# Elderly peoples automobility

*An extended theory of planned behavior on the readiness to use the car, among elderly people*

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# 2 Innholdsfortegnelse

# 3 Abstract

The demographical redistribution in Oslo in the years to come will have a strong impact upon society. The aging population is bound to entail transformations in the premises of car usage. (Nenseth, 2007). The purpose of this paper is first and foremost to understand how socio-psychological factors based on attitudes, beliefs and values influence the car use among elderly people.

These socio-physiological determinants are operationalized by using an extended version of the original theory of planned behavior (Ajzen,1991 ) The goal is that through quantitative methods, knowledge will be created surrounding how these socio-physiological factors in their respective aggregates, and in combination: attitudes towards car use (behavioural beliefs), subjective norms (normative beliefs) perceived behavioural control (control beliefs), subjective moral norms and mobility freedom led to the formation of a behavioural intention to use the car among elderly individuals in Oslo. This intention is operationalized:" When I perform the daily routines and activities that involve short or slightly longer journeys within Oslo, the car is my intended first choice ".

 A focal point is if the socio-psychological constructs can be reasoned to determine the formation of the readiness to use the car and explain the variability in the given intentional behaviour. Studies adopting the Theory of Planned Behavior (TPB) mostly use quantitative methods. This paper puts into use qualitative methods for elicitation of beliefs. But also seek to use a narrative approach to interpret and understand why of a range of accessible beliefs regarding automobility, only a few become readily accessible, thus determine the intention to use the car among elderly people.

# 4 Introduction

## 4.1 Background

The National Transport Plan (NTP) announced in 2012 a goal that" all growth in passenger transport in metropolitan areas is to be captured with public transport, cycling and walking "(Stortingsmelding nr. 26, 2012 -2013, s. 139).  The statement is a means towards traversing and reducing the negative effects and challenges that a road based transport produce: $CO_2$

emission, congestion, noise, landscape fragmentation, public health and making cities more liveable.

Building on this zero-growth statement the Oslo municipality in 2015 produced an ambitious climate and energy strategy in which the reduction of urban road traffic became one of the main objectives towards creating a sustainable and environmental city. Through the capture of present and future car usage with transportation modules such as cycling, walking and public transport, it was envisioned a reduction of car traffic in Oslo by 20 percent during the council's period and one third by 2030 compared with 2015.

At the scenery of this shift towards a more sustainable Oslo, major demographical changes are becoming transparent. In the years to come, Oslo will experience an aging of its population that will have a profound effect on the system of automobility

## 4.2   Objective and motivation for research theme.

Demographical ageing is one of the key societal challenges worldwide, especially in Europe where the majority of baby-boomers are soon reaching their retirement age. The increasing share of older persons in the population, is poised to become one of the most significant social transformations of the twenty first century, with implication for nearly all sectors of society.

For Norway, the share of the population aged 70 or above is expected to rise from 11 percent to 19 percent of the total population by 2060. (SSB 2014) In Oslo, the age groups between 67-79 years and 80 + are expected to increase by 60 and 104 percent by 2040. (Oslo commune 2016) The social and economic implication of ageing upon the individual and society is well documented, but ageing also has significant consequences for the transport sector.

Like all age groups, the transportation needs of the elderly are not homogenous. Lifestyle (e.g. working, retired, housing, hobbies, consumption, attitudes, social status, etc.) and socio-demographical (e.g.  age, sex, education level, income level, marital status, occupation, marital status, ethnicity, driver license possession etc.) weigh heavily and bring about different transport mode and travel behaviour among the elderly (Hildebrand, 2003) Still there are some narratives that can be drawn.

Numerous studies have found that elderly travel less often and shorter distances than that of younger age groups (e.g. Hess 2009; Currie and Delbosc 2009; Kim 2011) But at the same time todays elderly have become increasingly mobile over the last decade because of increased income levels, better health, more active lifestyle and the introduction of modern

technology. This increased mobility has led to an automobility at which elderly relay less than before on public transport and more on the car. (Hjorthol et al. 2010) The car is the most important means of transport for today's elderly, although there are differences between countries and between women and men. It is increasingly emphasized that the levels of mobility not only differ between the elderly and non-elderly, but also within the elderly population. ( Alsnish and Henscher 2003).

Influenced by existing research on the reconfiguration towards a more car dependent mobility among the elderly population (Hjorthol 2013, Nordbakke 2006, Dillen et al 2005) The aim of this research is to see how behavioural intention to use the car among the elderly population is influenced as theorized by the theory of planned behaviour.

The aim is to produce a paper that can contribute to the existing knowledge surrounding elderly people's mobility behaviour, and how the underlying socio - physiological factors operationalized as behavioural beliefs, normative beliefs, control beliefs, subjective moral norms and mobility freedom shape elderly people's readiness and intentions to use the car.

## 4.3    Research question

The changing demographical patterns and goals towards capturing future and current growth in passenger transport with sustainable transport modules makes it a valuable exercise to understand how socio-physiological factors influences automobility among the elderly population.

 To examine and better understand the intentions of elderly people as to using the car, behavioural models such as the theory of planned behavior (TPB) can be applied. The TPB (Ajzen,1991) is as an extension of the theory of reasoned action (TRA) developed by Fishbein and Ajzen (1975). The TPB suggests that a given behavior is dependent upon the intention to perform the behavior, where intentions are dependent upon attitudes towards the behavior, subjective norms (or social pressures) and perceived behavioural control.

The main research question is as follows:

**R.1** *How are the intentions and readiness to use the car among the elderly population influenced as theorized by the extended theory of planned behaviour?*

Three secondary research questions are conceptualised

*R.2 How does the socio-physiological factors as conceptualized in the theory of planned behavior, attitudes towards car use (behavioural beliefs), subjective norms (normative beliefs) perceived behavioural control (control beliefs), subjective moral norms and mobility freedom, in their respective aggregates and in combination led to the formation of a behavioural intention to use the car among elderly individuals in Oslo.*

*R.3. To what degree does the socio-physiological constructs explain the variability in the given intention: "When I perform the daily routines and activities that involve short or slightly longer journeys within Oslo, the car is my intended first choice" and in what way might it contribute towards explaining the corporeal readiness to use the car among elderly individuals.*

*R.4 In the existing range of elderly individual's beliefs surrounding automobility. Why does some subjective probabilities prevail, and become readably accessible beliefs that determine the prevailing attitudes, norms and control towards car usage?*

The research paper intendents to put into usage an extended version of the theory of planned behaviour (TPB) to explore automobility reediness and intentions to use the car among the elderly. The theory of planned behaviour (Ajzen 1985; Ajzen & Fishbein 1980) assumes that behaviour is determined by the intention to perform it. Behavioural intentions are assumed to be determined by attitudes, subjective norms and perceived behavioural control.

Attitudes in this case refer to the degree to which elderly persons holds a favourable or unfavourable opinion of the idea of using the car. Subjective norms refer to the perceived social pressure to use the car or not and the individual's motivation to comply to such social pressure. Perceived behavioural control is the perceived ease or difficulty of using the car, or alternative modes such as public transport, walking, cycling. Subjective moral norm is the individual's feelings of personal obligation or contribution to the preservation of the environment. Mobility freedom is the value the individual place on the car as an entity that enhances the ability to engage in self-directed action and improving options, accessibility and freedom of movement.

To uncover these underlying constructions identified as determinant for elderly people's reediness to use the car, a mix method approach has been used, quantitative statistical analyses included bivariate and multivariate regression analysis based on the extended TPB model. Although small samples are not ideal when applying correlation or regression statistics, small sample sizes do not affect the power of correlations and coefficients but rather

the probability of reaching significance by chance (Bonett and Wright, 2000). This limitation notwithstanding, correlations and regression were used in the current research to provide a broad sense of relationships between constructs in the model and other variables of interest. All analyses were performed using SPSS statistical software. The qualitative method is a narrative approach that seeks to elucidate existing beliefs and give an experienced based account of theses constructions.

The study drawn on survey data collected of 68 elderly car users within the Oslo region. Additionally, 8 participants are drawn from the survey and interviewed.

## 4.4    Appraisal of concepts

*Accessibility:*  Accessibility (or just access) refers to the ability to reach desired goods, services, activities and destinations (collectively called opportunities). Accessibility is in general terms evaluated based on the time, money, distance, discomfort and risk. Accessibility in context of mobility, is in this research used as a term conceptualized by Kaufmann (2001) In which it is used to understand the conditions that form barriers for using a form of movement tied to the individuals socio-economic position, attitudes and behaviour.

*Automobility:* The use of automobiles or motor vehicles as a mode of transport; motor travel

*System of automobility:* This notion is used to understand the origins of the 20th-century car system and especially how its awesome pattern of path dependency was established and exerted a particularly powerful and self-expanding pattern of domination across the globe ( Urry, 2006)

*Socio-demographic and Socio-economics*: Socio-demographic and socio- economic characteristics can refer to age, sex, place of residence, religion, educational level, marital status and income levels. Socio-demographic and socio- economic characteristics variables has a prominent place in mobility studies, as there is a clear correlation between income, residence, age, sex etc. and travel behaviour, modal choice.

*Mobility behaviour* A comprehensive notion of mobility behaviour should consider the degree of mobility realised, the range of activities engaged in, the number of trips, duration of trips, length of trips and module choice.

*Behavioural beliefs*: Behavioural beliefs link the behaviour of interest to expected outcomes. A behavioural belief is the subjective probability that the behaviour will produce a given outcome. (Anable, 2005, p. 67)

*Normative beliefs*: Normative beliefs are understood as the expectations of others and motivation to comply with these expectations. (Anable, 2005, pp. 68)

*Attitudes*: Attitudes is a favourable or unfavourable evaluative reaction toward something or someone, exhibited in one's beliefs, feelings, or intended behaviour (Myers, p. 36). In this research, it is interpreted as a social orientation – an underlying inclination to respond to something either favourably or unfavourably. Attitudes are developed in interaction with the surroundings, and is influenced by the experiences that we make through. Attitudes are in this way a mechanism of perception, interpretation, actions and behavior. It determines how you feel and what you do.

*Mobility related attitudes***:** Mobility-related attitudes are known to correlate with mobility behaviour (Haustein, 2011;2014) they affect preferences for specific activities, destinations, routes and means of transport. But the cause and effect relation remain unclear. This means that it is difficult to assess if mobility behaviour effects attitudes or vice versa. Most of the research reviewed, that uses attitudes in relation to mobility behaviour, hinges on the work of Ajzen (1991) He defines the most important determinant of a person's behaviour as the intention to perform a behaviour. This intention is defined as a combination of attitudes, subjective norm, and perceived behavioural control. (Ajzen, 1991, pp. 206)

# 5  Litterature review

The purpose of this study is to explore and give meaning to how the underlying constructions of the theory of planned behaviour influence and shape elderly peoples automobility. The litterature search and reviews should therefore provide an overview of studies that touches similar core areas. An outline of the main narratives regarding previous, current and future trends of an ageing population on mobility patterns, travel activity, mobility characteristics, module choice, is valuable to include as it forms the basis for the research.

There is an increasing understanding that the travel and transport related choices people make and the preferences they have, can be explained by mobility related operationalisations of attitudes, subjective norm and perceived behaviour control. (Bamberg, Ajzen & Schmidt,

2010; Abrahamse et al, 2009; Bamberg, Hunecke & Blöbaum, 2007; Haustein & Hunecke, 2007; Bamberg & Schmidt, 2003; Heath & Gifford, 2002 ) In the theoretical assumption, most of these studies refer to the theory of planned behaviour. Bamberg, S., & Schmidt, P. (2003)

However, only a few studies dealing with mobility behaviour of elderly people considered attitudes as a direct determinant of their mobility behaviour. Most transport related studies in context of elderly, weight socio-demographic/economic, spatial accessibility, social dimension, health as determinant factors. Underlying attitudinal constructions are often treated as an indirect factors or externalities, something that is shaped by the behaviour and not opposite, in a study by Haustein et al. (2008) mobility related individual constructions of attitude were included and was evident in predicting travel mode choice of the elderly.

A crucial factor turned out to be the perceived competence ability to use public transport, which in turn influenced both car use and public transportation use. Similarly, Cao et al (2007) found the construction of car dependency in context of individuals to have a significant impact on their travel pattern. While the attitudinal constructions outlined above were found to be relevant factors of older people's mobility in complex regression analyses, the cause and effect relation remains unclear.

One of the main findings in the litterature reviewed for this paper is that the overall travel activity and use of the car, decreases when reaching the age of retirement. This is measured in terms of daily trips and distance travelled. ( Brög et al 2000, Hjorthol et al 2000, Metz 2000, Rosenbloom 2001, Nordbakke 2006, Currie and Delbosc 2009, Hess 2009, Truong et al 2011)

The reduction of travel by car among elderly people is largely understood and explained in the context of commuting. Stepping into the retirement age, (this age might differ in different countries) implies a rearrangement of travel patterns and activity. Where the previous periodically recurring travel that existed between one's place of residence and place of work disappears. Other factors identified as contributing towards this rearrangement is income and health. Deteriorating physical and mental health affects the ability to use not only the car but also other transport modules, thus believed to contributed towards a reduction of mobility among elderly people.

Even though the litterature points towards a general reduction of travel when entering the retirement age, there is a more nuanced picture to this truth. Elderly people's car use has increased sharply in most western countries, and their usage of public transport compared to

earlier generation has decreased. The car is the most important means of transport for today's elderly, although there are differences between countries and between women and men. In the United States, 8 out of 10 travels for ages between 65-84 years is done by car, either as a passenger or as a driver, In Europe, the figure is about 50 percent. (Nordbakke 2006)

Dillen et al (2005) through his study of travel activities among 650 elderly people in Sweden, showed that the car is still the dominant module choice among elderly people. The car is the primary module choice when conducting activities such as grocery shopping, leisure, visits to friends and other daily activities. Paez et al (2007) show that the elderly has near similar car dependent transport mode shares as younger generations, but few and shorter trips. This is supported by other paper such as Hess (2009), Currie and Delbosc (2009), Kim (2011). In the United Kingdom, Li et al. (2012) explored transport mode choices of the elderly and confirm that the private car is the most commonly used transport mode. However, unlike most of the earlier mentioned studies above, their results indicate that the share of car use decreases at higher ages.

The litterature is divided in the manner at which car dependency is similar between non-elderly and elderly age cohorts. There seems to be a geographical difference at which studies conducted in north America, Australia and Canada find that elderly have similar car dependent transport mode shares as younger generations, while European studies such as Li et al (2011) and Böcker et al (2016) shows that share of car use and dependency decreases at higher ages.

The current litterature indicates that the car will have a place in the life of older people in the future, but to what degree is contested. Central features and trends that contribute towards this belief is the increase driver license shares, older people will remain functional for longer periods, todays non-elderly have a more active and car-based lifestyle than the elderly today had when they were young and more complex journeys are now made in old age. (Oxley 2000, Rosenbloom 2000, Rosenbloom 2001, Nordbakken 2005, Hjorthol et al. 2010) The mobility of older people today is significantly higher than previous generations, and trends expect it to increase as new generations step into the retirement age.

It is increasingly emphasised that levels of mobility differ not only between the elderly and non-elderly, but also within elderly populations. These findings are built on a research perspective that can be characterised as a segment specific approach. This approach seeks to understand if a group can be subdivided into homogenous subgroups, based on the different

variables. This approach might help understand and identify the different mobility needs, driving behaviour and compensatory strategies that exist within the elderly population, thus deepening the understanding of heterogeneity within certain groups in context of mobility behaviour. (Rudinger, 2006, pp. 71) This approach stand in contrast to the research at which causal factors are at the centre of attention. Examples upon this might be: what socio-demographic and psychological characteristics are associated with the driving behaviour of the elderly? This perspective is chosen frequently in traffic research studies.

Siren and Haustein (2013) and Alsnih and Henscher (2003) are examples upon a segment specific approach, were subgroups are identified. Alsnih and Henscher (2003) found it useful to distinguish between younger (65–75) and older (75+) elderly, because this marks the age in which health limitations become more prominent. Siren and Haustein (2013) contributes to this, advocating an understanding of elderly mobility in more diverse ways based in their dependence of, and their attitudes and lifestyles regarding, mobility in general and different transport modes. By distinguishing elderly into four basic, distinct segments that showed differentiating mobility patterns, Siren and Haustein (2013) showed the importance and effect that diverse lifestyles and attitudes has on the travel behaviour and mobility needs of the elderly.

The predominance of the car as the main transport module among elderly people, is explained in context of disabilities and barriers du to old age. (Nordbakke 2006; OECD 2001). The use of car to reach activities is less challenging than per se walking, cycling or public transport. The OECD (2001) paper on ageing and transport highlights that older people who suffers from limitations related to health often ceases using transport modules such as walking, cycling and public transport before they are forced to cease driving. Limitation related to health issues does not only affect transport module choice. It also affects the driving behaviour. Many elderly people avoid using the car during rush hours, on motorways and often reduces the travel time (time spent in the car) due to the increasing restraint of driving. (Benekohal et al 1994, Chu 1994).

As shown in the section above, research on elderly mobility behaviour has often been restricted to the aspect of mobility impairment, with extensive focus on the restrictions that comes with old age and deteriorating health. The research focus has recently widened such that other factors influencing mobility behaviour of the elderly have also been considered. (e.g. Jansen et al.2001; Scheiner 2004; Smith and Sylvestre 2001) The size of social network and accessibility in context of public transport, walking and cycling all have shown to

contribute towards reducing or increasing the levels of car use among the elderly population (Smith and Sylvestre2001, Scheiner 2004, Paez et al.2007, Caoet al.2007)

With respect to gender, both Li et al. (2012) and Schmöcker et al. (2008) find that elderly women make fewer trips than elderly men, and rely less on car and more on bus travel. Similar findings have been found in other parts of Europe. In a study amongst Danish, Norwegian and Swedish elderly, Hjorthol et al. (2010) confirm earlier findings that women, as well as those who own no driver's license, perform fewer trips in general and fewer trips by car. Hjorthol et al (2010) also notice that elderly men are more likely to keep their cars when they are older compared to elderly women.

Schwanen et al (2001) in a study conducted in the Netherlands, found that elderly women are more likely to use the public transport, whereas lower income and unemployed elderly are more likely to walk and cycle. Highly educated elderly was found to conduct more trips in general, more trips further away from home, and a larger share by public transport. Finally, having a driver's license and/or owning a car enhances car use compared to all other transport modes.

In addition to the effects of socio-demographical factors such as gender, income, education etc spatial contexts have been shown to influence elderly people's car usage. (Böcker 2016) Residential environments are of importance to the elderly, not only because elderly travel less far from home than younger age groups (Collia et al 2003), but because their spatial needs and barriers are more demanding. With spatial needs and barriers, we mean safe crossing points, resting places, pavement surface. (Metz 2003)

Most of the studies that analyses the role of spatial context on elderly mobility, does so in the context of urbanisation. Schmöcker et al (2005) finds that elderly in high density residential environments travel shorter distances than their counterparts in non-dense areas. Similar findings are done by Schwanen et al (2001) who points out that elderly people in four of the largest Dutch cities are more likely to use the public transport compared to travelling by foot, car and especially bicycle. On the other side in a German study, Scheiner (2006) Finds that the degree of urbanization has no effect on elderly out of home leisure activity frequency, distance or diversity. However, Schwanen point out that residential context mostly matters when elderly do not own a car. However, when they do, they are most likely to travel by car regardless of the environment. Other studies have shown that elements associated with urban sustainability, car free zones, pavements, cycling lanes, all have a positive effect on

promoting elderly walking, thus indirectly contributing towards sustainable travel activity. (Gomes et al 2010, Borst et al 2009, Hall and McAuley 2010)

# 6   Oslo as study area

Oslo is a city in growth, increased urbanisation and changing demographical composition stipulate large constraints on the city's current and future transportation system. Increased awareness and obligations towards reducing car traffic means Oslo is a city in transformation. Reversing the trends of increased emissions, copying with urbanisation and an aging population are key challenges that Oslo must adapted to in the years to come.

The negative externalities produced by a population that is car dependent is recognised by the Oslo city council. This is evident in their declaration; "Traffic *is the biggest source of greenhouse gas emissions and harmful air pollution in Oslo. Less traffic is essential to accommodate sustainable mobility and better traction for public transport"* (Byrådserklæring, 2015). The goals of the Oslo city council are aligned with the local and global authority's recognition of cities as important focal points towards addressing climate change. Reducing car usage and car dependency among the population is therefore an important stepping stone towards the global goals of reducing the drivers of climate change.

In Oslo, the age groups between 67-79 years and 80 + are expected to increase by 60 and 104 percent by 2040. (Oslo kommune 2016) The reconfiguration of the demographical composition means that a better understanding of elderly people's readiness to use the car is something that can be of great value, as increased knowledge surrounding elderly automobility might help Oslo to plan and come to grasp with these changes.

## 6.1   Trends in mobility behavior and car usage in Oslo

The travel characteristics of the population in Oslo differentiate itself from other parts of the country. The Oslo area stands out with the lowest proportion of car use, and the highest proportion of public transport users. On a national level, persons living in Oslo has the lowest mean value in terms of distance travelled by car per day. Despite having the lowest proportion of car use on a national basis, there is still an increase in the number of cars in Oslo. Since 2010, the number of cars in Oslo has increased by 23,5 percent. By comparison, the population has increased by 11.3 percent in the same period. (TØI 2014)

The average number of trips during a day in Oslo is around 3,3 trips in total. There are major internal differences based on geographical location, those who live in inner Oslo have a high proportion of trips, but they also travel the shortest distances. The average amount of travel distance is around 34 kilometers. The car is the predominant module choice, as most of the daily travel distance is conducted by car. It is therefore natural to assume that there are significant differences between those who have access to a car and those who do not, with regards to average travel distance per day. Although traveling on foot or by bike only constitutes a small part of the total journey length (just under two kilometers) it is of foremost importance, especially in inner Oslo. The population there makes half of all their travels on foot or by bike.

With regards to the elderly population, this group distinguish themselves from the rest of the population in terms of conducting most of their travels between 10 am and 3 pm, and especially the oldest (over 74 years) within this age group travel the most during the daytime. As the literature review points out, there are also significant differences in car usage among the elderly population, both in terms of gender and age. Male between 67-75 conduct 1,49 trips per day as car driver, while female drivers is 0,75. In the age group 75 + the figures for male driver are 1,08 and 0,46 for female.

## 6.2    Transport system and the automobile

The unique purpose of transportation is to overcome space, which is shaped by a variety of human and physical constraints (Rodrique, 2017, .pp 174). Human activity is distributed over space, and how people overcome space is more and more dependent upon transport systems and transport modules. The transport modules, being the entities used to overcome space and carry one or more people from one place to another. This concept invoke to a set of processes that cause the relative distance between places (measured in terms of travel or cost) to contract, effectively making such places grow closer. (Warf 2011)

Transportation is fulfilling a demand that exists for mobility. This demand is created by humans and their increasing needs for interaction across spatial space. The evolving nature of human society and its technological capacity has led to the emergence of complex systems, in which multiple modules of transportation converge on space/time through interrelated networks that facilitate the mobility and accessibility of human actions. These complex systems are known as transportation systems.

The car is a defining object in human livelihood and its emergence and growth created disruptive trends that caused an economic revolution and reshaped society. The car alternated and reshaped the understanding of mobility and accessibility, meaning the possibility to move between numerous different activities at a shorter time frame. It expanded the activity space of individuals, enabling them to choose employer or workplace not located in the spatial proximity of their home, to travel increasing distances for recreation, shopping or visit friends and families located outside the near proximity of the home.

As Kenneth T. Jackson (1996) points out in is work Crabgrass Frontier, the car has also had a series of negative social and cultural effects upon urban society. He lays out how the automobile changed the landscape of the modern society, as highways and services adapted themselves to a suburban landscaped geared toward the car.  In his words, the automobile changed the space around us, from the physical organization of neighbourhoods, roads, yards, houses, and apartments, to the setting up living patterners that conditioned our behaviour. (Jackson, 1996, p. 54) Societal trends that determine social values and individual attitudes towards transport related activity, is therefore an important part of understanding the place that the transport and especially the car has in modern society

## 6.3   Societal Trends and implications for mobility behavior

Social change and transport mutually affect each other. The interaction of social values, individual attitudes, mobility and transport patterns are linked in complex ways with significant social trends, such as the adoption of suburban life-styles, the ageing of populations, the decline of the nuclear family, etc. (Rudinger et al, 2006, pp. 62-63) The implication of this is that it has become increasingly evident that the modern lifestyles in affluent societies, and the behaviour associated with such life styles, bring about a reconfiguration of individual mobility behaviour. (Rudinger et al, 2006, pp. 64 )

The motorized, connected, and spatially dispersed population of today have different patterns of work and socialization than previous generations, and is likely to differ from future generations. Today daily life revolves around, family, friends, school, work and leisure. The distribution over space of these commitments, activities and opportunities shapes the activity space of a person in his or her everyday environment. The extent of this activity space determines a person's consumption of transport services. (Rosenbloom and Stahl 2002) Even though we are moving towards a more urban livelihood, urban settlement patterns have the characteristics of outwards growth and lower densities, thus increasing distances between the

poles of a person's activity space. ( Rudninger et al 2006) This increase in distance between activities is a characteristic that is difficult to reverse, as these actives often are long term investments made in work, family and friendship. Society has gradually become based on spatially dispersed networks, which are overlapping. The breakdown of walking environments and the weakening of closed social milieus are among the contributing factors. In view of these trends, it is reasonable to assume that it is not only members of social networks who are spatially dispersed, but social networks themselves are becoming less coherent itself. Creating a reality at which fewer people who are spatially proximate share multiple affiliations. Understanding mobility behaviour and automobility as partly dependent upon these multiple affiliations, is important as the characteristics of the activity space determinates a person's consumption of transport services.

## 6.4    The interdependence of mobility and old age

Mobility is contextual, but so is age. In many studies about mobility of elderly people, "old age "is treated as it was one with a stable meaning that is transferable across space and time and can be approached by only using chronological criteria's such as age in years etc. But age is much more than just numbers, with it comes a series of contextual underlines that is weighted with cultural, geographical and socially constructed notions. Understanding these constructions are paramount for understanding not only how age shapes mobility, but how mobility shapes age.  For many old drives, the use of the car becomes less and less an option during their life-course. The process of going from an active car user to a bystander is a process that can be both abrupt or gradually. It may result from gradual self-regulation, pressure from family, friends, advice from physicians or enforced by institutions. Or it might occur abrupt after some illness, accident or misfortune.  The definition of society and normative beliefs surrounding who is entitled to drive based on their bodily competences, defines and construct old age in context of mobility. Old age is thus given meaning and socially constructed partially through the reduction of the individual's ability to be mobile, and usage of especially the car.

## 6.5    Mobility needs of elderly

The mobility behaviour and needs of the future generations of elderly is likely to differ from the present, as they probably will have different pattern of work and socialization: working longer, higher levels of education, better health, more dispersed social and family network

and be more alone. Most of the future elderly will probably require greater mobility than at present. (Schaie and Mollenkopf 2005) Seeing it the other way around it might be plausible that the current ageing of the elderly, reaching higher age, will increase the number of persons with reduced mobility performance and increase dependence upon specific transport modules.

A more likely scenario is that we will experience a segmented elderly population, based on different mobility behaviour. The younger elderly requires greater mobility than past generations and older elderly. While at the same time the older elderly also remains more mobile in context of previous generations. ( e.g Alsnih and Henscher 2003 )

Mobility will remain a quality of life issue among the elderly population. Mobility is essential for maintaining attributes of personal choice and independence, life-style, leisure and family habits. The restriction of mobility is a restriction of life, and the ability to remain mobile despite restrictions due to old age: will reduce personal isolation, increase participation in social and recreational activities, remain selfsustained through the ability to obtain goods, services and access to society. (Rudinger 2006: Schaie 2003)

# 7 Theoretical framework

To understand how the world works, there is a need for a theoretical framework, that lay the foundation for our understanding. The world is infinite complex, and can only be understood through simplification and systematization. Theories about how the world works are tools that give meaning, order and sense of the complex reality and help us see the connection between distinct aspects of reality.

A theory is an idea of how the world works, and is a means of describing, explaining and anticipating an aspect of this reality. (Hubbard 2002) Choosing a theoretical framework therefore directly affects the interpretation and understanding of the empirical material that is at hand, it is the tools that help decode the empirical data. Human geography is a discipline that has largely been influenced and shaped by other academic disciplines such as economics, sociology, cultural studies, physiology, and others. Many geographical theories have been based on these disciplines, and extended by giving them a spatial perspective.

The main theme of this master thesis is how the reediness and intention to use the car among the elderly population is influenced and determined by behavioural, normative, and control beliefs, and the extended constructs mobility freedom and subjective norms.

The overall goal of the assignment is to enlighten, increase and contribute to the existing knowledge base surrounding elderly people's intention and reediness to use the car, but also how these constructions is part of defining elderly's automobility. The theoretical framework that will be presented are interdisciplinary theories within mobility research, that bridges subject such as social relations, attitudes, imbedded ideas, collective premises and possibilities for travel.

## 7.1 Mobility in human geography

Mobility, movement and relocation have long been central to human geography, although it has been emphasized to varying degrees throughout the history of human geography. Geographers like John Urry, Nigel Thrift, Tim Cresswell and Peter Adey have been critical to the way social scientists interact with social phenomena's as static and site bound, rather than threating them as entities that are constantly in motion.

### 7.1.1 What is mobility

Mobility refers in this context both to physical movement and the ability of physical movement. Mobility can thus be both an act and a resource. According to Urry (2007) all societies have a common challenge - they must be organized over a distance. For a society to be able to create relationships over short and long distances, different forms of mobility are required.

In many ways mobility involves a displacement, the act of moving from one place to another. These locations may be streets or cities, or they may be points a few meters apart. A large part of our everyday life consists of moving, it is not only the places we are going to that is of interest, but also how we move, why we move, the space that is between the locations and how the imbedded ideas of mobility shape our society. ( Rudinger 2006)

Cresswell (2010) claims that mobility has three basic aspects: the physical movement, the movements representation, and the experience of the movement. The physical aspect of mobility refers to what can be mapped and measured by mobility - such as departure and arrival point, distance and travel speed - which can be modeled in, for example, transport geographic research. The second aspect is how all form of movement are subject to representation. When a race car driver describes competitive driving as a rush, or a politician describes the marginalization of immigrants, it helps to make sense of mobility, creating a

normative content. The third aspect is the experience of the movement, aand it is this experience that differentiates the representation of the driver and the politician. The drivers account is experienced-based, as it is physically and consciously experienced, contrary to the politicians whose account is strictly normative.

When we are moving in an urban landscape, we rely on the cities infrastructure and is part of a large system that consist of thousands of individuals moving between places. We constantly adapt to other traveler's movements, transport schedules, collective premises, rules, and respond to what is happening around us. Thus, mobility is an exercise of constant social interaction, that shape social connections across multiple distances. As David Delaney (citedin Cresswell, 2006, pp. 4), has put it "Human mobility implicates both physical bodies moving through material landscapes and categorical figures moving through representational spaces."

In the context of mobility in human geography there are numerous research fields that in several ways emphasize concepts that are of interest for the subject under investigation in this paper. The following section will include the theory of planned behavior (Ajzen, 1985, 1987, 1991), Sheller & Urry (2006) mobilities paradigm and Kaufmanns (2004) concept of motility.

## 7.2    The theory of planned behavior

The Theory of Planned Behaviour (TPB) (Ajzen, 1985, 1987) is a theory that states that human behaviour is guided by three kinds of considerations : Beliefs about the likely outcomes of the behaviour and the evaluation of these outcomes ( behavioural beliefs), beliefs about the normative expectations of others and motivation to compliancy with these expectations ( normative beliefs) and beliefs about the presence of factors that may facilitate or impede performance of the behavior and perceived power of these factors ( control beliefs). (Ajzen, 2006, pp 2)

Each of these three considerations influence behavior. The behavioral beliefs produce an individual's favorable or unfavorable attitude towards the subsequent behavior. While the normative beliefs result in perceived social pressure or subjective norm to engage or not to engage in a behavior. Lastly the control beliefs give rise to perceived behaviour control, which is their ability to perform a given behavior. In combination, these factors: attitude towards the behavior, subjective norm, and perception of behavior leads to the formation of a behavioral intention.

Intention being understood as an indication of an individual's willingness to perform a given behavior, thus leading up to the actual behavior, per se. choosing to use public transport as opposed to the car and vice versa. These together shape an individual's intention to engage in a specific behavior.

The theoretical conceptualization of determinants of human behavior can be used to understand individual's subsequent behavior in specific contexts, such as per se mobility behavior. The theoretical conceptualization in its extended form has been used in numerous transport related studies it e.g. Harland et al (1999) ; Cohen et al, (2003); Letirand (2005) ; Rudinger ( 2006) ; Gardner et al, ( 2008) ; Abrahamse (2009) ; Lafaye ( 2011) ; Murtagh (2012) ; Siren and Haustein (2013) ;  Li ( 2016) ) By drawing on the TPB conceptualization, the research question is presented with a framework for constructing not only the questionnaire but understanding the underlying factors that influence behavior.

The TPBs six constructs that collectively represents a person's actual control over behavior is exemplified in the table below (Ajzen, 2006)
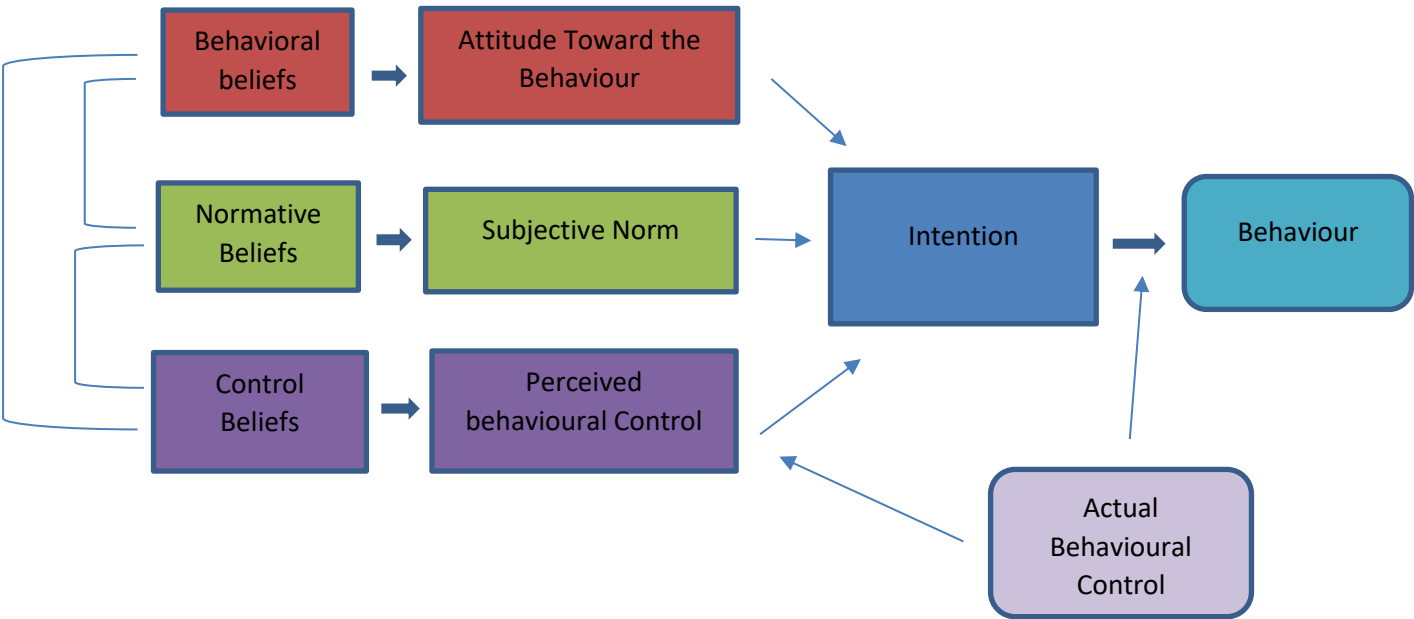


The TPB gives a theoretical foundation for constructing conceptualizations that captures the factors that influence elderly's reediness to use the car, intentions to use the car and in part understanding their automobility. Even though the TPB originally was constructed as a framework for understanding how we can change the behaviour of people, it is her used as a framework for understanding the intentional behaviour of individuals in relation to car usage.

### 7.2.1 Limitations:

There are some limitations to the theory of planned behavior that needs to be addressed. The theory does not account for other variables that factor into behavioral intention and motivation, such as mood, experience, satisfaction, fear or treat. Admittingly experience and safety play a key part in influencing elderly people's intention to use the car or not. As research has shown that much of their mobility behavior takes place, outside the regular peak hours. The reason for this is an amalgamation of the fact that they are more "available" to travel at all times during the day, but also that time periods of increased traffic possess a challenge in form of ability, competence and safety. While the framework considers normative influences, it does not consider environmental or economic factors that may influence a person's intention to perform a behavior. As the negative externalities produced from the usage of cars are environmental related, an inclusion of such factors should be implemented in the research. Further on it assumes that behavior is the result of a linear decision-making process, and does not consider that it is constantly evolving and changing over time.

### 7.3 The mobilities paradigm

In mobility, there is an understanding that both the built-up environment and the people that is present, form our movements and how we relate to the movement itself. According to Sheller & Urry (2006) traditionally, the social mobility research and methods have been static and immobile, focusing on geographical locations rather than the movements between them and how social relations, trends, attitudes affect this movement and vice versa. One has only looked at mobility in relation to places, and regarded travel and mobility as rational choices. Sheller & Urry (2006) claims that previous academic contributions that have studied movements in social studies, has been inadequate in form of methods and theories needed to study the subject. (Urryr, 2007, pp. 18).

Urry (2007) mentions five types of mobilities that together form the society: Physical journey, which includes the physical mobility of people from daily commuting to lifelong exile. The objects physical movement, often organized in capitalist distribution networks where producers, dealers and customers interact. Imagine traveling, which refers to representations of places in print and digital media. Virtual travel, including mobility in computer games and

virtual rooms on the internet. Communication, were people interact through social media or traditional formats such as phone, fax and mail

The mobilities paradigm (Sheller and Urry, 2006) is an analytical approach that puts distance and movement at the center of the study of place, solidarity, scarcity, ecologies and violence. The paradigm sees mobilities as interdependent dynamic systems of humans, objects and information which change over time. Central to the mobilities paradigm are the questions of who and what moves and the implication this has for several issues in contemporary societies such as identity, social cohesion, lifestyles, wealth creation and distribution along social groups and generations. Urry (2012) Argues that no social relationship is ever fixed in space. Instead, interaction is based on presence and absence of different forms of travel and communication. From the spatial turn in the social sciences he takes the idea that spaces are comprised of various materials and environments; the meaning of objects and places can change over time and varies depending on the context in which they are used. (Kolkman, 2012, pp. 18).

The theoretical framework of the new mobilities paradigm, helps conceptualize and understand mobility as part of a vastly complex system. Were mobility needs to be distanced from the rigid static notion of place, that is present in sedentarism. The mobilities paradigm allows for a context rich description of people's experience with mobility systems, and by addressing mobility as a dynamic phenomenon one can also examining and bring meaning to how social relations are created, experienced and maintained in context of mobility. (Caletrio, 2016, pp. 3) This paradigm can in many regards be considered as the cultural turn in social sciences finally catching up with the last 'positivist' stronghold, at least in human geography, namely transport studies (Røe 2000)

## 7.4    Motility; Characteristics that enables movement

Society has in many ways been created to facilitate free movement and communication and to do so is a natural part of the contemporary daily life. Spatial mobility, at which we are concerned with, can best be understood as the movement of people, objects and information from one destination to another. Spatial mobilities can be consistent of physical movement of people or transportation of objects, the imaginative travel through visual media, travel in real time through various internet based functions and the communicative travel via telephone, email, letters, skype etc. (Urry 2000; Urry 2007)

Being spatially mobile can be more than just the physical movement. People, information and objects can travel without being physical moved, as new communication facilitates for what Urry (2007) categorises as travel in real time. The introduction of this form of real time travel, means that many forms of movement take place at the same time. Such as talking on the phone while driving a car or taking a bus.

Spatial movement in its physical sense, is a way of connecting individuals to social relations, leisure and working activities. Creating these connections is part of how individual structure their life through the possibilities put forward by the systems and technologies providing mobility. Mobility is a way for individuals to adapt their needs, wishes and demands to the collective premises for mobility, a process of creation of one's life through movement while adapting to rules and structures (Kesselring 2005; Kjærulff 2011)

The collective premises that shape the possibilities for travels, can be found in the way road systems, train schedules, bus routes, cycling lanes. represent flows of movement that the individual must adapt to travel. Flexibility in an environment of rules and structures becomes an important determinant for individual mobility, as it is understood as the individual ability to adapt to the rules of the flows of movement or the system that provides movement. (Kjærulff, 2011, p.7) Flexibility is knowing and to be able to use for example the train, tram or subway schedules, the network of bus routes, the car sharing systems, the highway exits. In many ways representing a similar notion to perceived behavioral control in the TPB. The relation between flexibility and the ability to carry out plans and projects can be described as motility. Motility describes the individual's capacity to be mobile through the notions of access, competence and appropriation.

Access to movement consist of options, understood as services and equipment surrounding the individual and the conditions for using these options at a given time or place, thus qualifying what degree of access to options for movement that surrounds a given individual at a given time and place. ( Kjærulff, 2011, pp.4) Kaufmann (2004) elaborates this understanding by exemplifying options as the spatial distribution of people and infrastructures and conditions the barriers for using a form of movement tied to the individuals socio-economic position, attitudes and behaviour.

Access to movement is therefore seen as the relationship that exist between an individual and the options for movement surrounding her in time and space. Seen from a broader sociological perspective (Giddens 1984) access is a representation of the structures providing

movement, which surrounds a given individual both in terms of physical presence and other forms of availability.

Competence goes in three directions: the physical ability to move one entity physically from one point to another; the acquired skills which are skills needed to act within the  rules or regulation within specific forms of movement, such as a driver's license or the ability to read and understand a map ; and the organizational skills to arrange own activities in a way that abilities and skills are harmonized with the conditions and options for movement surrounding the individual (Kaufmann 2004 : Kjærulff, 2011, p. 8)

Appropriation, meaning the act of taking into possession, describes the processes, which determines how the individual act upon her access to transportation and skills and abilities to use them. (Kaufmann 2004). Mobility in such context is described as the ways of considering whether specific mobile behaviour is appropriate or as an opening for the evaluation of own skills, access or decision in relation to various kinds of movement. (Kjærulff, 2011, pp. 11) Attitude can thus be reflections on appropriate mobility behaviour in given situations and reflections on own access to movement and on skills an ability to use this access.

Even though the concepts developed by Kaufman is not directly put into usage in thus paper, his theoretical concept of motility, provides a set of notions, which can give a nuanced picture of individuals relation to being mobile and the characteristics that enables the movement. Depending on context, each individual or group differ in access, competence and appropriation, thus influencing their different mobility options and behaviour. The subject of motility makes up and help understand how individuals (elderly in our case) uses the travel possibilities available, and how the individual differentiation in access, competence and appropriation shapes their mobility behaviour. It further helps on understand that attitude and behaviour in relation to automobility are not easily accessible stabile entities but instead they are complex and individually shaped by both the individual and his/her social circumstances and surroundings.

# 8  Methodology

This chapter is an account of the qualitative and quantitative methods that have been used in the research, and the background for the choice of method. The chapter also includes a detailed account of the retrieval and processing of the data, as well as how this data is used to

carry out the qualitative and quantitative analyses. A brief account of the epistemological and ontological framework is also covered.

## 8.1 Background for choice of method

The work on this assignment started when I for the first time read about the goal of reducing traffic in Oslo. I quickly made the decision to write about car usage in Oslo, and the challenges it will face in the years to come. At first my point of focus was the increase in car use volume among the elderly population, due to the changing demographical composition. But a thoroughly review of the existing litterature, shifted my focus towards seeking to understand how how *beliefs*, attitudes, values, norms and competence shape elderly people's readiness to use the car. The challenge at hand, was how to conceptualize and capture these subjects in context of elderly's mobility behavior. Researchers such as Böcker et al (2016), Siren & Haustein (2013), Haustein (2011) and Rudinger (2011) have all included attitudinal factors, social network and accessibility (built environment) when investigating travel behaviour and mobility.

By drawing on previous research and the theory of planned behavior, a conceptualization of a research question and design that would measure elderly people's readiness to use the car was developed. The use of mix method approach was recognized as the best method for capturing the essence of the research question, *how are the intentions to use the car among the elderly population influenced as theorized by the extended theory of planned behavior?*

The research review and theoretical section make it clear, that mobility is a dynamic phenomenon that is hard to capture. By using qualitative methods in addition to the quantitative, the research can hopefully examine and bring meaning to subjects from an experienced based account. This approach is intended to deepen our knowledge surrounding elderly's automobility, and lets the research more easily investigate how individual mobility related experience is interlinked with other societal issues. The assignment therefore consists of data, of various characteristics, and with different collection methods.

## 8.2 Epistemological and ontological framework

In academic research, there exist numerous research strategies, and there are various methodological approaches that entail how the research should be conducted. How the research strategy is implemented, depends on what is the purpose of the research, the reach of the research, who are the participants and in what research environment is the research

conducted. (Ritchie, Lewis, 2013) Although philosophical ideas remain largely hidden in research (Williams, 1995) it is feasible for the researcher to identify his philosophical view, as it invigorates the researcher towards contemplating important metaphysical questions, and gives bearing on the methods selected for the research.

At the beginning of this research process and throughout its process, the focal point was of conducting a research that best addressed the research question, and enabled the capture of the essence of the research question.

Therefore, a "free" choice of methods, techniques and procedures that best meet the needs of the research and helps uncover knowledge was paramount.  At the same time, an identification of the epistemology and ontological framework is fruitful, as it helps keep the research on track. The intellectual debate surrounding the point of departure with regards to the ontological and epistemological foundation of research, is challenging to engage in, as it consists of an extensive litterature that touches multiple research fields. This paper is content with a compact review, that justifies the research methods used considering the ontological and epistemological foundation.

The research is drawn towards post positivism, which evolved from the criticism of positivism. Post positivism see reality as something imperfect and probabilistically apprehendable (Guba 1990). Post positivism acknowledge that the research predisposition towards the research, effects objectivity. Thus, science is really value free, as the research unintentionally affects the research through predisposed meanings, values and knowledge. Reality can therefore never be reflected perfectly. This means that the researcher continuously need to reflect over the categories and scientific instruments used to understand "what is" (Gorski, 2013).

The epistemology in post positivism is named modified dualism and objectivity. This implies that the research the research object should be distanced, as not to affect each other. Admittingly the usage of qualitative method makes this unlikely, as the interaction with the respondents was dependent upon building trust and engaging directly with them. Remaining separated and biased in such a context would have been counterproductive. The focus was on engaging and retrieving information, without influencing the interview object towards predisposed subjective perceptions about the research subject.

These two ideals according to post positivism represent an unattainable goal, hence the word modified. But researchers should still strive towards these two ideals, even though it is

imperfect. This can be done through being critical of their own findings and whether these are consistent with previous results.

## 8.3    Research on mobility phenomena

The way the research question is investigated, is by making use of different methods. A conscious choice of method is not only important in simplifying the research process, it also increases the likelihood of credible and reliable results. Bryman (2015) claims that the main difference between quantitative and qualitative research method lies in the way qualitative research methods uses numerical measurable data that facilitates for statistical tests in the research analysis. Qualitative research method on the other hand gives a in depth understanding of the phenomena. This is achieved through the usage of "thick descriptions" were numerous sources surrounding the phenomena is collected.

The usage of mixed methods refers to a methodology that advances the systematic integration, or "mixing," of quantitative and qualitative data within the research. The basic premise of this methodology is that such integration permits a more complete and synergistic utilization of data than do separate quantitative and qualitative data collection and analysis. (Yin, 2014, pp. 146) By looking at the same theme from different perspectives, a more nuanced and comprehensive knowledge can be produced

Much of the transportation research is dominated by numerical quantitative research, that seek out statistical patterns and correlations. But influenced by research's such as Sheller, Urry and Kaufmann, and their ethnographical methods for investigating mobility, semi structured interviews were included to give a more experienced based account of elderly's mobility behavior. A mixed method approach gives a profound and detailed picture of how elderlies mobility behavior and intention to use the car is influenced and determined by subjective beliefs normative beliefs, attitudinal factors, environmental norms and mobility freedom.

## 8.4    Data Collection

When it comes to data collection, it is divided between two types of data; Primary data and secondary data (Ringdal, 2013). The research builds on primary data that is collected through survey method and semi-structured interviews.

### 8.4.1    Qualitative: Semi structured interviews

According to (Creswell, 2013) an interview is a conversation in which the purpose is to gather an experience based account of the respondents on a given phenomenon. The method provides an "in depth "that is interpreted in terms of the meaning the respondents bring to it. Qualitative method is seldom given primacy in research that uses the theory of planned behavior (Klobas 2008). A qualitative narrative approach is therefore used, were open ended questions is intended to produce additional knowledge surrounding intentions to use the car among elderly people. And elaborate the understanding to why does some subjective probabilities prevail, and become readably accessible beliefs that determine the prevailing attitudes, norms and control towards car usage?

The collection of primary data was conducted during two periods, the first in August and the second in September. The method proved flexible and adaptable when conducting interviews. At the same time, the unstructured nature of the interviews, heightened the possibility of derailing from the subject towards themes that are of non-or little interest. This was experienced numerous times, and during the first interviews, the adjustment to get back on track was a peculiar task. But as the tally of interviews mounted up, the ability to get back on track became less strainfull. The derailing of subject and tendency to drift of, might coincide with the notion that many of our respondents were elderly people, were age might have affected their ability to keep track in the conversations. At the same time, many of the respondents despite being nearly ninth years of age, sharply answered the questions and contemplated the questions in an impressive manner.

The interviews were all conducted at several senior centres in Oslo. The senior centres functioned as social hubs, were numerous and different activities took place.  This made it a natural gathering point for elderly people of all ages. The activities that took place at the centre, varied from yoga, dancing, lectures, cinema, dinner serving and social club. The interviews were conducted at the following centres, and were chosen based on accessibility and to get a degree of geographical dispersed selection. Majorstuen, Skøyen/smedstad, Haugerud, Sagene and Simensbraaten/Ekeberg. The interviews were not scheduled or planned with the individual respondents, rather permission was given by appointment with the administration. The activity level at the centres were often quite hectic, so most of the interviews were conducted during lunch and dinner hours: 11.00-13.00 and 15.00-17.00.

The selection of the respondents was conducting according to equal share of gender and respondents preferably aged above 70.  Eight interviews were conducted, with a distribution of 5 male and 3 females. All respondents were ethnical Norwegian.  A more dispersed

ethnical respondent segment would have been valuable in both the qualitative and quantitative data collection. The reason for this is that, little research and knowledge is produced about how behavioural, normative and control beliefs influence the readiness to use the car among non-ethnical Norwegians. It would have been valuable to identify potential distinctions between the two groups. The places chosen for collecting data, contributed towards this, as the mentioned activity centres represented a more Norwegian culturally and social related environment. Understandably the different role of elderly people in non-western families, at which the relationships are more family centric, might be a contributing factor towards the few number of non-ethnical Norwegians observed at the activity centres that I visited.

The timeframe was set at twenty minutes per interview. The timeframe was in some instances extended and in other shortened. The respondents were at the start of the interview informed about the purpose, theme and goal of the research. Permission for the interview to be recorded was also brought inn. Nearly all approve to this, except for a few. In which the interview had to be recorded by hand. Only the conversion phases relevant for the theme was transcribed.

### 8.4.1.1   Semi structured interview templet:

The interview templet in this research followed the characteristics of a semi structured interview. Creswell (2013) argues that it is important with a well formulated and contemplated interview templet when conducting semi-structured interviews. This help one capture central aspects of the subject that we as researchers are interested in, without the interviews becoming too rigid. The interview templet is found in the reference attachments.

The qualitative data collection was done in the aftermath of the quantitative collection. The interview templet was framed and conceptualized around the extended TPB constructs.

   A.  Introduction: Mobility behaviour and modal choice

   B.  Part one: Attitudes towards car use

   C.  Part two: Perceived behavioural control when using the car

   D.  Part three: Subjective norms (referent individuals or groups)

   E.  Part four: Mobility freedom and moral norm.

The introduction is followed by basic opening questions in terms of if they own a car, if they drive or are passengers and how often they drive (are passengers) and where they live. These are simple and light introduction questions intended to build a chemistry between the interviewer and the informants. This is aligned with Rubin (2011) understanding of creating a natural flow at the beginning of the interview process. The goal of this section was to get a more experience based account of the individual's mobility behaviour.

Part one examines the respondent's attitudes towards using the car. This section tries to capture the underlying subjective evaluation of the respondents when using the car to produce a certain outcome. By identifying intrinsic beliefs not evident in the quantitative analysis, a more holistic account might be given of how the respondents attitudes towards the car is shaped.

Part two accounts for subjective norms. Meaning how the respondents referent groups influences their willingness to use the car. How the respondents weight this perceived social pressure in relation to other socio-physiological factors is of interest. Eventual differentiation in the accounts based on gender and age, is also a likely possibility that can be identify.

Part three examines the respondents perceived behavioural control when using the car. In the quantitative analysis this is simply measured by the extent at which the respondent feels able to enact with the behaviour. Accounting for the presence of factors that may facilitate or impede this performance, gives a more nuanced and experienced based account of the respondents behavioural control.

Part four focus on mobility freedom and moral norm. The complexness of the interrelated relationship between intentions to use the car, moral feelings of personal obligation towards the environment, the need for mobility and preconditioned character traits, in a sense makes every respondent unique. Through the interview hopefully one can identify character traits or dispositions that set premises for the individuals achievable ideals and moral norms in context of the readiness to use the car.

The goal of the interview was to collect an experienced based account that give meaning to the subjective meanings the respondents impose on automobility. Subjective meanings are often given primacy because it is believed that people behave based on what they believe and not just what is objectively true. (Cole, 2017) Decoding these subjective meanings create not only an in-depth knowledge surrounding the formation and range of elderly people's beliefs in relation to the readiness to use the car, but can help understand why some subjective

probabilities prevail, and become readably accessible beliefs that determine the prevailing attitudes, norms and control towards car usage.

### 8.4.2 Quantitative: survey questionnaires

The quantitative data collection method used in this research, is survey method. Previous research on mobility behavior using TPB and the ability to tailor the questions exactly to the phenomena of interest, was a contributing factor towards this method.

The data collection was conducted during May, June and first part of August. The goal was to collect data from 100 respondents, divided equally in gender, above 70 years and geographically dispersed across Oslo. The collection was not repeatedly conducted, each respondent only answered the survey once. The survey was answered on site and collected face to face. In most cases the respondents themselves filled out the survey, but there were instances where this was conducted by me, obviously in accordance with the answers given from the respondents.  An estimate of 140-150 persons were asked to participate, the result was 68 respondents, with a slight overrepresentation of male respondents. The survey collection was done personally and on site, without any form of appointment with the respondent. They were asked in person if they would like to participate in my master project. Most people were enthusiastic and eager to contribute, while some were not interested due to several reasons. The sites chosen for data collection was at the senior centres, while some were done at the Deichmanske library Tøyen, majorstuen and Nordtvet.

#### 8.4.2.1  *Construction of the questionnaire*

The process of constructing the survey, started out with defining a precise research question. When working with the theory of planned behavior, it is of foremost importance to clearly state the intentional behavior that you wish to investigate. This determined the scope and nature of the survey. The closed-end questions made it possible to produce data that would be standardized and statistically analysed later in the research process. The open-ended questions that were included was the dichotomous question about age.

The next challenge at hand was therefore to create a finite set of answers to each question, that did not exclude relevant responses. Our purpose of capturing the respondent's attitudes, subjective norms, perceived behavioural control, moral norms and mobility freedom as entities determining the intention and readiness to use the car, meant that we needed to construct questions that capture theses underlying constructions.

The construction of categorical questions on a one to five Likert scale, were the values were ranked: Strongly agree-agree-neither agree or disagree-disagree and strongly disagree, was used. The data was treated as interval data, further arguments about this choice is given in the forthcoming sections.

<u>Intention:</u>

Intention is an indication of a person's readiness to perform a given behavior, and it is the immediate antecedent of behavior. (Ajzen, 1991) When working with the theory of planned behavior it is imperative to define the intentional behavior that one wishes to study. This behaviour is determined by the intention which is based on attitudes towards the behavior, subjective norms, perceived behavioural control, and in our case also the extended constructs of moral norm and mobility freedom.

Q1 represent the intention that defines the reediness to perform the behavior

*QI: When I perform the daily routines and activities that involve short or slightly longer journeys within Oslo, the car is my intended first choice*

<u>Constructs</u>

Understanding the individual's intentional readiness to use the car, is dependent upon capturing the constructions outlined as influencing this intention. These constructions are understood as part of determining the intention to use the car. The questionnaire seeks to use the operationalization presented in the theory of planning behaviour, to create meaningful and subject based questions. The constructs are presented in their respective aggregates. The theoretical construction of moral norm and mobility freedom is included to capture additional aspect believed influencing the intention to use the car.

When working with questionnaires it is easy to end up constructing ambiguous questions that lead to the measurement of different properties or distinct aspects of the same property than those intended. Thus, ending up measuring the effect of something that is not related to the research question. The construction of the questions was therefore target at capturing characteristics that was identified as relevant in context of the research question. The subsequent data process and analysis led to some elimination and merging of variables, that will be accounted for in detail in the forthcoming sections.

Attitudes towards the behaviour

The degree to which a person has a favourable or unfavourable evaluation of the behavior of interest. It entails a consideration of the outcomes of performing the behavior.

QBA2 for me to use my car is overall positive

QBA3 I feel my use of car is positive since it helps me being socially active and performed daily routines which is important for my own well-being level

QBA4 Access to a car is necessary for me to have a social and active life.

QBA5 The use of car helps me getting out in the community where other people are out and about, e.g. parks, shopping areas and cafés, which is positive

Subjective Norms

The subjective norms refer to the perceived behavioural expectations of such important referent individuals or groups as the person's spouse, family, friends. These subjective norms are understood as the perceived social pressure to engage or not to engage in a behavior.

QSN6 My friends and family think that it is dangerous for me to travel by car

QSN7 My friends and family don't like that that I use the car to much

QSN8 Most people who are important to me supports me using the car, to perform daily routines and activities

QSN9 Most people who are important to me think that I should continue using the car

Perceived behavioural control

Control beliefs are the perceived presence of factors that may facilitate or impede performance of a behaviour.

PBC10 Consider the following statement: To travel by car in Oslo, is challenging?

PBC11 For me to use the car is dangerous

PBC12 For me to use the car is demanding

PB13 For me to use the car is stressful

Influenced by Haustein (2006) and the importance of public transport control beliefs in influencing intentions towards mobility behaviour, public transport accessibility is included as

a control belief. The conceptualization of accessibility and competence by Kaufmann (2004) at which access to travel possibilities is in part determined by the individual's competence to use different movements and the appropriate form of mastering these forms of movements, is the basis for our control belief: Competence.

By focusing on questions that capture the range of options that surround the individual, how the individual's competences to use different movements and the appropriate form of mastering these forms of movements, one can measure control beliefs that transcends the mere spatial understanding of accessibility that have dominated much of the mobility research field.

PBCP14 Consider the following statement: Public transport in Oslo is functional and easy-to-use system for buying tickets

PBCP15 Consider the following statement: Public transport in Oslo has a functional and easy-to-use system for itineraries and route schedules

PBCP16 Consider the following statement: Public transport in Oslo is accessible and with a low barrier for usage.

Mobility freedom

The mobility freedom construct entails the subjective meaning that elderly individuals assert towards automobility.

QMF17 The car allows one to travel anywhere

QMF18 The car allows one to be independent

Subjective moral norm: Environmental attitudes, worldview and knowledge.

This conceptualization is meant to encompass questions that captures the characteristics of the respondents in respect of their feelings of personal obligation or to contribute to the preservation of the environment. This preservation is understood as a moral norm, at which environmental concern is something that society defines as an achievable ideal. The moral environmental norms can be expressed as principals, character traits or dispositions that set premises for the individuals behaviour in context of achievable ideals. These moral norms provide the individuals with a way of acting and behaving that help concretize values and realize ideals. The environmental moral norms are expected to influence environmental

related mobility behaviour, thus becoming relevant in understanding car dependency, since much of the negative related externalities of car usage is environmental related.

Three environmental Subjective moral norm related questions have been constructed

QMN19 Consider the following statement: I am thinking of the environment when choosing a means of transport

QMN20 The following statement: Each person's behavior can have a positive impact on society and the environment

QMN21 Consider the following statement: A reduction in car usage in the city center and downtown area is a positive thing.

Sociodemographic factors and module choice

Since the focus of this research is not to capture the trip frequency, length of trip, time of trip, destination etc. but the underlying constructions that form the intention and readiness to use the car, the sociodemographic factors that were included were age and gender.

### 8.4.3 Ethics and anonymization

When conducting social research, and studying human experiences, one can be faced with ethical issues in the research process. All the informants used in this research, was thoroughly informed about the research theme and that their participation was anonyms.

The informants are all chosen based on their experiences and accounts, therefore individual names are not relevant to the assignment. All the informants were asked if it was ok that the interviews were recorded, and they were given the opportunity to listen through the recordings after the interviews were ended. I have done my outermost to analyses and present the data collected in a manner that reflects the experienced based account of the respondents in its intended context.

### 8.4.4 Merging variables

In the survey questions, there are several questions that could possibly measure the same properties. There is a probability that variables could capture distinct aspects of the same property. By merging theses variables with the same values, there is fewer variables to analyse, thus creating a more transparent analyse. By creating an index which measures comparable properties, one can easier examine and give an impression of the general

perception an individual respondent has on a given aspect. To construct an index, there are two issues that must be sought after. The first is that there needs to be a theoretical context between the variables, the second is that there needs to be an empirical correlation. The theoretical context is represented with the notion that the variables intended to merge represent or touches a common subject, theme or entity.

To be able to merge variables, the values must be in the same measurement level. The values that have been merged in this section are all ordinal and graded at a 1 to 5 scale. The selection of the variables intended to be merged, starts with a conceptual exercise at which variables that are believed to represent aspects of one and the same property is selected for empirical testing. The empirical testing is represented by the Cronbach alpha test, which is a correlation test. What I am measuring her is the alpha value, which is the degree of correlation between the values at different scales and to what extent these measures the same properties (field). By using the Cronbach Alpha test, I can see if the variables are measuring the same, e.g. the informants answering the same on multiple questions, or that in fact there is no consistency between the informant and their answer on multiple questions. The variables must also be represented by the same table, that is either positively or negative. If the value ranges between the variables are related, thus measuring the same underlying constructions, it is an indication of the need to merge the variables.

While the Cronbach's alpha represents the value ranges, the Cronbach's alpha coefficient measures the scales reliability. This should ideally be above 0.7, as this shows a high degree of correlation on the variables scale. At lower than 0.7, an observation of the alpha if item deleted, gives an impression of variables that don't correlate.

Another factor that it is important to look at, is Corrected Item Total Correlation. This gives an indication of the degree of correlation between the individual variable, measured against the total. Values less than 0.3 suggests that this variable most likely measures something different than the others, and that it should not be included in the scale. This process is done in SPSS, where possible variables that was suspected of measuring the equivalent properties were tested. The syntax for SPSS is found in the reference syntax section

Table 5.1

| Index | Cronbacks Alpha | Question | Corrected Item Total Correlation | Cronbachs Alpha if Item Deleted |
|---|---|---|---|---|
| *Behavioural beliefs: Attitude towards using the car* | ,856 | For me to use my car is overall positive | ,764 | ,789 |
| | | … I feel my use of car is positive since it helps me being socially active and performed daily routines which is important for my own well-being level | ,764 | ,798 |
| | | … Access to a car is necessary for me to have a social and active life. | ,743 | ,799 |
| | | … The use of car helps me getting out in the community where other people are out and about, e.g. parks, shopping areas and cafés, which is positive | ,553 | ,873 |

| | | | | |
|---|---|---|---|---|
| **Subjective Norms: car** My friends and family… | ,733 | *...think that it is dangerous for me to travel by car* | ,605 | ,625 |
| | | *Most people who are important to me think that I should continue using the car* | ,643 | ,614 |
| | | *... don't like that that I use the car to much* | ,558 | ,658 |
| | | *Most people who are important to me supports me using the car, to perform daily routines and activities* | ,328 | ,614 |
| **Perceived behavioural control** | ,805 | *To travel by car in Oslo, is challenging?* | ,958 | ,858 |
| | | For me to use the car is dangerous | ,680 | ,802 |
| | | For me to use the car is demanding | ,895 | ,713 |
| | | For me to use the car is stressful | ,886 | ,713 |

| | | | | |
|---|---|---|---|---|
| **Perceived behavioural control**<br><br>Public transport | ,959 | *... is accessible and with a low barrier for usage.* | ,897 | ,951 |
| | | *...has a functional and easy-to-use system for buying tickets* | ,906 | ,949 |
| | | *.... has a functional and easy-to-use system for itineraries and route schedules* | ,946 | ,916 |
| **Mobility freedom** | ,733 | *The car allows one to travel anywhere* | ,589 | Non (only two questions measured) |
| | | *The car allows one to be independent* | ,544 | Non (only two questions measured) |
| **Moral and subjective norm: Environmental attitudes, worldview and knowledge** | ,741 | *Each person's behavior can have a positive impact on society and the environment* | ,604 | Non (only two questions measured) |
| | | *I am thinking of the environment when choosing a means of transport* | ,604 | Non (only two questions measured) |

The table indicates the questions that have been merged within the different constructions. The questions that are merged are all above the threshold alpha values. This means that the constructed indexes have a high degree of reliability, and that the questions which are included measure the same properties.

Even though the alpha values are at a 0,7 value, the initial process was presented with values below this threshold. By looking at the Cronbach's Alpha if Item Deleted the index was adjusted, and variables not representing the similar property were rooted out. Looking at the corrected Item Total correlation values, these are higher than 0.3. One can therefore say that all the variables statistically measures the same effect, and can be merged. Presenting a total estimate of the various indexes, that will be used in the forthcoming analysis. (Strand 2001)

Based on the Cronbach's method six indexes have been created, that derive from the six constructions based on the extended TPB framework. *Behavioural beliefs: Attitude towards using the car, Perceived behavioural control: Car, Perceived behavioural control: Public transport, Mobility freedom* and *Moral and subjective norm*

**Index.1 *Behavioural beliefs: Attitude towards using the car:*** QA2,3,4,5

**Index.2 Subjective norms: Car use:** QSN6,7,8,9

*Index.3 Perceived behavioural control: Car:* QPBC 10,11,12,13

**Index.4 *Perceived behavioural control: Public transport:*** QPBP 14,15,16

**Index.5 Mobility freedom:** QMF 17,18

**Index.6 Moral and subjective norm:** QMSN 19,20

In addition to the six indexes created, one question is left standing: QMSN21 "Consider *the following statement: A reduction in car usage in the city center and downtown area is a positive thing. "During* the Cronbacks alpha method in SPSS, there was detected a negative average covariance among some variables. Were a reverse coding process was needed to run the analysis.

# 9 Analysis

## 9.1 Quantitative analysis

With the research question, one wish to see how elderly peoples' intentions to use the car is influenced and determined by the underlying constructs concerning attitudes, beliefs, control and moral.

The previous section has conceptualized the underlying constructions of the extended theory of planned behavior and detailed the questions used to capture elderly's intention and

reediness to use the car. Through the process of Cronbach's test and the subsequent merging of variables, one is left with the variables that express and measures these constructions in context of the research question.

To explore the relationship that exist between elderly people and their readiness to use the car, I'll use univariate, bivariate and multi regression analysis that examine the relationships among the TPB indexes separately, and the effects of the TPB indexes on the intentional variable.

The variables are measured in a Likert scale, and treated as interval data. The "interval" approach to Likert scale is very common in the mobility research literature. e.g. Bamberg et al. (2003), Abrahamsen et al. (2003). The labelling and treatment of the variables as interval gives the option of parametric tests, as opposed to non-parametric test when the data is ordinal or nominal. This means that we among other things can use multiple regression analysis, instead of a multinomial logistic regression. The bivariate analysis is used to measure the strength of association between the different variables and the direction of the relationship.

## 9.1.1 Theory of planned behavior

The extended theory of planned behaviour is used in this research paper to explore automobile behavioural intentions. By linking the behavioural, normative, control, subjective and

freedom beliefs associated with automobility, increased knowledge surrounding intentions and reediness to use the car among elderly people in everyday life is produced.

The table below represent the extended theory of planned behavior with the constructs: Attitudes (behavioural beliefs), Subjective norms ( normative beliefs) , Perceived behavioural control (control beliefs) , Moral subjective norm and Mobility freedom indexes as predicators of the given intention: "*When I perform my daily routines and activities that involve short or slightly longer journeys within Oslo, the car is my intended first choice*"

Table 6.1. Multiple regression and bivariate analysis: Extended theory of planned behavior model. Predictors: (Constant), Attitude, MobilityFreedom, SubjectiveNorms, MoralEnvironoment, PerceivedBeahviouralControl. R = Correlation coefficient, B = Standardized coefficient,



| Mobility Freedom |
| --- |

R = 0,776

| Behavioural beliefs: Attitudes towards using the car |

R = -,352**

| Perceived behavioural control |

R = -,449**

| Subjective Norms |

R = ,673** 
B = ,594**

R = -,527** 
B = -,386*

R = ,345** 
B = ,265

R = -,086 
B = -,125

R²= ,603**

Intentions

R = -,392** 
B = - ,207

R= -,341**

R = -,051
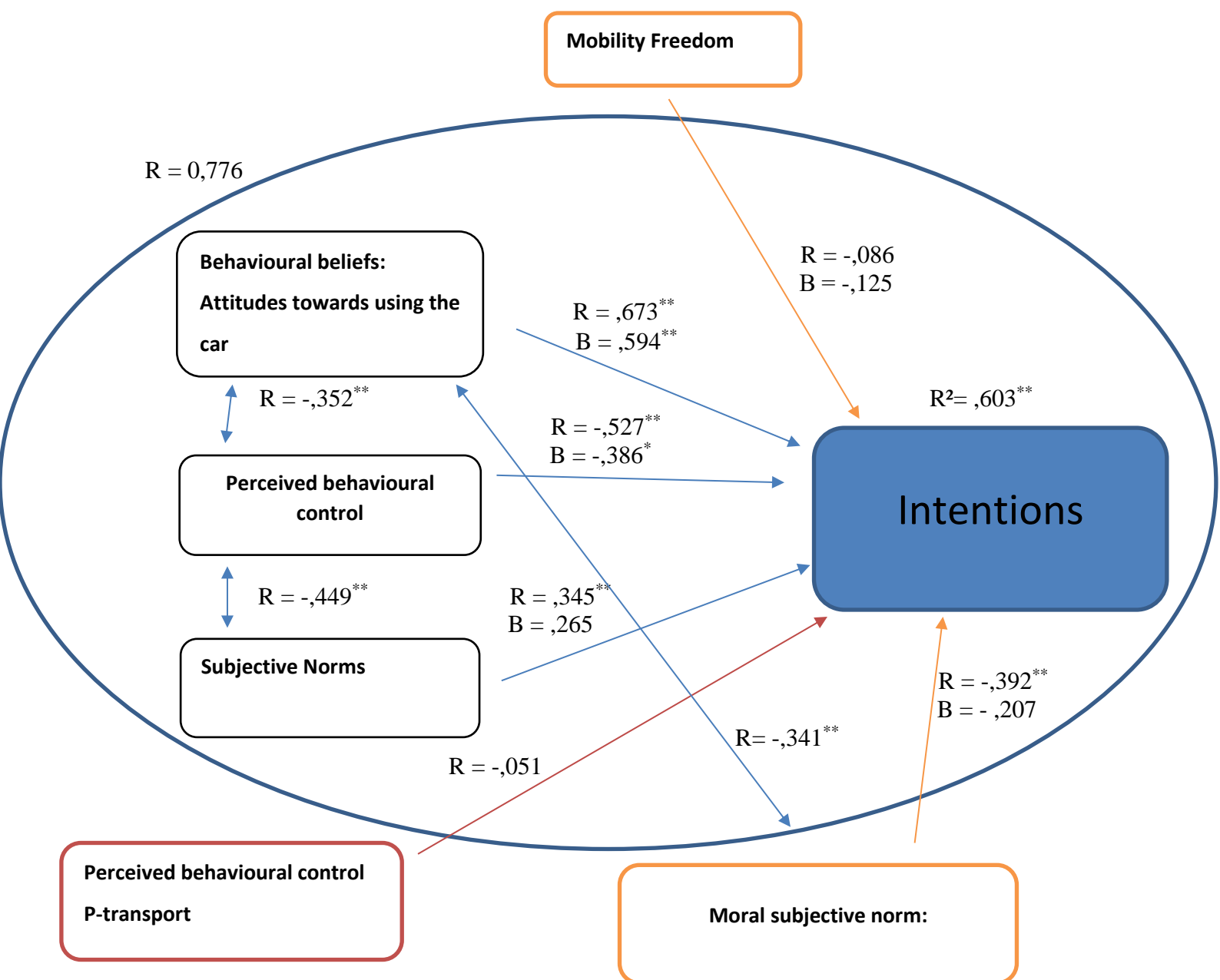
| Perceived behavioural control P-transport |

| Moral subjective norm: |

| Model | R | R Square | Std. Error of the Estimate |
| --- | --- | --- | --- |
| Model summary | ,776 | ,603 | ,862 |

## 9.1.2 Extended theory of planned behavior –Quantitative results

The table above details the proportion of variance in the dependent variable "intentions" which can be explained by the independent variables. Standardized coefficients are included at which a comparison of the magnitude of the coefficients help identify the effect of each independent variable. The correlation coefficients are also represented, giving meaning to the statistical relationships that exist between the variables.

The R square determines how well the models fits the data. The R value of 0,776 indicates a satisfactory level of prediction for the model. The total variance in the "intentional" variable that can be explained by the independent TPB variables is 60,3 %. ($R^{2} = {}$ 603).

While R-squared provides an estimate of the strength of the relationship between the model and the response variable, it does not provide a formal hypothesis test for this relationship. The ANOVA and its F-test of overall significance determines whether this relationship is statistically significant. (Frost, 2013)

### 9.1.2.1 ANOVA

The F-ratio in the ANOVA table (see syntax) shows that the independent variables: Perceived behavioural control Car, Behavioural beliefs: Attitude towards using the car, Subjective Norms, Mobility Freedom, Moral and subjective norm, statistically significantly predict the dependent variable: Intention, $F$ (5, 62) = 18.796, $p <$ .0005 (i.e., the regression model is a good fit of the data). The construct of perceived behavioural control public transport, was removed for the regression model. This was justified by the fact that the variable was not statistically significant. Nor did it show any strong statistically significant correlation towards the dependent or independent variables in the bivariate analysis. And lastly its presence in the multivariate regression analysis, made the model statistically non-significant.

The values from the ANOVA F-test and the R-square values entail that the relationship between the dependent and independent variables are statistically significant, an in other words, one can say that 60,3 % percentage of the readiness to use the car among the elderly population measured by the question: "When *I perform the daily routines and activities that involve short or slightly longer journeys within Oslo, the car is my intended first choice. "Is* explained by the extended TPB indexes in the multivariate regression analysis.

### 9.1.2.2 *Bivariate analysis, relationships within the extended TPB model: Correlation coefficients*

The original TPB constructs: Perceived behavioural control car (PBC), Behavioural beliefs: Attitude towards (BA), Subjective Norms (SN) (R= -,527[**] R= ,673[**] R= ,345[**)] are statistically significant and have a strong correlation with the Intentional variable. This means that there exists a relationship between the respondents behavioural control of the car, attitudes towards using the car, subjective norms and the respondent's reediness/intention to use the car when performing daily routines and activities that involve short or slightly longer journeys within Oslo. There is also a strong negative correlation between PBC and SN (R = -,449[**]) and strong negative correlation between PBC and BA (R=-,352[**]). Attitude (BA), subjective norm (SN), and perceived behavioral control (PBC) are *conceptually* independent predictors of the given intention. However, *empirically* they are usually found to be intercorrelated because the same information can influence behavioural, normative, and/or control beliefs

Of the extended constructs: Mobility Freedom (p> 0,05 R= -,086) Moral and subjective norm: (R = -,392[**)] Perceived behavioural control P-transport (p>0,05 R= ,022) only Moral subjective norm show a statistically significant relationship towards the intentional variable. Added, it also displays a statistically significant negative relationship towards the independent variable: Behavioural beliefs (R= -,341[**]). The other two variables show no relationship towards the dependent variable or the other independent variables.

The Cronbach's reliability analysis were the survey questions were merged into different scales, reduced the possibility that the variables might measure the distinct aspects of the same property. The bivariate analysis at which the correlation coefficients are measures further reduces this possibility. The presence of strong, but statistically insignificant, regression coefficients in the bivariate analysis, is an indicator of multicollinearity. This phenomenon is exemplified as when two or more independent variables measuring the same concept are entered the regression equation. In the analysis above, we find no evidence of multicollinearity.

The correlations coefficient relationship between core TPB constructs did not follow typical relationship as outlined by Ajzen (1991) and hypothesized in this study. Of the original TPB constructs: (PBC) Perceived behavioural control car (B = -,386[**]) is significant at P < 0,001 and (BA) Behavioural beliefs: Attitude towards car (B = ,594[*]) is significant at P< 0,05. (SN) Subjective Norms is measured as statistically insignificant (P > ,075 B = ,265). Both (MF) mobility freedom (P > ,485 B = -,125) and (MSN) Moral subjective norm (P > ,126 B = -,207) are statistically insignificant. The non-statistically significant P values of the constructs, may lead us to acknowledge that there is no provable significant effect. However, the high probability value is not evidence that the null hypothesis is true, the problem is that it is impossible to distinguish a null effect from a very small effect.

It is realistic to believe that the small sample presented in this research might affect the interpretation of the p-value and the ability to test for various statistical assumption. (Fleishman 2012). Although the small sample of this research is not ideal when applying correlation or regression statistics, the small sample size do not affect the power of correlations and coefficients but rather the probability of research significance by change (Bonett and Wright, 2000). This limitation notwithstanding, our model shows strong correlation coefficients, unstandardized coefficients and a satisfactory level of prediction for the model. This provides a broad sense of relationship between constructs in the model and other variables of interest.

Interpretation of the unstandardized coefficients involves understanding that the b values indicate the direction and number of units (as coded) of change in the dependent variable due to a one-unit change in each independent variable, statistically controlling for other independent variables (Ringdal 2013) The unstandardized coefficients thus indicates the magnitude of each predictor (independent variables) in relationship with the dependent variable. The operationalization of variables used in this research at Likert scale ranging from 1 to 5, at an interval scales data to indicate and reflect a meaningful distance between the points on the scale. This means that the distance between the categories is equal and defined by 1-2-3-4-5. This operationalization means that one can bring meaning and understanding to among other things the unstandardized coefficients. When the intentional variable moves from strongly agree to agree the perceived behavioural control, variable moves 0,386 towards

strongly agree on its Likert scale, vice versa when the intentional variable moves from agree to strongly agree.

The BA variable display the strongest statistical significant unstandardized coefficient value (B = ,594[*]). This is in line with the theoretical underpin of TPB and the understanding of its variables as useful tools for prediction. The unstandardized coefficient value signifies that the car related attitudes among the elderly population influences their intention to use the car. A positive attitude towards the questions that build up the BA, is associated with a higher degree of car reediness and an intention to use the car as a transport mode.

The PBC variable is statistical significant (B = -,386[**]) Firstly a stronger magnitude of the PBC variable was theoretically anticipated. Likewise, it still to a degree predicts that elderly respondents perceived behavioural control of the car influences their reediness and intention to use the car. The inverse relationship means that the intention to use the car among the elderly population is influenced on their abilities, control and presumptions of using the car in Oslo. A lower degree of stressfulness and perceived danger towards using the car is transparent among the elderly part of the population that favour the car as intended first choice when traveling.

The SN variable is not statistically significant P > ,075 with a coefficient value (B = ,265). The SN coefficient value express a low degree of magnitude towards predicting the intentional car use among the elderly population. One would have expected that the individual's perception about using the car, based on the social normative pressure from friends and family, would be a stronger predicator. In the TPB the social influence assessed through subjective norms is hypothesized as a powerful predicator, equal in importance as the other two core constructs.

 None of the additional constructs (MF) mobility freedom (P > ,485 B = -,125) and (MSN) Moral subjective norm (P > ,126 B = - ,207) are statistically significant, nor do they display any strong magnitude towards predicting the intentional variable. Based on previous research on mobility behaviour, automobility and research papers were an extended TPB model is used to determine intentions and behaviour. It was expected that mobility freedom and moral subjective norms would be stronger predicators in the multivariate regression analysis. The qualitative analysis will hopefully bring further knowledge towards this.

## 9.2    Theory of Planned Behavior – Qualitative Results

Studies adopting the Theory of Planned Behavior (TPB) mostly use quantitative methods. The method developed within the TPB research model are therefore mostly quantitative, and qualitative methods are suggested only for the elicitation of beliefs (Ajzen, 2002). A narrative approach is therefore put into use, were the core construct of the TPB form the backdrop of an open-ended question framework.

The semi-structured interviews hopefully present us with a thick detailed narrative of elderly person's experiences, perceptions, feelings and meanings surrounding the extended theory of planned behavior constructs used in this paper. One of the weaknesses of such a narrative approach is that the interviews is by its own nature linguistically subjective. i.e. difficult to quantitatively access in an objective manner since it is subjective i.e. personally meaningful. But by encompassing the experiences of the individuals in contest of the constructs, one can create an aggregate of narratives that give additional meaning and bearing to the qualitative analysis.

### 9.2.1   Attitudes towards car use.

The quantitative analysis demonstrates that attitudes towards car use is a predicator for the intention and reediness to use the car among elderly people. This section seeks to bring about a holistic narrative to why some subjective probabilities prevail, and become readably accessible beliefs that determine the prevailing attitudes towards car usage.

The numerous accessible behavioural beliefs linked to car usage, was a pattern that became transparent when conducting the interviews. Many of the respondents viewed the access to a car as positively shaping social life, producing various given outcomes such as: increased mobility, access and opportunities in their daily life. Respondent B "We *have a cabin at Nesodden, in the summer we use the car a lot to travel there. Otherwise, we have a daughter who lives in Asker, so there are some trips. And otherwise, there is some driving around her in the city and so on.".* These positively valued outcomes in turn might influence the degree to which the individual positively value, using the car. Respondent H *"Often it's easier to just take the car when you need to fix a few things. The tram is always delayed, and the bus is even worse than the car, since it is always stuck in queues."* Her the respondent contemplates numerous subjective probabilities, and express a belief of were the car produces a positive valued outcome. Another male respondent describes how the car is part of his every day social life. Respondent E *«usually I combine, I have just dropped off my wife. While I have been on a PT hour and done some grocery, and now I am going to pick her up again. … then*

*I guess we will drive home, going via the city."* On the other hand, the same respondents express behavioural beliefs, that produced outcomes such as: increased time usage, discomfort, economic cost and traffic congestion. Respondent E when asked about using the car in Oslo. "In *downtown Oslo, the challenge is to find directions, there are so many new streets."* These beliefs are negatively valued outcomes that likewise influence the degree to which the individual negatively value, using the car.

### 9.2.2 Perceived behavioral control

The Perceived behavioral control is a determinant factor in individual's intention to use the car. A positive valued belief in one's ability to use the car, increase the readiness to use the car in certain circumstances, and vice versa. By addressing the subjective meanings that the individuals impose upon the ease or difficulty of using the car, one can identify numerous control related factors that facilitate or impede the intention to use the car. As perceived behavioural control varies across automobility situations and actions, there is an interest in identifying these varying perceptions of behavioural.

*Confidence*

Many of the male respondents expressed a strong confidence in their ability to use the car, and for some the only thing that might stop them was the doctor. The female respondents on the other hand expressed a more self-conscious understanding, reflecting that physical and mental health was becoming a hindrance towards continuing using the car. Male Respondent H *"I will drive to I am hundred years…. (asked if the traffic is demanding) I have break steel on my car!* And male respondent G *"(Are there any challenges with driving her in Oslo) No (Not even the traffic) no, no problem (parking, directions, rush hour driving) no nothing.*

Female respondent C concerning the same topic: "Then *there are some of the things that life provides that I do not want to let go. There are plenty of things I've let go… All my friends and peers have stopped driving. Some say it's too scary to drive a car here in the city .... our perhaps the doctor has pointed out something. It's not good to drive if you do not see and hear and so good "*

#### 9.2.2.1 Challenges
Female and male respondents expressed restrictions to individual automobility in context of urban areas. All, but one of respondents indicated that using the car in urban areas, was a cumbersome and challenging. Respondent A: "I'm *not so fond of driving in the city. Traffic is a bit like that ... So, I'm a bit anxious to drive in town."* Respondents C: (when asked about

car usage in city center, in purpose of doing errands*) It is impossible to use cars for such a bit of excitement in the city. I only drive when I am going distant places.* Respondent D: *In the city center of Oslo, it is to navigate, there are so many new streets. Building projects etc.…. Besides that, I have no problems."* Both male and female respondents acknowledge that driving during rush hours was demand and inconvenient. Respondent B: (about rush traffic*) Yes, I try to avoid it….to sit in those queues! I do not like it…. We do not have to drive during rush hour, we can drive when it suits us, so we try to avoid it at best*. This passage encompassed what many of the elderly express with regards to rush hour driving, they avoided it at best. For them it was pointless to use the car during these hours, as they were free to use it at other times during the day. Both male and female respondents experience the usage of car during rush hours and in densely urban areas as challenging. The male respondents express more confidence in their ease of using the car, as compared to female car users.

Perceived danger, is often considered as a relevant factor that restricts mobility behavior of older people. (e.g. Flade 2002, Haustein 2013) Perceived danger was in the extended TPB integrated in the perceived behavioral control construct, with the question: *For me to use the car is dangerous*. In the qualitative interviews there is clear tendency among the respondents were perceived danger restricts their mobility behaviour through avoidance of using the car at certain times during the day, some areas and in specific situations. The respondents do not directly articulate that the usage of car in these contexts are dangerous, but attach a subjective meaning that is expressed through words such as stressful, anxiety, challenging and cumbersome

### 9.2.3   Subjective norms:

The subjective norms construction is the perceived social pressure to use or not to use the car, in the quantitative analysis this construct displayed a small non-significant effect upon the intention to use the car. The interviews sought to capture underlying expectation of important referents that the qualitative analysis and data collection might have missed out on. It was transparent that some of the female respondents might be more prone to expectations from referent groups than their male counterparts. Respondent C "*All my friends and peers have stopped driving. Some say it's too scary to drive a car here in the city .... our perhaps the doctor has pointed out something. It's not good to drive if you do not see and hear and so good "This* was exemplified best when conducting interviews with couples, were both could

use the car. Often, it was the male who was represented as driver. Argumentation for this arrangement was as of practical reasons, and the transparency of a mutual understanding in which greater confidence was placed on the male's ability to use the car. None of the male respondents expressed detailed accounts about important referents influencing their intention to use the car or not.

### 9.2.3.1   Readily accessible beliefs

Which of the behavioural beliefs that become the prevailing readily accessible beliefs that determine the intention and readiness to use the car, is context related and often based on previous experiences which is used as a reference point. There is also a high degree of distinctiveness as to how individuals value the different beliefs. The belief is constantly weighted not only against other beliefs, but in relation to the given intention. Therefor the range of the accessible beliefs and in turn the prevailing readily accessible beliefs that influences the readiness to use the car usage is constantly reconfigured, as the positive and negative valued outcomes of the behavior are weighted against each other. An individual might choose to use the car to go shopping, despite having differentiated behavioral beliefs surround the outcome. The negatively outcome of traffic jam, discomfort etc. is outweighed by the positively valued outcome produced by using the car. Building an aggregate across the individuals experiences, in which clear determinants for identify to explain why some subjective probabilities prevail is difficult.

### 9.2.4   Moral subjective norms:

This construct was meant to capture the characteristics of the respondents in respect of their feelings of personal obligation and attitudes towards the environment in context of car usage. In the quantitative analysis the construct was framed around the questions: *I am thinking of the environment when choosing a means of transport* and *Each person's behavior can have a positive impact on society and the environment.* This proved statistically non-significant and displayed a weak effect upon the intentions to use the car. The interviews reveled that feelings of personal obligation and attitudes towards the environment, not always corresponded with an environmental transport mode consciousness. This was not because the elderly respondents lacked the awareness of consequences and ascription of responsibility, but because other

attitudes, assumptions and needs were prioritized. This is consistent with the quantitative analysis.

All the respondents interviewed were frequent user of multiple transport modes. When using sustainable transport modes, very few directly attributed this behavior as environmental intentional. The natural reduction of trip frequency among the elderly, was by one couple mentioned as an unintentional positive environmental behavior. Thus, reducing their obligation to contemplate over the environment when choosing means of transport.

### 9.2.5   Mobility freedom

Automobility is believed to be deeply embedded within modern society, and in individual's everyday lives. For many it constitutes an individual power manifested by expanded everyday choices, options and accessibility.

The mobility freedom construct entails the subjective meaning that elderly individuals assert towards automobility. It is believed that people behave based on what they believe and not just what is objectively true, therefore increased belief in the car as an entity that creates freedom of movement and independence is expected to increase the readiness to use the car. It is transparent from previous research that the car is a less prominent feature in the everyday mobility behavior of elderly people.  But as mentioned there is differentiation between what is objectively true and what people believe. Elderly people might use the car less, but still have a strong belief in the outcome it produces.

In the quantitative analysis mobility freedom was non-significant and displayed a near to non-effect upon the intentions to use the car. Therefore, in the qualitative interviews identification of narratives that downplay the importance of automobility and its outcomes, is realistic to expect.

Throughout the interviews it was transparent that the car had a less physical present in the everyday life of the respondents then at times when they were younger.*" Respondent 6: "It's not so many long trips with the car anymore, it's mostly in the neighborhood ..."* and Respondent 2: "No*, we do not drive so much anymore, but maybe a couple of times a week. We are not driving so far either…." And Respondent 3: "Not so often after I moved, I live in Majorstuen. Here I have both buses, cars and everything. Otherwise, I'm driving when I'm going out or up to my son at Nordberg..."* The reduced prominence of the car in every day mobility behavior might be the outcome of the fact that car usage for many elderlies was

neither rational nor desirable due to shifting activity priorities. The increasing restraints of using the car is rightly so also an influential factor in the reconfiguration of expected and aspiring outcomes produced by using the car.

Noticeable the car is still deeply imbedded in the lives of some of the respondents. "Respondent 8: "*I will drive until I get a hundred years old* "and respondent 3: *"There are some things that life provides you that I do not want to let go, there are plenty of things I've let go…"* The assertion of car dependency expressed by the two respondents encompass an understanding were the car still plays a significant role in the life of some elderly people. Respondent 4, who is the only one of the respondents who didn't drive. But frequently used the car as a transport mode, bring added knowledge to this perception. "*It's a couple of years ago, that's something I miss.* "

Although the mobility construct is non-significant and uncertain in influencing intentions to use the car. The interviews have foretold a more nuanced picture, were the elderly assert a degree of meaning towards automobility, but if the meaning of reduced automobility is encumbered with the loss of independency, opportunities and freedom of movement is difficult to identify. Respondent two and three when asked about if the access to a car gives them greater freedom in everyday life. Respondent 2: "*The car is very practical to have when we are traveling to the cabin or out of town. But her in Oslo, it is often very cumbersome to use the car…* and respondent 4: *"It is comfortable to have access to a car, but simultaneous in my situation it is no longer a necessity. I live here in the center and it is less often and less often that I move so much out of town"* The meaning that elderly impose upon the car, seems to be that of a subjective manner, often in accordance with their mobility behavior and expected outcomes. The car as an entity that creates freedom of movement and independence, is closely bound to the perceived behavioral control construct. Were the discomfort, challenges and degree of control when using the car, influences the perception of the car as an entity of increased mobility freedom.

## 9.3 Ending

The purpose of this paper was first and foremost to understand how attitudes, beliefs and values influenced the car use among elderly people. In many mobility behavior related studies about elderly people, old age is treated as on with a stable meaning that is transferable across space and time. But age is much more than just numbers, with it comes a series of contextual

underlines that is weighted with cultural, geographical socially and individual constructed notions. The theory of planned behavior made it possible to transcend these complex contextual underlines and operationalise constructs that captured attitudes, beliefs and values in relation to elder individuals automobility.

TPB has well been accepted as a model with a strong predictive utility and a well-established model for prediction of intention. Despite its valid prediction, some researchers have argued and criticized on the narrow view of the TPB's sufficiency and suggested relevant external factors beyond the three-component model to help in improving the predictive ability on intention. Recognizing this limitation, an extended TPB that go beyond the three-core component of attitude, subjective norms and perceived behavioural control has been used.

The path from socio-psychological factors such as attitudes, beliefs and morality to behavioural intension and action is generally not a linear or simple one. It is recognisable a complex path, were behavior differentiate from spontaneous to more complex ones, leading to an ever-evolving coupling between attitude-behavior relation.  If there are many sub-behaviours necessary to enact some behavior, then attitudes, norms, and control over the sub-behaviours are more likely to vary.  (Johnson and Boynton 2010). Still the research and empirical knowledge tacitly acknowledge intention to be a driving force of agency.

The qualitative analysis provided empirical evidence that in their respective aggregates, and in combination: attitudes towards car use (behavioural beliefs), subjective norms (normative beliefs) and perceived behavioural control (control beliefs) led to the formation of a behavioural intention to use the car.  The intentional behavior in the research was defined as "When I perform the daily routines and activities that involve short or slightly longer journeys within Oslo, the car is my intended first choice" It was also significant that the more favourable the attitude and subjective norm towards automobility and the greater perceived control in usage of the car, the stronger was the individual's intention to use the car on shorter and slightly longer journeys within Oslo. The socio-psychological constructs can rightly so be reasoned to determine the formation of the readiness to use the car and explain the variability in the behaviour (Barber, 2015). But the challenge when targeting the socio-psychological factors towards engaging in specific mobility behaviour, is that one targets only a small part of the motivation to travel. By extending the theory of planned behaviour it was hoped that one would capture a larger share of the motivation to travel and the underlying constructs that form the intention to perform a given behavior.

The extended constructions mobility freedom and subjective moral norm disappointingly provided less statistical evidence of an effect upon the individuals intention to use the car. Thus, providing little significant explanation to variance in the operationalized intention apart from the original constructs.

The construct of mobility freedom is built around that coupling of mobility and freedom, were the automobile represent and provide ample opportunities for choice. The litterature e.g.: Fredendall-Pedersen (2005), Hagman (2003), and Jensen (1999) provide unmistakable evidence that mobility and freedom are intertwined in the minds of individuals, were the car provides freedom: the freedom to go wherever one wants, whenever one wants. Hench the automobile signifies an option to the sedentary lifestyle, or as Kaufmann (2002) points out, a sort of insurance in terms of being potentially able to travel. The male respondents during the interviews strengthened this narrative with vivid descriptions of the coupling between automobility and freedom, creating a synopsis in which the car for them had been a bodily sense of life.

The shortcoming of the mobility freedom construct to account for significant variance in elderly people's intention to use the car, might be accounted for in several manners. First, the construct might be unable to capture the embedded ideas of freedom that automobility represent for elderly people. Second the coupling of mobility and freedom despite providing ample opportunities for choice, in fact does not influence the readiness and intention to use the car among the elderly respondents. The qualitative interviews provided a descriptive narrative were the car was still imbedded in elder people's daily lives, but the changing lifestyle that accompanied old age made the freedom to go wherever one wants and whenever one wants seemingly lees essential than when they were younger. The interference constraints experienced particularly in terms of perceived behavioural control make it probable that the ideas of mobility freedom and the self-determination to make choices based on the belief of the car as entity of freedom are constrained and overshadowed. The autonomously intentional choice between travelling and not travelling, is thus not determined by the notion of freedom that the automobile represent, but the ability or inability to act on the possibilities. Aligning itself with Kaufman (2002) in were reflection on own access to movement and on the abilities to use this access determines mobile behaviour.

The subjective moral norm measured by personal obligation and attitudes towards the environment, provide little significant variance apart from the original constructs. The influence of environmental beliefs in transport module choice, is well accounted for e.g.

Bamberg and Schmidt, (2003); Choo and Mokhtarian, (2004); Anabel et al. (2006 Roberts (2017), but is partly unaccounted for in the research literature in context of behavioural intentions. The qualitative method reveled that feelings of personal obligation and attitudes towards the environment, not always corresponded with an environmental transport mode consciousness. This was not because the elderly respondents lacked the awareness of consequences and ascription of responsibility, but because other attitudes, beliefs and values were given primacy.

### 9.3.1 Readiness to use the car among elderly people

The research paper has been successful in accounting for how socio-psychological factors determine and is part of the formation of the intention among elderly individuals to use the car, when performing daily routines and activities that involved short or slightly longer journeys within Oslo.

Mobility behaviour and travel represent an indefinite number of possibilities that individuals act upon, as individuals go from place to place for a myriad of reasons: to visit family, friends, buy groceries, or just travel for the value of its own sake. The list is never ending. The connotation is that the formation of intention to travel is determined in part by the specific behavioural movement under question, and the socio-psychological factors. One would therefore expect that the three-core component of attitude, subjective norms and perceived behavioural control varies in its ability to account for variance in the intention, dependent upon the given intention under scrutiny. Thus, the readiness to use the car is not something that is constant, predisposed, and equally measured across all forms of car related behaviour. The static explanatory nature of the theory of planned behavior in part becomes evident, when interacting with mobility behaviour. A tangible holistic measurement upon the corporeal readiness to use the car among elderly people based upon socio-psychological factors, is therefore questionable.

Building an aggregate across the individuals experiences, in which a narrative for identify why some subjective probabilities prevail proved difficult. The range of accessible beliefs often proved as complex as the phenomena under investigation, automobility. The respondents often express a range of accessible beliefs, but indicated only a small number of readily accessible at a given moment. But these readily accessible beliefs constantly shifted in context of specific automobility intentional behavior. The criticism of the TPB as a static

model, somewhat became transparent. As the phenomena of automobility represent not a single action, but an indefinite number of possibilities that individuals act upon.

# 10 Conclusion:

The demographical redistribution in Oslo in the years to come will have a strong impact upon society. The aging population is bound to entail transformations in the premises of car usage. (Nenseth, 2007). The purpose of this paper was first and foremost to understand how socio-psychological factors based on attitudes, beliefs and values influenced the car use among elderly people. These socio-physiological determinants were operationalized by using an extended theory of planned behavior, were the intentional behavior was defined as "*When I perform the daily routines and activities that involve short or slightly longer journeys within Oslo, the car is my intended first choice "*

The qualitative analysis provided empirical evidence that in their respective aggregates, and in combination: attitudes towards car use (behavioural beliefs), subjective norms (normative beliefs) and perceived behavioural control (control beliefs) led to the formation of a behavioural intention to use the car.  It was also significant that the more favourable the attitude and subjective norm towards automobility and the greater perceived control in usage of the car, the stronger was the individual's intention to use the car on shorter and slightly longer journeys within Oslo. The socio-psychological constructs can rightly so be reasoned to determine the formation of the readiness to use the car and explain the variability in the behaviour.  The extended constructions mobility freedom and subjective moral norm disappointingly provided less statistical evidence of an effect upon the individuals intention to use the car.  Thus, providing little significant explanation to variance in the operationalized intention apart from the original constructs.

*If you own a car, you use it* is the main conclusion of several land use/transport studies (Hanson 1982; Dieleman, Dijst, and Burghouwt 2002; Van Acker and Witlox 2010). Admittingly, a tangible holistic measurement upon the corporeal readiness to use the car among elderly people based upon only socio-psychological factors, is questionable. Automobility represent not a single action, but an indefinite number of possibilities that individuals act upon. The sociopsychological factor in context of this research, is therefore understood as a factor that influence how these possibilities are acted upon. While at the same

time acknowledging that the socio-demographic and spatial factors determine the individual's possibilities with respect to automobility.

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## Syntax:

```
RELIABILITY
  /VARIABLES=Moral1 Moral2 Moral3
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=DESCRIPTIVE SCALE CORR
  /SUMMARY=TOTAL MEANS VARIANCE.
```

**Reliability**

**Notes**

**Scale: ALL VARIABLES**

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 68 | 50,7 |
| | Excludedᵃ | 66 | 49,3 |
| | Total | 134 | 100,0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,421 | ,488 | 3 |

**Item Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| I think about the environoment when choosing transport mode | 3,31 | ,815 | 68 |

| | | | |
|---|---|---|---|
| Each person's behavior can have a positive impact on society and the environment | 2,96 | 1,028 | 68 |
| A reduction in car usage in the city center and downtown area is a positive thing. | 2,85 | 1,330 | 68 |

**Inter-Item Correlation Matrix**

| | I think about the environoment when choosing transport mode | Each person's behavior can have a positive impact on society and the environment | A reduction in car usage in the city center and downtown area is a positive thing. |
|---|---|---|---|
| I think about the environoment when choosing transport mode | 1,000 | ,604 | -,040 |
| Each person's behavior can have a positive impact on society and the environment | ,604 | 1,000 | ,159 |
| A reduction in car usage in the city center and downtown area is a positive thing. | -,040 | ,159 | 1,000 |

**Summary Item Statistics**

| | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance |
|---|---|---|---|---|---|---|
| Item Means | 3,039 | 2,853 | 3,309 | ,456 | 1,160 | ,057 |
| Item Variances | 1,164 | ,664 | 1,769 | 1,105 | 2,663 | ,314 |

**Summary Item Statistics**

| | N of Items |
|---|---|
| Item Means | 3 |
| Item Variances | 3 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation |
|---|---|---|---|---|
| I think about the environoment when choosing transport mode | 5,81 | 3,261 | ,314 | ,384 |
| Each person's behavior can have a positive impact on society and the environment | 6,16 | 2,347 | ,459 | ,398 |

| | | | | |
|---|---|---|---|---|
| A reduction in car usage in the city center and downtown area is a positive thing. | 6,26 | 2,735 | ,079 | ,054 |

**Item-Total Statistics**

| | Cronbach's Alpha if Item Deleted |
|---|---|
| I think about the environoment when choosing transport mode | ,267 |
| Each person's behavior can have a positive impact on society and the environment | -,074[a] |
| A reduction in car usage in the city center and downtown area is a positive thing. | ,741 |

a. The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item codings.

**Scale Statistics**

| Mean | Variance | Std. Deviation | N of Items |
|---|---|---|---|
| 9,12 | 4,852 | 2,203 | 3 |

```
RELIABILITY
  /VARIABLES=Moral1 Moral2
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=DESCRIPTIVE SCALE CORR
  /SUMMARY=TOTAL MEANS VARIANCE.
```

**Reliability**

**Scale: ALL VARIABLES**

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 68 | 50,7 |
| | Excluded[a] | 66 | 49,3 |
| | Total | 134 | 100,0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,741 | ,753 | 2 |

**Item Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|

| | | | |
|---|---|---|---|
| I think about the environoment when choosing transport mode | 3,31 | ,815 | 68 |
| Each person's behavior can have a positive impact on society and the environment | 2,96 | 1,028 | 68 |

**Inter-Item Correlation Matrix**

| | I think about the environoment when choosing transport mode | Each person's behavior can have a positive impact on society and the environment |
|---|---|---|
| I think about the environoment when choosing transport mode | 1,000 | ,604 |
| Each person's behavior can have a positive impact on society and the environment | ,604 | 1,000 |

**Summary Item Statistics**

| | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance |
|---|---|---|---|---|---|---|
| Item Means | 3,132 | 2,956 | 3,309 | ,353 | 1,119 | ,062 |
| Item Variances | ,861 | ,664 | 1,058 | ,393 | 1,592 | ,077 |

**Summary Item Statistics**

| | N of Items |
|---|---|
| Item Means | 2 |
| Item Variances | 2 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation |
|---|---|---|---|---|
| I think about the environoment when choosing transport mode | 2,96 | 1,058 | ,604 | ,365 |
| Each person's behavior can have a positive impact on society and the environment | 3,31 | ,664 | ,604 | ,365 |

**Item-Total Statistics**

| | Cronbach's Alpha if Item Deleted |
|---|---|
| I think about the environoment when choosing transport mode | . |

| Each person's behavior can have a positive impact on society and the environment | | . |
|---|---|---|

**Scale Statistics**

| Mean | Variance | Std. Deviation | N of Items |
|---|---|---|---|
| 6,26 | 2,735 | 1,654 | 2 |

```
RELIABILITY
  /VARIABLES=Attitudes1 Attidues2 Attudues3 Attidues4
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=DESCRIPTIVE SCALE CORR
  /SUMMARY=TOTAL MEANS VARIANCE.
```

**Reliability**

**Scale: ALL VARIABLES**

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 68 | 50,7 |
| | Excluded[a] | 66 | 49,3 |
| | Total | 134 | 100,0 |

a. Listwise deletion based on all variables in the procedure.

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,856 | ,855 | 4 |

**Item Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| For me to use my car is overall positive | 2,59 | 1,374 | 68 |
| I feel my use of car is positive since it helps me being socially active and performe daily routines which is important for my own well-being level | 2,79 | 1,333 | 68 |

| | | | |
|---|---|---|---|
| Access to a car is necessary in order for me to have a social and active life. | 3,10 | 1,329 | 68 |
| The use of car, helps me getting out in the community where other people are out and about, e.g. parks, shopping areas and cafés, which is positive | 2,79 | 1,241 | 68 |

**Inter-Item Correlation Matrix**

| | For me to use my car is overall positive | I feel my use of car is positive since it helps me being socially active and performe daily routines which is important for my own well-being level | Access to a car is necessary in order for me to have a social and active life. | The use of car, helps me getting out in the community where other people are out and about, e.g. parks, shopping areas and cafés, which is positive |
|---|---|---|---|---|
| For me to use my car is overall positive | 1,000 | ,817 | ,669 | ,422 |
| I feel my use of car is positive since it helps me being socially active and performe daily routines which is important for my own well-being level | ,817 | 1,000 | ,602 | ,452 |
| Access to a car is necessary in order for me to have a social and active life. | ,669 | ,602 | 1,000 | ,611 |
| The use of car, helps me getting out in the community where other people are out and about, e.g. parks, shopping areas and cafés, which is positive | ,422 | ,452 | ,611 | 1,000 |

**Summary Item Statistics**

| | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance |
|---|---|---|---|---|---|---|
| Item Means | 2,820 | 2,588 | 3,103 | ,515 | 1,199 | ,045 |
| Item Variances | 1,742 | 1,539 | 1,888 | ,349 | 1,226 | ,021 |

**Summary Item Statistics**

|  | N of Items |
|---|---|
| Item Means | 4 |
| Item Variances | 4 |

**Item-Total Statistics**

|  | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation |
|---|---|---|---|---|
| For me to use my car is overall positive | 8,69 | 10,724 | ,764 | ,719 |
| I feel my use of car is positive since it helps me being socially active and perform daily routines which is important for my own well-being level | 8,49 | 11,089 | ,746 | ,681 |
| Access to a car is necessary in order for me to have a social and active life. | 8,18 | 11,133 | ,743 | ,580 |
| The use of car, helps me getting out in the community where other people are out and about, e.g. parks, shopping areas and cafés, which is positive | 8,49 | 13,000 | ,553 | ,390 |

**Item-Total Statistics**

|  | Cronbach's Alpha if Item Deleted |
|---|---|
| For me to use my car is overall positive | ,789 |
| I feel my use of car is positive since it helps me being socially active and performe daily routines which is important for my own well-being level | ,798 |
| Access to a car is necessary in order for me to have a social and active life. | ,799 |
| The use of car, helps me getting out in the community where other people are out and about, e.g. parks, shopping areas and cafés, which is positive | ,873 |

**Scale Statistics**

| Mean | Variance | Std. Deviation | N of Items |
|---|---|---|---|
| 11,28 | 19,488 | 4,415 | 4 |

```
RELIABILITY
  /VARIABLES=PerceivedBehavioralControl1 PerceivedBehavioralControl2
PerceivedBehavioralControl3
    PerceivedBehavioralControl4
```

```
/SCALE('ALL VARIABLES') ALL
/MODEL=ALPHA
/STATISTICS=DESCRIPTIVE SCALE CORR
/SUMMARY=TOTAL MEANS VARIANCE.
```

**Reliability**

**Scale: ALL VARIABLES**

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 68 | 50,7 |
| | Excluded[a] | 66 | 49,3 |
| | Total | 134 | 100,0 |

a. Listwise deletion based on all variables in the

procedure.

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,805 | ,924 | 4 |

**Item Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| To travel by car in Oslo, is challenging? | 14,21 | 3,348 | 68 |
| For me to use the car is dangerous | 3,91 | ,842 | 68 |
| For me to use the car is demanding | 3,59 | 1,123 | 68 |
| For me to use the car is stressfull | 3,62 | 1,133 | 68 |

**Inter-Item Correlation Matrix**

| | To travel by car in Oslo, is challenging? | For me to use the car is dangerous | For me to use the car is demanding | For me to use the car is stressfull |
|---|---|---|---|---|
| To travel by car in Oslo, is challenging? | 1,000 | ,716 | ,916 | ,890 |
| For me to use the car is dangerous | ,716 | 1,000 | ,545 | ,606 |

| | ,916 | ,545 | 1,000 | ,848 |
|---|---|---|---|---|
| For me to use the car is demanding | | | | |
| For me to use the car is stressfull | ,890 | ,606 | ,848 | 1,000 |

**Summary Item Statistics**

| | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance |
|---|---|---|---|---|---|---|
| Item Means | 6,331 | 3,588 | 14,206 | 10,618 | 3,959 | 27,584 |
| Item Variances | 3,616 | ,709 | 11,211 | 10,502 | 15,823 | 25,705 |

**Summary Item Statistics**

| | N of Items |
|---|---|
| Item Means | 4 |
| Item Variances | 4 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation |
|---|---|---|---|---|
| To travel by car in Oslo, is challenging? | 11,12 | 7,598 | ,958 | ,925 |
| For me to use the car is dangerous | 21,41 | 29,559 | ,680 | ,590 |
| For me to use the car is demanding | 21,74 | 25,153 | ,895 | ,868 |
| For me to use the car is stressfull | 21,71 | 25,136 | ,886 | ,799 |

**Item-Total Statistics**

| | Cronbach's Alpha if Item Deleted |
|---|---|
| To travel by car in Oslo, is challenging? | ,858 |
| For me to use the car is dangerous | ,802 |
| For me to use the car is demanding | ,713 |
| For me to use the car is stressfull | ,713 |

**Scale Statistics**

| Mean | Variance | Std. Deviation | N of Items |
|---|---|---|---|
| 25,32 | 36,491 | 6,041 | 4 |

```
RELIABILITY
  /VARIABLES=PerceivedbeavhiouralControlP1 PerceivedbeavhiouralControlP2
    PerceivedbeavhiouralControlP3
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=DESCRIPTIVE SCALE CORR
  /SUMMARY=TOTAL MEANS VARIANCE.
```

**Reliability**

**Scale: ALL VARIABLES**

### Case Processing Summary

| | | N | % |
|---|---|---|---|
| Cases | Valid | 8 | 6,0 |
| | Excluded<sup>a</sup> | 126 | 94,0 |
| | Total | 134 | 100,0 |

a. Listwise deletion based on all variables in the procedure.

### Reliability Statistics

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,959 | ,960 | 3 |

### Item Statistics

| | Mean | Std. Deviation | N |
|---|---|---|---|
| Public transport in Oslo is functional and easy-to-use system for buying tickets | 3,25 | 1,669 | 8 |
| Public transport in Oslo has a functional and easy-to-use system for itineraries and route schedules | 3,00 | 1,512 | 8 |
| Public transport in Oslo is accessible and with a low barrier for usage. | 3,25 | 1,753 | 8 |

### Inter-Item Correlation Matrix

| | Public transport in Oslo is functional and easy-to-use system for buying tickets | Public transport in Oslo has a functional and easy-to-use system for itineraries and route schedules | Public transport in Oslo is accessible and with a low barrier for usage. |
|---|---|---|---|
| Public transport in Oslo is functional and easy-to-use system for buying tickets | 1,000 | ,849 | ,904 |

| | ,849 | 1,000 | ,917 |
|---|---|---|---|
| Public transport in Oslo has a functional and easy-to-use system for itineraries and route schedules | ,849 | 1,000 | ,917 |
| Public transport in Oslo is accessible and with a low barrier for usage. | ,904 | ,917 | 1,000 |

**Summary Item Statistics**

| | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance |
|---|---|---|---|---|---|---|
| Item Means | 3,167 | 3,000 | 3,250 | ,250 | 1,083 | ,021 |
| Item Variances | 2,714 | 2,286 | 3,071 | ,786 | 1,344 | ,158 |

**Summary Item Statistics**

| | N of Items |
|---|---|
| Item Means | 3 |
| Item Variances | 3 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation |
|---|---|---|---|---|
| Public transport in Oslo is functional and easy-to-use system for buying tickets | 6,25 | 10,214 | ,897 | ,819 |
| Public transport in Oslo has a functional and easy-to-use system for itineraries and route schedules | 6,50 | 11,143 | ,906 | ,843 |
| Public transport in Oslo is accessible and with a low barrier for usage. | 6,25 | 9,357 | ,946 | ,896 |

**Item-Total Statistics**

| | Cronbach's Alpha if Item Deleted |
|---|---|
| Public transport in Oslo is functional and easy-to-use system for buying tickets | ,951 |
| Public transport in Oslo has a functional and easy-to-use system for itineraries and route schedules | ,949 |
| Public transport in Oslo is accessible and with a low barrier for usage. | ,916 |

**Scale Statistics**

| Mean | Variance | Std. Deviation | N of Items |
|---|---|---|---|
| 9,50 | 22,571 | 4,751 | 3 |

```
RELIABILITY
  /VARIABLES=SubjectiveNorms1 SubjectiveNorms2 SubjectiveNorms5 SubjectiveNorms6
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA
  /STATISTICS=DESCRIPTIVE SCALE CORR
  /SUMMARY=TOTAL MEANS VARIANCE.
```

**Reliability**

**Notes**

**Scale: ALL VARIABLES**

**Case Processing Summary**

| | | N | % |
|---|---|---|---|
| Cases | Valid | 68 | 50,7 |
| | Excluded[a] | 66 | 49,3 |
| | Total | 134 | 100,0 |

a. Listwise deletion based on all variables in the

procedure.

**Reliability Statistics**

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| ,733 | ,736 | 4 |

**Item Statistics**

| | Mean | Std. Deviation | N |
|---|---|---|---|
| My friends and family think that it is dangerous for me to travel by car | 2,60 | 1,122 | 68 |
| My friends and family don't like that that I use the car to much | 2,78 | 1,280 | 68 |
| Most people who are important to me supports me using the car, to performe daily routines and activitites | 3,28 | 1,005 | 68 |
| Most people who are important to me think that I should continue using the car | 3,24 | ,979 | 68 |

**Inter-Item Correlation Matrix**

| | My friends and family think that it is dangerous for me to travel by car | My friends and family don't like that that I use the car to much | Most people who are important to me supports me using the car, to performe daily routines and activitites | Most people who are important to me think that I should continue using the car |
|---|---|---|---|---|
| My friends and family think that it is dangerous for me to travel by car | 1,000 | ,666 | ,259 | ,399 |
| My friends and family don't like that that I use the car to much | ,666 | 1,000 | ,083 | ,519 |
| Most people who are important to me supports me using the car, to performe daily routines and activitites | ,259 | ,083 | 1,000 | ,539 |
| Most people who are important to me think that I should continue using the car | ,399 | ,519 | ,539 | 1,000 |

**Summary Item Statistics**

| | Mean | Minimum | Maximum | Range | Maximum / Minimum | Variance |
|---|---|---|---|---|---|---|
| Item Means | 2,974 | 2,603 | 3,279 | ,676 | 1,260 | ,112 |
| Item Variances | 1,216 | ,959 | 1,637 | ,678 | 1,708 | ,096 |

**Summary Item Statistics**

| | N of Items |
|---|---|
| Item Means | 4 |
| Item Variances | 4 |

**Item-Total Statistics**

| | Scale Mean if Item Deleted | Scale Variance if Item Deleted | Corrected Item-Total Correlation | Squared Multiple Correlation |
|---|---|---|---|---|
| My friends and family think that it is dangerous for me to travel by car | 9,29 | 6,181 | ,605 | ,490 |
| My friends and family don't like that that I use the car to much | 9,12 | 5,747 | ,558 | ,588 |

| | | | | |
|---|---|---|---|---|
| Most people who are important to me supports me using the car, to performe daily routines and activitites | 8,62 | 7,941 | ,328 | ,393 |
| Most people who are important to me think that I should continue using the car | 8,66 | 6,615 | ,643 | ,521 |

**Item-Total Statistics**

| | Cronbach's Alpha if Item Deleted |
|---|---|
| My friends and family think that it is dangerous for me to travel by car | ,625 |
| My friends and family don't like that that I use the car to much | ,658 |
| Most people who are important to me supports me using the car, to performe daily routines and activitites | ,772 |
| Most people who are important to me think that I should continue using the car | ,614 |

**Scale Statistics**

| Mean | Variance | Std. Deviation | N of Items |
|---|---|---|---|
| 11,90 | 10,810 | 3,288 | 4 |

```
CORRELATIONS
  /VARIABLES=Attitude PerceivedBeahviouralControl SubjectiveNorms MobilityFreedom
MoralEnvironoment
    Intentional1
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```
**Correlations**

**Correlations**

| | | Attitude | PerceivedBeahvio uralControl | SubjectiveNorms |
|---|---|---|---|---|
| Attitude | Pearson Correlation | 1 | -,352** | ,114 |
| | Sig. (2-tailed) | | ,003 | ,356 |
| | N | 68 | 68 | 68 |
| PerceivedBeahviouralControl | Pearson Correlation | -,352** | 1 | -,449** |
| | Sig. (2-tailed) | ,003 | | ,000 |
| | N | 68 | 68 | 68 |
| SubjectiveNorms | Pearson Correlation | ,114 | -,449** | 1 |
| | Sig. (2-tailed) | ,356 | ,000 | |
| | N | 68 | 68 | 68 |
| MobilityFreedom | Pearson Correlation | ,011 | -,118 | ,018 |
| | Sig. (2-tailed) | ,930 | ,337 | ,887 |

|  |  | | | |
|---|---|---|---|---|
|  | N | 68 | 68 | 68 |
| MoralEnvironoment | Pearson Correlation | -,341** | ,217 | -,081 |
|  | Sig. (2-tailed) | ,004 | ,075 | ,510 |
|  | N | 68 | 68 | 68 |
| When I perform the daily routines and activities that involve short or slightly longer journeys within Oslo, the car is my intended first choice | Pearson Correlation | ,673** | -,527** | ,345** |
|  | Sig. (2-tailed) | ,000 | ,000 | ,004 |
|  | N | 68 | 68 | 68 |

**Correlations**

|  |  | MobilityFreedom | MoralEnvironoment | When I perform the daily routines and activities that involve short or slightly longer journeys within Oslo, the car is my intended first choice |
|---|---|---|---|---|
| Attitude | Pearson Correlation | ,011 | -,341** | ,673** |
|  | Sig. (2-tailed) | ,930 | ,004 | ,000 |
|  | N | 68 | 68 | 68 |
| PerceivedBeahviouralControl | Pearson Correlation | -,118 | ,217 | -,527** |
|  | Sig. (2-tailed) | ,337 | ,075 | ,000 |
|  | N | 68 | 68 | 68 |
| SubjectiveNorms | Pearson Correlation | ,018 | -,081 | ,345** |
|  | Sig. (2-tailed) | ,887 | ,510 | ,004 |
|  | N | 68 | 68 | 68 |
| MobilityFreedom | Pearson Correlation | 1 | ,109 | -,086 |
|  | Sig. (2-tailed) |  | ,376 | ,484 |
|  | N | 133 | 68 | 68 |
| MoralEnvironoment | Pearson Correlation | ,109 | 1 | -,392** |
|  | Sig. (2-tailed) | ,376 |  | ,001 |
|  | N | 68 | 68 | 68 |
| When I perform the daily routines and activities that involve short or slightly longer journeys within Oslo, the car is my intended first choice | Pearson Correlation | -,086 | -,392** | 1 |
|  | Sig. (2-tailed) | ,484 | ,001 |  |
|  | N | 68 | 68 | 68 |

**. Correlation is significant at the 0.01 level (2-tailed).

```
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS CI(95) R ANOVA CHANGE
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT Intentional1
  /METHOD=ENTER Attitude PerceivedBeahviouralControl SubjectiveNorms MobilityFreedom
    MoralEnvironoment
  /SCATTERPLOT=(*ZRESID ,*ZPRED).
```

**Regression**

| | Notes | |
|---|---|---|
| Syntax | | REGRESSION |
| | | /MISSING LISTWISE |
| | | /STATISTICS COEFF OUTS |
| | | CI(95) R ANOVA CHANGE |
| | | /CRITERIA=PIN(.05) |
| | | POUT(.10) |
| | | /NOORIGIN |
| | | /DEPENDENT Intentional1 |
| | | /METHOD=ENTER Attitude |
| | | PerceivedBeahviouralControl |
| | | SubjectiveNorms |
| | | MobilityFreedom |
| | | MoralEnvironoment |
| | | /SCATTERPLOT=(*ZRESID |
| | | ,*ZPRED). |
| Resources | Processor Time | 00:00:00,19 |
| | Elapsed Time | 00:00:00,14 |
| | Memory Required | 5728 bytes |
| | Additional Memory Required for Residual Plots | 0 bytes |

**Variables Entered/Removed[a]**

| Model | Variables Entered | Variables Removed | Method |
|---|---|---|---|
| 1 | MoralEnvironoment, SubjectiveNorms, MobilityFreedom, Attitude, PerceivedBeahvio uralControl[b] | . | Enter |

a. Dependent Variable: When I perform the daily routines and activities that involve short or slightly longer journeys within Oslo, the car is my intended first choice

b. All requested variables entered.

**Model Summary[b]**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | |
|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change |
| 1 | ,776[a] | ,603 | ,570 | ,862 | ,603 | 18,796 |

**Model Summary[b]**

| Model | df1 | Change Statistics | |
|---|---|---|---|
| | | df2 | Sig. F Change |
| 1 | 5 | 62 | ,000 |

a. Predictors: (Constant), MoralEnvironoment, SubjectiveNorms, MobilityFreedom, Attitude, PerceivedBeahviouralControl

b. Dependent Variable: When I perform the daily routines and activities that involve short or slightly longer journeys within Oslo, the car is my intended first choice

**ANOVA[a]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 69,856 | 5 | 13,971 | 18,796 | ,000[b] |
| | Residual | 46,085 | 62 | ,743 | | |
| | Total | 115,941 | 67 | | | |

a. Dependent Variable: When I perform the daily routines and activities that involve short or slightly longer journeys within Oslo, the car is my intended first choice

b. Predictors: (Constant), MoralEnvironoment, SubjectiveNorms, MobilityFreedom, Attitude, PerceivedBeahviouralControl

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t |
|---|---|---|---|---|---|
| | | B | Std. Error | Beta | |
| 1 | (Constant) | 2,696 | 1,151 | | 2,343 |
| | Attitude | ,594 | ,102 | ,520 | 5,815 |
| | PerceivedBeahviouralControl | -,386 | ,147 | -,254 | -2,628 |
| | SubjectiveNorms | ,265 | ,146 | ,163 | 1,813 |
| | MobilityFreedom | -,125 | ,092 | -,110 | -1,353 |
| | MoralEnvironoment | -,207 | ,133 | -,134 | -1,552 |

**Coefficients<sup>a</sup>**

| Model | | Sig. | 95,0% Confidence Interval for B | |
|---|---|---|---|---|
| | | | Lower Bound | Upper Bound |
| 1 | (Constant) | ,022 | ,396 | 4,997 |
| | Attitude | ,000 | ,390 | ,798 |
| | PerceivedBeahviouralControl | ,011 | -,680 | -,092 |
| | SubjectiveNorms | ,075 | -,027 | ,558 |
| | MobilityFreedom | ,181 | -,309 | ,060 |
| | MoralEnvironoment | ,126 | -,474 | ,060 |

a. Dependent Variable: When I perform the daily routines and activities that involve short or slightly longer journeys within Oslo, the car is my intended first choice

**Residuals Statistics<sup>a</sup>**

| | Minimum | Maximum | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| Predicted Value | 1,16 | 5,43 | 2,97 | 1,021 | 68 |
| Residual | -1,651 | 2,234 | ,000 | ,829 | 68 |
| Std. Predicted Value | -1,777 | 2,409 | ,000 | 1,000 | 68 |
| Std. Residual | -1,915 | 2,591 | ,000 | ,962 | 68 |

a. Dependent Variable: When I perform the daily routines and activities that involve short or slightly longer journeys within Oslo, the car is my intended first choice

## Questionnaire

**Spørreskjema:**

**Alder:**

**Kjønn:**

**Har du kjørt bil den siste uken?**

A) Ja

B) Nei

**Eier husholdningen din bil**

a) Ja

b) Nei

NB: Sett kryss ved valgte alternativ

**Ta stilling til følgende påstand:** Når jeg utfører mine daglige rutiner og aktiviteter som involverer korte eller litt lengre reiser i Oslo, er bil mitt tiltenkte førstevalg

1. Helt enig

2. Enig

3. Verken enig eller uenig

4. Uenig

5. Helt uenig

**Ta stilling til følgende påstand**: For meg er bruken av bil positivt

1. Helt Enig

2.  Enig

3. Verken enig eller uenig

4. Uenig

5. Helt Uenig

**Ta stilling til følgende påstand:** Jeg føler at min bruk av bil er positiv siden den hjelper meg å være sosialt aktiv og utfører daglige rutiner som er viktig for mitt eget trivsel nivå

1. Helt Enig

2. Enig

3. Verken enig eller uenig

4. uenig

5. helt Uenig

**Ta stilling til følgende påstand: T**ilgang til bil er nødvendig for at jeg skal ha et sosialt og aktivt liv.

1. Helt enig

2. Enig

3. Verken enig eller uenig

4. Uenig

5. Helt Uenig

**Ta stilling til følgende påstand:** Å bruke bilen hjelper meg med å komme meg ut i det sosiale rom, blant andre mennesker f.eks. parker, shoppingområder og kafeer, noe som er positivt

1. Helt enig

2. Enig

3. Verken enig eller uenig

4. Uenig

5. Helt Uenig

**Ta stilling til følgende påstand:** Mine venner og familie mener at det er farlig for meg å reise med bi**l**

1. **Helt enig**
6. Enig
7. Verken enig eller uenig
8. Uenig
9. Helt uenig

**Ta stilling til følgende påstand:** mine venner og familie liker ikke at jeg bruker bilen for mye

1. Helt Enig
2. Enig
3. Verken enig eller uenig
4. Uenig
5. Helt uenig

**Ta stilling til følgende påstand:** De fleste som er viktige for meg, støtter meg i det at jeg bruker bilen til å utføre daglige rutiner og aktiviteter

1. Helt enig
2. Enig
3. Verken enig eller uenig
4. Uenig
5. helt uenig

**Ta stilling til følgende påstand**: De fleste som er viktige for meg, mener at jeg skal fortsette å bruke bilen

1. Helt enig
2. Enig
3. Verken enig eller uenig
4. Uenig
5. Helt uenig

**Ta stilling til følgende påstand:** Å reise med bil i Oslo er utfordrende?

1. Helt enig
2. Enig
3. Verken enig eller uenig
4. Uenig
5. helt uenig

**Ta stilling til følgende påstand:** Jeg synes det er farlig å bruke bilen

1. Helt enig

2. Enig

3. Verken enig eller uenig

4. Uenig

5. helt uenig

**Ta stilling til følgende påstand:** Det er krevende å bruke bilen

1. Helt enig

2. Enig

3. Verken enig eller uenig

4. Uenig

5. helt uenig

**Ta stilling til følgende påstand:** Det er stressende å bruke bilen

1. Helt enig

2. Enig

3. Verken enig eller uenig

4. Uenig

5. helt uenig

**Ta stilling til følgende påstand:** Offentlig transport i Oslo har et funksjonelt og brukervennlig system for kjøp av billetter

1. Helt enig

2. Enig

3. Verken enig eller uenig

4. Uenig

5. helt uenig

**Ta stilling til følgende påstand:** Offentlig transport i Oslo har et funksjonelt og oversiktlig system for reiseruter og ruteplaner

1. Helt enig

2. Enig

3. Verken enig eller uenig

4. Uenig

5. helt uenig

**Ta stilling til følgende påstand:** Offentlig transport i Oslo er tilgjengelig og har en lav terskel for bruk

1. Helt enig

2. Enig

3. Verken enig eller uenig

4. Uenig

5. helt uenig

**Ta stilling til følgende påstand:** Bilen lar deg reise hvor som helst

1. Helt enig

2. Enig

3. Verken enig eller uenig

4. Uenig

5. helt uenig

**Ta stilling til følgende påstand:** Bilen gjør at man er uavhengig

1. Helt enig

2. Enig

3. Verken uenig eller enig

4. Uenig

5. Helt uenig

**Ta stilling til følgende påstand:** Jeg tenker på miljøet når jeg velger transportmiddel

6. Helt enig

7. Enig

8. Verken uenig eller enig

9. Uenig

10. Helt uenig

**Ta stilling til følgende påstand:** Hver enkelt persons oppførsel kan ha en positiv effekt på samfunnet og miljøet

1. Helt enig

2. Enig

3. Verken enig eller uenig

4. Uenig

5. Helt uenig

**Ta stilling til følgende påstand:** En reduksjon i bilbruk i sentrum og sentrum er en positiv ting.

1. Helt enig

2. Enig

3. Verken enig eller uenig

4. Uenig

5. Helt Uenig