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Alive and kicking

Wellbeing and mobility in old age

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Dedicated in the loving memory of my grandmother Gerd Nordbakke (Norway)
and her brother Lorentz Holtermann (Costa Rica)

Innhold

Acknowledgement

I had never planned to write a PhD-thesis. I was happy with my work at the Institute of Transport Economics: I had been fortunate in the years (7) prior to the offer of doing a PhD: I had been able to do research on topics that I found interesting and to have some continuity in my focus. In addition, working at the Institute of Transport Economics, especially in the department of environment and safety, is a blast: My colleagues are a fine collection of researchers from various disciplines, with a shared enthusiasm for understanding human conduct, its relations to structures and not least, for methodological questions. With constant vivid discussions – no matter what theory, method or topic discussed– I learnt something new every day. Why would I need a PhD?

Well, the times were rapidly changing. New colleagues came along – with PhDs – and the question of "publishing" became more frequent (though it never overshadowed the more substantial questions in our department), also thanks to the introduction of the "tellekantsystemet". Finding the time to publish within the limited budgets of applied research was hard, and articles had to be written in the spare time. Our contract providers, with the exception of the Norwegian Research Council, are not very interested in articles, they just love our reports.

So here I am, with a prepared thesis in my hands. And it has been quite a journey and more rewarding than I could have ever imagined. However, this thesis would not have been realized without the help from a large number of people and institutions.

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And finally, Sebastian, my 11-year old son: thank you for always giving me something to look forward to – every hour spent with you is a journey.

Everyone except me is, of course, absolved of any responsibility for any of the thesis's remaining deficiencies.

Oslo, December 2013

Susanne Therèse Dale Nordbakke

Summary

It is widely believed within and beyond academia that mobility is closely interlinked with freedom, independence and wellbeing. With ageing, functional capacities are often reduced; walking and cycling become more demanding and travelling by public transport and driving a car more challenging. This reduced capacity for mobility is likely to adversely affect wellbeing in later life.

The population in the Western world is ageing. This trend will present a range of challenges for many policy fields, including transport. Therefore, there is a need for knowledge on how to provide for independent travel and mobility in old age and on their associations with wellbeing.

This thesis has three objectives: to develop a theoretical framework for understanding the link between wellbeing and mobility and to critically examine and position previous conceptualisations of wellbeing in research on mobility in later life within this framework; to develop potential explanations for variations in needs fulfilment and wellbeing, mediated through mobility, in old age; and to provide insights on how mobility in later life is shaped and mediated. For the first purpose a theoretical study was carried out, while empirical investigations were conducted to achieve the second and the third purpose. The thesis is presented in four papers.

Paper I identifies three dimensions that can be used to clarify key differences between conceptualisations of wellbeing in economics, psychology, sociology, health research, human geography, and gerontology:

- Objective and subjective approaches
- Hedonic and eudaimonic approaches
- Universalist and contextualist approaches

The literature reveals multiple approaches to the study of human wellbeing and quality of life. Paper I discusses ten of these and explains how they relate to the introduced dimensions of wellbeing. Moreover, these ten approaches are used as lenses to develop hypotheses about possible linkages between wellbeing and mobility and how these can be understood and explored in empirical research on older people and other social groups. Finally, a total of 27 empirical studies on the link between mobility and wellbeing in later life were identified. These were critically examined and positioned within different conceptualizations of wellbeing. One conclusion from the examination of these studies is that although they all show that potential and/or actual movement contribute to wellbeing in later life, what wellbeing is and means is often not problematized. Discussions of wellbeing qua concept are often short (if present at all) and frequently lack theoretical depth. The second conclusion is that most empirical studies on mobility and wellbeing in later life belong to the subjective approach. Moreover, even though some of the reviewed studies touched upon eudaimonic elements, most can be allocated to the hedonic stance. And most can be allocated to the moderately universalist tradition.

The conclusions from paper I inform the conceptualization of the linkages between wellbeing and mobility in the empirical part of the thesis (paper II, III,

and IV). In this part, wellbeing is defined in terms of needs fulfilment. The basic assumption is that out-of-home activities and actual movement can contribute to the fulfilment of the needs along the dimensions to have, to love and to be, as defined by Allardt (1975). While actual out-of-home activity participation is used as an indicator of objective needs fulfilment, experienced unmet activity needs is used as an indicator of subjective needs fulfilment. As out-of-home activity participation induces travel between different geographical locations, a theoretical framework was developed to understand mobility, inspired Elster's understanding of action (Elster, 1989). This framework assumes a dialectical relationship between agency and structure, in line with scholars such as Berger and Luckman (1966) and Giddens (1984). Within this framework, mobility in old age is understood as the result of 'opportunities for mobility' – defined as the interplay between an individual's resources and abilities and the contextual conditions for mobility – and his or her individual desires and preferences for mobility.

A mixed methods approach was used to explore potential explanations for needs fulfilment, as mediated through mobility and to explore how opportunities for mobility, mobility and needs fulfilment is shaped and mediated in old age. While the analysis in paper II is based on results from four focus groups of women aged 67 to 89 living in Oslo, Norway's capital, the studies reported in paper III and IV are based on a national representative survey among 4723 people in Norway age 67 and older. The results from the qualitative and quantitative examinations can be summarized as follows:

Opportunities for mobility, defined as the interplay between individual resources and abilities and contextual conditions for mobility, can to some extent explain variations in needs fulfilment.

- Results from the quantitative studies suggest that the following indicators of individual abilities and contextual conditions are associated with better needs fulfilment, when all else equal: holding a driving license, good health (several indicators), financial resources, living alone, access to company on activities, temporal resources, the quality of the public transport supply, and residential location.
- Results from the qualitative study suggest that "having control of time" and "competence and knowledge about the transport system" are important resources for being able to attend desired activities. Barriers for participating in desired activities relate not only to the transport infrastructure/supply, but also to the destination end of trips (such as parking facilities, timing of an activity, entrance barriers to buildings). These findings suggest that the whole journey, including characteristics of activities and their facilities should be accounted for in order to understand older people's opportunities for mobility.
- The qualitative study also shows that older people can actively shape and mediate their opportunities for mobility and that the strategies developed to overcome barriers become part of their individual abilities for mobility which widen their opportunities for mobility.

People make choices according to their preferences within what they perceive as their opportunities for mobility. When it comes to desires and preferences, older

people are just as different as the rest of the population. Therefore, the extent to which older persons will experience their needs being met through out-of-home activity participation will vary.

- Preferences are not invariant, they change and shift over time, in relation to both context and perceived level of resources that can be mobilized to enact certain behaviours.
- Although constraints can account for most of the variations in needs fulfilment, in addition to preferences for out-of-home activity participation, age alone has a significant effect on the extent of out-of-home activity participation, suggesting that some older people see withdrawal from social activity and participation as a natural part of ageing.

The extent to which people experience that their needs for out-of-home activities are not being met is also associated with the level of actual out-of-home activity participation, which is shaped by an individual's opportunities for mobility in important ways, and outlook on life (overall life satisfaction).

The main conclusion from this thesis is that the extent to which out-of-home activity participation can fulfil needs varies between individuals, depending on their preferences and outlook on life, as well as the interplay between their individual strategies, individual resources and abilities, and contextual conditions.

List of papers

Paper I Nordbakke, S., Schwanen, T., 2013. Well-being and Mobility: A Theoretical Framework and Literature Review Focusing on Older People. *Mobilities*, DOI:10.1080/17450101.2013.784542.

Paper II Nordbakke, S., 2013. Capabilities for mobility among urban older women: barriers, strategies and options. *Journal of Transport Geography,* 26, 166-174.

Paper III Nordbakke, S., 2013. Mobility in old age: a result of choices within given opportunities. *Transportation Research Part A: Policy and Practice,* [Submitted].

Paper IV Nordbakke, S., Schwanen, T., 2013. Transport, unmet activity needs and wellbeing in later life – exploring the links. *Transportation,* [Submitted].

1 Introduction

1.1 Background and purpose

It is widely believed within and beyond academia that mobility is closely interlinked with wellbeing (Schwanen and Ziegler, 2011). Not only is mobility critically important for independent living and being able to take care of daily needs by oneself, it is also important for the ability to meet and interact with relatives and friends and to pursue other meaningful activities (Schwanen et al. 2012). In some situations, mobility can be substituted by information and communication technologies, such as the phone and the internet. However, these can neither replace face-to-face contact nor fulfil all of an individual's needs for activity participation in the physical world. Having people visit or deliver services at home (e.g. doctor and hairdresser) can obviate the need for out-of-home activity to some extent, but taking part in activities outside the home is nonetheless important for many people: It stimulates the mind and senses, offers exercise and a change in scenery, and gives structure and meaning to a day or week.

Across the Western world the population is ageing. According to Eurostat (2013), those aged 65 and older will make up 29.5 % of the EU member countries' population by 2060 (17.5 % in 2011), whilst the portion of those aged 80 years and older will almost triple in the same period. In Norway, those aged 70 and older are expected to make up 20% of the population in 2070 (10 % in 2012) (Brunborg et al. 2012). This trend will present a range of challenges for many policy fields, including transport.

The term "ageing" is often used to denote changes that occur later in life and is often associated with decline, phasing out, and death (Daatland and Solem, 2011). But not all functions decline; some stay stable and others even grow. Moreover, age-related changes vary greatly between individuals. Nevertheless, in later life, the balance between growth and decline is more often negative (Daatland and Solem, 2011). With ageing, functional capacities are often reduced; walking and cycling become more demanding and travelling by public transport and driving a car, more challenging. This reduced capacity for mobility is likely to adversely affect wellbeing in later life.

Maintaining mobility in later life is important from not only an ethical point of view in societies that are preoccupied with the welfare and wellbeing of their citizens, but also an economic point of view. By increasing older people's ability to age in place—growing older in one's home—considerable cost savings can be expected via a reduced need for assisted living and care homes. And active older people stay healthier than non-active older people, implying a reduced need for health services in general. Thus, we need knowledge on how to provide for independent travel and mobility in old age and on their associations with wellbeing.

Empirical research on the links between wellbeing and mobility amongst people in general and older people in particular is growing.. However, there is no agreement on how the link between mobility and wellbeing should be understood, mainly because wellbeing is a complex and fuzzy concept. Not only is the term used without being defined robustly, but different theoretical and disciplinary traditions are mobilized when wellbeing is grounded theoretically. Economists, psychologists, sociologists, public health researchers, geographers, and gerontologists all draw on slightly different and sometimes multiple understandings of wellbeing. This can make it difficult to understand what researchers are talking about or whether they are even talking about the same thing: a challenge that applies to research on wellbeing and mobility in old age. This thesis develops a theoretical framework for understanding and conceptualizing the links between wellbeing and mobility and critically examines and positions previous conceptualisations of wellbeing in research on mobility in later life within this framework.

In the empirical part of this thesis, wellbeing is defined as needs fulfilment. This thesis also develops potential explanations for needs fulfilment in old age, based on empirical investigations. The chief assumption in this part of the thesis is that mobility (that is, actual embodied movement through physical space) can contribute to fulfilment of needs. Because mobility is likely to be relevant for needs fulfilment and wellbeing, there is a need to clearly understand the mechanisms that influence mobility in old age. The field of travel behaviour research has been dominated by geography and economy: I propose a theoretical framework for understanding mobility in old age that better fits sociological thinking and I apply this in the empirical part of this thesis. Whilst studying the link between needs fulfilment and mobility, this thesis also contributes insights on what shapes and mediates mobility in later life.

The focus in this thesis is limited to older adults (that is, community-dwelling individuals over retirement age) for several reasons: With the growing ageing population, it is of significant policy interest to know how older people will be able to “age in place” while living a life worth living. Independent living and ageing in place require at least some movement outside the home and many older people have to cope with limitations on physical and sometimes cognitive functioning. However, retirement also represents a new phase in life in which people are free from employment and childcare commitments and have opportunities to structure their lives in new ways and to pursue other interests and social relations. The limitations in functional capacities combined with these new freedoms that follow retirement are likely to impact older people’s mobility and thereby, their participation in civil society, health, options for ageing successfully, and their wellbeing. Laslett (1989) distinguishes between the “third age”, a time of health, personal fulfilment and active ageing, and the “fourth age”, a time of dependence, decline and frailty. Although the fourth age is likely to follow the third, my intention in this thesis is to depart from an individual point of view that acknowledges that older people are heterogeneous group in terms such as health, functional capacities, lifestyles, and personality traits. In my view, distinctions based on predefined age groups in later life should be avoided in research on the link between mobility and wellbeing.

1.2 Travel trends among the older population

Older people in the western world are wealthier and healthier than before. Research also suggests that they lead more active lives than previous older generations: Although on an average day older people make fewer trips and travel shorter distances than do their younger cohorts, even when controlling for work trips (Rosenbloom, 2004; Newbold, et al. 2005; Páez et al. 2007; Mercado and Páez, 2009; Hjorthol et al. 2010), older people today travel more than previous generations (Tacken, 1998; Rosenbloom, 2001; Scott et al. 2009).

Car use among older people has increased in many European countries: the UK (Oxley, 2000), Sweden (Kranz, 1999; Dillen, 2005), Denmark (Magelund, 2001) and Norway (Hjorthol et al., 2010). These studies also indicate that, in general, fewer older women than men hold a driving license. The gender gap in holding a driving license in old age is, however, likely to decrease as more women among the younger generations hold driving licenses than previously, in Europe, Australia and the USA (OECD, 2001; Rosenbloom, 2001; Nordbakke, 2006). In Norway, this trend has already been seen in increased car use among women: In 1992, 19 percent of the trips made by women aged 55 or older were made by driving a car; this had increased to 39 percent by 2005 (Nordbakke and Vågane, 2007). Calculations made by the OECD (2001) suggest that in European countries, the share of driving license holders among people aged 65 and older will increase from 18.3 in 2000 to 27.4 in 2030.

Improving health conditions, active lifestyles, increased access to a car and, for some groups, higher incomes have all created possibilities for more varied activity and extended travel than previous generations of older people had. It is likely that the new generation of older people will have different expectations and demands. On the other hand, as the population of older people increases, there will also be an increase in those who experience reductions in functional capacities, who may find it difficult getting about by car, public transport, or even on foot. These trends have to be taken into account when society plans, organizes and shapes the transport system in the coming decades.

2 Theoretical background

2.1 Introduction

In this chapter, I clarify the concept of mobility and how it is defined in this thesis and then outline the theoretical model for understanding *mobility* in old age that is applied. Next, I present overviews of *how wellbeing can be understood and conceptualised* and how the links between mobility and wellbeing in old age have been understood in previous empirical studies. Then I outline how *wellbeing is defined* and hence how I have chosen to understand the *link between wellbeing and mobility* in the empirical part of the thesis. Next, I present *previous research* on mobility and on the link between wellbeing and mobility in later life which is closely affiliated with the definition of wellbeing applied in the empirical part of this thesis. Finally, *the research questions* attached to each paper (papers I to IV) and a model for how the various papers are interrelated are presented.

2.2 Mobility

2.2.1 The concept of mobility

Mobility is a widely used concept, but how it is conceptualised and measured varies greatly (Metz, 2000). Sometimes it means travel (Metz, 2000), but it can also mean the potential for travel, which Kaufmann and colleagues have labelled motility: the sum of the factors that define a person's potential to be mobile through space (Kaufmann, 2002). These include the availability of means such as cars, parking spaces and public-transport passes (access); the ability to use those means (skills); and the strategies, values and habits related to those means and skills (cognitive appropriation). The potential for travel is not only important for the realization of a trip, but as suggested by Metz (2000), just knowing that a trip could be made is important for wellbeing in old age. Mobility may also be defined as an experience, as the experience of the actual movement is likely to influence wellbeing. This experience can be either good or bad, or have elements of both, depending on contexts of those movements – who/what is encountered during and/or following trips, the nature of the interactions with encountered persons and with means of transport and infrastructures, persons' past experiences, embodied skills and capacities, goals, needs and values, and so on.

In the empirical chapters of this thesis mobility is defined as *the actual embodied movement through physical space* (Kaufmann, 2002). In research on personal travel, mobility is usually understood as a derived demand based on an individual's needs and wants to participate in geographically distributed activities (see e.g. Jones et al., 1990; Mokhtarian and Salomon, 2001; Næss, 2006; Pas, 1990; Vilhelmson, 1997). But mobility can also be a goal in itself, as emphasized by Moktharian and Salomon (2001), when travelling is the activity,

such as “taking the car out for a spin” or going out for a walk after dinner (“directed travel”) and recreational jogging, cycling, skating or boating (“undirected travel”) (Moktharian and Salamon, 2001). But the desire or the need to engage in activities in different places underlies much of the demand for travel and this thesis will primarily focus on travel as a derived demand.

John Urry (2000) claims that mobility is the hallmark of modern societies and, thus, an important topic for social studies. He has broadened the concept to include not only corporal (personal) mobility, but also object (freight transport), virtual (information and communication technology), and imaginary (TV and media) mobility. Urry (2000) claims that these different forms of mobility constitute the structures behind society: Social life is created, produced and reproduced in these movements and in the relationships between them. Although there might be many interrelations between these mobilities and wellbeing (in general and in old age), this study focuses on corporal mobility.

2.2.2 A theoretical approach to mobility in old age

As already noted, the movement between two geographic places is often understood to result from individual needs and wants, modified by individual and contextual constraints (see e.g. Jones et al., 1990; Mokhtarian and Salomon, 2001; Næss, 2006; Pas, 1990; Vilhelmson, 1997). This is the essence of the so-called activity-based approach to travel behaviour. Although this approach is not necessarily spelled out in empirical studies, it is evident in much empirical research on factors that influence trip frequency or participation in out-of-home activities.

The activity-based approach was developed during the 1970s to offer a broader understanding of travel behaviour and its complex nature than the utility-based approach that had dominated the field (Goodwin and Hensher, 1978; Røe, 2001). The utility approach originates from economic and psychological theory; it perceives man as a consumer: The trip (a move from one place to another by a given mode of transportation for a specific purpose) is the unit of analysis and an individual will choose the alternative with the highest utility (costs/benefits) (Jones et al., 1990; Pas, 1990). Typically, this utility is a function of price or level of service (travel costs and time) and is modelled by discrete choice models or stated preference/choice models (Ettema and Timmermans, 1997).[1]

Within the activity-based approach, the trip is not the unit of analysis. Instead, travel choices are considered within an integrated framework of activity participation and travel is understood as a derived demand (Jones et al., 1990;

[1] The utility approach is often criticized for presuming that individuals have knowledge of the outcome of all of the alternatives (Goodwin and Hensher, 1978) and that they are free to choose their preferred alternative (Ettema and Timmermans, 1997). Also, individuals are not only mechanical subjects that follow a predetermined economic rationality; individual action is built upon different types of rationality (such as those proposed by Weber: rational action, traditional action, value action, and affectual action) or other motives or even impulses (Røe, 2001). Hence, utility theory lacks a deeper understanding of travel behaviour and can only partly explain individual travel behaviour (Burnett and Thrift, 1979; Pas, 1990; Røe, 2001). Research within this approach has been dominated by quantitative methods and has been more occupied with calculating effects (e.g., what effect will a given change in the transport system have on individual travel behaviour) than understanding travel behaviour (Pas, 1990; Røe, 2001).

Pas, 1990). The intellectual roots of this approach probably go back to Hägerstrand (1970) and Chapin (1974) (Fox, 1995; Algers et al., 2005).

Hägerstrand's time-geography starts with the premise that all actions and events that sequentially make up an individual's existence have both temporal and spatial attributes. He acknowledges that individuals are intentional beings with purposes, but argues that to realize their actions, they have to accommodate limited time and space resources to overcome constraints. Hägerstrand (1970) identifies three main types of constraints on individual action: Capability constraints relate to biological needs (e.g., sleep, nutrition, and personal care) that primarily affect time distribution; coupling constraints relate to actions that require individuals to join others at specific places, at particular times, for certain periods of times; and authority constraints determine access to specific places at particular times (e.g., business hours) (Hägerstrand, 1970).

While Hägerstrand (1970) explains observed actions and activity patterns within spatio-temporal constraints, Chapin (1974) is more interested in choices and preferences. He argues that individuals are motivated to act, then they choose, and then act. He suggests that activity choices result from factors that precondition action (both personal characteristics, such as household responsibilities, age and health, and opportunities in the wider contextual conditions for activity) and those that predispose action (various motivational characteristics associated with an activity). Chapin defines opportunities as the availability and quality of facilities and services. Although he also considers constraints, the operationalization of constraints on action is more advanced in Hägerstrand's time-geography.

The activity-based approach has been criticized by sociologists. Giddens (1984) argues that Hägerstrand's approach tends to recapitulate the dualistic relationship between action and structure (Røe, 2001). Hence, it breaks from Giddens' own concept of duality, which is built upon the conception that the relation between individual and structure is not static, but continuously transforms. Moreover, Giddens criticizes Hägerstrand for putting too much emphasis on constraints placed upon the individual (Giddens, 1984); according to Giddens and other sociologists (e.g., Deloucas, 1990), an individual's movement through time and space can also be perceived as options or opportunities that enable action.

The field of travel behaviour research (including both adherents to the utility approach and the activity-based approach) has been dominated mainly by geographers and economists. Most of this research has been concerned with structural constraints for mobility (e.g. the built environment, socio-economic factors). With some exceptions (e.g. Chapin, 1974; Salomon and Ben-Akiva, 1983; Berge, 1999; Lanzendorf, 2002; Scheiner, 2010) there is little empirical work that has tried to explain trip frequency, out-of-home activity- and destination choices with reference to individual needs, desires and preference – that not only perceive individuals as rational consumers: People's values, attitudes, tastes and habits are often neglected.

Here I will propose an approach to mobility in old age that is inspired by the activity-based approach, but that is more compatible with a sociological understanding of action. The approach will especially draw attention to individuals as active beings with different needs, desires and preferences and the relation between agency and structure. It takes as its starting point Elster's

classical conception of action (1989), which suggests that action is a result of two successive filtering operations.[2] The first filter is the opportunity set which defines which actions are possible. The opportunity set – which can be considered as the scope for action – is formed by all the physical, economic, legal and psychological constraints that the individual faces. The second filter is "a mechanism that determines which action within the opportunity set will actually be carried out" Elster, 1989: 13). Elster separates between two main mechanisms in this second filtering process: rational choice and social norms. Elster believes the choice-mechanism is the more fundamental one in terms of explaining action than the norm-generated one (Elster, 1989:13). I follow Elster in this respect, and in this thesis action will be understood within a choice perspective. Within this approach Elster perceives action as a result of both opportunities and desires – or as he puts it: "by what they can do and by what they want to do" (Elster, 1989: 13). However, real opportunities might not be consistent with beliefs about opportunities. Hence, Elster emphasizes that what explains action is the person's desires together with his or her beliefs about the opportunities.

In the approach developed here I will follow this line of thought and understand mobility as a result of choices made according to a person's desires within his or her opportunities for mobility, or beliefs about these opportunities. An individual's 'opportunities for mobility' will be understood as the interplay between an individual resources and abilities and his or her beliefs about the opportunities and constraints given in contextual conditions for action.

An individual's resources and abilities for mobility can be defined as all the physical, material, temporal and social resources that the individual has access to that can promote mobility and activity participation in old age, including his or her competence and skills. Physical resources are an individual's functional conditions, such as their general health and walking ability. Material resources include finances and access to individual transport resources (e.g., holding a driving license or having access to a car or bike), which are often interlinked. Temporal resources are the available time for transport and out-of-home activity participation in daily life. Social resources are the social networks of family and friends that can help with transport or accompany a person on activities. Background factors such as age and gender are important; these are often highly correlated with individual ability for mobility.

The contextual conditions for mobility can be defined as the social, temporal and spatial attributes of the situation (the trip itself or the desired out-of-home activities) that promote or hinder an individual's mobility. Spatial conditions have received much attention within urban planning and geography (Næss, 2006); they refer to the land-use component (the availability and quality of facilities and activities) and the transportation (the availability and quality of the transport system) and often relate to the individual's residential location. In line with Hägerstrand's time-geography, it is assumed that the temporal conditions of a trip or activities can influence mobility (e.g., shopping hours or public-transport weekend schedules). Social conditions encompass macro-level factors

[2] Elster's approach to action has previously been applied in studies on travel behaviour in Norway by other sociologists, Guro Berge (see e.g. Berge 1999) and Niels Vibe (see e.g. 1991).

such as level of affluence in society or prevailing values and laws (e.g., age limits for driving), but also micro-level factors such as the social environment of a trip made (e.g., other bus passengers or the crime rate at the residential location or at the trip's desired destination).

Theoretically, all individual and contextual factors that affect the scope for travel or activity participation can be included in the approach proposed here. Hence, it departs from Hägerstrand by making its capacities or options for mobility more explicit, and from Chapin by employing a wider understanding of contextual opportunities.

Moreover, unlike the functionalistic view of action in the activity-based approach, my approach (see figure 1) assumes a dialectical relationship between agency and structure, in line with scholars such as Berger and Luckman (1966) and Giddens (1984). This implies that an individual's mobility is not solely determined by a given scope for action, but that actions taken by the individual can modify or enlarge (or even narrow) their scope for action.

The approach proposed here does not assume a one-to-one relation between the opportunities for mobility and the actual embodied movement in space. As already noted, individual needs, desires and preferences are also important. Even though an activity might be located nearby, the individual will not necessarily participate in that activity. On the other hand, an individual might still participate even in an activity that is hard to reach (for example, because of poor public transport). The strength of an individual's need or desire for participating in an activity might be crucial (Berge, 1999); if it is sufficiently strong, the individual might use all available resources to fulfil this need. The concept of lifestyle (Weber, 1971; Veblen, 1976; Bourdieu, 1984; Giddens, 1991;) is useful for capturing variations in motives and preferences. According to Giddens (1991), mobility today is an important part of nearly all lifestyles; it is a means for achieving a modern lifestyle. A lifestyle involves a cluster of habits and orientations and thereby defines a number of the routine actions that individuals undertake in their everyday lives. A lifestyle is chosen, even though some choices are already given (Giddens 1991). Giddens' given choices can be compared to what is here described as the opportunities for mobility or the scope for action.

The approach applied in this thesis is presented in model, see figure 1.

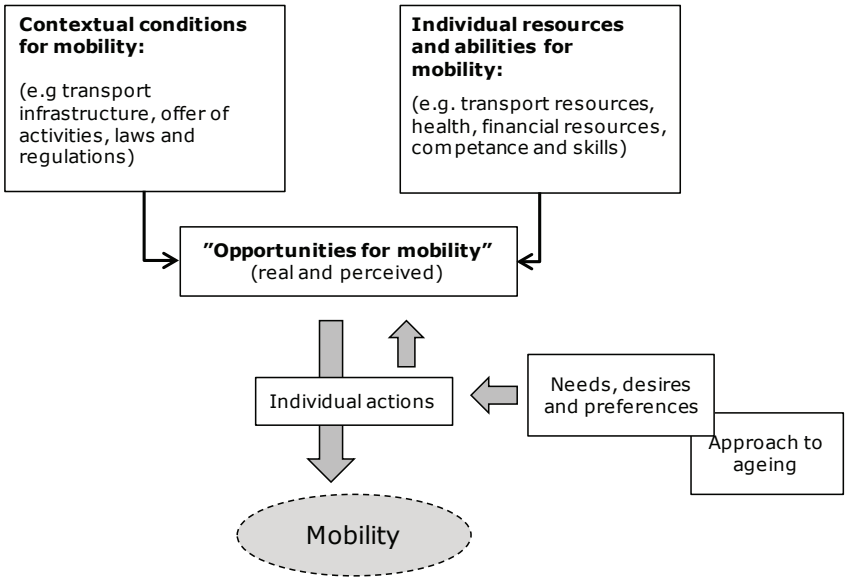

Figure 1. A theoretical model for understanding mobility. "Individual actions" refers to mobility, but can also encompass other actions that can influence the scope for action, or the individual's "opportunities for mobility".

So far, the model can apply to all ages, but older people's mobility might also be influenced by factors related to ageing. With age, people are more likely to experience certain life events, such as retirement, development of health problems, the death of a spouse or friend, which might affect an individual's abilities for mobility—their physical, material, temporal, and social resources—and hence the individual's mobility. For example, having health-related problems that affect walking can increase the need for car transport, but if an older person is dependent on their spouse or a friend for driving, the death of their spouse or friend might decrease their possibility of fulfilling their travel and activity wants or needs. Moreover, the death of a spouse or friend might also imply that one loses company for activities such as after-dinner walks or going to a restaurant or the theatre and might lead to reduced participation. The transition to life as a pensioner might reduce the level of travel and activity participation if the retirement results in less contact and fewer get-togethers (such as a beer after work on Fridays) with colleagues. And income is likely to be reduced after retiring, which might in turn, reduce the activities that an older person could afford as well as the travel to the activities: Keeping a car in the household might be impossible and for those who have health-related problems that restrict walking, biking or using public transportation, taxis might be too expensive. All these constraining factors are related to what Laslett (1989) labels the fourth age that he describes as an age of dependence, decline and frailty. Important life events may also result in the development of new social ties which might trigger new activity patterns and travel needs, as suggested by Arentze and Timmermans (2008; 2009).

Within gerontology, there are three main theories that try to explain how people respond to the ageing process and changes in life situation: the disengagement theory, the activity theory and the continuity theory.

The *disengagement theory* was developed by sociologist Elaine Cumming and psychologist William Henry and was published in *Growing Old* in 1961 (Daatland and Solem, 2011). This theory suggests that withdrawal from engagement in activities in old age can be understood as a universal process activated by internal forces related to ageing itself (Bowling, 2005; Daatland and Solem, 2011). This is a reciprocal process between the individual and society: The ageing individual withdraws from social roles and contacts and directs his or her energy inwards while society loosens its ties to the individual and stimulates and reinforces the withdrawal process. In this approach, withdrawal from activities and engagement is understood to be a natural part of the ageing process.

This contrasts with the view of successful ageing within *the activity theory*, which was developed in the same period as the disengagement theory (Daatland and Solem, 2011). In the activity theory, activity and social participation are perceived as being key to successful ageing, as are avoidance of disease and maintenance of physical and cognitive functioning (Bowling, 2005; Daatland and Solem, 2011). Social activity and engagement in life compensate for the role loss which accompanies retirement and older age. In this theory, withdrawal from activity and participation is explained by constraints to participate in needed and desired activities.

The *continuity theory*, developed some years later (Atchley, 1989), tries to cross the gap between the disengagement theory and the activity theory by suggesting that the central element for ageing well is maintaining continuity and coherence in life (Bowling, 2005; Daatland and Solem, 2011). It posits that neither activity nor disengagement are goals in themselves (Daatland and Solem, 2011) and that people respond to life events and changes through development and adaptation (Bowling, 2005).

In this thesis I will assume that how an older individual perceives ageing ("approach to ageing", see figure 1) is likely to influence their preferences for out-of-home activity participation and hence their degree of realized mobility and travel.

The approach to mobility in old age proposed above will be applied in the empirical part of this thesis.

2.3 Wellbeing and mobility

Mobility is closely related to the notion of freedom, independence and the good life (Kaufmann, 2002; Freudendal-Pedersen, 2009); it is perceived as a good that should be maximized (Kaufmann, 2002). Increased attention has been paid to the connections of mobility in everyday life with wellbeing and quality of life, in both mobilities research (Kronlid, 2008; Freudendal-Pedersen, 2009; Ziegler and Schwanen, 2011; see also Urry, 2007, p. 185–210) and transport studies (Duarte et al., 2010; Ettema et al., 2010; Abou-Zeid and Ben-Akiva, 2011; Delbosc and

Curry, 2011). Some of this work highlights issues of social justice (Urry, 2007; Kronlid, 2008) and other focus on specific social groups rather than the population in general, such as immigrant women (Shin, 2011) or older people (Metz, 2000; Banister and Bowling, 2004; Spinney et al., 2009; Schwanen and Ziegler, 2011). However it is difficult to compare and synthesize this research either because wellbeing is not robustly defined or because different understandings of wellbeing are employed. **In paper I, I develop a heuristic framework for wellbeing in which different conceptualisations can be positioned and I explore the possible linkages between wellbeing and mobility within different conceptualisations of wellbeing.** In this paper, mobility is defined as both actual embodied movement through physical space and as motility – the potential to move, as described in section 2.1.**The literature on the links between mobility and wellbeing in later life is growing rapidly and its various conceptualisations of wellbeing in research on mobility in later life are critically examined in paper I.**

In the next section I will present the background for employing a more restricted definition of wellbeing, namely needs fulfilment, in the empirical part of the thesis.

2.3.1 Theoretical framework for understanding the link between wellbeing and mobility

Paper I identifies three dimensions that can be used to clarify key differences between conceptualisations of wellbeing in economics, psychology, sociology, health research, human geography, and gerontology:

- Objective and subjective approaches: The objective stance holds that wellbeing should be established from the evaluation of the objective circumstances in which people live, given (inherently normative) criteria based on values, goals or objectives; the subjective stance holds that an individual's experiences and perceptions are the foundations for evaluations of how well they live. The debate between these two positions (which are also referred to as the welfarist and non-welfarist positions) has dominated the field of wellbeing (Cohen, 1993; Ringen, 1995; Gasper 2004; Philips 2006). Proponents of the subjective position hold that their perspective is theoretically sounder, as it respects individual perceptions and experiences of wellbeing (Ringen, 1995). Yet defenders of the objective position hold that subjective understandings of wellbeing are incomparable and/or unstable, because they are not directly observable (Ringen, 1995) and individual perceptions and experiences are influenced by people's aspirations, degree of adaptation to external conditions, stable dispositional characteristics (e.g., personality traits), social events, and "whims of the day" (Diener and Suh, 1997; Veenhoven, 2002).
- Hedonic and eudaimonic approaches: hedonic theories presuppose that a person's utility is a measure of the happiness or pleasure experienced through the satisfaction of preferences and that this happiness is the basis of wellbeing. The eudaimonic stance foregrounds the elements of flourishing, such as meaning and purpose. Moreover, an emphasis is put on individual action for reaching those goals, not on the more passive "how one feels"

(satisfaction or happiness) of the hedonic approach. It is also wider in scope than the hedonic position as it considers happiness to be only one of many potential valuable constituents of wellbeing rather than the overriding goal.

- Universalist and contextualist approaches: According to universalist theories, wellbeing is a singular and stable "thing" and there is always a minimum of common factors that are valuable to all humans, independent of time and place. A strong contextualist stance claims that wellbeing cannot be understood independently of context and culture.

The literature reveals multiple approaches to the study of human wellbeing and quality of life. Paper I discusses ten of these and explains how they relate to the different dimensions of wellbeing.

A total of 27 empirical studies on the link between mobility and wellbeing in later life were identified. Critical examination of these studies found that although all of them show that potential and/or actual movement contribute to wellbeing in later life, what wellbeing is and means is often not problematized. Discussions of wellbeing qua concept are often short (if present at all) and frequently lack theoretical depth. Indeed, the reviewed literature as a whole is rather thin on theory. This also means that it was not always easy to allocate studies to a theoretical tradition (and readers might disagree with some of the choices made in paper I).

In sum, the review shows that most empirical studies on wellbeing and mobility in later life belong to the subjective approach. Moreover, even though some of the reviewed studies touched upon eudaimonic elements, most can be allocated to the hedonic stance. And most can be allocated to the moderately universalist tradition.

Based on this critical examination of studies on mobility and wellbeing in later life, three recommendations are presented in paper I. Firstly, there is a need for empirical studies that combine elements of both the subjective and objective approaches to wellbeing. Given the malleability of perceptions, preferences and aspirations in light of objective conditions (e.g., material resources, physical health, access to a car), socialization processes and research encounters, approaches that mix subjective and objective understandings of wellbeing are particularly helpful when identifying on the basis of explicitly normative criteria groups of older adults for whom interventions through public policy are warranted. Secondly, studies that are explicitly grounded in the eudaimonic tradition of understanding wellbeing are also clearly needed, because eudaimonic stances can capture multiple elements vital for human flourishing and move beyond the hedonic focus on satisfaction of preferences and happiness as the only basis of wellbeing. Thirdly, given that cross-cultural studies have shown that understandings of what constitutes a desirable self and wellbeing are culture and place specific (Christopher, 1999; Ingersoll-Dayton et al., 2004; Panelli and Tipa, 2007), there is a need for more studies that ground the understanding of wellbeing in context.

In this thesis, Allardt's needs approach to wellbeing (1973; 1975;1993) is applied to empirically explore the linkages between mobility and wellbeing in

old age. This approach was first applied in Norway by the sociologists Randi Hjorthol (1998) and Guro Berge (1999) in research on the links between wellbeing and mobility. The reason for choosing this approach is twofold: 1) It uses an eudaimonic understanding of wellbeing, and 2) it allows for a combination of subjective and objective understanding of wellbeing. Hence, it can meet the two first recommendations made in paper I. In the following I will present Allardt's approach to wellbeing and explain how it can be linked to mobility.

2.3.1.1 The link between mobility and needs fulfilment

To Allardt (1975) wellbeing amounts to the fulfilment of needs along three dimensions:

- to have: the material level of living and the need for material resources (for example, work, education and money)
- to love: the non-material aspects of life; more specifically, the need for social relations, such as friendship and family ties
- to be: the need for self-realization and positive judgment of oneself (which might be fulfilled through such things as education, work or friendships)

Allardt's approach is clearly eudaimonic in character: He does not only understand wellbeing in terms of what individuals possess ("having"), but also in terms of how they actively behave towards others ("loving") and what they are ("being") in relation to society (Allardt, 1973). Moreover, individuals are not considered as receptacles for resource inputs but as active beings who control and direct their lives. The approach is moderately universalist. For Allardt (1973), needs are socially defined and can change; there is no generic list of needs for all times and places. However, he also argues that in at least certain societies and groups, there exists a modicum of agreement on the most important needs.

Allardt (1975: 47) posits that, to be part of society and satisfy needs, individuals have to function as actors in different activity arenas, such as the economic market for goods and services, the labour market, the neighbourhood, private life (family), the leisure sphere and the political arena. The term 'activity arena' is here understood as a sphere of life where individuals participate in activities in order to function in society. Individuals can use their resources in different activity arenas and so fulfil their needs to have, to love and to be.

The satisfaction of needs along one dimension can often in itself be a resource to be mobilised to satisfy other needs along the same dimension or along other dimensions. Hence, the satisfaction of needs along these dimensions can be understood both as outcome (result) and input (resource). For example, education can both satisfy the need to be (as it contributes to self-realization) and function as a resource in obtaining employment, which in turn can fulfil the need *to have* (e.g. income) and in many cases also the need *to be* (e.g. self-realization through work).

The basic assumption in this thesis is that out-of-home activities and actual movement can contribute to the fulfilment of the needs along the dimensions to have, to love and to be. Put simply, shopping trips, service trips (including those for medical purposes) and commuting are indicators of *having*; visiting trips and chauffeuring are expressions of social interaction – of *loving*; and trips to access different types of leisure activities can be seen as indicators of *being.* In many cases participation in one specific activity can fulfil needs along several dimensions, e.g. going to the cinema together with friends can fulfil needs associated with loving and being. It is evident that undertaking out-of-home activities is not the only way in which Allardt's needs can be fulfilled; in-home activities are also very important. Moreover, the extent to which needs can be fulfilled through activity participation probably varies between individuals, depending on their preferences, desires and personality. In addition, people may also adjust their ambitions and expectations as to what they need to the capacities and resources they can mobilise. Hence, it is important to depart from an individual point of view when exploring to which degree needs are fulfilled.

Even though mobility and travel can be considered as a resource component or as an indicator of wellbeing, they are not like other resource components, such as education or income, that give an advantage to having much of. As for mobility, there is not necessarily a proportional relationship between wellbeing and activity level nor amount of travel. For example, much travel is time consuming (i.e., a long commute), which might result in stress or little time for the desired activities. On the other hand, not having the opportunity to take a job because of limited transport resources could be worse. The needs to have, to love and to be might also be satisfied by virtual mobility (by information and communication technology) which can give access to distant arenas without physical mobility. The point is that some physical travels are wanted, and some are not. Do older people travel and participate in different activity arenas as much as they want? Do they travel more than they want? The significance of mobility for wellbeing is not only a question of the actual amount of mobility but also a question of the subjective significance it has for an individual.

Allardt offers a solution; he suggests a mix of objective and subjective understandings of wellbeing. To Allardt (1975, 1993) wellbeing is not just an aggregate of objective resources, it also expresses the individual's evaluation of satisfaction and represents non-alienation and happiness. Hence, he distinguishes between objective needs fulfilment ("welfare") and subjective needs fulfilment ("happiness"). Although objective needs fulfilment can be measured by objective methods (observations of conduct and actual circumstances), subjective needs fulfilment can be measured only through subjective evaluations of experiences (Allardt, 1975: 23–24).

In this thesis, actual out-of-home participation is applied as an indicator of objective needs fulfilment and the individual's own perception of their satisfaction with their out-of-home activity participation is used as a indicator of subjective needs fulfilment.

However, as noted in section 2.3.1 subjective approaches to wellbeing are often criticized for being unstable and incomparable as they do not rely on objective measures. By mixing indicators of subjective and objective needs fulfilment, one can control for weaknesses in both approaches.

Because out-of-home activity participation requires travel, the theoretical framework for understanding mobility (actual embodied movement through space), outlined in section 2.2.2., will be applied to explore objective and subjective needs fulfilment in later life. In addition, it is also expected that the prevalence of experienced unmet activity needs is inversely related to the level of actual out-of-home activity participation, as the latter is essential means to satisfy needs. Moreover, it is expected that experienced unmet activity needs is associated with general outlook on life, because the latter shapes an individual's perceptions and experiences with regard to wellbeing (Diener and Suh, 1997; Veenhoven, 2002; Bowling and Gabrial, 2007).

Although Allardt (1975) considers needs fulfilment as both an input and as an outcome, the fulfilment of the needs to have, to love and to be are mainly considered as *outcomes* in this thesis. Opportunities for mobility on the other hand are perceived as *inputs* to the fulfilment of the needs to have, to love and to be.

In the next section, I will present previous research on mobility and unfulfilled travel and activity needs in later life.

2.3.2 Previous research

This review of previous research is divided into two parts: one treating previous empirical research on factors that influence mobility—defined as the actual embodied movement in physical space—and the other treating previous research on unmet activity or travel needs in old age. Factors that influence mobility are presumed to give insights to factors associated with both objective and subjective needs fulfilment. The gaps in the existing literature on both treatments will be made explicit.

2.3.2.1 Factors that influence mobility in old age

One basic precondition for activity participation is the presence of activities to participate in within a reasonable distance. A reasonable distance is evidently relative, but one might believe that distances to activities are shorter in inner urban areas than in more rural areas. Moreover, the offering of activities is likely to be greater in urban areas. In all cases, there are distances to cross. In the following an overview is given of previous findings regarding the association between older people's mobility and desires and preferences, changes in preferences, individual abilities for mobility and contextual conditions for mobility.

Desires and preferences

Research on the association between desires and preferences and mobility is limited; only one study has been identified. In a multivariate analysis based on data from five European countries, Mollenkopf et al. (2005) explored amongst other the impact of outdoor-indoor motivation, measured by the extent to which respondents perceived themselves as an out-door- or indoor type, on mobility among people age 55 or older. They found that physical mobility, socio-

economic status and outdoor motivation were the three strongest predictors for the extent of variety of outdoor activities, when all else equal. However, they did not control for having access to a car and/or a driving license. More importantly, Mollenkopf et al. (2005) did not have an explicit focus on if and how people chooses differently – according to their preferences – within a given set of opportunities. **This will be explored in paper III.**

Changes in the preferences for mobility

Most studies on mobility in old age seem to depart from the view that travel and out-of-home activity participation are key for successful ageing (e.g., Siren and Hakamies-Blomqvist, 2004; Mollekopf et al., 2005) and that reduced mobility can be explained by constraints, in line with the activity theory. There is limited research that addresses whether reduced mobility in old age might relate to a natural age-related withdrawal process, as proposed by the disengagement theory.

To the best of my knowledge, there is only one study that has explicitly explored the association between people's approach to ageing and mobility in later life. In a study among older adults in Canada, Lefrancois et al. (1998) applied age as an indicator of disengagement and found that age alone could not explain why older adults withdraw from leisure activities (when controlling for other predictors such as gender, health status, education or region). In their study, health status appears to be the most important variable in prohibiting activities, especially those involving sports and exercise and travel activities. They conclude that the disengagement theory does not fit their sample profile. **In paper III, I explore whether the effect of age on out-of-home activity participation can be interpreted consistently with the disengagement theory.**

Individual resources and abilities for mobility

Empirical evidence has shown that older women are more likely to report functional limitations and physical disability than their male counterparts (Leveille et al. 2000; Wray and Blaum 2001; Naumann Murtagh and Hubert 2004). Although one could expect great variations in age-related disabilities, Scheiner (2006) in a study among people aged 60 and above in Germany finds that the ability to move is one of the most important factors for participation in out-of-home leisure activities (Scheiner, 2006), when controlling for other factors (including gender).

In an analysis of the Norwegian travel surveys, Hjorthol and Sagberg (2001) found that common age-related health conditions have a greater effect on walking and using public transport than on using a car. In a study from Sydney, Australia, Golob and Hensher (2007) found that the preference to continue driving remains very strong in old age and a study from London showed that older people prefer driving to public transport (Schmöcker et al., 2008). This might be explained by the compensatory qualities of having a car and holding a driving license (suggested by, for example, Siren and Hakamies-Blomqvist 2004; Schwanen et al. 2012).

Holding a driving license is still gendered, even though the gap in the proportion of license holders among older men and older women is now smaller because more women acquire a driving license today than in previous generations (Oxley, 2001; Rosenbloom, 2001; Hjorthol et al., 2010). However, women still tend to give up driving earlier than men do (Siren and Hakamies-Blomqvist, 2004; Dillen 2005).

In their study among Finnish people aged 65 and older, Siren and Hakamies-Blomqvist found that holding a driving license has a significant impact on out-of-home activity participation, when controlled for gender, age, educational level and place of residence (Sirén and Hakamies-Blomqvist, 2004). The car's importance is also suggested in a study among people aged 50 or over in the Netherlands, in which Schwanen, Djist and Dieleman (2001) find that having access to a car in the household and holding a driving license have a positive effect on the level of leisure trips, when controlling for other factors.

It can be argued that the significance of a driving license on mobility might be related to a spurious effect of better health condition among car holders, which was not controlled for in the studies of Siren and Hakamies-Blomqvist (2004) nor Schwanen et al. (2001). Empirical findings show that respondents with a driving license are likely to be healthier than the rest of the older population (see e.g., Campbell, Bush and Hale, 1993; Hakamies-Blomqvist and Wahlström, 1998). In a longitudinal study among men and women aged 65 years and older in Connecticut, United States, Marottoli et al. (2000) showed that driving cessation was strongly associated with reduced out-of-home activity levels even after adjusting for health condition and sociodemographic factors. This is unlike Scheiner's (2006) study from Germany that found no influence of car availability in the household on trip frequency for leisure activities when controlling for age, health, gender and place of residence. Thus, the results regarding the effect of holding a driving license/having access to a car on mobility in old age are contradictory, although the differences might relate to the kinds of activities that are the object of study (general out-of-home activity participation or leisure activities) and not least, the kinds and quantity of variables included in the multivariate analyses. The difference in the findings might also relate to contextual differences (e.g. longer distances, poorer quality in the public transport system) and hence greater car dependence in the USA. Studies show that older people in the USA rely on the private car for 90 percent of their transportation needs (Collia et al., 2003).

Being able to have a car in the household might be related to the level of financial resources a person possesses, which might, in turn, determine which transport alternatives are available (for example, being able to afford a taxi). Research has shown that income per capita has a significant impact on the variety of outdoor activities among people aged 55 and older in five different countries, when all else equal (Mollenkopf et al., 2005). However, the study of Mollenkopf et al. (2005) did not control for access to a car/holding a driving license. Education is often highly associated with income, and Schwanen et al. (2001) found an effect of education and being gainfully employed on trip frequency, when controlling for other factors.

Some studies have found a significant effect of the size and structure of older people's social networks (Mollenkopf et al., 2005; Scheiner, 2006) on trip

frequency and out-of-home activity participation. These findings might suggest that it is easier to get help for transport to activities if older people's social networks are greater. Alternatively, older people with larger networks may be more likely to be accompanied when undertaking out-of-home activities. Whilst companionship is no precondition for many activities (including leisure), it is likely that out-of-home activities undertaken with others are more enjoyable and fulfilling (Schwanen and Wang, 2013) and that barriers to activity participation outside the home are lowered. Living with a spouse might also be an indicator of both a transport resources (help for transport when having a partner who drives a car) and of access to company. However, both Schwanen et al. (2001) and Scheiner (2006) have found that living alone has positive effect on trip frequency/out-of home activity participation. This has been explained with a greater need for social activities outside the home when living alone compared to living with a spouse/partner.

Contextual conditions for mobility

Some studies have also suggested that living in a high-density area has a positive effect on trip frequency and out-of-home activity participation in old age (Schwanen et al., 2001; Siren and Hakamies-Blomqvist, 2004), when controlling for other socio-demographic factors, and might be explained by proximity to destinations and better public transport supply in urban areas. Few previous studies have explicitly examined the role of the quality of the public transport supply on trip frequency/degree of out-of-home activity participation in old age.

One body of literature discusses the difficulties that older adults experience as pedestrians (Hovbrandt et al., 2007; Risser et al., 2010) and as users of formal public transport alternatives (Gilhooly, 2002; Rosenkvist et al., 2009; Wretstrand et al., 2009; Risser et al., 2010). In general, these findings suggest that the most common barriers to walking and using public transport are related to built-up infrastructure (e.g., uneven pavement, high curbs and few benches), vehicle design (e.g., difficult boarding), public transport-system qualities (e.g., long distances to stops, convoluted routes), anxiety about overcrowding and lack of seats, fear of traffic, potential accidents or conflicts with other road users, and fear of crime. Negative attitudes towards aged people were also suggested in some studies (Gilhooly, 2002; Risser et al. 2010). Most of these difficulties are related to the spatial and technical characteristics of the transport system and its travelers. Relying on lifts from others or on taxis is suggested to be the most common strategies for those without a car to meet their transport needs (Gilhooly, 2002; Davey, 2007; Oxley and Whelan, 2008). However, there is little knowledge about other potential strategies for out-of-home mobility in old age or how such strategies relate to individual resources and the contextual condition for a specific travel. **Paper II contributes to a more comprehensive understanding of the complex relationship between individual resources, contextual conditions for mobility, and individual strategies for mobility in old age** and adds to the existing literature by expanding the knowledge on opportunities for mobility among older people.

To summarize, individual abilities and contextual conditions for mobility have received the most attention in studies on factors that influence mobility. Most of this research has tended to focus on the determinants for the level of trip

frequency/out-of-home activities in general or for leisure activities and not on determinants for specific travel purposes or destinations. However, what generates participation in one activity is not necessarily the same as that which generates participation in another activity. This thesis (see paper III) explores the determinants for activities that are usually located at different destinations (grocery shopping, visits to family and friends, and cultural activities). With some exceptions—the studies that have explored contextual barriers related to mobility in old age—existing research is based on quantitative data with a priori assumptions of the factors that influence mobility in old age. The number of qualitative studies that seeks to explain variations in mobility in old age is limited. **Paper II seeks to amend this shortcoming.**

2.3.2.2 Subjective evaluations of travel or out-of-home activity needs

Three studies of mobility in later life have been identified that primarily understand wellbeing in terms of needs fulfilment and that have explored the determinants for subjective needs fulfilment (Siren and Hakamies-Blomqvist, 2004; Scheiner, 2006; Kim, 2011). These studies consider out-of-home activities to be important sources or indicators of wellbeing and potential and actual movement to be critical to needs fulfilment. Siren and Hakamies-Blomqvist assessed the level of unfulfilled travel needs to ten activities (recorded on a three point scale for each activity and indexed according to the general level of unfulfilled needs on the ten activities); Scheiner (2006) measured unfulfilled activity needs based on whether or not a respondent had an unfulfilled activity want; and Kim (2011) measured how often respondents do not participate in desired activities because they lack transportation ("frequently", "occasionally", "rarely", or "never").

Siren and Hakamies-Blomqvist (2004) found that significant predictors for unfulfilled travel needs were the absence of driving license and having a rural residence, when controlling for age, gender and educational level. Although their study is novel in its conceptualisation of mobility (as unfulfilled travel needs), only a limited set of variables are studied. Scheiner (2006) included a range of variables that might explain differences in needs fulfilment. In addition to age, gender, living status, education, availability of transport means (car in the household, season passes for public transport, residential area), he included health condition, ability to move and the size of the social network of the respondents. He finds that poor health, employment and being a woman increase the probability for unfulfilled activity needs when controlling for other factors. However, he finds that the studied variables can explain unfulfilled activity needs only to a limited degree.

Kim's study (2011) includes many of the same factors as Scheiner's, as well as ethnicity and factors that reflect other dimensions linked to mobility, such as feelings regarding dependency (e.g., "hate to depend on others"), available activities within walking distance (e.g., "places need to be within walking distance"), knowledge on transport information (e.g., "know where to get information about transportation alternatives") and quality of public transport (e.g., "public transit is available within a 10 minute walk"). Kim (2011) finds that although neither gender nor ethnicity affect unfulfilled transport needs when controlling for other variables, gender and ethnicity combined do have an effect;

this means that older minority females are more likely to experience transport deficiency than older white males in the study. Other variables that have a significant effect upon experienced transport deficiency are income, home ownership, health, having children under 18 years old in their household, not having driven in the last month, and residential location. In addition, although there is no effect of "having places to go within walking distance", this does have an effect when combined with "having not driven in the past month": This means that if activity locations are within walking distance there is a lower transportation deficiency for older people who do not drive (Kim 2011).

None of the previous studies explored the impact of actual out-of-home activity participation on subjective needs fulfilment; paper IV addresses this relationship. Moreover, none of the previous studies explored the impact of personality traits that are likely to influence the subjective evaluation of needs fulfilment; paper IV addresses this.

2.4 Research questions

This thesis has three objectives: to develop a theoretical framework for understanding the link between wellbeing and mobility and to critically examine and position previous conceptualisations of wellbeing in research on mobility in later life within this framework; to develop potential explanations for variations in needs fulfilment and wellbeing, mediated through mobility, in old age; and to provide insights on how mobility in later life is shaped and mediated. The thesis is presented in four papers. Paper I targets the first purpose of the thesis; paper II, III and IV target the second purpose; and paper II and III are directed to the third purpose. The research questions of the respective studies are outlined below:

2.4.1 Paper I

- To identify key differences between the most important and relevant (for mobility research) conceptualisations of wellbeing across economics, psychology, sociology, health research, human geography and gerontology.
- How can possible linkages between wellbeing and mobility—defined here as both actual and potential movement outside the home—be understood within key conceptualisations of wellbeing across various disciplines?
- Which conceptualisations of wellbeing have been applied in previous studies on the significance of mobility in later life?

2.4.2 Paper II

- What explains variations in older women's mobility in an urban setting? In this paper mobility is defined as the ability to choose where, when and which activities to take part in outside the home in everyday life, which is equivalent to what previously is labelled "opportunities for mobility".
- How can older women shape and mediate their opportunities for mobility? And via what individual resources and contextual options?

2.4.3 Paper III

- Does out-of-home activity participation vary with differences in opportunities for mobility (that is, individual resources and abilities and contextual conditions for mobility)?
- Does out-of-home activity participation in old age vary with preferences, when all else equal?
- Does age have an independent effect on the extent of out-of-home activity participation? If so, how can this be explained?
- Do the potential explanations for the extent of out-of-home activity participation vary with different travel purposes and destinations?

2.4.4 Paper IV

- Do the extent of unmet activity needs vary with opportunities for mobility (that is, individual resources and abilities and contextual conditions for mobility)?
- Is the actual extent of out-of-home activity participation associated with the degree of unmet activity needs?
- Is the extent of unmet activity needs associated with general outlook on life?

2.4.5 The interrelations between the papers: an overview

How the papers are interrelated are illustrated in the model presented in figure 2.

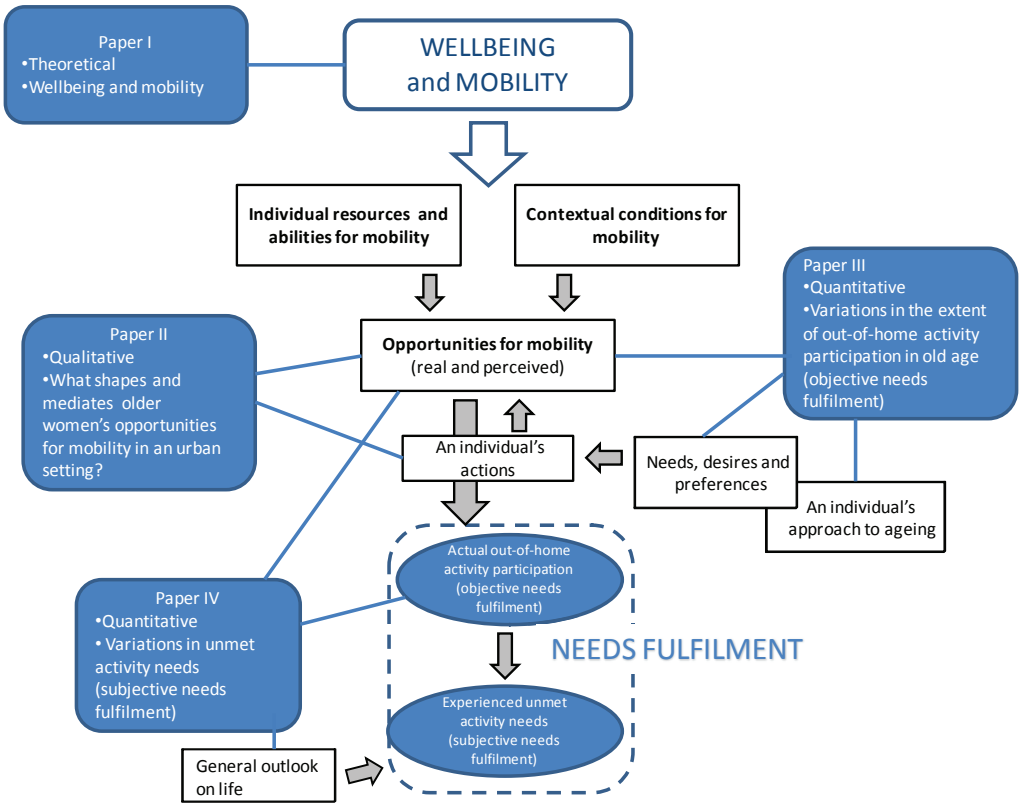

Figure 2. Links between the papers in this thesis. The grey arrows indicate the theoretical assumptions on which factors influence the level out-of-home activity participation (indicator of objective needs fulfilment) and unmet activity needs (indicator of subjective needs fulfilment). The blue lines indicate which links are explored in the different papers.

Paper I informs the understanding of the link between wellbeing and mobility in old age in the empirical part of this thesis. Based on the conclusions made in the critical examination of various conceptualisation of wellbeing in research on mobility in later life, I chose to define wellbeing in terms of needs fulfilment in the empirical part of the thesis. The purpose of the empirical investigations (paper II, III, and IV) is to explain variations in needs fulfilment among older people, and by doing that also to gain more knowledge on how mobility in old age is shaped and mediated. Needs fulfilment is measured both through the extent of actual out-of-home activity participation ('objective needs fulfilment')

in paper III and the extent of unmet activity needs ('subjective needs fulfilment') in paper IV.

As out-of-home activity participation induces travel between different geographical locations, I assume that the extent of out-of-home activity participation and unmet activity needs can be understood within the theoretical framework for understanding mobility that is suggested in this thesis (see section 2.2.2). Within this framework it is assumed that opportunities for mobility are likely to influence the extent to which needs are fulfilled, as opportunities for mobility preconditions out-of-home activity participation. Moreover, it is expected that the extent to which needs can be fulfilled through out-of-home activity participation differs with people's desires and preferences. The latter implies that older people might choose different degrees of out-of-home activity participation within equal opportunities for mobility. In addition, it is suggested that preferences for out-of-home activity participation is likely to be associated with an individual's approach to ageing

And finally, it is assumed that subjective experience of unmet activity needs also can be related to the degree of actual-out-of-home activity participation and to general outlook on life.

In paper II a qualitative method was applied in order to explore how opportunities for mobility in old age is shaped and mediated, not only by individual resources and abilities and contextual conditions for mobility, but also by individual actions. While paper II offers the potential for a broader and more coherent understanding of opportunities for mobility, it cannot be applied to explore the extent to which needs are fulfilled. In order to explore the association between opportunities for mobility and the extent of needs fulfilment, quantitative analyses in paper III and IV are conducted. In these investigations clearly defined indicators of both individual resources and abilities and contextual conditions are applied.

Although Allardt (1974) considers fulfilment of needs as both inputs and as outcomes, these needs have only been considered in terms of *outcomes* in this thesis. Opportunities for mobility on the other hand are perceived as *inputs* to fulfilment of the needs to have, to love and to be. In order to show that the link between wellbeing and mobility can also be explored from below – or from the inputs – paper II applies Sen's capability approach to wellbeing.

3 Methodology

3.1 Introduction

This thesis is part of a larger research project, Mobile-Age: The Impact of Everyday Mobility for Elderly People's Welfare and Well-being, which was funded by the Norwegian Research Council (NFR) and included partners from Norway, Sweden and Denmark; the Institute of Transport Economics (TØI) in Norway was the project manager. All the empirical data that is used in this thesis was collected through Mobile-Age, and the data collection in Norway was conducted in close collaboration with the team members at TØI. In this chapter, I present the data, analysis and methodology for papers I to IV, and describe the overall design of my research.

3.2 Paper I

3.2.1 Literature analysis

In paper I, I:

- reviewed how wellbeing is defined and conceptualized within economics, psychology, sociology, health research and gerontology: Key dimensions (i.e., differences) between understandings of wellbeing were extracted and applied to develop a heuristic framework in which different conceptualizations of wellbeing can be positioned and compared. The analysis was based on key texts and articles and references in these. on wellbeing, welfare, and quality of life and on other literature retrieved from Google Scholar (using the key words: wellbeing, welfare, and quality of life).
- developed hypotheses of possible linkages between wellbeing and mobility and how these can be understood and explored in empirical research on older people and other social groups
- reviewed and positioned previous research on wellbeing and mobility in later life within these conceptualizations: I identified the literature on mobility and wellbeing in old age via Google Scholar searches (key words: mobility, transport, wellbeing, quality of life, old age, elderly, and driving cessation).

Authors sometimes differentiate between quality of life, welfare and wellbeing, but these three terms all concern the "good life", and many facets of quality of life, welfare and wellbeing are the same. Furthermore, these terms have been studied and conceptualised differently across and within disciplines. In this paper, I use the term "wellbeing" and limit the theoretical approaches to wellbeing to those that consider people as individuals; I did not explore conceptions of wellbeing at community, region and country levels.

3.2.2 Practical philosophy of social science

Mjøset (2009) distinguishes between three practical philosophies of social science (styles of methodological reflection). Two of these are relevant for this project. The quantitative analyses (papers III and IV) are best reflected upon with reference to the standard position, while the qualitative analyses are best discussed with reference to the contextualist position. To the extent that this project mixes methods, it is important to be aware of the nuances between the standard and the contextualist styles that are discussed throughout this chapter. The standard and the contextualist approaches are closest when it comes to middle-range theorizing (Mjøset, 2009a: 55) and this is where they part from the third, the social-philosophical. According to Merton (1968), middle-range theories represent a middle ground between general social laws that are independent of context and mere descriptions of particulars that are not generalizable at all. In this thesis, I understand middle-range theories as regularities or mechanisms described empirically within one field of inquiry that might be relevant for understanding a similar phenomenon within a different setting.

One might think that the work within paper I converges with the social-philosophical position as defined and described by Mjøset (2009a; 2009b). It is primarily concerned with preconditions for accumulated knowledge, not with accumulating knowledge based on empirical data (Mjøset, 2009b). Because this paper is concerned with understandings of wellbeing, it is based on a logic of understanding the meaning that is consistent with the social-philosophical position (Mjøset, 2009a: 44), but unlike the social-philosophical position, this paper does not aim to develop "a set of transcendental concepts that define the conditions for accumulation of knowledge that are needed to interpret the present" (Mjøset, 2009b: 75). Instead, I discuss and interpret middle-range concepts and develop middle-range hypotheses tailored to studies on the relationship between wellbeing and mobility.

3.3 Paper II

3.3.1 Data

The study described in paper II ("Capabilities for mobility among urban older women") is based on focus-group interviews with women between 67 and 89 years of age who live in Oslo, the capital of Norway. All of the women were living in their homes, either in the centre or the outskirts of Oslo. The interviews were carried out in 2008 and 2009. The majority of the women had held or did still hold a driving license. Despite age-related disabilities and impairments related to walking, all of the participants were able to move independently and to take part in activities. Some of those with a driving license did not have a car in the household at the time of the study. A more thorough description of the participants is given in paper II.

Although focus-group interviews with older men were carried out, this study is limited to older women because it can be assumed, given that fewer women hold

a driving license than men, that they have greater experience with the options and barriers related to other modes of transport.

The interview guide covered questions related to travel to and participation in out-of-home activities: where these activities take place, the types of transport used, with whom the women interact, who they travel with, the barriers they meet, the solutions or strategies they apply in carrying out their travelling and different activities, what they miss, and what they are satisfied with, as well as how they value mobility and activities in daily life.

The focus-group participants were recruited by Synovate (a market research company), and the selection criteria (age, gender and residential location) were defined by the project team. Group discussions were carried out at Synovate's premises (in Oslo's city centre). All groups had the same moderator, a psychologist from Synovate, who had several meetings with the team before and during the group sessions. The group sessions were recorded and fully transcribed, and both the DVDs and the transcripts were used in the analysis.

3.3.2 Analysis

Focus-group discussion or interview is a qualitative method appropriate for investigating complex behaviours and motivations that are more difficult to study via survey methods (Kitzinger and Barbour, 1999). The discussion-interview method lets the researcher comprehensively overview specific topics or phenomena and it can be used to develop hypotheses and theories about relationships (Grønmo, 1982).

Focus-group interviews are the most appropriate qualitative method for the study of non-sensitive issues (such as travel practices, options and barriers) because they let participants supplement and complement each other's responses (Hoel and Hvinden, 1982). For this study, focus-group interviews were thought to be able to generate more information than individual interviews.

The transcripts formed the main body of the analysis and the DVDs were used to gain a better impression of the group dynamics. The text was read, reread, and coded according to the research questions; the objective was to start with a broad scope and not to code too narrowly. This is similar to open coding, described by Strauss and Corbin (1990:61) as "the process of breaking down, examining, comparing, conceptualizing and categorizing data". Thus, the code "options" (for mobility) was employed for all aspects that could have a positive effect on mobility and the code "barriers", for all aspects that could have a negative effect on mobility. In some cases, the options or barriers represent different qualities of a given dimension, such as good versus poor access to public transport.

Then an axial coding was performed as described by Strauss and Corbin (1990: 96), that is, "a set of procedures whereby data are put back together in new ways after open coding". The coded aspects were classified and structured into individual resources and contextual conditions. Options and barriers related to contextual conditions were first classified as "options/barriers in the transport system", but during the process, other contextual factors appeared that could not be related to the transport system and these, too, were analyzed. The third code, "strategies", encompasses the actions the women took to overcome the barriers they experienced.

The analysis explored the degree to which factors relevant to older women's mobility in an urban area (other than those found in previous literature, see chapter 2.3.2) could be detected and the relationship between individual strategies, individual resources/abilities, and contextual conditions.

3.3.3 Quality assessment of the research

Paper II is based on focus groups through which knowledge was gathered about individual actions and experiences of objective circumstances for action (such as resources and spatial, temporal, social and organizational barriers). This study can be positioned within the contextualist attitude to the social sciences, a departure from the standard attitude and its affinity with the experimental logic of the natural sciences (Mjøset, 2009a). It also differs from the social-philosophical attitude that is methodologically related to the humanities in its interpretive analysis of texts (Mjøset, 2009a). The core of the contextualist attitude is to gather knowledge about the world by participating in it (Mjøset, 2009a). Although it cannot draw on the security of an experiment, it is more than just "constructions" made by the analyst who "interprets" texts or statements, and given the uncontroversial topics discussed in these focus groups, there is every reason to believe that they can provide empirical information on patterns "out there".

Within qualitative research, there is no common agreement on which criteria to apply to assess the quality of research, and a number of different stances have been taken by qualitative researchers (Bryman, 2012: 389). Bryman distinguishes between those that have tried to assimilate the criteria applied in quantitative research (such as validity, reliability and generalizability) into qualitative research (e.g., LeCompte and Goetz, 1982; Mason, 1996) and those that have tried to develop alternative criteria for evaluating qualitative research (e.g., Lincoln and Guba, 1985; Yardly, 2000). The former corresponds to the standard approach; the latter is more in line with the contextualist approach.

Because this study does not aim to test a theory via statistical methods, I did not find it useful to apply the same quality criteria as for the standard approach. Hence, I have chosen to evaluate the study by two criteria developed by Guba and Lincoln: transferability and credibility.

The concept of transferability (Guba and Lincoln, 1982; Lincoln and Guba, 1985) refers to the applicability of the findings rather than to the generalizability (to a known population). Guba and Lincoln believe that a small degree of transferability is possible under certain circumstances and they suggest producing what they call thick descriptions or a database: rich and detailed accounts of the phenomenon studied that the reader can use to make reasoned judgement about the degree of transferability of the findings to other contexts (Guba and Lincoln, 1982).

The study presented in paper II describes in detail the various spatial, temporal, social, and organizational barriers that the informants encountered in particular situations, the resources they held at particular moments, and the strategies they took to meet their needs for mobility. Examples highlight each point made (e.g., how individuals can change their contextual conditions for mobility and under which conditions it is not possible to change the contextual conditions). The

descriptions had to be chosen with care to clarify the points while meeting the format's (a journal paper) limits on the extent of descriptions. I believe that these accounts are sufficient for others to judge the possible transferability of the findings.

Qualitative research is often criticized by quantitative researchers for being too subjective, in the sense that the findings rely too much on the researchers' views about what is significant and important (Bryman, 2012: 405). Guba and Lincoln (Guba and Lincoln, 1982; Lincoln and Guba, 1985) have proposed assessing qualitative research also by its credibility: whether the findings are believable and whether the investigator has correctly understood the social world of the participants. Guba and Lincoln suggest using respondent validation or triangulation to assess the credibility of the findings.

Respondent validation is the process in which a researcher submits research findings to their research subjects to confirm whether they have understood the subjects' social world (Bryman, 2012: 390–391). Because the issues investigated here are non-controversial and the data concern primarily experiences with objective circumstances and how individuals deal with these circumstances, there is little risk of multiple accounts of social reality, so respondent validation seemed less pressing.

Triangulation—the use of differences sources of data to confirm findings (Bryman, 2012: 391)—was not an alternative for this study. Instead, I used a technique suggested by LeCompte and Goetz (1982 in Bryman, 2012: 390) called inter-observer consistency to enhance the study's credibility. Inter-observer consistency concerns whether or not the members of a research team agree on what they see or hear. Throughout the focus-group interviews, the research-team members in Norway (including me) discussed the findings, especially those related to options, barriers and strategies for mobility, and we seemed to agree on what we heard in the interviews. A further step to increase the credibility of the findings was making the larger project's team leader (who had also supervised the focus-group interviews) read and reread the analysis and the paper. She, too, agreed on paper II's analysis and findings.

Although I acknowledge that replication is more difficult in qualitative than quantitative research (Lincoln and Guba [1985] say that replication is not possible in qualitative research), I think this study is replicable to a certain extent because of the nature of the data—uncontroversial (there are no conflicting interests between the focus-group participants) and more concerned with "objective circumstances" than with "meaning" or interpretation of a social reality—and the transparency of the data collection, coding and analysis processes and of its thick descriptions. Many of the same barriers and options and even strategies for mobility—and the inter-relations between them—identified in paper II would probably be identified in a new study, within a limited timeframe, in Oslo or another city similar in terms of size, climate, public transport supply, degree of development, and sociopolitical conditions. Within the assimilation stances (the standard approach), the degree to which a study can be replicated is referred to as external reliability (see e.g., LeCompte and Goetz, 1982).

3.3.4 Practical philosophy of social science

Paper II's purpose was to gain a deeper understanding of variations in mobility and the opportunities for mobility among older people in an urban context. By a deeper understanding, I mean that the actions taken in old age for mobility and out-of-home activity participation are grounded and understood in context. As argued, this paper can be positioned in the contextualist attitude to practical philosophy of social science as defined and described by Mjøset (2009a; 2009b). Because the study is grounded in its context, it is sensitive to what the data reveal. The intent is to build explanations from the bottom, up; this is what Mjøset (2009b) calls explanation-based theory[3]. (This can be contrasted with research that relies on a priori theories of which factors influence mobility and out-of-home activity participation in old age with a rather static picture of the social world that is not grounded in context.) This is not to say that I did not have any theories about the relationships before I started the analysis (I outlined the theory for understanding mobility in old age in chapter 2) but this theory does not give insights into the inter-relations between individual resources, contextual conditions, and strategies and actions for mobility in old age. By investigating the actions in context, it was possible not only to detect factors other than those presumed in the model (chapter 2, figure 1) that influence opportunities for mobility in old age, but also to detect how older people, as reflexive actors, can shape and mediate their opportunities for mobility. Rather than predicting outcomes to make general statements, the contextual attitude perceives outcomes and processes themselves as significant because they can be used to develop explanation-based theories (Mjøset, 2009a).

By the study of specificities, one can develop contextual generalizations that are limited to a specific context (Mjøset, 2009a). Generalization beyond the specific case of older women in Oslo must rely on a conditional transferability, meaning that the findings can be used to understand similar phenomena in other settings, while acknowledging that one must take the specific local context and conditions into account.

3.4 Papers III and IV

3.4.1 Data

Papers III and IV are based on a survey questionnaire that was sent to 12,000 people aged 67 and older. The sample was randomly drawn from a national representative population database owned by TNS Gallup, a Norwegian survey company. The database includes only people living in private homes; it excludes those living in institutions.

The survey was conducted from 22 October to 23 November 2011. A reminder with a copy of the questionnaire was sent after one week. The response rate was 40 percent (N=4723), but was probably higher: More than 300 people were reported (by telephone/letter) to be unable to answer, because of dementia, death,

[3] Mjøset (2009b: 15) defines explanation-based theory as knowledge of contextual regularities accumulated from explanations of singular cases.

or a move to an institution, and the number unable to answer is likely higher than reported.

To ensure a reasonably good response rate from the oldest old, the sample was stratified by 40 percent for those aged 67 to 79 years and 60 percent for those aged 80 years or older.

The questionnaire covers the following themes: socio-demographic background information, participation in various activities outside the home, dissatisfaction with participation in activities outside the home, use of telephone and internet for maintaining social contact, holding a driving license, access to a car, access to and use of public transport and public car transport service, access to help for transport from family and friends, health condition, and general life satisfaction.

3.4.2 Measures and operationalization

3.4.2.1 Dependent variables

This thesis applies Allardt's (1975) definition of wellbeing, in which he suggests that wellbeing pertains to the fulfilment needs—to have, to love, to be—and assumes that participation in the out-of-home activities outlined in table 1 can contribute to fulfilment of these needs.

Table 1. Out-of-home activities and the needs they can fulfil

Activities	Needs fulfilled
grocery shopping	to have (to love)
other shopping	to have, (to love)
doing errands (e.g., banking, mail)	to have, (to love)
health care (visiting the doctor, dentist, physiotherapist)	to have
recreational outdoor walking	to be, to love
doing organized exercise (indoor)	to be, to love, (to have)
visiting friends and family	to love, to be
participating in meetings in clubs or organizations	to be, to love
cultural activities: the cinema, theater, concerts, restaurants and cafés	to be, to love

As mentioned (see chapter 2.3.1.1), an activity might fulfil more than one kind of need. Table 1 presents which needs the activities in the analysis might fulfill.

The set of activities included in the survey was meant to cover most of the common daily out-of-home activities of people above retirement age (67 years).

As mentioned (see chapter 2.3.1.1), Allardt (1975) distinguishes between objective needs fulfillment and subjective needs fulfillment.

In this thesis, the degree of actual participation in out-of-home activities is applied as an indicator of objective needs fulfilment, and self-evaluated ratings of unmet needs in terms of out-of-home activity participation are applied as a indicator of subjective needs fulfilment.

To measure actual out-of-home activity participation, the respondents were asked how often they participate in the activities outlined in table 1. The response alternatives were:

- almost every day
- at least once a week
- at least once a month
- less than once a month
- never/not relevant

Using the respondents' answers, an index was constructed that measures the general degree of actual out-of-home activity participation and, hence, the general level of objective needs fulfillment. The number of respondents included in this index is 4,600. The construction of this index is thoroughly described in paper III.

Paper III includes the study of factors that influence the degree of grocery shopping, visits to family and friends, and participation in cultural activities (cinema, theatre, concerts, restaurants and cafés) in order to explore if the determinants for participation differ from those of activities that have different locations (inner city, cross-city activities and neighbourhood activities).

As for unmet out-of-home activity needs, the respondents were asked "Are there any of the following activities [the same activities as those in table 1] that you would have liked to participate in more often?" The respondents could answer "yes", "no" or "not relevant".

Based on the respondents' answers, an index was constructed to measure the general degree of unmet needs in terms of out-of-home activity participation. The construction of this index is thoroughly described in paper IV.

3.4.2.2 Independent variables

Table 2 gives an overview of the independent variables applied in the study in paper III and an overview of which dimensions each of the independent variables is meant to target. A detailed description of the related hypotheses in the study is also presented in paper III. Theoretical background for this study is presented in chapter 2.2.2 and 2.3.1.

Table 2. Overview of independent variables and the dimensions they target, and of the background variables

	Background factors	Dis-engagement	Preferences	Individual resources and abilities	Contextual conditions
Age	X	X			
Gender	X				
Living status			X	X	
Income	X			X	
Education	X				
Physical problems with walking				X	
Self-evaluation of health condition				X	
Have to few people to attend activities together with				X	
Access to a car in the household				X	
Holding a driving license				X	
Centrality of residence					X
Distance to the closest public transport stop					X
Frequency of the closest public transport service					X
Degree of home orientation			X		

Table 3 gives an overview of the independent variables studied in paper IV and which dimensions they are meant to target. A detailed description of the related hypotheses in the study is given in paper IV and the theoretical background for this study is presented in chapter 2.2.2 and 2.3.1.

Table 3 Overview of studied independent variables and the dimensions they are meant to measure

	Individual resources and abilities	Contextual conditions	Social network	Actual activity participation	Outlook on life
Household income	x				
Living status	x		x		
Self-rated health condition	x				
Health-related problems with walking	x				
Holding a driving license	x				
Help for transport: grocery shopping			x		
Help for transport: other purposes			x		
Distance to the nearest public transport stop		x			
Residential location		x			
Actual activity participation index				x	
General life satisfaction					x
Reasons for not undertaking out-of-home activity more:					
I don't have enough time	x				
I cannot afford it	x				
I do not have the energy (as I used to)	x				
I do not have a car anymore	x				
I cannot drive anymore	x				
The public transport supply is too poor		x			
The special car transportation service is too poor*		x			
I lack company on the activities I want to undertake			x		

*This is a public transportation service offered to people with disabilities who cannot use or have problems using public transportation. People get a limited number of taxi rides per year at no cost; the number varies from one municipality to the next.

Age and gender are also included as background factors in the study presented in paper IV. To measure the effect of general actual out-of-home participation on the degree of unmet activity needs, the same index was applied as in paper III.

The independent variables reflecting individual resources and abilities and the contextual conditions are referred to as 'indicators of opportunities for mobility' in the Discussion and Conclusion chapter (chapter 5).

3.4.3 Statistical analysis

3.4.3.1 Paper III

Multiple linear regression analyses were applied to assess the determinants for general participation in out-of-home activities and for specific travel purposes (such as shopping grocery, visiting friends and family, and attending cultural activities or restaurants). All the statistical analyses in this study were conducted by means of SPSS 18 for Windows.

In multiple linear regression analysis, independent variables must be quantitative (measured at the interval level) or categorical, and dependent variables must be quantitative and continuous (Field, 2009:220). Multiple linear regression can be used to predict the effect of a quantitatively measured independent variable on a dependent variable while controlling for one or more other independent variables

(Meyers et al., 2006; for a description of the technique, see for example, Field 2009; Meyers et al., 2006; or Tabachnick and Fidell, 2007).

To draw any conclusions about a population based on a regression analysis (Berry, 1993 in Field, 2009: 220–221), several assumptions have to be met. The most important are:

- The dependent variable should be normally distributed.
- The independent variables should have some variation in value
- Normally distributed errors. It is assumed that the residuals in the model are random normally distributed variables with a mean of 0.
- Multicollinearity: There should be no perfect linear relationship between two or more of the independent variables.
- Homoscedasticity: At each level of the independent variable, the residuals at each level of the independent variable should have the same variance. When variances are very unequal there is said to be heteroscedasticity.
- Linearity: The mean values of the outcome variable for each increment of the independent variables lie along a straight line.

(Field, 2009: 220–221)

Several techniques for checking these assumptions in SPSS (plots, histograms, casewise diagnostics, VIF and tolerance level) and the related criteria for evaluation are presented in Meyers et al. (2006) and Field (2009) and were used in this study; none of the these assumptions were violated.

Outliers differ substantially from the main trend of the data and can cause bias in models (Field, 2009: 215). For example, an outlier can lead to large residuals, violating the assumption of normally distributed errors. In this study, outliers were searched for and removed before checking the assumptions and analyzing the data.

3.4.3.2 Paper IV

The purpose of the study presented in paper IV was to examine the effect of each of the independent variables on unmet out-of-home activities needs when controlling for the other independent variables included in the model. Ordinal regression was chosen as the method of analysis because the assumptions for conducting a multiple linear regression could not be met: The index constructed to measure unmet out-of-home activity needs was not normally distributed in terms of responses: 40 percent answered that they had no unmet out-of-home activity participation needs.

For the ordinal regression analysis, the index was divided into four categories: “no unmet needs” (40 %), “a few unmet needs” (15 %), “some unmet needs” (24 %), and “many unmet needs” (20 %). Ordinal regression can be used when you know the rank of the values in the dependent variable, but not on the real distance between the categories (Garson, 2012).

The analysis was performed using SPSS. The ordinal regression procedure requires the selection of a link function that specifies which transformation is applied to the cumulative probabilities of the ordinal categories of the dependent variable (Garson, 2012). As for the dependent variable in this study, scores higher than zero ("no unmet needs") are more probable, thus, a complementary log-log link was chosen (for how to select a link function, see Norusîs, 2008). A critical assumption in ordinal regression analysis is that the relationships between the independent variables and a category on the outcome variable are statistically the same for all the categories on the outcome variable (Norusîs, 2008). Thus, the results are a set of parallel lines or planes—one for each category of the outcome variable (Norusîs, 2008). The analyses presented in paper IV meet this assumption.

3.4.4 Quality assessment of the research

The main criteria for quality assessment of quantitative research are reliability and validity.

In quantitative research, reliability concerns the degree of precision by which the processes that lead to the numbers in the data matrix have been conducted (Hellevik, 1993: 159)—both the data collection and processing and the measurements of the concepts employed. However, reliability is most often used in relation to the consistency (stability) of the measure of a concept (Bryman, 2012: 46), that is, its ability to produce consistent results when the same entities are measured under different conditions (Hellevik, 1993:160; Bryman, 2012:169). Hellevik (1993) posits that a researcher can achieve high reliability in a measure by making operational definitions of concepts that precisely explain how the measurements are to be conducted, and in this thesis, I have given concise information on the operationalization of objective and subjective needs fulfillment and a detailed description of how these are measured. Thus, I believe that the measures are reliable.

It is possible to test for a measure's stability by a test-retest that involves testing the same group of people twice (Hellevik, 1993:160; Bryman, 2012: 168–169). However, this is rare in social science research and has not been used within this thesis.

In some cases, it is necessary to test for an index's internal reliability (Bryman, 2012: 170). In this thesis, two indexes were constructed to measure the degree of actual out-of-home activity participation and the degree of unmet activity needs. However, testing for internal reliability is only necessary when an index's indicators relating to the same thing are doubtful, and in this thesis's two indexes, there is no doubt: All the questions in the index that measures actual out-of-home activity participation relate to the degree of participation in out-of-home activities and all the questions in the index that measures unmet out-of-home activities needs relate to the degree of unmet out-of-home activities needs.

Reliability is closely affiliated with whether data and results are replicable (Bryman, 2012:47): the extent to which another researcher would find the same results using the same type of data and the same measures. Although replication is rare in the social sciences, it is important that procedures are spelled out clearly so they can be replicated by another researcher (Bryman, 2012:47).

Within quantitative research, the replicability of a study is highly valued (Bryman, 2012:47). In this thesis, the procedures regarding data collection, data analyses and measurements are described in great detail to ensure a high degree of replicability: The study could likely be replicated, at least in Norway or in a country with a similar climate and transport infrastructure and a similar degree of welfare development (e.g., a Nordic country), within a limited time frame.

Validity is concerned with the integrity of the conclusions that are generated from a piece of research and it presumes reliability (Hellevik, 1993: 43; Bryman, 2012: 173). Within quantitative research, three main types of validity are distinguished: measurement validity, internal validity and external validity (Bryman, 2012). Shadish, Cook and Campbell (2002) also include statistical conclusion validity, and it, too, will be discussed here.

Measurement validity concerns whether a measure that is devised of a concept really does reflect that concept (Bryman, 2012:47). In some cases, there is "face validity": an instant conviction between a concept's theoretical definition and its operationalization (Hellevik, 1993: 42; Bryman, 2012). In the studies described in papers III and IV, most of the independent variables is assumed to have face validity. For example, the operationalization of individual ability for mobility into variables such as income, health condition and holding a driving license is quite intuitive and they are commonly used measures in the travel behaviour literature. Questions of measurement validity usually concern the introduction of new measures (Bryman, 2012: 171). In the studies presented in papers III and IV, four new measures were introduced that can be discussed in terms of measurement validity: actual out-of-home activity participation, unmet activity needs, preferences, and disengagement.

The variable "degree of actual out-of-home activity participation" is based on the degree of participation in various out-of-home activities (see chapter 3.4.1 and paper III). The concern is whether the variable manages to capture all out-of-home activities that older people participate in and whether all travels/activities are measured with this measure. To this, it can be argued that the activities included in the measure are likely to be the ones most common in the daily lives of older people and that these activities should be sufficient to give an impression of differences in degree of travel and out-of-home participation. The same argument applies to the constructed variable "unmet activity needs", which is based upon the same activities as those included in the constructed variable "actual out-of-home activity participation".

Age alone is not sufficient to test the disengagement theory (see chapter 2), but the purpose in paper III is to explore whether the effect of age can be interpreted consistently with the disengagement theory.

In the survey, the respondents were asked to what degree they agreed with the claim: "I prefer to stay at home, and do not have a great need for activities outside the home". The alternatives were "largely agree", "agree to a certain extent", "do not agree" and "don't know". I addressed the question of the applicability of the variable "degree of home orientation" as an indicator of disengagement: The correlation between degree of home orientation and age is low (parsons r = 0.261), so it was assumed (see paper III) that "degree of home orientation" is an indicator of a specific preference for indoor/out-of-home activities (and a certain lifestyle) and is not an indicator for disengagement.

However, as suggested by the activity approach, with age, people might become strongly oriented towards home in response to (more) limited options/stringent constraints, such as poor health or ability to walk. But the study finds that even when controlling for such constraints and limitations regarding out-of-home activity participation, "degree of home orientation" still has a significant effect on the actual out-of-home activity level: This result supports the assumption that "degree of home orientation" is a measure of a specific preference and lifestyle orientation, when controlling for age and constraints/limitations.

Statistical conclusion validity concerns the appropriateness of using statistics to infer whether the presumed independent and dependent variables covary (Shadish et al., 2002: 36). If the assumptions of a statistical test are violated, the inferences about covariation may be inaccurate (Shadish et al., 2002: 48). In papers III and IV, I tested whether or not the assumptions for performing linear regression analysis and ordinal regression analysis were violated.

Internal validity concerns our level of confidence that the independent variable is at least partly responsible for the variation that has been identified in the independent variable (Bryman, 2012: 175). It presumes statistical conclusion validity (Shadish et al., 2002: 53). Unlike in studies with experimental design, in cross-sectional studies like the one in this thesis, we cannot be sure about the direction of the correlations (that is if an independent variable really precedes the dependent one) so I had to infer the likely temporal precedence of variables. According to Bryman (2012: 175), there is always a risk that the inference might be wrong.

Although it is possible that either degree of out-of-home activity participation (dependent variables in paper III's study) and degree of unmet needs for out-of-home activities (dependent variable in paper IV) cause variations in some of the independent variables (e.g., driving license and health condition), common sense proposes that the causal direction is vice versa for most of the examined relationships in both papers III and IV.

External validity is concerned with whether the results of a study can be generalized beyond the specific research context. According to Hellevik (1993:83), the potential for generalization depends on how representative the entities in a sample are for all the entities in a population. A sample is representative if its results would approximate those from investigating all of the entities in a population. The survey respondents in the studies in papers III and IV were randomly selected from a national representative population database owned by TNS Gallup, a Norwegian survey company. They are representative in the sense of having common background characteristics with those of the whole population in Norway, so it is assumed that these studies can be generalized to the population of older people in Norway.

3.4.5 Practical philosophy of social science

The studies in papers III and IV can be positioned within the standard practical philosophy of science, as defined and described by Mjøset (2009a; 2009b): They are based on the large survey's data and the analyses are based on hypotheses about associations between dependent and independent variables. In both studies, different statistical regression techniques were applied to assess the relationship

between a dependent variable and several independent variables. Regression analysis is often applied to predict actual outcomes, but might also be used to understand or explain the dynamics underlying a particular construct by indicating which combination of variables might be more strongly associated with it (Meyers et al., 2006). In the studies in paper III and IV, I am interested in both. The aim is to make ordinal claims (defined by Frick [1996: 380]) as ones that specify the order of conditions, the order of the effects, or the directions of a correlation. I do not make claims about the actual size of the effects; the problem with such "quantitative claims" (Frick, 1996: 380) or predictions about an effect's size can never be accurate. Today, it is widely acknowledged that humans are not just objects affected by outer circumstances; they are also subjects with desires, motives (Frick, 1996; Engelstad et al., 2005), and claims about the social world are approximate.

This implies that unlike in the natural sciences, we cannot detect universal laws. Notwithstanding this, the studies are based on an assumption that accumulated knowledge can give insights to what Mjøset calls "law-like regularities" (Mjøset, 2009b) and that these are relevant for other contexts.

3.5 A mixed methods approach

This thesis can be divided into theoretical and empirical parts. In the empirical investigation of the research questions, two methods and practical philosophies of the social sciences were applied. The combination of different research methods is often referred to as mixed methods (Creswell, 2003; Tashakkori and Teddlie, 2003; Bryman, 2012).

The most common understanding of mixed methods is that it implies crossing the quantitative and qualitative divide, but some scholars argue that it also entails mixing within a quantitative or a qualitative approach (Brannan, 2005; Moran-Ellis et al., 2006). The debate about mixed methods research tends to refer to the type of data used and the logic traditionally associated with them. Researchers often treat epistemology and methods as synonymous (Burke and Onwuegbuzie, 2004; Brannan, 2005), but epistemology does not dictate which specific data collection or data analytical methods should be used by researchers. To avoid confusing the logic of justification with the data and the analytical method used, I use the definition of mixed-methods given by Moran-Ellis et al. (2006): the use of two or more methods that draw on different meta-theoretical assumptions. This definition well suits this thesis because the methods used rely on two different practical philosophies of social science, while sharing the goal of developing middle-range theories.

Green and colleagues (1989) have isolated five justifications for combining research methods:

- Triangulation seeks convergence, corroboration, and correspondence of results from the different methods in order to increase the validity of constructs and inquiry results.
- Complementarity seeks elaboration, enhancement, illustration, and clarification of the results from one method by the results from another

method in order to increase the interpretability, meaningfulness, and validity of construct and inquiry results.

- Development seeks to use the results from one method to help develop (broadly construed to include sampling and implementation, and measurement decisions) or inform another method in order to increase the validity of constructs and inquiry results by capitalizing on the inherent methods' strengths.
- Initiation seeks the discovery of paradox and contradiction, new perspectives of frameworks, the recasting of questions or results from one method with questions or results from the other methods in order to increase the breadth and depth of inquiry results and interpretations by analyzing them from the different perspectives of different methods and paradigms.
- Expansion seeks to extend the breadth and range of inquiry by using different methods for different inquiry components in order to increase the scope of inquiry by selecting the methods most appropriate for multiple-inquiry components.

My main purposes of mixing methods in this thesis are complementarity and expansion (as defined by Green et al.,1989).

In the empirical investigation, both qualitative and quantitative methods were employed, based on the contextualist attitude (paper II) and the standard attitude to practical philosophy of social science (papers III and IV). Although findings from the focus-group interviews were used to develop the questionnaire survey, this was not the reason for mixing methods in this thesis. It was to bring a more comprehensive account of the relationships between opportunities for mobility, mobility, and needs fulfilment in old age: While the survey generated generalizable, externally valid findings (e.g., factors that influence needs fulfilment), the focus-group interviews provided a contextualized understanding of the relationships among the variables and, not least, how older people respond to different options and constraints for mobility. Moreover, the focus-group study allowed for potentially detecting dimensions of importance for mobility in old age, other than those defined a priori in the survey.

The rationale behind combining these methods was complementarity because it aims to add to the research literature with reference to both quantitative findings that can be used to develop theories about law-like regularities and qualitative findings that are used to develop explanation-based theories about contextual regularities. However, the rationale was also that of expansion, as it aims to contribute to the research fields on mobility in later life and the linkages between wellbeing and mobility in later life. Theories developed from contextualist methodologies are important for learning (Mjøset, 2009: 12). Because the contexualist approach does not rely on a priory defined theory, it makes room for discovering other regularities of relevance for the specific research field.

Many scholars see pragmatism as the philosophical partner for mixed methods research (Burke and Onwuegbuzie, 2004; Onwuegbuzie and Leech, 2005; Bryman, 2008). The many versions of pragmatism share a common belief that the research question should determine the choice of method (Rossman and

Wilson, 1985 in Onwuegbuzie and Leech, 2005). Although I share this belief, in this thesis I also emphasize the "conversation" between different practical philosophies of social science based on the assumption that this leads to better understanding. By showing the strength of each of the methods applied, I have shown how—together—they can contribute to a richer picture of a phenomenon under study.

4 Results

Paper I

The relationships between travel and wellbeing for people in general and older people in particular have received increasing attention in transport studies and cognate fields. It is, however, difficult to compare and synthesise empirical results across studies on mobility and wellbeing because wellbeing as a concept is under-defined and/or different understandings of this concept are applied. This paper therefore reviews key conceptualisations of wellbeing across economics, psychology, sociology, human geography, health research and gerontology and identifies three dimensions that can be used to clarify key differences between conceptualisations of wellbeing:

- Objective and subjective approach: in the objective approach wellbeing is established from the evaluation of the 'objective' circumstances in which people live, given (inherently) normative criteria based on values, goals or objectives. The subjective stance holds that an individual's perceptions and experiences are the foundation for evaluations of how well s/he lives.
- Hedonic and eudaimonic approach: the hedonic stance is based upon the idea that a person's 'utility' is a measure of the happiness or pleasure that s/he experiences through the satisfaction of preferences, and that this happiness is the basis of her/his wellbeing. The eudaimonic stance holds that wellbeing is more than simple preference satisfaction, and foregrounds the elements of one's flourishing, such as 'meaning' and 'purpose', as essential for how well an individual lives.
- Universalist and contextualist approach: according to a strongly universalist stance, wellbeing is a singular and stable 'thing' that is independent of the particulars of time and space, while the contextualist stance holds that wellbeing cannot be understood independently of temporal and geographical contexts and culture.

The literature reveals multiple approaches to the study of human wellbeing and quality of life. This paper discusses ten of these and explains how they relate to the different dimensions of wellbeing described above. Moreover, the paper explores possible linkages between wellbeing and mobility – here understood as both actual and potential movement outside the home – for each conceptualisation. Finally, a critical review of conceptualisations of wellbeing in research about mobility in old age is presented. This review is based on 27 empirical studies identified. A key conclusion from this analysis is that future work on wellbeing and mobility could benefit from a deeper engagement with the various theoretical traditions of wellbeing as summarised in this paper. Such work should consider both the objective and the subjective and the hedonic and eudaimonic dimensions of wellbeing and should pay detailed attention to the

multiple ways in which wellbeing and its linkages to mobility are context-dependent and shaped by the particularities of time and place.

Paper II

The purpose of this paper is to gain a deeper understanding of what shapes and mediates older people's ability to choose where and when to travel and which activities to participate in outside the home in everyday life, and variations in this ability. In the paper this ability is defined as 'mobility', but is more equivalent to what in this thesis is referred to 'opportunities for mobility'.
In order to achieve this purpose this paper examines the everyday travel needs, travel practices and activity participation of older women in an urban setting and explores the complex links between barriers, strategies and options for mobility in old age. The analysis is based on results from four focus groups of women aged 67 to 89 living in Oslo, Norway's capital. In order to understand the potential opportunities for mobility of older women in urban areas, we proposed a conceptual framework in which opportunities for mobility in old age can be analyzed consistently with the capability approach to wellbeing that was developed by Amartya Sen. With its focus on the importance of choice and individual action, the capability approach is especially relevant for making explicit how "opportunities for mobility" is not a fixed structure but is something that is managed, shaped and directed by the individual—in this context, older women. The study enabled the identification of individual and contextual factors that influence the opportunities for mobility as well as strategies developed for overcoming barriers to mobility in old age. The study contributes to the pool of knowledge by showing that "having control of time" and "competence and knowledge about the transport system" are important resources for being able to attend desired activities. Moreover, it shows that barriers for participating in desired activities relate not only to the transport infrastructure/supply, but also to the destination end of trips (such as parking facilities, timing of an activity, entrance barriers to buildings). These findings suggest that the whole journey, including characteristics of activities and their facilities should be accounted for in order to understand older people's opportunities for mobility. A key contribution from this study is that it shows that older people can actively shape and mediate their opportunities for mobility and that the strategies developed to overcome barriers become part of their individual abilities for mobility which widen their opportunities for mobility.

Paper III

Most research on mobility in old age has explained variations in trip frequency or out-of-home activity participation by differences in 'opportunities for mobility', here defined as the interplay between an individual's ability to move (e.g. access to a car, health condition, social network) and the contextual conditions for mobility (e.g. public transport supply, residential location). The main purpose of this paper was to explore whether the level out-of-home activity participation in later life, can be explained not only by differences in opportunities for mobility, but also by differences in preferences. A person's degree of home orientation is used as an indicator of preferences for indoor/out-

of-home activities. Moreover, as there is limited empirical research on whether the determinants for mobility in old age vary with travel purposes and destinations, the second purpose of this paper was to explore the factors that influence the level of participation in three specific activities: shopping for groceries, visiting family and friends, and attending cultural activities. These activities were selected because the preferences for these activities are likely to vary among older people and the location of these activities—and the need for a car—are likely to vary.

This study is based on a national representative survey among 4723 people in Norway age 67 and older. The findings suggest that general level of out-of-home activity participation is shaped both by preferences and opportunities for mobility: it is positively linked with living alone, good health, no physical problems with walking, financial resources, and negatively linked with home orientation, not holding a driving license, lack of company on activities, living in a rural area, poor quality of public transport supply, when all else equal.

Age is negatively linked with general out-of-home activity participation, when all else equal. Although constraints can account for most of the variations in needs fulfilment, in addition to preferences, the independent effect of age might suggest that some older people see withdrawal from social activity and participation as a natural part of ageing, in line with the disengagement theory within gerontology.

The study shows great variations in the determinants for participation in the three selected activities (grocery shopping, visiting family or friends, and attending cultural activities). Although preferences are important for the degree of visits to family and friends and of participation in cultural activities, they are of minor importance for grocery shopping. One important finding is that holding a driving license does not have a significant effect on the level of cultural activities, which are often located centrally.

Paper IV

This paper explores potential explanations for differences in the extent to which older people believe that their needs for out-of-home activity participation remain unsatisfied. Previous research on unmet activity or travel needs has mainly focused on socio-demographic factors (e.g. age, gender), individual resources and abilities for mobility (e.g. holding a driving license, access to a car, health condition), and contextual conditions for mobility (e.g. residential location, access to public transport) and how these factors are associated with unmet activity or travel needs in old age. The paper extends on previous work by taking a wider range of factors into account to explain differentiation in unmet needs. Thus, the paper considers, amongst others, indicators of actual activity participation and outlook on life, as well as more subjective reasons for not being able to participate in given out-of-home activities as often as one would have liked to.

The study is based on a national representative survey among 4723 people in Norway age 67 and older. The results from this study indicates that, when all else equal, unmet activity needs are positively linked with the reasons: lack of time, lack of financial ability, lack of energy, poor quality of the public transport

supply, insufficient special car transportation service, lack of company, poor supply of desired activities, not driving anymore, not having access to a car anymore. As for the objective indicators of individual resources and abilities and contextual conditions for mobility, the results from paper IV indicate that unmet activity needs is positively linked with poor health, health related problems with walking, not holding a driving license, having help for transport (other purposes than shopping), and living in a suburban area, when all else equal.

Actual participation in activities also helps to explain variations in the level of unmet needs: The respondents who undertake few out-of-home activities have more unmet needs than those who undertake many activities, when all else equal. This finding might suggest that older people with a given actual activity level value activities differently and have different preferences for out-of-home activities, and thus, have different unmet activity needs. In addition, the findings in paper IV indicate that respondents who are more satisfied with life in general are less likely to report unmet activity needs, when all else equal, which indicates that the reporting of unmet activity needs are associated with a person's general outlook on life.

5 Discussion and conclusions

5.1 Introduction

This work was undertaken, in part, to develop a theoretical framework for understanding and conceptualizing the link between wellbeing and mobility and to position previous literature on wellbeing and mobility in later life within this framework. The result, presented in paper I, identifies ten approaches to wellbeing and three dimensions along which approaches to wellbeing in the Western world can be positioned. Moreover, this thesis develops hypotheses of how wellbeing and mobility can be understood and includes a critical examination of how previous studies on the link between wellbeing and mobility in later life have conceptualised wellbeing. Based on the work and the results presented in paper I, I chose to define wellbeing in the empirical part of the thesis in terms of needs fulfilment (see chapter 2.3.1), as also defined by Allardt (1975): Wellbeing is grounded in the eudaimonic tradition and it mixes both subjective and objective understandings of wellbeing. Both of these approaches have been employed to a limited degree in previous literature on mobility in later life and its associations with wellbeing (see paper I).

The empirical studies were conducted to gain a deeper understanding of the mechanisms that influence needs fulfilment—as mediated through mobility—and to learn more about how mobility in old age is shaped and mediated.

This thesis departs from the assumption that out-of-home activity participation can contribute to the fulfilment of the needs along the dimensions to have, to love and to be. Actual out-of-home activity participation is used as an indicator of objective needs fulfilment (paper III) and unmet out-of-home activity needs is applied here as a indicator of subjective needs fulfilment (paper IV). Because out-of-home activity participation requires travel, the investigation of needs fulfilment (objective and subjective) is based on the theoretical framework for understanding mobility in old age (see chapter 2.2.2). In addition, it is assumed that subjective experiences of unmet activity needs also relate to the degree of actual out-of-home participation and to personality traits.

In this chapter, the findings in papers II, III and IV will be synthesized according to the theoretical model and hypothesis outlined in chapter 2 and discussed in light of previous findings (see chapter 2.3.2).

5.2 Opportunities for mobility

In line with Elster's conception of action (Elster, 1989), this thesis departs from the view that an individual's opportunities for mobility define the extent to which out-of-home activity participation is possible. In extending this line of thinking, it is assumed that opportunities for mobility can contribute to needs fulfilment, as mediated through mobility. Moreover, in line with scholars like Berger and Luckman (1966) and Giddens (1984), it is assumed that

"opportunities for mobility" is not a fixed structure and that individuals can modify (by actions) their opportunities for mobility.

In the quantitative analyses (papers III and IV), the roles of various indicators of opportunities for mobility (that is, variables reflecting both individual resources and abilities and contextual conditions for mobility) are explored for both extent of actual out-of-home activity participation and experienced unmet out-of-home activity needs. Actual out-of-home activity participation is used here as an objective indicator of needs fulfilment (paper III), and unmet out-of-home activity needs is applied as a indicator of subjective needs fulfilment (paper IV). In the investigations in papers III and IV, clearly defined indicators were applied for both individual resources and abilities and contextual conditions. In paper II, a more grounded approach was applied by using qualitative data to explore the reasons for variations in opportunities for mobility and the role of action therein.
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The findings in papers III and IV discussed in this chapter are primarily based on the final models in both papers (paper III table 3 model 2 and paper IV table 8 model 5). The reported effects are the effects when all else is equal.

The findings are presented as "individual resources and abilities for mobility", "contextual conditions for mobility" and "strategies"—with reference to individual action—in line with the theoretical framework presented in chapter 2 (see chapter 2 figure 1). Because individual resources and abilities often relate to gender, the findings of the association between gender and out-of-home activity participation (paper III) and gender and unmet activity needs (paper IV) will also be presented and discussed.

5.2.1 Individual resources and abilities for mobility

Transport resources

The results in papers III and IV suggest that holding a driving license has a major effect on both actual out-of-home activity participation and unmet activity needs, when other factors are controlled for, which is in line with most previous studies (except for Scheiner, 2006, see chapter 2.3.2.2) . However, the findings in paper III show that the significance of holding a driving license does not apply to all kinds of activities or their locations. This question had not been explored previously. Although it does have a significant positive effect on grocery shopping and visiting family and friends, holding a driving license has no impact on participation in cultural activities. This can be explained by better transport supply into the city centre where these activities are often located, and by the need for driving being greater for grocery shopping (due to heavy loads) and visiting family and friends who might be dispersed throughout the city/town (which involves more convoluted travels with public transport compared to travels directly to the city centre).

That the need for the car is usually greater in some particular situations is also suggested in the qualitative study (paper II), which in addition to noting the influence of heavy loads and convoluted travels, directs attention to the facts that public transport to some destinations is not a real option and that some activities require travel in the evening or at night, when the fear of crime is greater and older people are reluctant to use public transport or walk.

Paper II finds that the car is used by those who have problems with walking due to weak legs, as is suggested in other studies (Siren and Hakamies-Blomqvist, 2004; Schwanen et al., 2012). For these older people, being able to drive is a prerequisite for fulfilment of needs.

Moreover, paper IV shows that those who have been used to the flexibility and ease of the car but have given up driving report a lower level of unmet needs than those who have never driven. This finding contradict what could be expected based on the large body of literature that shows that giving up driving implies reduced out-of-home activities (Marottoli et al., 2000), increase in depressive symptoms (e.g. Marottoli et al., 1997; Fonda et al., 2001; Ragland et al., 2005; Windsor et al., 2007) and the feeling of loss of independence and freedom (e.g. Burkhardt, 1999; Yassuda et al., 1997; Kostyniuk and Shope, 1998; Bonnel, 1999; Coughlin, 2001; Bauer et al., 2003).

Financial resources

Mollekopf and colleagues (2005) found that income had an effect on trip frequency, and Kim (2011) found that income influenced the level of unmet transport needs, when all else is equal in both studies. Both papers III and IV find that financial resources (and education) are important for both extent of out-of-home activity participation and extent of experienced unmet activity needs. This might indicate that financial resources are associated with the opportunity to keep a car in the household when ageing. Keeping the car in the household might be more financially difficult when ageing, because pension levels often are lower than salaries related to labour and also because total household income might be reduced due to the loss of a partner. Moreover, more financial resources increase the possibility of using expensive parking lots in the city centre or taxis if one does not have a car/driving license or access to special transportation services (STS). Income might also facilitate out-of-home activity participations for those activities that charge fees, for example, going to a gym or sports centre, which is often quite expensive. This is suggested as a reason for why income is found to have a significant effect on the extent of cultural activities (paper III), but not on grocery shopping and social visits to family and friends. Thus, income is understood as a facilitator not only for transport but also for participating in activities.

Health condition

The results from papers III and IV show that both self-reported health condition and experienced physical problems with walking have a significant effect on both out-of-home activity participation and unmet activity needs. This is consistent with other findings (see chapter 2). In addition, those who have reported “I do not have the energy or I do not have the same energy as before” as reasons for not participating in activities as often as they would like, have a greater level of unmet activity needs (paper IV).

Social resources and network

The importance of the size of a social network for trip frequency and for frequency of out-of-home leisure activities in old age has been suggested in other studies (see chapter 2). Scheiner (2006) explored the association between the size of a social network and unmet leisure activity needs, but found no significant effect of a social network when all else was equal. It has been suggested that a social network is a resource for mobility because a spouse, other relatives and friends can help with transport and because it can stimulate social interaction and activity participation (Mollenkopf et al., 2005). Papers III and IV explore these issues more specifically: the effects of living status, help for transport, and lack of company on activities are explored independently of each other.

With age, people often lose contact with former colleagues or experience the deaths of their spouse and friends. This might imply that some older people might lack company for out-of-home activities. Although the purpose of many activities is entertainment, intellectual stimulation, or physical exercise (e.g. going to the cinema, theatre, poetry reading, or a gym class in a sports club), it is likely that people would prefer company during these kinds of activities that also fulfil a social need (also, some people are reluctant to be alone in a group of strangers). Going to the cinema, for example, offers an opportunity to socialize with friends and family by a having a drink and chatting before or after the movie; going to the gym with a friend might involve chatting and catching up on last weeks' events, pleasures, sorrows and thoughts in the fitting room of the gym.

The studies in both papers III and paper IV find support for the hypothesis that the lack of company on activities has a significant effect on both out-of-home activity level and unmet activity needs.

The findings indicate that those who live alone are more likely to have a higher level of out-of-home activity participation (paper III) and a lower degree of unmet activity needs than those who live with a partner (paper IV), when all else is equal. This is consistent with other European studies (Schwanen et al., 2001; Scheiner, 2006), but contrasts with Kim's (2001) study from the United States. Schwanen et al. (2001) and Scheiner (2006) have suggested that older people who live alone have a greater need to socialize with others. Another explanation, suggested in papers III and IV, might be that those living alone are to a lesser degree subjected to coupling constraints (Hägerstrand, 1970) than those living with a spouse or partner. Older people living alone might be more free in terms of when, where and what to do, (e.g. because older men are more likely to hold a driving license, being a husband might encompass driving the wife to visits and errands while he would rather have spend his time golfing). Or, as shown in focus groups with older men and women in Norway (Hjorthol and Nordbakke, 2008), some older people are restricted from desired activities because they have a partner who is ill and needs a lot of care. From this it can be concluded that having a spouse/partner does not seem to imply greater help for transport (and hence is not necessarily an indicator of a transport resource, when all else equal).

In contrast to what was expected, the extent to which a person gets help for transport for grocery shopping has no effect on unmet activity needs, while those who get help for transport for purposes other than grocery shopping report a higher level of unmet activity needs (paper IV; the effect of help for transport

was not explored in paper III). There are several possible explanations for these findings: the available help might be inadequate and the older people cannot get lifts for all the activities they wish to participate in (e.g. they might get help for transport to family dinners, but not to their regular activities during the day while family member or others might be at work); those who have poor access to help from their social network are used to managing on their own, while those who are used to having help have become more resigned to arranging transport on their own and hence "complain" more (in terms of self-reported unmet activity needs) than those who do not have access to help through their social network; or after people start to rely on help, they might feel or realize that they would rather be independent and even though help is available, they tend not to use it every time or frequently to avoid becoming more dependent (Schwanen et al., 2012).

Temporal resources

The importance of temporal resources for mobility, out-of-home participation, and the fulfilment of travel/activity needs has, to my knowledge, not been explored in previous research on older people's mobility and wellbeing. Those who reported "I don't have enough time" as a reason for not participating in activities as often as they would like to are more likely to report a greater level of unmet activity needs (paper IV). Although not having enough time is probably more closely related to the third age than the fourth age (Laslett, 1989), it indicates that time might be an important individual resource for needs fulfilment. Its importance as a resource is also found in the qualitative study (paper II) where more control of time in the life as a pensioner is actively used when planning and organizing a trip for a specific activity.

Competence and knowledge

Paper II suggests that competence and knowledge on how to use the public transport system is an important resource for mobility. It is likely that those who have been mostly car users during their lives are less competent and have greater problems when they give up their driving license or their "chauffeur" becomes unavailable (e.g. their driving spouse or friends are ill or die). Traditionally, more men than women have held a driving license, therefore, it is likely that this kind of competence is gendered among older people. However, as more and more of the younger women today hold a driving and develop the same car-use habits as men, it is possible that that fewer older people will have this competence in the next generations of older people, unless younger people today also develop other travel behaviours so they become less reliant on the car than previous generations.

5.2.2 Contextual conditions

Residential location and transport supply/infrastructure

Residential location is suggested to have a significant, but relatively small effect on the extent of out-of-home activity participation, when other factors are controlled for (paper III). These findings are consistent with previous research (Schwanen et al., 2001; Siren and Hakamies-Blomqvist, 2004), and is usually

explained by proximity to activities and good access to public transport supply in urbanized areas, at least in West and North Europe. However, the findings in paper IV indicate that those who live in suburban areas are more likely to experience unmet activity needs than those who live in either cities/towns or rural areas. This is consistent with the findings in the study by Kim (2011) who also explored the effect of residential location on unmet activity needs. One possible explanation for the higher level of unmet activity needs in the suburban areas is that suburban residents have a higher aspiration level than those living in a rural area because the offer of activities in the surrounding areas might be greater than in a rural areas, while the accessibility, or the ease with which destinations can be reached is poorer than in the inner urban areas.

Paper III suggests that the quality of public transport supply, measured as distance to the nearest stop and frequency, has a significant though relatively small impact on the extent of out-of-home activity participation. As for unmet activity needs (paper IV), the distance to the nearest stop has no effect (the frequency of the public transport supply at the nearest stop was not included in the model), but a significant effect was found for the subjective measure of the quality of the public transport supply ("the public transport supply is too poor"). This might imply that the more objective indicators of the overall quality of the public transport supply, measured in terms of (self-reported) trip frequency and distance to the nearest stop, do not reflect the difficulties that might be experienced when using public transport at particular times (at night, in the weekend) and/or in the degree to which destinations can be accessed quickly and conveniently from one's home.

Other conditions related to the transport system/infrastructure

Paper II reveals in more detail the contextual challenges related to walking and using public transport (which often includes some walking) that older people experience. They can briefly be described as:

- topography: location of a bus stop, e.g. on top of a hill which requires a walk uphill
- weather conditions, especially in winter, that make walking difficult
- long distances to public transport supply and no place to rest: e.g. no benches on the stretch to or at the public transport stop
- convoluted public transport trips with long walks between transfer points or long waits at transfer points
- social barriers: e.g. negative attitudes from others when travelling during rush hours
- problems getting on and off a bus/public transport
- fear of crime at night
- curtailed public transport supply in the evening/at night
- public transport is not a real option (e.g. activities located at destinations to which public transport services are not offered close to the destination)

Apart from the topographical challenges, the barriers revealed here are also found in other studies (see chapter 2.3.2.1).

Contextual conditions of desired activities

The findings in paper II suggest that not only the quality of the transport infrastructure/supply is significant for older peoples' opportunities for mobility, but also the qualities or characteristics of the contextual conditions of desired activities:

- quality of the location of an activity: the ease to which an activity can be reached (defined as the combined effect of location of an activity and the transportation system; e.g. if there is a public transport option at the location of a desired activity) and the topographical location of an activity
- quality of the built environment of an activity: the functional design of the facilities of an activity (e.g. stairs and no elevator)
- presence and quality of parking facilities at the location of an activity
- timing of an activity: the temporal context of an activity (e.g. shopping hours, the time of a theatre play)

The first two, the activity's location and built environment, are well known from the travel behaviour literature, especially within transport geography with its focus on spatial conditions for travel and activity participation. The findings in paper II suggest that to improve the knowledge on opportunities for mobility in old age, research on the contextual options and constraints for mobility in old age could benefit from considering the temporal, spatial and organizational characteristics of facilities and activities and the relationships between facilities and the transport system. This can be achieved by directing more attention to the characteristics of the activities and their facilities.

5.2.3 Strategies (actor and structure)

In addition to exploring and identifying individual abilities and contextual conditions other than those studied in previous research, the purpose of paper II was to explore the interactions between individual actions, individual resources and abilities and contextual conditions for mobility. To my knowledge, these interactions have not been explicitly explored in previous research on mobility in old age.

The reduced capacities that many people experience with ageing often imply greater contextual challenges with travel. The study shows that some older people have made long-term adjustments to improve their opportunities for mobility and to ease their travels (for example, moving from bigger houses in the outskirts of the city to smaller houses or apartments in the city), some have found leisure activities closer to their homes, and others have moved to apartment buildings with elevators with direct access to a garage or even a supermarket.

With or without long-term adjustments, older people still face a range of barriers for mobility in everyday life. The study shows that when experiencing barriers

related to the contextual conditions of desired activities, older women might change the spatial and temporal conditions of an activity, for example, by choosing a supermarket farther from home because its parking facilities are better organized (e.g. less walking is necessary because one does not need to get a parking ticket to display in the window) or by choosing to go to go to the cinema in the daytime instead of in the evening when the fear of crime is higher.

The study shows that the women often experience barriers related to the transport system/infrastructure that make it difficult for them to walk and to use public transport. However, the study also shows that the women have developed strategies to overcome these barriers: By employing their competence and knowledge about the transport system—both its constraints and its options—the women manage to juggle the spatial and temporal (and sometimes social) contextual barriers (which often involves good planning) to walking and using public transport. For example, one woman took one bus to visit her sister at the hospital, but used the same bus for only part of her return trip; just before home, she would transfer to another bus to avoid the steep hills that she would have had to walk if she had continued on the first bus home. Another example is travelling outside rush hours in order to get a seat on the bus.

In some situations, the barriers are insurmountable and the car is almost indispensable (e.g., heavy loads, convoluted public transport journeys, fear of crime at night). Nevertheless, some older people without access to a car have developed strategies for these situations, too (such as, making frequent trips to the grocery store to avoid heavy loads, riding with others outside the household, riding in taxis/public car transportation services, or making use of transportation services offered by the organization that arrange a specific activity).

The main conclusions from this study are that older people can actively shape and mediate their opportunities for mobility, and that the strategies they develop to overcome barriers become part of their individual resources and abilities for mobility that further widen their opportunities for mobility.

5.2.4 Opportunities for mobility and needs fulfilment

From the multivariate analyses in paper III and paper IV respectively, it is possible to gain insights on what individual resources and abilities and/or contextual conditions that to some extent can explain the degree of out-of-home activity participation (objective needs fulfilment) and unmet activity needs (subjective needs fulfilment) in old age.

The results from paper III suggest that actual out-of-home activity participation is positively linked with living alone, good health, no physical problems with walking, financial resources, and negatively linked with not holding a driving license, lack of company on activities, living in a rural area, poor quality of the public transport supply, when all else equal.

In the study of unmet activity needs (paper IV), additional variables were included, such as reasons given for not being able to attend an activity as often as one would like to. The results from this study indicates that, when all else equal, unmet activity needs are positively linked with the reasons: lack of time, lack of financial ability, lack of energy, poor quality of the public transport supply, insufficient special car transportation service, lack of company, poor supply of

desired activities, not driving anymore, not having access to a car anymore. As for the objective indicators of opportunities for mobility, the results from paper IV indicate that unmet activity needs is positively linked with poor health, health related problems with walking, not holding a driving license, having help for transport (other purposes than shopping), and living in a suburban area, when all else equal.

Both studies (papers III and IV) suggest that living with a partner does not imply having greater help for transport, when other factors are controlled for, and that living with a partner might even be a constraint for needs fulfilment, although it might also imply less need for activity participation.

The studies did not find an effect of gender on out-of-home activity participation (paper III) nor experienced unmet activity needs (paper IV), when all else is equal. But this does not imply gender equality in terms of opportunities for mobility: As stated in chapter 1, fewer older women than men hold a driving license, and older women are more likely to report functional limitations and physical disability than their male counterparts (Leville et al., 2000; Naumann et al., 2004; Wray and Blaum, 2001). Thus, although the gap in the driving-license rate is continuously reduced, one can still expect gender inequality in terms of opportunities for mobility in the coming decades.

The high convergence of the results on the effect of various indicators of opportunities for mobility between the two studies strengthens the findings concerning potential explanations for needs fulfilment, mediated through mobility.

Although many of my expectations regarding the factors associated with actual out-of-home activity participation (paper III) and unmet needs (paper IV) were confirmed, there are still some unexplained variances in the statistical sense in both studies. It is likely that considerations of the barriers/constraints for mobility found in paper II and in previous research, in addition to options (e.g. competence and knowledge) and strategies (e.g. "to what extent do older individuals take an active stance in trying to overcome contextual barriers?") that are found in paper II might give additional explanatory power in the statistical sense in future analyses of needs fulfilment in later life.

Although papers III and IV show which of the predefined individual resources and abilities and contextual conditions are associated with needs fulfilment, the qualitative study in paper II contributes a more dynamic picture of the interrelations between individual action, individual resources and abilities, and contextual conditions. It offers an understanding of how actors reflect and act upon experienced and perceived option/constraints for their ability to participate in desired activities and the study shows explicitly how older women make choices based on their (perceived) opportunities for mobility, especially those concerning contextual conditions for mobility (e.g. transport options). Most importantly, paper II shows that opportunities for mobility are not fixed but can be changed through individual actions and strategies. These actions/strategies might, in turn, become part of an individual's resources and abilities for mobility, which then will become part of an individual's opportunities for mobility. In addition, paper II manages to identify other factors that influence an individual opportunities for mobility than those found in the quantitative studies. All three studies (papers II, III and IV) indicate that a wider range of

opportunities for mobility increases an older individual's choices in terms of activity participation and hence, their potential for needs fulfilment.

The results of mixing methods positioned within different practical philosophies of science offer a broader understanding of what mediates and shapes the opportunities for mobility and how these relate to needs fulfilment than expected if only one method had been applied.

5.3 Out-of-home activity participation: a result of preferences and opportunities for mobility?

In line with Elster (1989), it is assumed in this thesis (see chapter 2, figure 1) that the extent of out-of-home activity participation results from an individual's opportunities for mobility and their preferences for out-of-home activity participation. Paper III asks whether older people choose differently from the same opportunities for mobility because they have different preferences for out-of-home activity participation. I have not been able to identify previous research on mobility in later life that has explicitly explored this question.

It is also suggested in chapter 2 that an individual's approach to ageing (i.e. disengagement, activity or continuity) might explain their level of out-of-home activity participation in old age via different preferences for out-home activities. According to the activity theory, social activity and participation in society are crucial components for successful ageing; they compensate for the role losses that accompany ageing, and withdrawal from participation is explained with constraints to participation in needed or desired activities (Bowling, 2005; Daatland and Solem, 2011). This theory suggests that older people prefer out-of-home activity participation. As stated in section 5.1.2, a lower level of out-of-home activity participation can be explained by various types of constraints, such as not holding a driving license and/or poor health. One could argue that older people might have become strongly oriented towards home in response to (more) limited options or stringent constraints for mobility, and thus, activity participation. The findings in paper III suggest that home orientation (used as an indicator of preferences) is most prevalent among the oldest old, those living with a spouse/partner, those with a lower income and educational level, and those with poor public transport supply. This suggests that the degree of home orientation is an outcome of an ongoing process of adaptation of preferences, aspirations and desires in response to changes in the relationships between individual abilities and the out-of-home environment in which they are situated.

However, when all given constraints are controlled for, age still has an independent significant effect on the extent of out-of-home orientation (paper III): With increased age, out-of-home activity level is reduced. The independent effect of age can be understood to be in line with the disengagement theory, which holds that older people perceive withdrawal from engagement and participation as a natural part of the ageing process. Hence, some of the findings in paper III might be interpreted to be consistent with the activity theory while others (age) might be interpreted in line with the disengagement theory. Therefore, we can conclude that age alone cannot account for the overall differences in level of activity participation and that various constraints in individual abilities and contextual conditions for activity participation are

important for explaining these differences. However, as we do not have any data on older people's perceptions on the ageing process, it is not possible to draw any conclusions on older people's approach to ageing and how this affects their out-of-home activity participation and the extent to which their activity needs are met.

But are people different in their desires and preferences for out-of-home activity participation, independent of age and various constraints? Yes, according to the findings in paper III. Those who report a higher degree of home orientation are less likely to participate in out-of-home activities, when all else is equal. Therefore, older people choose different levels of out-of-home activity participation according to their preferences, even when they have the same opportunities for mobility.

The findings in paper III suggest that women are more likely to participate in out-of-home activity participation than men are, when not controlling for degree of home orientation ("preferences") (paper III table 3 model 1). However, when controlling for degree of home orientation (paper III table 3 model 2), the gender effect is no longer significant. This suggests that the gender effect found in model 1 might be explained by a higher degree of home orientation among older men than older women.

In discussing the link between mobility and needs fulfilment in chapter 2 (section 2.3.1.1) I argued that mobility is a difficult indicator of needs fulfilment because one cannot expect preference neutrality (that is, that a higher level of mobility implies a greater degree of needs fulfilment). This is one of the reasons for exploring the role of preferences on the extent of out-of-home activity participation in old age in paper III. The findings from paper III suggest that a higher level of mobility does not necessarily equate a high degree of needs fulfilment and wellbeing. Therefore, this study supports the assumption that one cannot expect a proportional relationship between overt travel behaviour or actual out-of-home activity participation and degree of needs fulfilment. Studies that have applied overt mobility as an objective indicator of wellbeing in old age have ascribed differences in trip frequency to differences in individual abilities for mobility (e.g. Marottoli et al., 2000; Hjorthol et al., 2010), but the findings from paper III suggest that they relate to differences in older peoples' desires and preferences, too.

The main conclusion from this discussion is that people are different in their needs for out-of-home activity participation and, therefore, the extent to which their needs can be fulfilled through out-of-home activity participation.

5.4 Actual out-of-home activity participation, outlook on life and experienced unmet activity needs

Several researchers have been aware of the potential challenges of using mobility as an indicator of wellbeing and have suggested exploring unmet activity/travel needs instead (Siren and Hakamies-Blomqvist, 2004; Scheiner, 2006; Kim 2011). The challenge with subjective indicators of wellbeing is that people's aspirations, stable dispositional characteristics, and adaptation to external conditions can influence wellbeing in important ways (Veenhoven, 2002). Paper IV expands on earlier studies on unmet activity/travel needs by exploring

whether experienced unmet activity needs can be explained by actual out-of-home activity participation and personality traits (as approximated by life satisfaction).

The findings in paper IV indicate that actual out-of home activity participation is inversely related to unmet activity needs: The respondents who undertake few out-of-home activities have more unmet needs than those who undertake many activities. On the one hand, this finding suggests that those who report unmet activity needs do not necessarily complain more than those who report no unmet activity needs. On the other hand, this finding might also suggest that older people with a given actual activity level value activities differently and have different preferences for out-of-home activities, and thus, have different unmet activity needs.

In addition, the findings in paper IV indicate that respondents who are more satisfied with life in general are less likely to report unmet activity needs, when all else equal, which indicates that the reporting of unmet activity needs are associated with a person's general outlook on life. In a cross-sectional study like the one used in paper IV, it is not possible to explore whether life satisfaction (used as an indicator of general outlook on life) is a response to a lower degree of unmet activity needs. For this, a longitudinal study is required.

The main conclusion from these findings is that experienced unmet activity needs can be explained not only by the opportunities for mobility (see subsection 5.2), but also by the degree of actual out-of-home activity participation and general outlook on life. Based on the findings that people are different in the extent to which they experience unmet activity needs, even when their actual out-of-home activity participation is identical and other factors are controlled for, it is also suggested that older people are different in their preference for out-of-home activity participation. Therefore, the extent to which people can fulfill their needs to have, to love and to be through out-of-home activity participation will vary.

5.5 Limitations and future research

The fulfilment of the distinct needs outlined by Allardt (1975)—to have, to love and to be—is not studied separately in this thesis: the indexes constructed to measure needs fulfilment (papers III and IV) measure only the general level of activity participation (indicator of objective needs fulfilment) and the general level of unmet needs (indicator of subjective needs fulfilment). Both indexes do include a wide range of activities that can fulfil one or more of these needs, but we do not know which specific needs are fulfilled or not met. More research is needed on whether some needs (to have, to love, or to be) are more fulfilled than others, and if so, why.

Clearly not all of Allardt's needs can be fulfilled only by participating in out-of-home activities. For example, the need to love might be fulfilled with family and friends at home, and the need for self-realization and being part of society might be fulfilled by reading, writing or spending time with others at home. A limitation of the operationalization of needs in this thesis (as the fulfilment of out-of-home activity needs) is that it does not capture how and to what extent the needs to have, love and to be can be fulfilled at home.

One could argue that needs fulfilment, as measured in papers III and IV, can simply be an expression of preference satisfaction in line with the hedonic stances to wellbeing: The more out-of-home activity participation and the less unmet activity needs, the greater the experience of wellbeing. This is exactly what I have questioned in the theoretical framework and in the analyses, by pointing out that people are different in terms of their needs, desires and preferences. I have not assumed preference neutrality, as within the hedonic stances or the objective stances. Moreover, in the empirical work, the constructed indexes that measure the general degree of out-of-home activity participation and the general level of unmet activity needs are both based upon activities that can fulfil several needs. Thus, the approach to wellbeing applied in the empirical work is clearly eudaimonic in outlook; it does not only consider preference satisfaction (the overriding goal as in the hedonic approaches) but also considers several constituents of wellbeing ("having", "loving", "being").

This study could not conclude on older people's approach to ageing (i.e. activity, disengagement or continuity) and how it relates to needs fulfilment. To fully understand the link between an individual approach to ageing and needs fulfilment (as mediated through out-of-home activity participation) we need data on older peoples' outlook on ageing and their motives for out-of-home activity participation (or non-participation). Moreover, longitudinal studies would be more appropriate for exploring the changes in out-of-home activity participation in relation to opportunities for mobility in addition to individual's approach to ageing (and potential changes in this).

5.6 Conclusions

Two main conclusions can be drawn from the theoretical part of the thesis: We need more robust definitions of wellbeing and theoretically anchored conceptualizations of the link between wellbeing and mobility in empirical research in old age; and empirical research on older people's mobility that is explicitly grounded in the eudaimonic and contextualist tradition of understanding wellbeing is clearly warranted. I trust that the theoretical framework developed in this thesis on how to conceptualise the links between wellbeing and mobility can guide future research.

The thesis also empirically explores potential explanations for variations in needs fulfilment in old age, mediated through out-of-home activity participation. Its theoretical framework has proven useful for explaining variations in needs fulfilment in old age. The following conclusions can be made:

Opportunities for mobility, defined as the interplay between individual resources and abilities and contextual conditions for mobility, can to some extent, explain variations in needs fulfilment.

- Results from the quantitative studies suggest that the following indicators of individual abilities and contextual conditions are associated with better needs fulfilment, when all else equal: holding a driving license, good health (several indicators), financial resources, living alone, access to company on activities, temporal resources, the quality of the public transport supply, and residential location.

- Results from the qualitative study suggest that "having control of time" and "competence and knowledge about the transport system" are important resources for being able to attend desired activities. Barriers for participating in desired activities relate not only to the transport infrastructure/supply, but also to the destination end of trips (such as parking facilities, timing of an activity, entrance barriers to buildings). These findings suggest that the whole journey, including characteristics of activities and their facilities should be accounted for in order to understand older people's opportunities for mobility.
- Older people can actively shape and mediate their opportunities for mobility and that the strategies developed to overcome barriers become part of their individual abilities for mobility which widen their opportunities for mobility.

People make choices according to their preferences within what they perceive as their opportunities for mobility. When it comes to desires and preferences, older people are just as different as the rest of the population. Therefore, the extent to which older people will experience their needs being met through out-of-home activity participation will vary.

- Preferences are not invariant, they change and shift over time, in relation to both context and perceived level of resources that can be mobilized to enact certain behaviours.
- Although constraints can account for most of the variations in needs fulfilment, in addition to preferences for out-of-home activity participation, age alone has a significant effect on the extent of out-of-home activity participation, suggesting that some older people see withdrawal from social activity and participation as a natural part of ageing.

The extent to which people experience their needs for out-of-home activities not being met is also associated with both the level of actual out-of-home activity participation, which is shaped by an individual's opportunities for mobility in important ways, and outlook on life (overall life satisfaction).

The main conclusion from this thesis is that the extent to which out-of-home activity participation can fulfil needs varies between individuals, depending on their preferences and outlook on life, as well as the interplay between their individual strategies, individual resources and abilities, and contextual conditions.

How policy makers can make use of the findings is outlined thoroughly in papers II, III and IV. Policy makers should move beyond a sectoral orientation to develop holistic approaches whereby questions of mobility in later life are not only (or even primarily) tackled through transport planning but are addressed in close conjunction with health and social-care professionals and policy-makers, urban planners and private/public operators of leisure activities.

This thesis has only scraped the surface of how older people differ in terms of their preferences and how this relates to out-of-home activity participation, needs fulfilment and wellbeing. To fully understand preferences—and needs—in old age and how they relate to mobility, future research could benefit from deeper engagement with the concept of lifestyle that can capture differences in

motivations, preferences, habits and orientations. Knowledge on how older people differ in terms of lifestyles and preferences (and knowing their approaches to ageing) can be applied to induce transport and mobility needs within specific lifestyles. This knowledge can be used to develop tailored policy measures targeting specific lifestyle groups that can improve their wellbeing.

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Paper I to IV

I

II

III

IV