals benefit from an increase in support of friends and are positively encouraged to rebuild their lives and interact with their local community in the absence of a spouse or partner.

Table 68: Logistic regression model of community network supportive capacity positive change by covariates age and change in partnership status

Covariate		Odds ratio (Exp (B))	95% confidence interval
Age	50-64 (r)***	1.00	
	65-74	1.05	0.91 – 1.20
	75+***	0.74	0.63 – 0.87
Change in partnership status	Continuing couple (r)**	1.00	
	Newly partnered	0.85	0.45 – 1.58
	Newly widowed**	1.67	1.24 – 2.23
	Continuing widowed	1.05	0.87 – 1.27
	Newly divorced, separated	1.79	1.00 – 3.21
	Continuing divorced, separated	1.27	1.00 – 1.62
	Never married	0.97	0.75 – 1.25

*** p<0.001 ** p<0.01 * p<0.05

N= 4,710 cases

Source: author's own analysis of BHPS data, 2002-2006

Note: covariates entered in forward conditional stepwise model in the following order: age (wave p), change in partnership status (wave p).

Time elapsed since a move (wave p) and sex (wave p) were not significant thus were not entered in the model.

The Nagelkerke R Square value is 0.010.

As found in **table 67**, across the sample moving is associated, albeit not significantly, with an increased likelihood of exhibiting decrease in community network supportive capacity; more specifically at ages 50 to 64 and 75 and over. **Table 91** in the **appendix** illustrates that being outside of a form of union is more likely to yield a decrease in community network supportive capacity between 2002 and 2006. In the model below we can explore the effects of age and a change in partnership status as mediators in the relationship between residential mobility and supportive capacity change. The benefit of this is two-fold; a higher number of characteristics of the individual may allow policy makers and resource allocators to better identify those who are at greater risk of experiencing a decrease in the supportive capacity of their community network. Furthermore, if factors age and partnership status mediate the relationship between moving and a decrease (disruption) in supportive

capacity, these are identifiable as natural coping resources in mediating adverse change in one's social network.

In answer to research question five, the logistic regression model below illustrates the effects of covariates age, partnership status and the time elapsed since a move on the dependent outcome, a negative change in community network supportive capacity. As evident in **table 67**, individuals in pre-retirement are the more likely to experience an increase in the supportive capacity of their community network. Respondents in pre-retirement were over 20 per cent more likely to experience negative change in the supportive capacity of their community network than those aged 65 to 74. Although not significant (p value .056), those at older-old ages (75+) were 1.16 times more likely than respondents in pre-retirement to experience a negative change in the supportive capacity of their community network. Arguably a less important source of social support at older-old ages relative to kinship and companionship sources, nevertheless, the community network measure does include neighbours who we know from the literature are an important part of the informal surveillance system in case of emergency where their geographic contiguity is highly valuable; thus the higher likelihood that persons aged 75+ who may be in greater need for care, were more likely to experience a decrease in the supportive capacity of their community network between 2002 and 2006 is a concerning one.

Respondents who were continuing divorced or separated were much less likely (odds ratio of .71) to experience a decrease in the supportive capacity of their community network than those who were continuing as a couple. Newly widowed respondents were also less likely (odds ratio of .62) than those who were continuing as a couple to exhibit a negative change in supportive capacity. Moving between one and two years previous to wave p was associated with a one and a half times higher likelihood of negative change in the supportive capacity of community networks compared with non-movers, however this finding is not significant. Respondents who moved between three and four years previous were much less likely (odds ratio of .68) than those who did not move between 2002 and 2006 to exhibit a decrease in community network supportive capacity. As more recent moves are not found to be significant in the model, it is difficult to explore the relationship between residential

mobility and community network supportive capacity decrease in the context of age and a change in partnership status.

Table 69: Logistic regression model of community network supportive capacity negative change by covariates age, change in partnership status and time elapsed since a move

Covariate		Odds ratio (Exp (B))	95% confidence interval
Age	50-64 (r)***	1.00	
	65-74**	0.82	0.71 – 0.94
	75+	1.16	0.99 – 1.36
Change in partnership status	Continuing couple (r)**	1.00	
	Newly partnered	1.56	0.86 – 2.84
	Newly widowed**	0.62	0.46 – 0.84
	Continuing widowed	0.88	0.74 – 1.06
	Newly divorced, separated	0.59	0.32 – 1.11
	Continuing divorced, separated**	0.71	0.55 – 0.91
Time elapsed since a move	Never married	0.88	0.69 – 1.13
	No move (r)*	1.00	
	Up to one year	0.82	0.56 – 1.20
	Between one and two years	1.46	0.97 – 2.19
	Between two and three years	1.25	0.87 – 1.79
	Between three and four years*	0.68	0.49 – 0.96

*** p<0.001 ** p<0.01 * p<0.05

N= 4,710 cases

Source: author's own analysis of BHPS data, 2002-2006

Note: covariates entered in forward conditional stepwise model in the following order: age (wave p), change in partnership status (wave p) and time elapsed since a move (wave p).

Sex (wave p) was not significant thus not entered in the model.

The Nagelkerke R Square value is 0.014.

7.4. Kinship networks

The following section presents indicative results from the analysis of change in kinship networks attributes by mover status, from the Scotland and Wales samples. As discussed, owing to the smaller sample size as a result of missing data from England and Northern

Ireland, less credence is given to these findings. Rather, this section serves as a summary of the relationship between kinship network attribute change and residential mobility in Scotland and Wales and the results should be interpreted with caution iterating the need for future scholarship in this area.

The size of a kinship network is likely to be positively correlated with the availability of perceived social support. The more contacted close family one has in later life, the greater the potential volume of support that can be received. If kinship networks are disturbed by residential mobility this may have connotations for the network ego.

The extent to which there is change in the size of kinship networks is illustrated in the table below. Firstly, examining change in the whole sample by age; there is clear variation in the most prominent directions of change by age. Over three quarters of the whole sample at youngest old ages experience an increase in kinship network size. This varies slightly but not significantly (p value not <0.05) by mover status, as 80.6 per cent of the sample of movers in the same age group experienced an increase in size. One can deduce from this that respondents are moving towards close kin thus reinitiating interaction. Another explanation is that perhaps these close kin are moving towards the respondent whilst the latter also conducts a move regardless of whether or not that move is towards or away from the location at which the members of close family originally resided. Amongst non-movers, the finding is not expected. The reasons for this increase could be either that respondents in this age group are still having children as explained earlier or that these respondents are regaining contact with kin that was previously non-existent. It is evident that kinship network size is already fairly unstable in this age group with only 22.1 per cent of non-movers experiencing no change and this falls to 17.7 per cent amongst movers. A very small percentage of the sample experienced any decrease in the size of their kinship network between 2002 and 2006.

Table 70: Change in kinship network size between 2002 and 2006 by mover status and age

Age group (age in 2006)	Change in kinship network size between 2002 and 2006	Did not move between 2002 and 2006	Moved between 2002 and 2006	Total
50-64	Decreased	16 (3.0%)	1 (1.7%)	17 (2.9%)
	Stayed constant	117 (22.1%)	11 (17.7%)	128 (21.6%)
	Increased	397 (74.9%)	50 (80.6%)	447 (75.5%)
65-74	Decreased	42 (10.6%)	4 (13.3%)	46 (10.7%)
	Stayed constant	330 (82.9%)	25 (83.4%)	355 (82.9%)
	Increased	26 (6.5%)	1 (3.3%)	27 (6.3%)
75+	Decreased	36 (10.7%)	1 (3.3%)	37 (10.1%)
	Stayed constant	281 (83.6%)	29 (96.7%)	310 (84.7%)
	Increased	19 (5.7%)	0 (0.0%)	19 (5.2%)
Total	Decreased	94 (7.4%)	6 (4.9%)	100 (7.2%)
	Stayed constant	728 (57.6%)	65 (53.3%)	793 (57.2%)
	Increased	442 (35.0%)	51 (41.8%)	493 (35.6%)
Total		1,264 (100%)	122 (100%)	1,386 (100%)

Source: author's own analysis of British Household Panel Survey data, 2002-2006

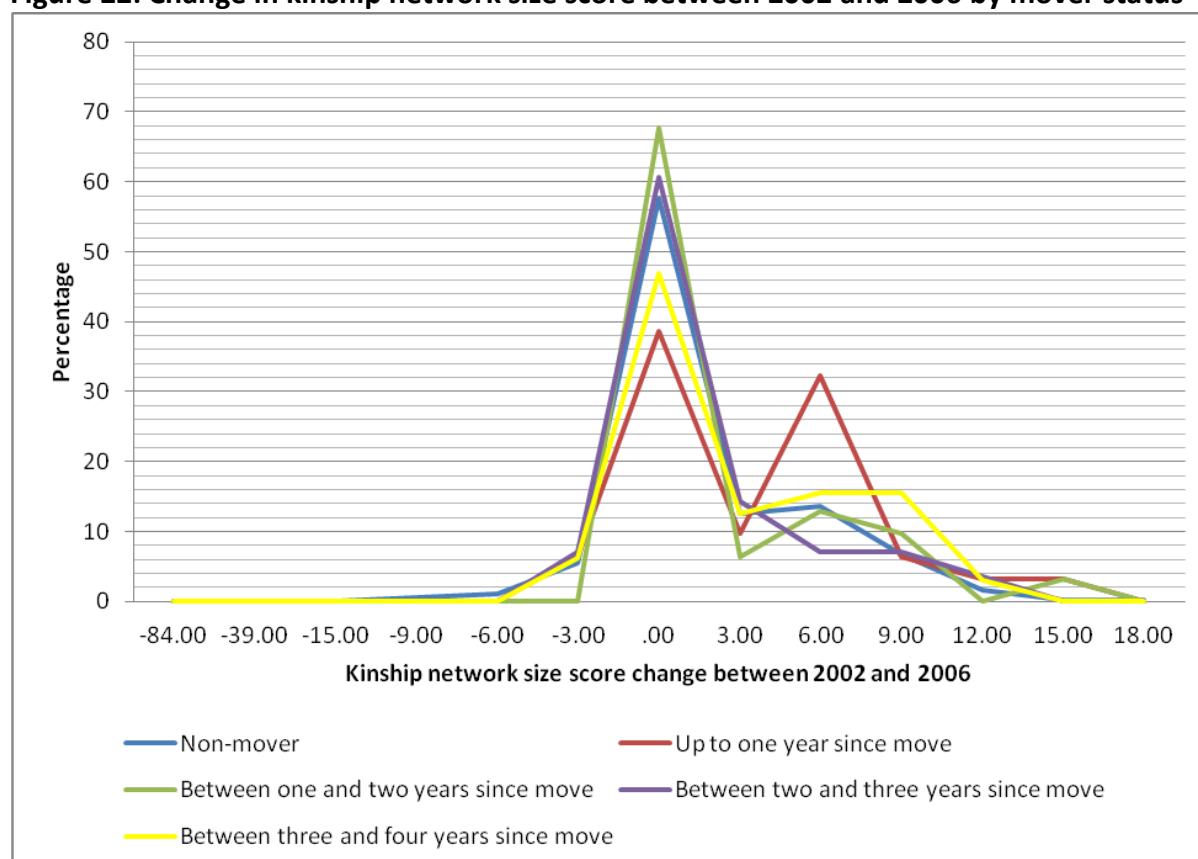
Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

At middle old and oldest old ages, kinship networks appear to remain more stable between the two waves with 82.9 per cent rising to 84.7 per cent of the 65-74 and 75+ samples respectively experiencing no change. Though the finding is not significant (p value not < 0.05), moving seems to have a stabilising effect on kinship network size with greater percentages of the sample experiencing no change than amongst non-movers. As hypothesised in **table 58** it was expected that there would be little change in kinship

network size between the two waves regardless of mover status. This has not proven to be the case at youngest old ages but more so at ages 65 and over. Interestingly, around 10 per cent of the whole sample at middle old ages experience a decrease in size and this is further accentuated amongst movers at 13.3 per cent. It may be the case that these moves are not proactive in order to strengthen kinship ties and instead are reactive to life course changes such as becoming widowed, a change in financial circumstance or health for the worse. The findings do not correspond with Litwak and Longino's frameworks, in fact they are converse to it; an increase in size is more prevalent at youngest old ages whilst a decrease becomes more so at middle old and oldest old ages.

The figure below illustrates the change in kinship network size score between the two waves by mover status. There is little discernible trend in negative change in size score by mover status. Despite the fact that movers were less likely to experience no change in size score than non-movers, those who had moved between one and three years previous demonstrated greater stability in network size than non-movers. One might have conjectured that more significant reconstruction or development in size score would have been more apparent the greater the length of time since moving and similarly in terms of disruption, the more recent the move the greater the level of disruption. The findings below challenge this conception in that clearly amongst movers, a greater degree of reconstruction or in this case more likely network development is apparent amongst respondents who had only moved up to a year previous whereas the two indicators of the most predated moves (between two and three years previous and between three and four years previous) exemplify contrasting trends where positive change was less likely demonstrated.

Figure 22: Change in kinship network size score between 2002 and 2006 by mover status



Source: author's own analysis of British Household Panel Survey data, 2002-2006

In line with Litwak and Longino's (1987) framework, it was expected that moves undertaken at youngest old ages would be characterised by decreasing kinship network frequency and proximity as more people (usually empty-nesters) moving at this stage of the life course are undertaking 'amenity' moves towards areas of sparse population, often coastal or rural, to enjoy early-retirement in good health and financial security with one eye on retirement.

Interestingly, as is evident in **table 70**, the high incidence of kinship networks of increasing size at youngest old ages has resulted in a higher proportion of networks in the same age group with increasing frequency as **table 71** shows. Over three quarters of the sample experienced an increase in the frequency of interaction in their kinship network. This varied slightly by mover status though not significantly (p value not <0.05) with an increase in frequency more likely amongst movers. Amongst those in the 65-74 age group as expected the prevalence of networks with decreased frequency is slightly higher (33.3 per cent) than amongst non-movers (32.4 per cent). At oldest old ages (75+), the story becomes

interesting; respondents who have moved are more likely to experience an increase in frequency. One can deduce from this, that here we are seeing 'third' moves being conducted where moves are being triggered not by prospective health problems but actual changes in one's physical or mental condition that may have brought about frailty or serious illness thus a loss of functional independence. The destination of these moves tend to be either shared or institutional housing as the care needs of the respondent surpass that which could be provided by close kin. It is likely that the choice of institutional care setting or retirement home is influenced by the proximity (thus frequency of interaction) of close kin.

Of all ages, it seems that a move was more likely to instigate an increase in kinship network frequency (54 per cent) than if no move had occurred (46.4 per cent). This insinuates overall that, bearing in mind over half the mover sample are aged 50 to 64, the majority of moves conducted are with or without the intention of increasing interaction with close kin and this most likely operates through increased proximity. Conversely, to move actually improved one's chance of not experiencing a drop in the frequency of interaction in their kinship network. Moving had a slightly destabilising effect on kinship network frequency than not moving.

Table 71: Change in kinship network frequency between 2002 and 2006 by mover status and age

Age group (age in 2006)	Change in frequency of interaction in kinship network between 2002 and 2006	Did not move between 2002 and 2006	Moved between 2002 and 2006	Total
50-64	Decreased	42 (7.9%)	2 (3.2%)	44 (7.4%)
	Stayed constant	91 (17.2%)	11 (17.7%)	102 (17.2%)
	Increased	397 (74.9%)	49 (79.1%)	446 (75.4%)
65-74	Decreased	129 (32.4%)	10 (33.3%)	139 (32.5%)

	Stayed constant	161 (40.5%)	12 (40.0%)	173 (40.4%)
	Increased	108 (27.1%)	8 (26.7%)	116 (27.1%)
75+	Decreased	106 (31.6%)	6 (20.0%)	112 (30.6%)
	Stayed constant	149 (44.3%)	15 (50.0%)	164 (44.8%)
	Increased	81 (24.1%)	9 (30.0%)	90 (24.6%)
Total	Decreased	277 (21.9%)	18 (14.8%)	295 (21.3%)
	Stayed constant	401 (31.7%)	38 (31.1%)	439 (31.7%)
	Increased	586 (46.4%)	66 (54.1%)	652 (47.0%)
Total		1,264 (100%)	122 (100%)	1,386 (100%)

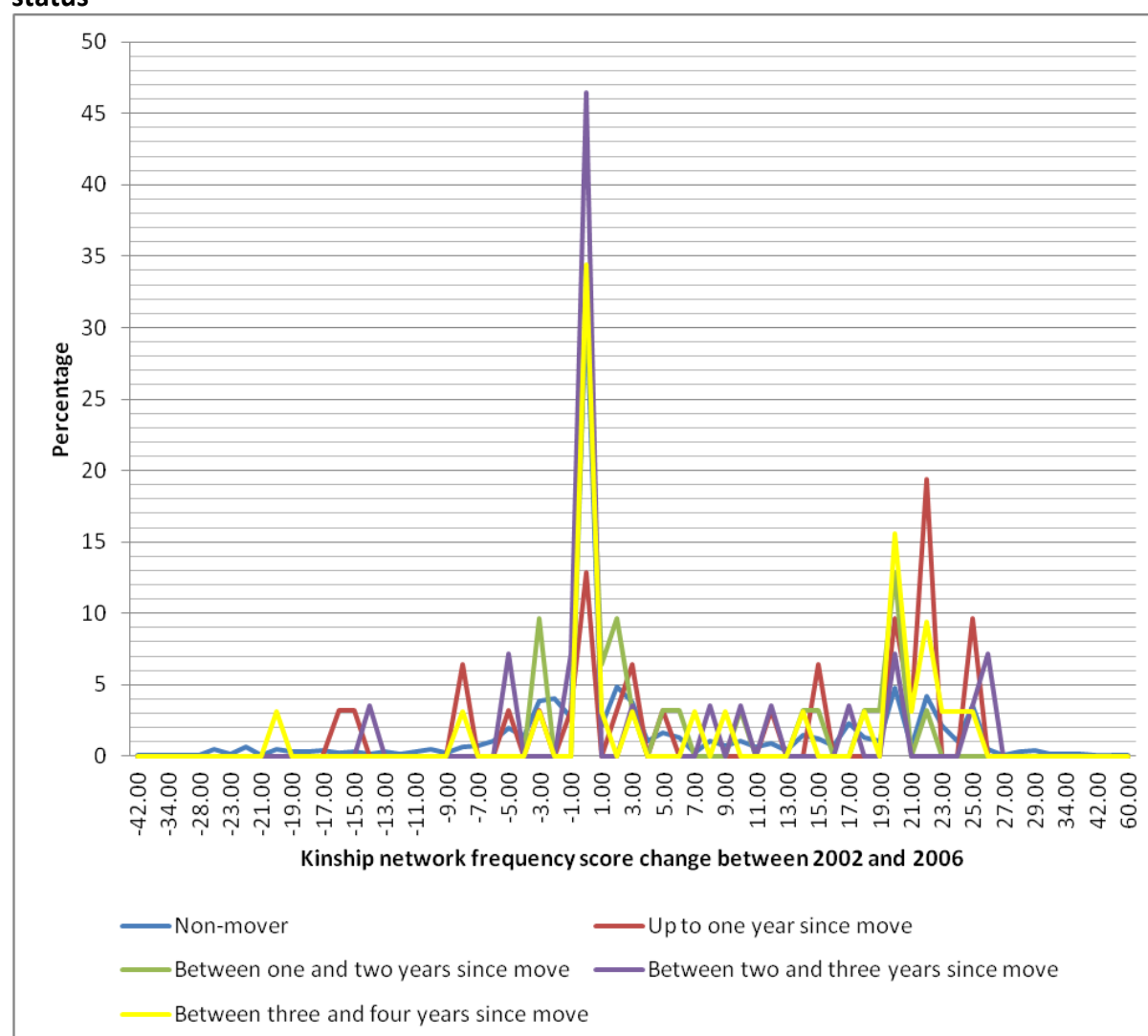
Source: author's own analysis of British Household Panel Survey data, 2002-2006

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

The relationship between mover status and kinship network frequency change is complex. Respondents who had moved between two and four years previous to wave p or had not moved were most likely to experience a constant frequency score between the two waves whereas moves undertaken up to a year previous were far less likely to be associated with constant frequency score. This might lead us to theorise that not moving is more likely to lead to stability in kinship network frequency scores than moving. Interestingly, if we look at the entire sample the effect of moving on the likelihood of a positive change in frequency score is quite astounding. Bar moves conducted between two and three years before wave p which appear to be an anomaly, there is clearly a gradient with more recent moves more likely associated with positive change in frequency score than less recent or no moves (moved up to one year previous (64.5 per cent positive change); moved between one and two years previous (58.1 per cent); between three and four years previous (56.3 per cent); non-mover (46.4 per cent)). Across the sample one can ascertain that more moves than not are related with an increase in the frequency of interaction in the kinship network, much of this is attributable to those in pre-retirement. Clearly, there is incidence of respondents (aged 50-64) moving towards mothers and fathers perhaps for the reason that their parents require more frequent and proximal informal support, along with the possibility that kinship

networks are growing with respondents having more children or at least regaining contact with them. In sum, it is apparent that moves undertaken up to a year previous are associated with a greater degree of positive change in frequency score than for other mover statuses; the figure below illustrates the peaks in the distribution (the *red line* is up to one year since move) at higher positive values. This is likely because half of the number of moves conducted up to a year previous were of respondents aged 50 to 64 (see **appendix**).

Figure 23: Change in kinship network frequency score between 2002 and 2006 by mover status



Source: author's own analysis of British Household Panel Survey data, 2002-2006

Not surprisingly as seen in **tables 70** and **71** where size and frequency scores are seen to increase substantially in pre-retirement, almost three quarters of respondents in the sample experienced an increase in proximity of close kin to themselves. There is little variation

between movers and non-movers in the proportion of networks that experience this increase. Therefore, one can ascertain that moves are not overly and necessarily being conducted for the purpose of increasing proximity to kin. Instead, regardless of mover status, the majority of respondents are regaining contact with close kin or have parents or adult children who move closer to them.

As expected, moves at ages 65 to 74, those coined by Walters (2000) as assistance moves are highly and significantly (p value <0.001) associated with an increase in kinship network proximity (43.3 per cent of the mover sample) compared to non-movers (14.3 per cent). It is likely that these moves are being conducted to reduce distance to one's adult children in order to more easily facilitate informal support or to pre-empt the need for future care thus the move is made before health deteriorates. This assistance mobility does not include moves into the homes of adult children as the measures presented in **chapters 6 and 7** do not account for other people living in the household.

Again in line with the hypotheses presented in **table 58**, 'third' moves undertaken at oldest ages (75+) were not more associated with an increase in proximity score (6.7 per cent) compared with non-movers (14.3 per cent). Moves at this age are likely to be into institutional care settings which does not assume that the respondent ego will also reduce the distance to close kin. It seems that moving is not associated with the increased likelihood of a decrease in attributes amongst kinship networks.

Table 72: Change in kinship network proximity between 2002 and 2006 by mover status and age

Age group (age in 2006)	Change in proximity of kin in kinship network between 2002 and 2006	Did not move between 2002 and 2006	Moved between 2002 and 2006	Total
50-64	Decreased	27 (5.1%)	4 (6.5%)	31 (5.2%)
	Stayed constant	110 (20.8%)	11 (17.7%)	121 (20.4%)
	Increased	393	47	440

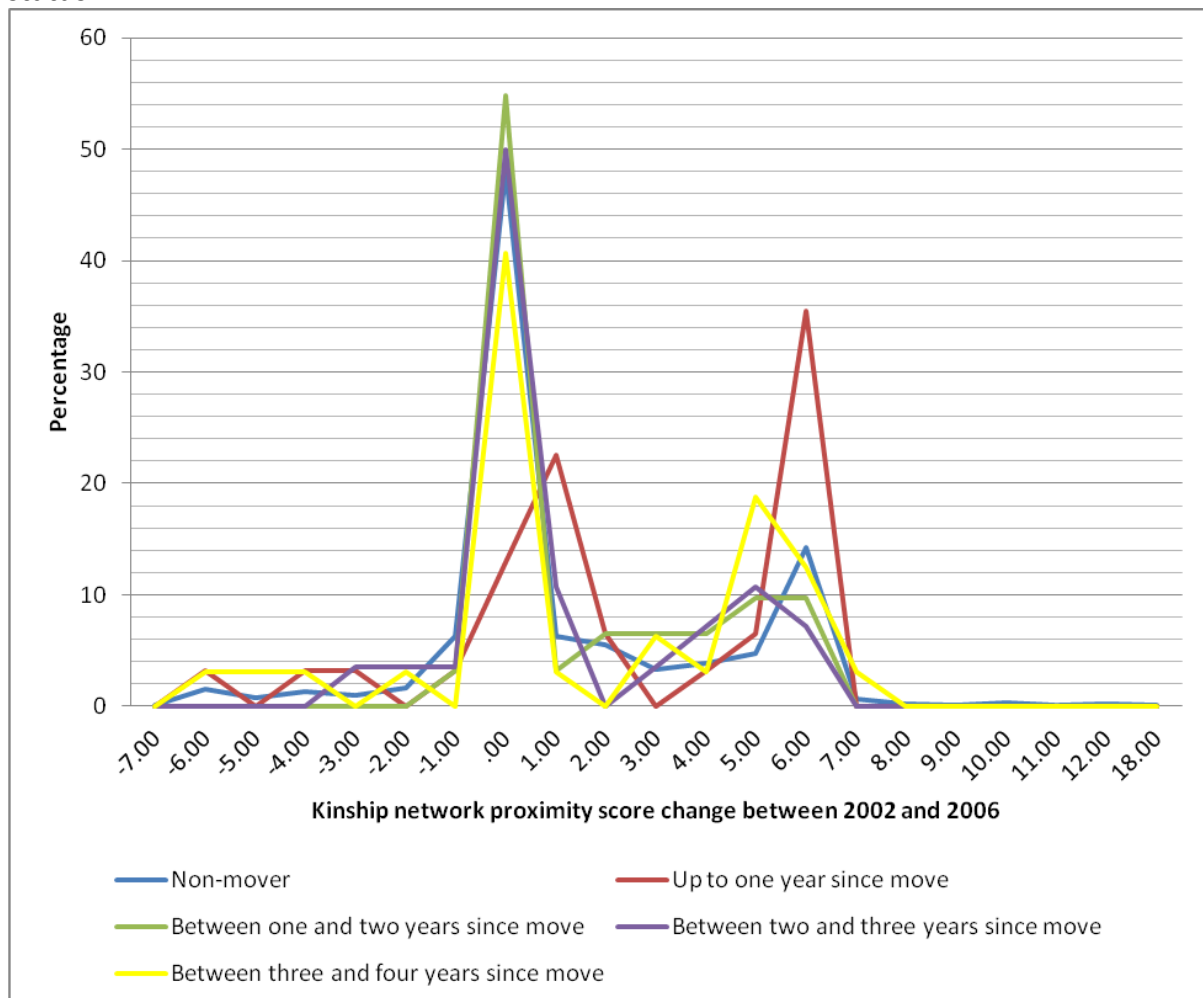
		(74.1%)	(75.8%)	(74.4%)
65-74***	Decreased	79 (19.8%)	5 (16.7%)	84 (19.6%)
	Stayed constant	262 (65.9%)	12 (40.0%)	274 (64.0%)
	Increased	57 (14.3%)	13 (43.3%)	70 (16.4%)
75+	Decreased	53 (15.8%)	3 (10.0%)	56 (15.3%)
	Stayed constant	235 (69.9%)	25 (83.3%)	260 (71.0%)
	Increased	48 (14.3%)	2 (6.7%)	50 (13.7%)
Total*	Decreased	159 (12.6%)	12 (9.8%)	171 (12.3%)
	Stayed constant	607 (48.0%)	48 (39.3%)	655 (47.3%)
	Increased	498 (39.4%)	62 (50.9%)	560 (40.4%)
Total		1,264 (100%)	122 (100%)	1,386 (100%)

Source: author's own analysis of British Household Panel Survey data, 2002-2006

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

A recent move exerts a very apparent effect on proximity score change. Respondents who conducted a move up to one year previous were characterised by greater increases in proximity score than is the case for non-movers and other mover statuses. In fact, almost three quarters of the mover sample (74.1 per cent) experienced an increased proximity score compared with only 39.4 per cent of non-movers. Undoubtedly, a large proportion of moves across the sample reduced distances to close kin and it can be surmised from this that the intention of these moves was to strengthen kinship ties.

Figure 24: Change in kinship network proximity score between 2002 and 2006 by mover status



Source: author's own analysis of British Household Panel Survey data, 2002-2006

The final attribute of kinship networks is the number of functions offspring perform for the network ego. **Table 73** displays the change in the number of functions between 2002 and 2006 by age. Amongst the whole sample there is greater stability between the two waves (57.3 per cent) and the proportion that stayed constant represents a larger portion in all age groups than is the case when examining kinship network size, frequency and proximity. Nevertheless, there is clearly a relationship between kinship network function change and mover status but mainly when we control for age. At pre-retirement (43.9 per cent) and youngest old (30 per cent) ages a move is more associated with an increase in the number of functions received by the network ego than is evident amongst non-movers at 33.7 per cent and 22.4 per cent respectively.

It was hypothesised that of non-movers, function score would be expected to increase in line with an age-related need for care. As is clear below, the trend is not uniform; the proportion of networks with increased function score is lower at ages 65-74 and rises again at ages 75+. It is not clear why this is the case that respondents in pre-retirement would be experiencing such increases in the number of functions they receive especially compared with older ages. The function score is composed of types of tangible support such as domestic tasks and assistance with transport along with monetary help. Pre-retirement ages which are on average characterised by good health and functional independence, one would presume do not dictate the need for informal care which is tangible.

In line with kinship network proximity attribute behaviour between the two waves, it is no surprise that function score at ages 65-74 is more likely to increase amongst movers (30 per cent) compared with non-movers (22.4 per cent). These types of moves are in all probability assistance moves as mentioned previously, with the aim of reducing distances to adult children. As hypothesised, it seems that the provision of these tasks is dependent on the distance between the adult children and parent.

Table 73: Change in kinship network functions between 2002 and 2006 by mover status and age

Age group (age in 2006)	Change in kinship network functions between 2002 and 2006	Did not move between 2002 and 2006	Moved between 2002 and 2006	Total
50-64	Decreased	0 (0.0%)	0 (0.0%)	0 (0.0%)
	Stayed constant	322 (66.3%)	32 (56.1%)	354 (65.2%)
	Increased	164 (33.7%)	25 (43.9%)	189 (34.8%)
65-74	Decreased	89 (22.4%)	5 (16.7%)	94 (22.0%)
	Stayed constant	219 (55.2%)	16 (53.3%)	235 (55.0%)
	Increased	89 (22.4%)	9 (30.0%)	98 (23.0%)
75+	Decreased	72	6	78

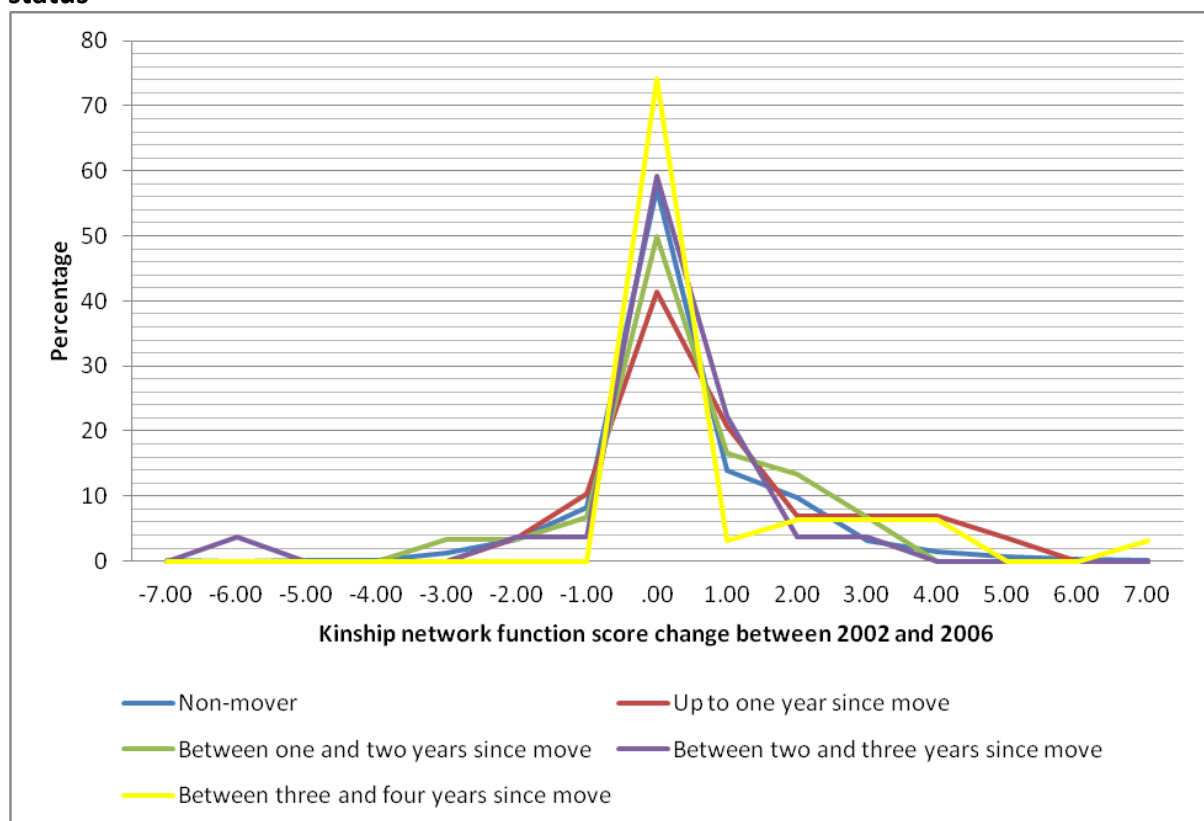
		(21.4%)	(20.0%)	(21.3%)
	Stayed constant	158 (47.1%)	18 (60.0%)	176 (48.1%)
	Increased	106 (31.5%)	6 (20.0%)	112 (30.6%)
Total	Decreased	161 (13.2%)	11 (9.4%)	172 (12.9%)
	Stayed constant	699 (57.3%)	66 (56.4%)	765 (57.2%)
	Increased	359 (29.5%)	40 (34.2%)	399 (29.9%)
Total		1,219 (100%)	117 (100%)	1,336 (100%)

Source: author's own analysis of British Household Panel Survey data, 2002-2006

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

The spread of score change by mover statuses is fairly normally distributed. Non-movers and moves which occurred three or more years previous are typified by a higher proportion of respondents with no change in function score change whereas more recent moves are associated with function score change. The figure below emphasises the need to disaggregate the findings as without a break down by time of move, this relationship would be masked as can be seen in the all ages row in **table 73**. More recent moves (up to two years previous to wave p) are most associated with kinship network function score change reinforcing the existence of a relationship between residential mobility and positive function score change. Of moves, a gradient is quite apparent with 44.8 per cent of moves conducted up to one year previous resulting in positive change, 36.7 per cent of moves between one and two years previous, 29.6 per cent of moves between two and three years previous and 25.8 per cent of moves between three and four years previous.

Figure 25: Change in kinship network function score between 2002 and 2006 by mover status



Source: author's own analysis of British Household Panel Survey data, 2002-2006

Across the whole sample, respondents in pre-retirement are more likely to experience increases in kinship network supportive capacity between the two waves (78.9 per cent) than no change (14.7 per cent) or a decrease (6.4 per cent). Taking into account all kinship network attributes across all ages, there is little variation in the proportion of change between movers and non-movers. The variation between movers and non-movers amongst those aged 65-74 is more accentuated; 40 per cent of movers experienced an increase in kinship function compared with 32.9 per cent of non-movers and this provides evidence of assistance seeking moves. There is little association between kinship network supportive capacity increase and mover status at ages 75+ however, only 30 per cent of the sample compared with 39.9 per cent of the mover sample experienced a decrease. On this evidence, it could be said that moving has a stabilising effect on kinship network supportive capacity.

Table 74: Change in kinship network supportive capacity between 2002 and 2006 by mover status and age

Age group (age in 2006)	Change in kinship network supportive capacity between 2002 and 2006	Did not move between 2002 and 2006	Moved between 2002 and 2006	Total
50-64	Decreased	36 (6.8%)	2 (3.2%)	38 (6.4%)
	Stayed constant	77 (14.5%)	10 (16.1%)	87 (14.7%)
	Increased	417 (78.7%)	50 (80.7%)	467 (78.9%)
65-74	Decreased	161 (40.5%)	10 (33.3%)	171 (40.0%)
	Stayed constant	106 (26.6%)	8 (26.7%)	114 (26.6%)
	Increased	131 (32.9%)	12 (40.0%)	143 (33.4%)
75+	Decreased	134 (39.9%)	9 (30.0%)	143 (39.1%)
	Stayed constant	83 (24.7%)	11 (36.7%)	94 (25.7%)
	Increased	119 (35.4%)	10 (33.3%)	129 (35.2%)
Total	Decreased	331 (26.2%)	21 (17.2%)	352 (25.4%)
	Stayed constant	266 (21.0%)	29 (23.8%)	295 (21.3%)
	Increased	667 (52.8%)	72 (59.0%)	739 (53.3%)
Total		1,264 (100%)	122 (100%)	1,386 (100%)

Source: author's own analysis of British Household Panel Survey data, 2002-2006

Note: ***significant at (p<0.001), **significant at (p<0.01), *significant at (p<0.05).

The 50-64 year age group and those who were continuing as a couple are selected as reference groups. Sex and mover status are excluded from the logistic regression analysis as the significance for both was too low at p values .201 and .164 respectively. The model demonstrates that those in pre-retirement were 10 times more likely to experience an increase in kinship network supportive capacity than respondents aged 65 to 74 (odds ratio

of .10) and 75+ (odds ratio of .14). Those who were continuing as a spouse or partner were twice as likely to experience positive change in the supportive capacity of their kinship network as respondents who were continuing divorced or separated (odds ratio of .49), 50 times more likely than those who were never married (odds ratio of .020) and 1.14 times more likely than those who were continuing widowed (odds ratio of .88) however the latter result was not significant (p value not <0.05). Interestingly, as found in **tables 63** and **68**, newly widowed respondents were more likely to experience an increase in their supportive capacity (1.35 times more likely than those continuing as a couple) however this finding was not significant at the 5 per cent level.

Table 75: Logistic regression model of kinship network supportive capacity positive change by covariates age and change in partnership status

Covariate		Odds ratio (Exp (B))	95% confidence interval
Age	50-64 (r)***	1.00	
	65-74***	0.10	0.08 – 0.14
	75+***	0.14	0.08 – 0.16
Change in partnership status	Continuing couple (r)**	1.00	
	Newly partnered	0.21	0.06 – 0.79
	Newly widowed	1.35	0.74 – 2.43
	Continuing widowed	0.88	0.62 – 1.24
	Newly divorced, separated	0.90	0.30 – 2.72
	Continuing divorced, separated**	0.49	0.30 – 0.82
	Never married***	0.02	0.01 – 0.06

*** p<0.001 ** p<0.01 * p<0.05

N= 1,370 cases

Source: author's own analysis of BHPS data, 2002-2006

Note: covariates entered in forward conditional stepwise model in the following order: age (wave p), change in partnership status (wave p).

Time elapsed since a move (wave p) and sex (wave p) were not significant thus were not entered in the model.

The Nagelkerke R Square value is 0.342.

Age is significantly associated with a negative change in kinship network supportive capacity; respondents aged 75+ are over 11 times more likely to experience a decrease in

the supportive capacity of their kinship network compared to those at pre-retirement ages whilst those at middle old ages were over 10 and a half times more likely to experience a decrease in supportive capacity. Both findings are highly significant at the 0.1 per cent level. Individuals who were never married were over five times less likely to experience a decrease in the supportive capacity of their kinship network. The odds ratios for all other partnership status changes were not significant.

Table 76: Logistic regression model of kinship network supportive capacity negative change by covariates age and change in partnership status

Covariate		Odds ratio (Exp (B))	95% confidence interval
Age	50-64 (r)***	1.00	
	65-74***	10.60	7.13 – 15.74
	75+***	11.07	7.24 – 16.94
Change in partnership status	Continuing couple (r)**	1.00	
	Newly partnered	2.54	0.46 – 13.85
	Newly widowed	0.62	0.32 – 1.19
	Continuing widowed	0.79	0.58 – 1.11
	Newly divorced, separated	0.47	.013 – 1.74
	Continuing divorced, separated	1.35	0.77 – 2.34
	Never married***	0.17	0.07 – 0.44

*** p<0.001 ** p<0.01 * p<0.05

N= 1,370 cases

Source: author's own analysis of BHPS data, 2002-2006

Note: covariates entered in forward conditional stepwise model in the following order: age (wave p), change in partnership status (wave p).

Time elapsed since a move (wave p) and sex (wave p) were not significant thus were not entered in the model.

The Nagelkerke R Square value is 0.241.

7.5. Summary

The analysis of social network change between waves l and p of the British Household Panel Survey yielded some interesting and surprising results. A priori expectations were set out in **table 58**; looking back retrospectively, it is clear that much of this conjecture has not been realised in the results. Moves were more likely to induce a change in companionship and

community network attributes than if no move had occurred. Scores in companionship network size and proximity and community network size were more likely to not stay constant if a move had occurred. On the other hand, companionship network frequency and community network frequency attributes were actually less likely to exhibit change following a move if occurring within the last year than if no move had taken place between 2002 and 2006. Among network egos aged between 65 and 74 (**table 60**), it is possible that the otherwise higher likelihood that the frequency of interaction in companionship networks may fluctuate (with negative over positive change more likely) following a move, is countered by friends and the ego who rally and make extra effort to retain contact. This would explain why the proportion of companionship networks which show an increase in interaction frequency decreases as the time since a move increases (**figure 18**) as perhaps the need for move-related support diminishes in time. This emphasises the need to investigate change in network attributes by age; those in pre-retirement and at oldest old ages are more likely to experience a decrease in the frequency of interaction following a move whilst moves conducted by network egos aged 65 to 74 are more associated with increase in interaction frequency. A presentation of companionship network frequency change by residential mobility without age definition masks these important differences. The proximity score for the closeness of friends in one's companionship network is much more sensitive to a move occurring. This further illustrates the point that depending on the age of the mover (and therefore the likely motives of the move) that residential mobility does affect companionship proximity and size but in many cases the frequency of interaction between the network ego and friends is less affected at least initially after the move. The lack of variation in the distribution of community network frequency scores between mover and non-mover networks is perplexing. It may be that those who move in later life initially feel isolated, if the distance between themselves and family and friends increases as a result, thus engage more with their new local community in order to rebuild their social network. However the statistics show after a period of more than a year that the proportion of community networks which exhibit negative change in frequency of interaction scores increases (**figure 21**).

It was believed that kinship networks were unlikely to change to a large extent as the number of contacted close family members was not expected to fluctuate in the majority of cases following a move. Respondents were not on the whole expected to regain contact with parents or children to a greater extent than if they had not moved. However, there are marked levels of change in kinship networks in Scotland and Wales between wave I and p and a greater proportion of networks exhibited change amongst movers. At this point one must reiterate that the analysis that explores kinship networks is indicative in what it infers about this type of social network solely derived from Scotland and Wales with smaller analytical samples as a result. Around 42 per cent of non-movers experienced a change in kinship network size and this is even higher amongst movers with around 47 per cent of the sample enduring a change. If disaggregated by age, the variation in the proportion of social networks experiencing a change is more marked. In pre-retirement, movers (80.6 per cent) were more likely to experience an increase in kinship network size than non-movers (74.9 per cent). This was totally unexpected. Likewise, this was also the case for kinship network frequency and proximity where the proportion of networks experiencing an increase was higher amongst movers than non-movers. The theory suggests that individuals at youngest old ages are most likely to conduct amenity moves (Litwak and Longino, 1987; Walters, 2000; Warnes, 1992a). These moves may inadvertently reduce the proximity to close kin. As in **table 72** we can see that age explains variation in the proportion of networks exhibiting a change between non-movers and movers. Amongst those aged 65 to 74, 43.3 per cent of movers experienced an increase in kinship network proximity score compared to only 14.3 per cent of non-movers. Of those in pre-retirement and aged 75+ the direction of the relationship was diametric between the age groups and not as accentuated. Thus in answer to the research question *'is there an association between the direction of social network attribute change by network type and mover status?'* of kinship networks, different ages are associated with shifting relationships between kinship network attribute change and residential mobility. Bures (1997) and Clark et al (1996) claim that moves undertaken by persons aged 55 to 64 are likely to be similar in characteristics and motives to moves undertaken immediately following retirement (65 to 74 years of age). This is not found to be the case as **tables 70, 71 and 72** show. As a matter of fact movers aged 65 to 74 and 75+ in terms of network size, frequency and proximity, show greater similarity in the proportion of

networks which exhibit change, and the direction of that change than respondents in pre-retirement. This supports the need to consider the social networks and residential mobility of individuals in pre-retirement along with the characteristics and moving behaviour of persons aged 65+ as clearly their residential mobility behaviours are very different.

With regards to kinship network frequency, 68 per cent of non-movers experienced a change rising to 69 per cent amongst movers. Concerning kinship network proximity, 52 per cent of non-movers experienced a change in score rising to 60.7 per cent amongst movers. In answer to research question three there is evidently a positive association between kinship network attribute change and residential mobility. There is an inverse relationship, albeit it negligible, between kinship network function change and residential mobility with 79 per cent of non-movers enduring a change in score in comparison to 76.2 per cent of movers. Perhaps surprisingly if we look at **figure 24**, moves conducted between one and three years previous were less associated with kinship network proximity change than if a move had not occurred. It was hypothesised in both kinship and companionship networks, that the proximity of members in the network would be highly sensitive to moves.

At the beginning of the chapter we asked the question, *is there evidence of varying levels of change in social network attributes depending on the length of elapsed time since a move?* A trend is apparent upon examining the association between kinship network attribute change and time elapsed since a move. Moves that occurred within the last year were associated with a greater probability of change in kinship network size, frequency, proximity and function. For example, 57.6 per cent of non-mover networks did not experience a change in kinship network size compared with only 38.7 of networks where a move occurred up to one year previous. There is no evident gradient in the proportion of kinship networks exhibiting size change between movers by the elapsed time since a move. Of non-mover networks 31.7 per cent experienced no change in kinship network frequency whereas only 12.9 per cent of networks exhibit this. Thus as expected, the trend continues if we look at kinship network proximity with 48 per cent of non-mover networks experiencing no change which contrasts sharply with networks which endured a move within the last year where 12.9 per cent exhibited no change. Rather conclusively, the extent of change in

kinship network attributes appears to vary by the length of elapsed time since a move if we compare networks which have experienced a move recently to non-mover networks. However between kinship networks where a move occurred up to four years previous, no gradient is visible.

On the contrary a slight gradient does exist between companionship networks which have endured a move. The great differential between the proportion of companionship networks that experienced a positive change in frequency amongst non-movers (38.7 per cent) and networks which endured a move that occurred within the last year (43.6 per cent) highlights the existence of a relationship between positive change in companionship network frequency and a move. As seen in **figure 18** the prevalence of companionship networks that exhibit a positive change in frequency decreases as the time elapsed since a move decreases from 43.6 per cent to 37.2 per cent of networks. The relationship between companionship network proximity and residential mobility is a little more complex and there seems to be no real trend between the time elapsed since the move and the distribution of attribute change. In answer to the research question, there is evidence of varying levels of change in social network attributes by the length of elapsed time since a move, though this is only applicable to proximity in companionship networks. Investigating kinship and community network change by the time elapsed since a move does not provide evidence of an association. In relation to the earlier research question posed in this chapter '*is there an association between the direction of social network attribute change by network type and mover status?*', if we solely consider social networks which endured a move up to one year previous contrasted with non-mover networks, stark variation is evident in the distribution of networks which experienced change or no change with the former more associated with moving and the latter not moving. However, except in the case of companionship network frequency, there was little cogent evidence to suggest that the influence of moving on social network attribute change wanes in proportion to the number of years since the move. To gain a better understanding of how the level and direction of change in network attributes may vary by the amount of time since a move will require the use of regression analysis. Unfortunately owing to low levels of significance, the time at move variable was only included in the logistic regression model to explore the covariates to community network

supportive capacity decrease (**table 69**). Adding granularity to the analysis by controlling for the time of the move does help accentuate the relationship between social network attribute change, particularly amongst companionship and community network types, and residential mobility with much more noticeable variation in score distribution between recent moves and non-mover networks.

The final research question posed at the start of the chapter is *'are sex and a change in partnership status associated with positive and negative change in network supportive capacity?'* There is evidence throughout the chapter to suggest that both sex and a change in partnership are associated with supportive capacity change in certain network types. In terms of observation, of interest is the distribution of change and constant scores between non-movers and movers by sex or a change in partnership status. Equally, the proportions of the mover sample who experience change or no change in supportive capacity between the factors of interest.

Men are more likely than women to experience an increase in the supportive capacity of kinship and community networks following a move between wave I and p (see **tables 86 and 90**). Furthermore amongst males the proportion of the mover sample relative to the non-mover sample who experienced an increase in supportive capacity score is greater than amongst females thus the effect of moving is stronger for men. On the other hand, women are more likely to experience a decrease in the supportive capacity of their community network following a move between wave I and p than men and females are more likely to experience a decrease if they move whereas men are much less likely. Sex does not seem to explain either the distribution of score change between males and females or the variation in the dispersion of score change between movers and non-movers. Sex was not a significant factor in the logistic regression analyses of kinship and community network supportive capacity thus was not entered into the models. Unexpectedly men were more likely to experience an increase in the supportive capacity of their kinship network following a move (**table 86**). Although women were not any more likely than men to experience a decrease in the supportive capacity of their kinship network following a move, not to the same extent as men experience an increase in the supportive capacity of their network

following a move and as moving can be stressful, there may be implications owing to the numbers of widowed females prevalent in the UK population, particularly those whose moves are triggered by becoming recently widowed (as seen in **table 22** in **chapter 5**).

Examining supportive capacity change by a change in partnership status has yielded interesting findings. It is clear that there is much variation in the disparity in distributions of change between mover status by a change in partnership status such as being newly widowed, remaining divorced or never married. Respondents who were continuing as a couple were more likely to experience an increase in kinship network supportive capacity. The likelihood of enduring an increase in supportive capacity varied substantially by a change in partnership status; those who become newly widowed were much more likely to see an increase in the supportive capacity of their companionship and community network. Of concern, respondents who remained widowed were also more likely to express negative change in the supportive capacity of their companionship networks meaning greater reliance on kinship networks. The policy implications of these findings, that of **chapters 5, 6** and **7** and the prospects for future research in this area are discussed in **chapter 8**.

Chapter 8. Discussion

Introduction

This discussion chapter highlights a few of the key findings in the three results chapters (**5**, **6** and **7**) under the research questions put forward throughout the thesis, in the context of the literature and evidence base. Starting with the social networks of older people in the UK as presented in **chapter 6**, the connections between social networks of varying levels of supportive capacity and network ego characteristics are assessed in terms of the implications for the individuals under study, social policy makers, local councils, the health and social care services of the areas where these older people may reside and importantly the opportunities for positive policy (in the context of active ageing), services and interventions. Following this, we consider the relationship between social network change and residential mobility in later life as examined in **chapter 7** against the literature and the hypotheses set out from the start. We identify the types of social networks that are most susceptible to disruption and in turn what contributions older people themselves can make to support networks in times of spatial transition.

Over a quarter of social networks in the UK have a ‘very low’ capacity to support the network ego

In reference to **chapter 6**, the social networks of older people in the UK have been examined in addressing the research question ‘what are the social networks of older people in the UK?’ The British Household Panel Survey has proven to be effective for conceptualising and constructing measures of social network attributes. In the 2006 wave it was found that over a quarter of the sample (27.3 per cent) had a social network with a ‘very low’ supportive capacity. In population terms, this equates to 5.6 million persons aged 50 and over in the UK (Office for National Statistics, 2010a). This is a sizeable portion of the UK population. A very low supportive capacity network translates to mean a social network that is very small containing few active social ties; these active ties are characterised by low interaction frequency and proximity. According to Smith and Christakis (2008) and Umberson and Montez (2010), lower levels of social interaction, connectedness and closeness to family,

friends and other acquaintances is associated with poorer health and mental well-being outcomes. One might imagine that an increased dependence on health and welfare services may occur as a result. Age-related deterioration in functional independence may also be exacerbated by a lack of social support. This in turn can contribute to worsening physiological health. Low levels of social support can be both a determinant and an outcome of poor physiological and mental health. Individuals with lower levels of self-perceived health might for example be less likely to have the capacity to sustain social interaction. We know for example that the continuity of social ties with neighbours and other community acquaintances are more likely to be dependent on reciprocity in order to sustain support (Thomese et al, 2003). Poor physiological health and mental well-being can limit proactive social behaviour, particularly one's ability to socialise outside their accommodation and interact with others.

As discussed in **section 3.1** technology and social media may have a role to play in increasing an older person's capacity to interact with other people. Those whose social activity is hampered by poor health may find that communication through the internet and video communication might offer more suitable channels for social support (Heeter et al, 2001). Electronic communication can appear to reduce geographical distances; we know that in many cases the separation between parents and their adult children is increasing (Michielin and Mulder, 2007). Skype, emailing, forums and online interest groups offer alternative channels of communication and the opportunity to augment existing social ties or build new relationships. Prieto and Leahy (2012) found that the primary motive for internet use amongst older people was social interaction with family and friends. However, there is still a long way to go to offer safer means of access and training to older people who want to engage with technology and the internet. This is currently reflected in the 'digital exclusion' of the older population in the UK.

There is no empirical evidence in the UK to support a growing opinion that intergenerational cohabitation is increasing in prevalence. There is however international evidence to suggest that prevalence is increasing (Bezrukov and Poigt, 2002; Tomassini et al, 2004). As a result of the macro-level pressures discussed in **section 3.1**, it may be that fewer

older people are living on their own. Currently 2.5 million people aged 75 and over live on their own (Office for National Statistics, 2012d) however this number as a proportion of the total population aged 75 and over may decrease. This means that more older people may have increased proximity to kin which will increase interaction frequency, and in turn increase the supportive capacity of their social network.

The results in **tables 52** through to **56** highlight the diagnostic properties of the findings in **chapter 6**. This section discusses the main characteristics associated with low supportive capacity. **Table 55** strongly emphasises the point that older people who possess social networks with a lower supportive capacity also report lower self-perceived health. Amongst high supportive capacities, 10.4 per cent of older persons reported low or very low self-perceived health. This increases significantly to 24.6 per cent amongst older people with social networks with very low supportive capacities. Ford et al (2006) isolated changes in an inflammatory marker called C-reactive protein with differing levels of social interaction, substantiating a relationship between social support and health. As far as can be seen, the British Household Panel Survey has not previously been utilised to conceptualise and measure social networks in later life, particularly with a view to investigating the relationship between health and supportive capacity, and thus the findings in **table 55** represent an original contribution to the evidence in this area.

Older persons with social networks of a lower supportive capacity are less likely to receive assistance with instrumental activities of daily living (IADLs). We hypothesise that many older people do not have the assistance to undertake IADLs, with stringent local council eligibility criteria further contributing to their unmet need. Over 80 per cent of Councils with Adult Social Services Responsibilities (CASSRs) do not provide for low and even moderate care needs (Age UK, 2012). Being unable to perform IADLs could in turn threaten an older person's ability to carry out basic activities of daily living (BADLs). In instances such as these where older people do not live in proximity to formal care services with suitable domiciliary and day help for which they are eligible or who do not possess social networks with a sufficient supportive capacity, they may be forced to move into extra-care accommodation, residential or nursing homes. Worse still, if they cannot afford to self-fund for care and are

not eligible for council support, their needs may go untended. **Table 56** demonstrates a negative relationship between social network supportive capacity and self-perceived financial circumstance, similar to that evident in **table 55** and discussed above. 26.1 per cent of the sample who are 'finding it difficult' to meet their needs because of their financial circumstance or are 'just about getting by', are more likely to demonstrate a lower social network supportive capacity. For example 11 per cent of those who are 'finding it quite difficult' have a very low supportive capacity. This compares to five per cent of those who are 'living comfortably'. If we examine the composition of those with 'very low supportive capacity' and 'low supportive capacity' it is clear that a greater proportion are 'finding it quite difficult' or 'finding it very difficult' than is evident at higher supportive capacities. As seen in **table 55**, lower supportive capacities are also associated with poorer self-perceived health. Thus the target group of interest would be respondents with low or very low supportive capacity who are struggling or just about getting by (the latter being important as they represent an 'at risk' group whose financial circumstance is liken to worsen as they age) as we now know the associations with poorer self-perceived health. This group represent 7.9 per cent of the sample which equates to around 1.6 million persons aged 50 and over in the UK population in 2006. The concern for this subset is that their lower perceived financial circumstances may not be sufficient to pay for means tested assistance with social care that they may need, especially as their informal social network is likely to be unsupportive.

In **chapter 6** social network supportive capacity is also correlated with age, marital status and gender. This information could aid both social policy and resource allocation for targeting purposes and an understanding of the relationships helps determine those groups which are more at risk of lower levels of perceived available social support in later life. As is evident from **table 52** a greater proportion of those aged 75 and over (40.1 per cent) have a 'very low supportive capacity' or a 'low supportive capacity' than in pre-retirement (26.9 per cent) and at youngest old ages (26.6 per cent). We also find from the analysis of the 2006 British Household Panel Survey wave that males are more likely to possess social networks with a lower supportive capacity than a higher supportive capacity compared to females and

that males represent 60.6 per cent of all respondents with a 'very low supportive capacity' compared with females who represent the remaining 39.4 per cent.

Respondents who were never married (18.6 per cent) or widowed (8.2 per cent) were more likely to have a very low social network supportive capacity compared to other marital statuses (**table 54**). Those who are never married, widowed or divorced represent 14.3 per cent, 22.1 per cent and 7.5 per cent respectively of those with the two lowest levels of social network supportive capacity. Acknowledged in the literature, there is an increasing prevalence of coresidence and other forms of intergenerational cohabitation (De Jong Gierveld, Dykstra and Schenk, 2012), and it is usually older individuals who have recently lost a spouse or partner through bereavement or marital dissolution, who are most likely to move in with adult children or vice versa. Assuming growing economic pressures are a key driver of coresidence, as Therborn (2004) states, it is these "generational economics" that might play a big part in increasing the supportive capacity of the social networks of the widowed or those who have never married.

Investigating the characteristics of network egos in concurrence with varying levels of perceived social support has highlighted those who are more at risk. Respondents who were male, at oldest old ages, outside of any form of union, in poor health and expressing a low level of financial circumstance were the most at risk of possessing a social network with a lower capacity to provide social support. These findings address a gap in the literature. As far as can be seen, no research in the UK context has considered holistically, the socio-demographic circumstance of older people relative to the supportive capacity of their social network.

There is an opportunity here for positive policy at the national and community level to do more for individuals who have little social contact in their lives. The findings of this analysis could help develop a local diagnostic tool that could be used to identify those more at risk of possessing a social network with a poor capacity to support. The important question is, once an individual is identified, what can be done to increase the supportive capacity of their social network? By the very nature of the fact that some older people have weak social

networks, inherently they are likely to be less socially visible and are more likely to be in poor health which in turn may restrict their social activity. Therefore service interventions must be proactive and reach out to these individuals. Information about social opportunities should be highly visible in places where those 'at risk' are most likely to frequent such as the local GP practice, dentist or hospital. This information should include websites, directories, telephone helplines and signposting about social support services. Local councils could look to build social support needs assessments into existing appraisals such as those for social care or even run standalone needs assessments. It may even be possible to have these assessments performed by older volunteers. It is also important that information and signposting interventions are targeted at care homes, sheltered housing and people living in the community for those who are less able to leave their homes.

Local voluntary and council services that run social activities have been proven to alleviate loneliness and social isolation (Steven and Van Tilburg, 2000). Third sector organisations have a role to play. Age UK's local partners offer free services in befriending, mentoring, buddying and partnering, way finders and community navigators. It is important that coverage of these services is UK-wide, in both urban and rural areas. Day centre services and social (interest) groups also represent significant opportunities for older people to see others in environments that are conducive to high quality support transfers. Cultural activities, local history and reminiscence classes, fitness and healthy eating sessions are group level social interventions that can be run at low costs, especially when they are managed by older people on a voluntary basis. It is these social exchanges at the community level that accentuate the contributions that older people can make not only to the social networks of others, but also their own.

Local councils need to take social isolation and loneliness seriously. There is evidence that loneliness can increase pressure on council and health services (Campaign to End Loneliness, 2013a). Older people should be given the opportunity to have a major role in the planning, delivering and monitoring of local services for social interventions. Their contribution to local communities can be invaluable. As the intended recipients of these services, they are also best placed to understand what they should look like and how they

should offer help to those in need. For this to be successful, easy access to participation activities is essential as well as strategies to support user-led organisations (East Riding of York Council, 2010). During these times of economic austerity, these opportunities for harnessing social capital must be taken. Voluntary interaction offers an opportunity for social interaction through feelings of empowerment and self-worth and chimes with ‘participation’, one of the core facets of active ageing (Commission of the European Communities, 2002; World Health Organisation, 2013).

Social networks are susceptible to change following a move

The analysis of British Household Panel Survey data has established that moving does explain some of the variance in the supportive capacities of some social network types. In answering research question three in **chapter 7**, an association between the direction of social network change and network type by mover status and age has been established. Social network attributes which may affect the levels of informal support available to older people have been found to be vulnerable to moving. In this section of the discussion there is a core focus on negative change in social network attributes associated with moving. Older persons who experience adverse change in the supportive capacity of their social networks following a move are likely to be more vulnerable to social isolation, loneliness, a loss of support to undertake ADLs and ill health.

Social networks comprised of friends (compiled by BHPS respondents as a collective of individuals to which they considered emotionally close) are labelled ‘companionship networks’. The attributes of this social network type changed in a manner that was hypothesised (**table 58**). Those aged 50 to 64 who moved were more likely to experience a decrease in companionship network size (14.1 per cent) than non-movers (9.6 per cent). It is likely that some of the movers aged 50 to 64 are doing so over longer distances in search of more sparsely populated, age-friendly areas, likely in conjunction with a spouse or partner and in turn leaving behind friends. It is probable that the reduction in companionship network size is an unintended consequence of this. It could be speculated that persons in pre-retirement are likely to experience fewer threats to their functional independence that

could otherwise be aided by informal support than individuals at middle old and older old ages, hence a disregard for the loss of network size through moving. Nevertheless, companionship is a primary source of espousal throughout the life course and this is no less the case in later life.

There is an association between companionship network frequency change and residential mobility. 43.6 per cent of those in pre-retirement experienced a decrease in the frequency of interaction within their companionship network compared to 37.4 per cent of non-movers. This finding correlates with that of Litwak and Longino (1987), Walters (1990) and Warnes (1992) who all recognised a higher prevalence of amenity moves amongst people aged 50 to 64. This variation by mover status would otherwise be masked if it were not disaggregated by age. Arguably in terms of policy and targeting, individuals in pre-retirement are not as likely to need high levels of social support and if they are, their better health and financial circumstance as coping resources may mediate this. A similar trend is found amongst those aged 75 and over whereby mover networks were more likely to experience a decrease in score (47.5 per cent) compared to non-mover networks (40.8 per cent).

It was hypothesised that the proximity of social networks would be particularly sensitive to change following a move. This was noticeable both amongst kinship and companionship network proximity scores and the level of change (at all older ages) in the attribute following a move. As **table 61** shows a change in proximity score was more evident amongst mover networks with 85 per cent experiencing a change compared to 73.7 per cent of non-mover networks. As in kinship networks, this could be owing to the geographic mobility of friends along with that of the network ego. When disaggregated by age, a number of findings emerge. Of networks where the ego is in pre-retirement, a move is more associated with a change in proximity score than if no move occurred. Interestingly, the proportion of movers that experienced a decrease in network proximity score is 20.7 per cent higher than amongst non-movers; and movers were also more likely to experience an increase in score, with the proportion being 20.6 per cent higher than amongst non-movers. There is an

unmistakable association between residential mobility and a change in companionship network proximity score in later life amongst persons in pre-retirement.

There is similarly significant variation in proximity score change between 2002 and 2006 by mover status at ages 65 to 74, 46 per cent of mover networks experienced a negative change in proximity score compared to 37.4 per cent of non-mover networks. Whether there is a lack of concern for the closeness of friends amongst movers in later life, or that the reduced proximity of friends is unintended or perhaps not considered problematic, is difficult to discern. The increased distance between the network ego and emotionally close friends is less likely to be problematic to the network ego. The groups that are likely to be of most interest to policy makers, and the local authorities to which they move, are those older persons who have underestimated the effects of moving away from friends on their frequency of interaction with them or cannot avoid moving (i.e. experience a pushed move owing to for example financial pressures or health constraints) thus endure the unintended consequence of distancing themselves from emotionally close friends. These older movers are less likely to be able to call upon the support of friends to mediate apprehensions and provide emotional or even tangible support. The issue of increased distances to friends may be exacerbated by the stress of a recent move and contribute to a person's social isolation and loneliness. Almost 52 per cent of pre-retirement movers exhibited a decrease in the proximity of friends to the network ego, 12.6 per cent more than is the case amongst pre-retirement non-movers. It is amongst those in pre-retirement of whom the effects of moving on companionship network proximity are underestimated or unintended, who should be of the greatest concern to local authorities, welfare and public service providers along with suppliers of health and social care. However it could be argued that this subgroup may also be better prepared for disruption to their companionship networks owing to their younger age compared to older cohorts.

The size of the community networks of older people have proven to be less sensitive to residential mobility than that of kinship networks but more so than companionship networks. In answer to research question three and as hypothesised in **table 58, table 65** illustrates that moving is more associated with a change in community network size than if a

move did not occur. We find that moving is more associated with a decrease in the size of community networks amongst those in pre-retirement and at ages 75 and over. The slightly higher prevalence of decreased size in community mover networks in pre-retirement might indicate a significant number of moves constituting those which are amenity driven to rural areas where access to evening classes, voluntary and social group and unpaid work opportunities are likely to be more limited. At later stages of the life course (75 and over), decreases in the size of community networks may suggest moves which are forced with the unintended but inevitable consequence that community interaction declines as one's social sphere of interface decreases.

We now know from the BHPS data analysed in **chapter 5** that people in pre-retirement and at older old ages are the most likely to move. Similarly those with lower self-rated health and financial circumstance who are outside of formal union and who rent were more likely to move at older ages. These associated characteristics can indicate whether a move is positively or negatively selected. It would seem from the majority of the findings, that most moves are negatively selected thus not undertaken through choice and more as a result of push factors such as poor housing fit because of declining health or financial trouble.

The findings in **chapters 5** and **7** have made it possible to identify the types of person who is most likely to move in later life and what segments of their social networks are most vulnerable to disruption. This information can be used constructively to support people who have recently moved to an area. Firstly, the findings on the determinants to moves can be used to discern the likely characteristics and motives of movers. Estate agents and frontline health care services (e.g. GP practices) are likely to be the first line of contact for people moving in later life. This represents a real opportunity; these professional networks should be used to inform older movers about community activities and projects, evening classes and local groups, voluntary opportunities, befriending services and other social activities in their new community. People who are new to an area can find it difficult to assimilate especially when little is known about opportunities to engage in the local community. This could all be packaged together as information and advice in booklet form. Handing these out would not distract from the primary activity of estate agents or healthcare

professionals. Furthermore, this is an opportunity for older people who are ageing-in-place to support those who are moving to their community. Older people could volunteer to spend time in GP surgeries for example to inform movers about social opportunities. The benefits of this may be two-way as those who age-in-place are able to make a positive contribution and help those who have just moved, whilst individuals who are new to the area receive information and advice that might become very important to them as they look to assimilate into their new community. The direction and targeting of this could also be informed by the findings in the thesis regarding who in later life is likely to have a weaker social network and undertake a residential move. As a result of this research, Age Concern Christchurch plan to trial a 'new to the area' pack which will signpost people towards a range of social activities and opportunities in their new community.

Chapter 9. Conclusion

The research has set out to critically explore the relationship between residential mobility and social networks in later life. The juxtaposition of these two concepts represents an unexplored area in the field of social gerontology. The central argument and hypothesis is that a significant association exists that is best accentuated when the components that comprise social networks and their ability to provide informal support are disaggregated. The analysis in **chapter 7** tests for a relationship between social network attribute change and residential mobility and finds that there are indeed associations. This is a core argument in the thesis and represents an original contribution to the literature. Moves that occur in later life are significantly associated with variation in network attributes which might facilitate or undermine social support as discussed in **chapter 8**. Respondents were found to be at particular risk of negative disruption to the supportive capacity of their companionship network if they moved, particularly if they were aged 50 to 64. Respondents aged 75 and over were found to be at greater risk of negative change to the supportive capacity of their community network if they moved.

The author has selected key attributes size, frequency, proximity and function as apposite to measure the supportive capacity of a network to an older person. These attributes were selected as derived from credible sources in the literature (Carrington, 1981; Gottlieb, 1981; Howard, 1981; Vidal and Kley, 2010) and a series of a priori expectations. As far as can be seen from the literature, no research has investigated the connection between moving and change in social network attributes. **Chapter 3** has in great detail outlined the importance of social support for older people's quality of life and mental and physiological health. This gives credence for the primary focus on the capability of social networks to provide this capital within the context of residential mobility.

A central argument in the thesis is that social survey data can be used to conceptualise social networks and importantly its supportive capacity (level of perceived support available to the network ego). The findings at the end of **chapter 6** validate this approach as many of the correlations between the levels of social network supportive capacity and the

characteristics of network egos were expected. Older people with poorer health and lower financial means had less potentially supportive social networks. Similarly, those who were at older old ages and outside of any form of union were equally unlikely to possess social networks with an adequate supportive capacity for their needs. The author is satisfied that the British Household Panel Survey is an appropriate tool both for the conceptualisation and operationalisation of older people's social networks and their supportive capacity (as discussed in **chapter 4**). The examination of social networks in later life conceptualised and measured using the BHPS also represents an original contribution to the social gerontology literature. Never before has the BHPS been used to measure social networks in this way to gauge supportive capacity. Neither have the characteristics of network egos been assessed against the supportive capacities of social networks. As a result of this the thesis constitutes a methodological contribution to the literature.

There are other possible methods for measuring social networks that do not involve quantitative datasets. Qualitative approaches such as that mentioned in Milardo (1988) employ name-eliciting procedures to build a network of 'close associates'. This did not represent an appropriate approach for the purposes of this research as qualitative studies such as this tend to be undertaken on a much smaller basis. It was essential that the sample size was sufficiently large to find a sizeable group of older movers (who represent a hard-to-reach group in terms of research recruitment) who could be disaggregated by the supportive capacity of their social networks by type in order to study the relationship between social network change and residential mobility. Similarly, to investigate the determinants to residential mobility it was necessary to employ a large-scale survey to create a large pooled sample for a paired years analysis. It was not the eventual intention of the research to measure quality in social ties between older persons and constituents in their social network. In order to measure this in large-scale social surveys one would need data on received social support with respondents providing sociometric detail as to the quality and exact nature of support received from persons in their network. The analysis in the thesis is limited by the availability of data in the British Household Panel Survey (and other surveys such as the English Longitudinal Study of Ageing that were considered during initial scoping exercises). A respondent's declaration of friends did infer the quality of social

ties as the individuals in question are considered as companions. Likewise, friends are ranked in their closeness to the network ego thus the quality of the social tie is again considered. The types of task that respondents were in receipt of from offspring were also considered. Aside this however, the quality of social ties were not conceptualised or any actual social activity. BHPS data only allowed the author to capture the potential for social interaction; throughout the thesis this has been referred to as perceived or supportive capacity. As discussed by Cohen and Sokolovsky (1978) and Bernard et al (1984) 'interactive networks' use activity data which encapsulates actual social transactions in determining older people's social networks. It was the initial intention of this research to measure received social support from kin, companions and community members. Further areas of scholarship would benefit from large-scale quantitative data entailing records of activity. It would be revealing to examine the relationship between perceived and received social support and their alignment with each other; one would hypothesise a fairly strong and positive correlation indicating that a social network's ability to support its ego is related to the volume and quality of actual support received. On the contrary, those with social networks with a lower supportive capacity are most likely at risk of low levels of received social support. The findings at the end of **chapter 6** endorse the research focus on perceived social support. Furthermore, an examination of access to health and welfare services and health outcomes of individuals with varying social network supportive capacities would ratify the use of perceived support to infer the volume and quality of support received by the network ego.

Another way of conceptualising social networks is to recognise reciprocity in social ties. In the literature Barrera (1981), Fischer (1982), McCallister-Jones and Fischer (1978) and Phillips et al (2000) consider 'exchange networks'. Information on the types and level of social support that a person offers to others, in turn builds a picture of their capability to be supportive which might infer something about their own quality of life, health, social capital, wealth and general resilience. It may also infer something about the demand on the network ego from support-dependants in the social network and therefore the likelihood of receiving reciprocated support from certain constituents. One might also hypothesise that people get satisfaction from supporting others particularly where they can see the benefits.

Cantor (1979), Litwak and Longino (1987) and Seigel (1985) have emphasised that reciprocity in relationships helps sustain them; two-way transfers are more likely to be associated with requited and healthy ties. Thomson et al (2003) reiterate the point explaining that this is particularly true for supportive relationships between neighbours. Thus the supportive capacity of a network might be partly reliant on the level of reciprocity throughout it. It might also infer the strength of a relationship to mediate the disruptive effects of moving and its ability to reconstruct if one has family, friends and members of the community who may be more supportive as a result of the types of espousal the network ego had provided for others in the past. It is a shortcoming in the analysis in this thesis that reciprocity is not considered. The omission of reciprocity as a concept is partly attributable to the resource and capacity limitations of this PhD research project but also a lack of data in the BHPS on support-giving (data only exists on the types of tasks respondents undertake for their offspring and not any other informal contact). Future research on social networks in later life should consider collecting reciprocal activity data in order to construct a more complete picture of supportive social systems in later life.

Another core argument in the thesis is that there are socio-demographic characteristics associated with inflated probabilities of moving and these determinants to moves in later life may infer the possible motives driving the incidence of residential mobility. For example, as in Evandrou et al (2010) becoming widowed was highly associated with an increased risk of moving within the next year. One might assume that this heightened risk is partly attributable to the triggering effect of suddenly becoming widowed. This leads to conjecture that the move is forced, in reaction to this recent life change and therefore any consequences of the move may be unintended and not something for which the network ego will be prepared. If we consider that for example people aged 50 to 64 with companionship networks are more susceptible to negative change in supportive capacity and that a greater proportion of these movers may be recently widowed, these widowers are less likely to be able to call upon the support of close friends following a move during what is often a stressful time. Furthermore, these persons will have very recently lost a close source of intimate support; in some cases the spouse may have provided tangible everyday assistance in carrying out ADLs with the assistance of friends. If moves are forced

as a result of a recent partnership change, for example because one's accommodation becomes unsuitable (e.g. poor housing-fit, excessive maintenance demands) without the co-residence of a spouse and at the point of destination, friends are not available to provide support, in the worst case scenarios where someone's needs render them not eligible for state funded domiciliary care and they cannot afford to self-fund, their needs become untended.

A flaw in the analysis is the slightly tenuous link between unattributed moves and the examination of social network supportive capacity change in **chapter 7**. Future research should control for the determinants of moves (particularly change variables) when investigating the interaction between supportive capacity change and residential mobility, bringing the analysis in **chapters 5** and **7** together. A further shortcoming in this research is the omission of any data on the characteristics of moves. With special license access to BHPS data it may have been possible to control for the distance of the move which we hypothesise might be a factor in affecting the proximity of constituents to the network ego.

In **chapter 7** the analysis explored the effects of sex and a change in partnership status and their association with supportive capacity change. It was believed that these factors may play a role in mediating change in the social networks attributes that dictate supportive capacity following a move; the latter element of this is dependent on the determining effects of characteristics found to be related to residential mobility rates that are significantly different to the sample mean mover rate. Owing to the time lapse between moves that may have occurred between up to four years previous to wave p (2006) and the final observation point for measuring change, it is not possible to discern whether different partnership status changes or sex arbitrate change, lessen the initial change following a move or improve the mover's ability to reconstruct their social network following a move. Further analysis would benefit from a larger analytical sample of movers in order to isolate moves that occur over the course of a year or less. As mentioned in **chapter 4** the BHPS did not have adjacent waves that comprised the necessary variables to construct social network attributes; ironically the findings in the thesis refute the rationale of the survey designers that social network attributes would not change over a short time period.

The analysis in this thesis does have further limitations that must be highlighted for the purpose of future areas of scholarship. The measurement of social networks was purely of circumstances outside of the household. Individual-level data did not permit the inclusion of household circumstance in the overall conceptualisation of social networks. Raw data on the numbers of people who resided with the respondent are available however no information is provided as to who these individuals are to the network ego thus one cannot deduce whether or not a social tie is likely to exist and if so, the nature of the relationship and its supportive potential. The analysis of wave I (2002) was fraught with missing data issues. Due to an unfortunate re-routing of respondents from the England and Northern Ireland samples, there was no data which could be used to construct kinship network measures. Thus, all cases for kinship network measures in England and Northern Ireland were dropped from the analysis both in wave I (2002) and wave p (2006). For this reason, the analysis and discussion of change in kinship network attributes and residential mobility was given less emphasis in **chapter 7** than initially intended. Understanding Society (a continuation of the British Household Panel Survey intended to be compatible with the Survey of Health, Ageing and Retirement in Europe (SHARE)) has variables suitable to construct social network attributes. The use of the BHPS in this thesis to measure social networks should pave the way for future analysis employing Understanding Society data which is more recent and importantly collects data on a wider range of social ties in later and the quality and functions of these social interactions. Another important area of possible scholarship building on this analysis is to examine the association between changes in the level of informal support 'received' by older people and their use of health and welfare services. This may help determine whether local authorities and councils should take note of older people who are at higher risk of needing state funded and provided care and broader services following a move owing to disrupted informal support networks.

This research has found that older people who are the most inclined to move are also more likely to be suffering from some form of adverse circumstance such as enduring an ill-change in health, a drop in financial security and capability and a dissolution or loss of partnership. Compounding all of this, people at older old ages are more likely to move; those at ages 75 and over are the most likely to have functional mobility problems, lower

accrued wealth due to a number of years without paid income and smaller social networks owing to attrition. We now know that companionship and community networks are highly susceptible to disruption following a move, particularly amongst people aged 75 and over. In reality, this may mean that many older people are losing important sources of emotional support and in some cases assistance with everyday tasks and activities of daily living, especially if they are dependent on others to subsist. This may put increased pressure on close kin who as carers are already feeling the pressure, carrying the burden of a failing social care system which itself is in desperate need of funding and reform. In many cases, older people may not have an existing family to provide the tangible support they need and these scenarios may be particularly prevalent amongst those who are widowed for example. We know that almost three-quarters of people aged 75 and over live on their own (Understanding Society data, 2011). Many older people may not possess a kinship network thus any disruption to their companionship or community networks may be felt more greatly.

Local authorities and advice giving organisations should better publicise the possible consequences of moving on one's social networks. People should not underestimate the stresses of moving both as a standalone phenomena but also the very real possibility that proximity and in turn the frequency of interaction with friends and family is likely to be disrupted. As has been found, many older people do not have the luxury of planning moves and preparing for their likely consequences. Often moves are forced owing to adverse changes in health (or in preparation for worsening health condition) and financial pressures all of which harm the fit between a resident and their accommodation. Computers and the internet have a big part to play in helping older people connect with family and friends who otherwise live too far away to provide regular support. Likewise, local communities could do more to reach out to the most financially and socially excluded and vulnerable older people; in this case specifically those who have recently moved. Charities such as Age UK have an important role to play in providing voluntary support to recent movers who most need it through befriending services, advice and information, engagement and volunteering to mention a few; the findings in this thesis reveal those most likely to have low or very low supportive capacity social networks in later life are persons who are most at risk of further

disruption to these networks. This information should be used for resource and advice purposes towards targeting and to better understand the social networks of older people in later life in the UK. There is a trend of increased geographical separation between older people and their adult children (Michielin and Mulder, 2007). With a failing formal support system and a rapidly ageing population, informal support is becoming an increasingly important source of support for older people and one that if threatened can have grave consequences for an individual's health and quality of life.

Appendix

Table 77: Mover status by age group (including England and Northern Ireland samples)

Age group (age in 2006)	Non-mover	Up to one year since move	Between one and two years since move	Between two and three years since move	Between three and four years since move
50-64	2,215 (45.7%)	67 (46.5%)	54 (45.0%)	78 (50.3%)	103 (60.2%)
65-74	1,417 (29.2%)	44 (30.6%)	35 (29.2%)	37 (23.9%)	34 (19.9%)
75+	1,220 (25.1%)	33 (22.9%)	31 (25.8%)	40 (25.8%)	34 (19.9%)
Total	4,852 (100%)	144 (100%)	120 (100%)	155 (100%)	171 (100%)

Source: author's own analysis of British Household Panel Survey data, 2006

Table 78: Mover status by age group (excluding England and Northern Ireland samples)

Age group (age in 2006)	Non-mover	Up to one year since move	Between one and two years since move	Between two and three years since move	Between three and four years since move
50-64	631 (42.8%)	20 (50.0%)	13 (35.1%)	23 (57.5%)	20 (55.6%)
65-74	462 (31.4%)	13 (32.5%)	11 (29.7%)	11 (27.5%)	8 (22.2%)
75+	380 (25.8%)	7 (17.5%)	13 (35.1%)	6 (15.0%)	8 (22.2%)
Total	1,473 (100%)	40 (100%)	37 (100%)	40 (100%)	36 (100%)

Source: author's own analysis of British Household Panel Survey data, 2006

Table 79: Bivariate correlation between kinship network proximity and kinship network frequency

Correlations			
		pkinprox	pkinfreq
pkinprox	Pearson Correlation	1	.857**
	Sig. (2-tailed)		.000
	N	1503	1503
pkinfreq	Pearson Correlation	.857**	1
	Sig. (2-tailed)	.000	
	N	1503	1503

** . Correlation is significant at the 0.01 level (2-tailed).

Source: author's own analysis of British Household Panel Survey data, 2006

Table 80: Bivariate correlation between kinship network function and kinship network proximity

Correlations		pfunc	pkinprox
pfunc	Pearson Correlation	1	.261**
	Sig. (2-tailed)		.000
	N	1503	1503
pkinprox	Pearson Correlation	.261**	1
	Sig. (2-tailed)	.000	
	N	1503	1503

** . Correlation is significant at the 0.01 level (2-tailed).

Source: *author's own analysis of British Household Panel Survey data, 2006*

Table 81: Bivariate correlation between kinship network function and kinship network frequency

Correlations		pfunc	pkinfreq
pfunc	Pearson Correlation	1	.267**
	Sig. (2-tailed)		.000
	N	1503	1503
pkinfreq	Pearson Correlation	.267**	1
	Sig. (2-tailed)	.000	
	N	1503	1503

** . Correlation is significant at the 0.01 level (2-tailed).

Source: *author's own analysis of British Household Panel Survey data, 2006*

Table 82: Bivariate correlation between community network size and community network frequency

Correlations		pcommunsiz	pcommunfreq
pcommunsiz	Pearson Correlation	1	.886**
	Sig. (2-tailed)		.000
	N	1503	1503
pcommunfreq	Pearson Correlation	.886**	1
	Sig. (2-tailed)	.000	
	N	1503	1503

** . Correlation is significant at the 0.01 level (2-tailed). **Source:** *author's own analysis of British Household Panel Survey data, 2006*

Table 83: Age grouping by marital status

agecategories1 * maritalstat1 Crosstabulation

			maritalstat1				
			Married/living as a couple	Widowed	Divorced/separa ted	Never married	
agecategories1	50-64	Count	1021	89	253	71	1434
		% within maritalstat1	70.3%	18.2%	77.6%	51.1%	59.6%
	65-74	Count	293	134	50	36	513
		% within maritalstat1	20.2%	27.5%	15.3%	25.9%	21.3%
	75+	Count	138	265	23	32	458
		% within maritalstat1	9.5%	54.3%	7.1%	23.0%	19.0%
Total	Count	1452	488	326	139	2405	
	% within maritalstat1	100.0%	100.0%	100.0%	100.0%	100.0%	

Source: author's own analysis of pooled paired year BHPS data, 1991-2007

Table 84: Bivariate correlation between companionship network frequency and companionship network proximity

Correlations

		pcompanionfreq	pcompanprox
pcompanionfreq	Pearson Correlation	1	.700**
	Sig. (2-tailed)		.000
	N	4662	4639
pcompanprox	Pearson Correlation	.700**	1
	Sig. (2-tailed)	.000	
	N	4639	4653

** . Correlation is significant at the 0.01 level (2-tailed).

Source: author's own analysis of British Household Panel Survey data, 2006

Table 85: Bivariate correlation between community network size and community network frequency

Correlations		pcommunfreq	pcommunsiz
pcommunfreq	Pearson Correlation	1	.877**
	Sig. (2-tailed)		.000
	N	5132	5132
pcommunsiz	Pearson Correlation	.877**	1
	Sig. (2-tailed)	.000	
	N	5132	5132

** . Correlation is significant at the 0.01 level (2-tailed)

Source: author's own analysis of British Household Panel Survey data, 2006

Table 86: Change in kinship network supportive capacity between 2002 and 2006 by mover status and sex

Sex	Change in kinship network supportive capacity between 2002 and 2006	Did not move between 2002 and 2006	Moved between 2002 and 2006	Total
Male	Decreased	156 (27.3%)	9 (17.3%)	165 (26.5%)
	Stayed constant	122 (21.4%)	11 (21.2%)	133 (21.3%)
	Increased	293 (51.3%)	32 (61.5%)	325 (52.2%)
Female	Decreased	175 (25.3%)	12 (17.1%)	187 (24.5%)
	Stayed constant	144 (20.8%)	18 (25.7%)	162 (21.2%)
	Increased	374 (53.9%)	40 (57.2%)	414 (54.3%)
Total	Decreased	331 (26.2%)	21 (17.2%)	352 (25.4%)
	Stayed constant	266 (21.0%)	29 (23.8%)	295 (21.3%)
	Increased	667 (52.8%)	72 (59.0%)	739 (53.3%)
Total		1,264 (100%)	122 (100%)	1,386 (100%)

Source: author's own analysis of British Household Panel Survey data, 2002-2006

Note: ***significant at (p<0.001), **significant at (p<0.01), *significant at (p<0.05).

Table 87: Change in kinship network supportive capacity between 2002 and 2006 by mover status and a change in partnership status

A change in partnership status between 2002 and 2006	Change in kinship network supportive capacity between 2002 and 2006	Did not move between 2002 and 2006	Moved between 2002 and 2006	Total
Continuing couple*	Decreased	208 (25.3%)	10 (14.7%)	218 (24.5%)
	Stayed constant	121 (14.7%)	6 (8.8%)	127 (14.3%)
	Increased	494 (60.0%)	52 (76.5%)	546 (61.2%)
Newly partnered	Decreased	2 (20.0%)	0 (0.0%)	2 (20.0%)
	Stayed constant	3 (30.0%)	0 (0.0%)	3 (30.0%)
	Increased	5 (50.0%)	0 (0.0%)	5 (50.0%)
Newly widowed	Decreased	14 (25.9%)	0 (0.0%)	14 (24.1%)
	Stayed constant	10 (18.5%)	1 (25.0%)	11 (19.0%)
	Increased	30 (55.6%)	3 (75.0%)	33 (56.9%)
Continuing widowed	Decreased	74 (34.9%)	7 (41.2%)	81 (35.4%)
	Stayed constant	55 (25.9%)	6 (35.3%)	61 (26.6%)
	Increased	83 (39.2%)	4 (23.5%)	87 (38.0%)
Newly divorced, separated	Decreased	2 (18.2%)	1 (20.0%)	3 (18.8%)
	Stayed constant	4 (36.4%)	1 (20.0%)	5 (31.3%)
	Increased	5 (45.4%)	3 (60.0%)	8 (49.9%)
Continuing	Decreased	23	1	24

divorced, separated		(28.8%)	(9.1%)	(26.4%)
	Stayed constant	17 (21.3%)	3 (27.3%)	20 (22.0%)
	Increased	40 (49.9%)	7 (63.6%)	47 (51.6%)
Never married	Decreased	4 (6.5%)	1 (7.7%)	5 (6.7%)
	Stayed constant	54 (87.0%)	12 (92.3%)	66 (88.0%)
	Increased	4 (6.5%)	0 (0.0%)	4 (5.3%)
Total	Decreased	327 (26.1%)	20 (16.9%)	347 (25.3%)
	Stayed constant	264 (21.1%)	29 (24.6%)	293 (21.4%)
	Increased	661 (52.8%)	69 (58.5%)	730 (53.3%)
Total		1,252 (100%)	118 (100%)	1,370 (100%)

Source: author's own analysis of British Household Panel Survey data, 2002-2006

Note: ***significant at (p<0.001), **significant at (p<0.01), *significant at (p<0.05).

Table 88: Change in companionship network supportive capacity between 2002 and 2006 by mover status and sex

Sex	Change in companionship network supportive capacity between 2002 and 2006	Did not move between 2002 and 2006	Moved between 2002 and 2006	Total
Male*	Decreased	757 (46.7%)	100 (50.7%)	857 (47.1%)
	Stayed constant	150 (9.2%)	7 (3.6%)	157 (8.6%)
	Increased	716 (44.1%)	90 (45.7%)	806 (44.3%)
Female	Decreased	938 (44.2%)	118 (46.8%)	1,056 (44.5%)
	Stayed constant	206 (9.7%)	14 (5.6%)	220 (9.3%)
	Increased	976 (46.1%)	120 (47.6%)	1,096 (46.2%)

Total**	Decreased	1,695 (45.3%)	218 (48.5%)	1,913 (45.6%)
	Stayed constant	356 (9.5%)	21 (4.7%)	377 (9.0%)
	Increased	1,692 (45.2%)	210 (46.8%)	1,902 (45.4%)
Total		3,743 (100%)	449 (100%)	4,192 (100%)

Source: author's own analysis of British Household Panel Survey data, 2002-2006

Note: ***significant at (p<0.001), **significant at (p<0.01), *significant at (p<0.05).

Table 89: Change in companionship network supportive capacity between 2002 and 2006 by mover status and a change in partnership status

A change in partnership status between 2002 and 2006	Change in companionship network supportive capacity between 2002 and 2006	Did not move between 2002 and 2006	Moved between 2002 and 2006	Total
Continuing couple	Decreased	1,125 (44.1%)	121 (45.7%)	1,246 (44.2%)
	Stayed constant	250 (9.8%)	15 (5.7%)	265 (9.4%)
	Increased	1,176 (46.1%)	129 (48.6%)	1,305 (46.4%)
Newly partnered	Decreased	12 (44.4%)	9 (75.0%)	21 (53.9%)
	Stayed constant	2 (7.4%)	0 (0.0%)	2 (5.1%)
	Increased	13 (48.2%)	2 (25.0%)	16 (41.0%)
Newly widowed	Decreased	62 (39.0%)	5 (22.7%)	67 (37.0%)
	Stayed constant	14 (8.8%)	2 (9.1%)	16 (8.8%)
	Increased	83 (52.2%)	15 (68.2%)	98 (54.2%)
Continuing widowed	Decreased	254 (48.8%)	37 (61.7%)	291 (50.2%)
	Stayed constant	43 (8.3%)	3 (5.0%)	46 (7.9%)
	Increased	223 (42.9%)	20 (33.3%)	243 (41.9%)

Newly divorced, separated	Decreased	13 (44.8%)	5 (41.7%)	18 (43.9%)
	Stayed constant	2 (6.9%)	0 (0.0%)	2 (4.9%)
	Increased	14 (48.3%)	7 (58.3%)	21 (51.2%)
Continuing divorced, separated	Decreased	103 (46.7%)	27 (56.2%)	130 (48.3%)
	Stayed constant	20 (9.0%)	1 (2.1%)	21 (7.8%)
	Increased	98 (44.3%)	20 (41.7%)	118 (43.9%)
Never married	Decreased	103 (51.7%)	11 (44.0%)	114 (50.9%)
	Stayed constant	22 (11.1%)	0 (0.0%)	22 (9.8%)
	Increased	74 (37.2%)	14 (56.0%)	88 (39.3%)
Total**	Decreased	1,672 (45.1%)	215 (48.5%)	1,887 (45.5%)
	Stayed constant	353 (9.5%)	21 (4.7%)	374 (9.0%)
	Increased	1,681 (45.4%)	208 (46.8%)	1,889 (45.5%)
Total		3,706 (100.0%)	444 (100.0%)	4,150 (100.0%)

Source: author's own analysis of British Household Panel Survey data, 2002-2006

Note: ***significant at (p<0.001), **significant at (p<0.01), *significant at (p<0.05).

Table 90: Change in community network supportive capacity between 2002 and 2006 by mover status and sex

Sex	Change in community network supportive capacity between 2002 and 2006	Did not move between 2002 and 2006	Moved between 2002 and 2006	Total
Male*	Decreased	838 (44.4%)	78 (35.9%)	916 (43.5%)
	Stayed constant	389 (20.6%)	43 (19.8%)	432 (20.5%)
	Increased	662 (35.0%)	96 (44.3%)	758 (36.0%)

Female	Decreased	1,005 (42.4%)	133 (46.7%)	1,138 (42.9%)
	Stayed constant	467 (19.7%)	41 (14.4%)	508 (19.1%)
	Increased	898 (37.9%)	111 (38.9%)	1,009 (38.0%)
Total	Decreased	1,843 (43.3%)	211 (42.1%)	2,054 (43.2%)
	Stayed constant	856 (20.1%)	84 (16.7%)	940 (19.7%)
	Increased	1,560 (36.6%)	207 (41.2%)	1,767 (37.1%)
Total		4,259 (100%)	502 (100%)	4,761 (100%)

Source: author's own analysis of British Household Panel Survey data, 2002-2006

Note: ***significant at (p<0.001), **significant at (p<0.01), *significant at (p<0.05).

Table 91: Change in community network supportive capacity between 2002 and 2006 by mover status and a change in partnership status

A change in partnership status between 2002 and 2006	Change in kinship network supportive capacity between 2002 and 2006	Did not move between 2002 and 2006	Moved between 2002 and 2006	Total
Continuing couple	Decreased	1,268 (44.8%)	116 (41.1%)	1,384 (44.4%)
	Stayed constant	537 (18.9%)	53 (18.8%)	590 (18.9%)
	Increased	1,030 (36.3%)	113 (40.1%)	1,143 (36.7%)
Newly partnered	Decreased	17 (54.8%)	8 (57.1%)	25 (55.6%)
	Stayed constant	3 (9.7%)	2 (14.3%)	5 (11.1%)
	Increased	11 (35.5%)	4 (28.6%)	15 (33.3%)
Newly widowed	Decreased	59 (33.3%)	11 (44.0%)	70 (34.7%)
	Stayed constant	36 (20.3%)	2 (8.0%)	38 (18.8%)
	Increased	82 (46.4%)	12 (48.0%)	94 (46.5%)

Continuing widowed*	Decreased	275 (42.3%)	41 (56.2%)	316 (43.7%)
	Stayed constant	149 (22.9%)	9 (12.3%)	158 (21.9%)
	Increased	226 (34.8%)	23 (31.5%)	249 (34.4%)
Newly divorced, separated	Decreased	12 (38.7%)	3 (20.0%)	15 (32.6%)
	Stayed constant	4 (12.9%)	4 (26.7%)	8 (17.4%)
	Increased	15 (48.4%)	8 (55.3%)	23 (50.0%)
Continuing divorced, separated	Decreased	85 (34.7%)	22 (43.1%)	107 (36.1%)
	Stayed constant	57 (23.3%)	6 (11.8%)	63 (21.3%)
	Increased	103 (42.0%)	23 (45.1%)	126 (42.6%)
Never married*	Decreased	112 (45.1%)	7 (21.2%)	119 (42.3%)
	Stayed constant	56 (22.6%)	8 (24.2%)	64 (22.8%)
	Increased	80 (32.3%)	18 (54.6%)	98 (34.9%)
Total	Decreased	1,828 (43.3%)	208 (42.2%)	2,036 (43.2%)
	Stayed constant	842 (20.0%)	84 (17.0%)	926 (19.7%)
	Increased	1,547 (36.7%)	201 (40.8%)	1,748 (37.1%)
Total		4,217 (100%)	493 (100%)	4,710 (100%)

Source: author's own analysis of British Household Panel Survey data, 2002-2006

Note: ***significant at ($p < 0.001$), **significant at ($p < 0.01$), *significant at ($p < 0.05$).

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