MASTER

Stimulating seniors to relocate to smaller and more suitable homes

best practices and participation

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Juriën van Arum

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Master thesis
Stimulating seniors to relocate to smaller and more suitable homes: best practices and participation

Parts of this thesis were written together with student Ashwan Rampersad

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Preface

The topic of this thesis is the stimulation of seniors to relocate to smaller and more suitable dwellings using best practices and participation. The aim of this research is to gain insight into the preferences of seniors in order to improve best practices such as relocation programs. In addition, stimulating the residential mobility is also valuable for other age groups as they can relocate towards larger homes which are left behind.

I am grateful for the opportunity to undertake this research and would like to extend my sincere appreciation to all those who have supported me throughout this journey. First and foremost, I would like to express my gratitude to my thesis committee members Ioulia Ossokina, Aloys Borgers, and Theo Arentze for their guidance, support, and encouragement. Their insights and expertise have been important in writing this thesis.

I would also like to thank the organizations and experts who generously shared their knowledge and experience in the field of senior housing, relevant factors for seniors during relocation, and the use of best practices. Their contributions have been invaluable in shaping the experiment and drawing conclusions and recommendations.

Furthermore, I would like to express my appreciation to the participants of this research, particularly the seniors who shared their experiences, perspectives, and insights on the process of their relocation. Their participation and feedback were important to the end result of this research. I am also grateful to the participants who conducted the experiment and contributed to valuable insights about housing preferences.

Finally, I would like to thank my family and friends for their unwavering support, encouragement, and understanding during the course of this research. Their support have been a constant source of inspiration and motivation.

It is my hope that this thesis will contribute to the ongoing dialogue on the challenges and opportunities of the residential mobility of seniors and will provide useful insights for policymakers, practitioners, and researchers in this field.

Summary

Motivation

An ageing population in western countries is starting to become more and more prevalent. Within the Netherlands, the population of people aged 65+ or older is expected to grow from 20% to 28% in the next 25 years. This has an effect on the existing housing stock. Apart from the forecast that the proportion of seniors will grow, it is also a fact that seniors relocate relatively little after they retire. This leads to many homes eventually - after children have left home - becoming underutilised. Since not every home in the Dutch housing stock is designed for an ageing population, seniors may experience (physical) discomfort and other population groups may struggle to find housing that meets their life stage in a market where demand is very high. The aim of this research is to gain insight into how the residential mobility of seniors can be stimulated by using best practices. The main question of this research is: "*How can seniors be stimulated to relocate to a smaller home suitable for their needs, using best practices and participation?*" There are two options for seniors in their housing choice: growing older at home (ageing in place) where the home is adapted to their (physical) needs, or moving to a smaller, more suitable home. Contrary to "ageing in place", little research has been done on moving later in life. This research therefore contributes to academic research by presenting insights about how seniors can be stimulated into relocating using best practices. The conclusions of this research should give housing providers insights in how to improve and develop best practices that encourage seniors to choose a more suitable dwelling that meets their needs.

Methods and conceptual model

The methodology of this research consists of three main components: 1) literature review, 2) interviews with experts and interviews with seniors and 3) a Stated Choice Experiment (SCE). The literature review reveals what obstacles and incentives seniors experience when relocating to an alternative, more suitable home. It also describes a customer journey, which consists of steps seniors take when relocating to a new home.
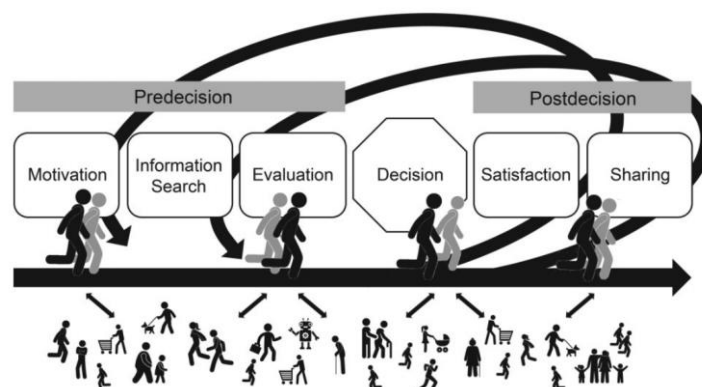
Conceptual model (Hamilton, 2020)

Expert interviews are conducted with various housing associations from the Amsterdam metropolitan region, a municipality from Amersfoort and a (care) real estate developer located in Utrecht. The experts held positions in policy (strategy) and practice (e.g. residential supervisor). Seven interviews with experts have been conducted, with a total of nine experts. The aim was to understand the motives of using relocation programs, as well as finding out what incentivises seniors or actually holds seniors back in considering whether or not to choose an alternative, more suitable home. Moreover, the experts' experiences in using relocation programs have been discussed. The insights from interviews with experts

have been presented and discussed during interviews with seniors who have themselves relocated to alternative housing, using a relocation program. In this way, it emerged what obstacles or incentives are experienced during the customer journey and how relocation programs can be improved to be more effective. Here, three interviews (five seniors) were conducted. Some seniors (two times) were a couple and one person was interviewed individually. Hamilton's (2020) conceptual model was used to understand seniors' customer journey to move to their new home.

Finally, a Stated Choice Experiment (SCE) was conducted. The sample consisted of seniors (55 years or older) living in a large social housing dwelling. This experiment helps housing providers to participate with seniors and to better understand the preferences seniors have when relocating. It also helps them to ensure that the customer journey is easier as they may now drop out of a step when their preferences cannot be met. In addition, best practices can be improved based on new insights from seniors. Finally, three hypotheses have been formulated to test in the SCE.

H1:   Keeping the same housing costs is more important than a one-off subsidy
H2:   Seniors with housing costs of less than 400 euros are less willing to move than seniors with higher housing costs
H3:   Financial attributes & energy efficiency are more important factors than location attributes

For the rental sample, only one housing association was able to distribute the survey to approximately 500 seniors. In addition, other social media platforms were used such as LinkedIn and Facebook to distribute the survey. Since the data of the social rental sample was too small (37 respondents) and therefore not representative, it was decided to also include owner-occupied data. For the owner-occupied sample, 135 respondents filled in the survey.

Results

Changing needs come into play when reaching third age. This can also trigger a movement: consider relocating to a home that meets these needs. Several relocation motives have emerged from the literature for seniors. The most frequented motives to relocate was often because of current dwelling being too large, already relocating because of possible future physical inconvenience, dissatisfaction with house and/or neighbourhood, poor facilities in the neighbourhood or a lack of social support in the neighbourhood. Apart from various relocations motives that have emerged from the literature, it appears that most seniors often are pushed to relocate in later life. An example could be that the person is no longer able to climb stairs. Ultimately, only about 5% relocate on an annual basis between the ages of 55-80. In order to improve the residential mobility of seniors, best practices need to be improved.

Literature and interviews have revealed several obstacles that seniors experience. Most obstacles are to be found in the first two steps of the customer journey and expressed in: 1) desire to "age at place", 2) feeling that there is no suitable supply, 3) place attachment to the home and neighbourhood, 4) discomfort during a relocation and 5) fear of financial consequences. To compensate for the obstacles experienced by seniors, incentives that may positively influence willingness-to-relocate have been researched. Various relocation programs by housing associations and governments to encourage residential mobility have been investigated. Again, the incentives are usually applied at the beginning of the customer journey: 1) getting seniors motivated by convincing them of the advantages of relocation, 2) offer housing where the rent is not increased or where seniors are entitled to a relocation subsidy, 3) relocation within their own neighbourhood, and 4) offering personal guidance. Research shows that - despite these initiatives - relatively few seniors still use them. The disadvantages of these programs mainly lie in the fact that many seniors are not familiar with them - nor with the potential benefits - or simply do not want to relocate because of previously mentioned obstacles.

The results of the model show that, in general, seniors consider a green walking route most important, followed by 2) energy-efficient home, 3) maintaining existing rent, 4) home location remains the same,

5) financial subsidy when moving, and 6) daily facilities at 5-minute walking distance from the dwelling. Furthermore, the statistical model is used to construct packages to apply in practice. According to the results of the model, applying an existing relocation package from practice, such as VGNB, would mean that 28% of the seniors in the sample would relocate. By adding the option of staying in the same neighbourhood, the likelihood of someone moving is almost 40%. However, it turns out that when an VGNB package includes an energy-efficient home, the probability of someone choosing this program is almost 50%. Ultimately, different combinations of incentives can increase the likelihood of seniors moving to a new home. Therefore, additional benefits and different combinations should be added in existing relocation programs in order to serve a larger sample of seniors with different wishes and preferences.

Conclusion and discussion

The obstacles for seniors to relocate are vary widely and cannot be unambiguously defined. To compensate for various obstacles, there are various instruments to encourage seniors to relocate anyway. The Stated Choice Experiment shows that seniors are not immediately convinced but different combinations of attributes in a relocation program may ensure that seniors are persuaded to relocate. Consider location-based incentives combined with an energy-efficient home, or a financially attractive package with a green walking route. When compositions are made, the likelihood of someone choosing this will increase significantly. Separately, it is also necessary that housing providers need to engage in awareness-raising and sound information provision at the early stages of the customer journey to ensure proper awareness of the programs.

This research has a few limitations. Firstly, as it proved to be difficult to reach seniors to participate in group discussions regarding their experience of relocating, it was not possible to conduct interviews with several seniors at the same time. This ultimately led to interviews being held with only 3 senior households separately. Secondly, not all attributes which came from literature review and interviews could have been used in the experiment. This was chosen to avoid cognitive burden for seniors participating in the experiment. This means that attributes could only be formulated in a few areas such as financial, location and energy. For example, attributes with regards to personal guidance provided by housing associations during the customer journey, was not included. A third limitation is that not enough housing associations saw participation in the experiment as practically feasible within the time span of the thesis. They contributed much in many others ways, e.g., through arranging interviews with experts and seniors. A fourth limitation is that eventually we had to approach a mix of owners and renters, instead of the social rental sector only since not enough people from the social housing sector were able to fill in the survey. A fifth limitation is that the group of people who conducted the experiment ended up being fairly homogeneous. In general, socio-demographic characteristics, physical condition and satisfaction with home, neighbourhood and facilities were very similar to each other. As a result, only one hypothesis was established to test for heterogeneity.

In future research, it would be interesting to involve multiple housing associations and conduct analyses in different areas. In this way, relocation preferences of seniors from different neighbourhoods can be clarified and (local) interventions (e.g., relocation programs) may also be better applied. Moreover, insight can be gained into possible heterogeneity between samples from different neighbourhoods.

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Glossary

Seniors   Seniors are divided into 3 groups: pre-seniors (55-65), seniors (65-75)
                      and older seniors 75+. The distinction in age categories has been
                      made to see if different groups have different wishes when relocating.

Customer journey A visualisation of the experiences that seniors have when
                      relocating to a new home, divided into several steps[1]

Obstacles   Factors that prevent seniors from relocating to a more suitable dwelling and
                      proceed in the customer journey

Incentives   Factors that can motivate to relocate to a more suitable
                      dwelling and proceed more easily in the customer journey

HA   Housing association

Residential mobility Movement of people from one place of residence to another
                      within a particular local area (Willibald, Mukiibi & Limbumba, 2018).

Suitable home   A home that meets the (individual) third age needs of seniors and enables
                      independent living into old age.

Private benefits Profits seniors receive when relocating in third age

Social benefits   Unlocking the housing market for various population groups

Relocation programs Local authorities and housing associations have set up relocation
                      programs to stimulate seniors to move into more suitable housing
                      and ultimately to contribute to residential mobility

Participation   Participation of seniors in relocation programs

Third age needs   Needs of people in retirement period

MNL model   In the context of this thesis, a multi nominal logit (MNL) model is a statistical
                      tool to predict the probability of seniors to move to a new home with given
                      specific characteristics.

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[1] This definition is specific to this study. There is also a general concept and definition of a "customer journey", mentioned by Richardson (2010) as: "a visualization of all experiences a customer has with a certain product or service over time"

1. Introduction

Chapter 1 first defines the problem that is identified; how to deal with an ageing population and a stagnated residential mobility in the housing market. Here, the residential mobility of seniors is discussed: which benefits are achieved when seniors decide to relocate and which factors are influencing relocation numbers among this target group. Furthermore, the way participation can contribute to this is also introduced. Ultimately, this chapter ends with the purpose of this study and the research questions.

1.1.   Problem description

Ageing population

The world's population of people over the age of 65 will increase rapidly over the next 50 years. This demographic change has a huge impact on how the existing housing stock should be utilised. According to UN DESA (United Nations, Department of Economic and Social Affairs) (2019), the number of seniors over 65 is expected to more than double between 2019 and 2050. North America and Europe, in particular, lead the way when it comes to seniors' population. On average, 18% of the population in Europe and North-America are 65+ and the expectation is that this will increase to 26% by the year 2050. Figure 1 shows the expectation of people aged 65+ on a global scale. It shows that North America and Europe will have the highest proportion of people aged 65+ in 2050.
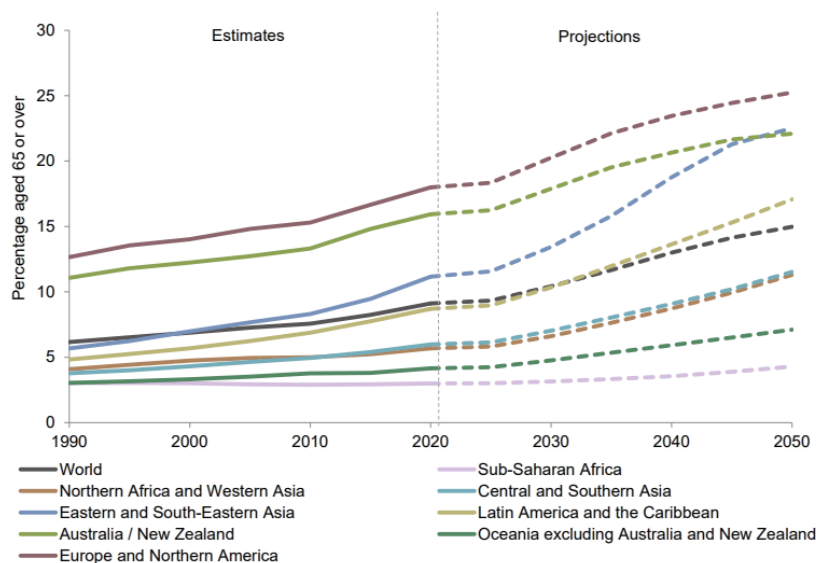
Figure 1: Share of total population aged 65 years or over, by region, 1990-2050 (UN DESA, 2019)

Looking more specifically at the Netherlands, CBS (n.d.) indicates that the current number of people aged 65+ is 19.8%. By 2050, based on forecasts, this percentage will increase to 28% (UN DESA, 2020). This is a little bit higher than the average projections of North-America and Europe in 2050 (26%). In addition, in the year 2019 there were 2.2 million households aged 65+ in the Netherlands. This already comprises 28% of all households in the Netherlands. As the "baby boomers" are now entering retirement age, this will increase by 1 million in the next 20 years (RaboResearch, 2020). Furthermore, the percentage of people aged 0 to 65 years will decrease by 5% to 75% of the total population in the Netherlands (CBS, 2021). These numbers are in line with UN DESA (2020) with a projection of 72%.

Housing market, housing occupancy and circulation of dwellings

For various reasons, the housing market is under pressure in many developed countries: shortage and affordability of suitable housing are main problems, where starters in particular are experiencing

difficulties. This situation has several causes; e.g. low interest rates, growth of population and too low construction production (Groot & Groot, 2021; CBS, 2022). According to CBS (2021), housing prices of EU countries in Q2 2021 rose by an average of 7.3% compared to a year earlier. The Netherlands is among the highest risers in the EU with an increase of 12.8 (CBS, 2021). This scarcity of housing means that people have less and less choice about where they want to live and what their home should look like. This distressing situation of scarcity lends itself to take a close look at how the current housing stock is being utilised; what trends are visible in the occupancy of dwellings and how can the circulation of dwellings be assessed and improved.

In recent years, the housing occupancy rate of residents in developed countries has been steadily declining while the average living space per inhabitant has been steadily increasing, in some cases leading to underoccupancy. Looking at the Netherlands: compared to the average of 3,5 people living in a dwelling in the 1970s, this has now fallen to approximately 2,2 which is similar to the United Kingdom (Manshanden & Koops, 2019; OECD, n.d.). However, the average household size of OECD countries is 2,63 (OECD, n.d.). This means that some countries (and especially the Netherlands) could be more prone to underutilisation in the existing housing stock. According to CBS (2021), households consisting of 1 person in the Netherlands have been increased by 15% over the past 10 years between 2011-2021. However, the population growth has only been increased by 5% in the same period. More broadly, the European Union (28 countries) has seen a 7% increase in the number of one-person households between 2008 and 2018 (Ortiz-Ospina, 2019). In OECD countries, the current percentage of one-person households is above 25%, with non-OECD countries having around 10% of this type. In the Netherlands, the majority of single-person households are observed in the age category 70+ (800.000). (CBS, 2021; Platform 31, 2021).

Besides the significant number of single-person households in the age group of 70 and above, it is also important to look at the housing conditions of seniors aged 55 and above. According to data from CBS (2020), it appears that between the ages of 55-65, the majority of this group live in terraced houses (29%), followed by detached houses (19.7%) and semi-detached houses (17.4%). Only 16.9% of the seniors in this age group live in an apartment (not aimed for seniors) and only 2.3% of this group live in a apartment that meets the specific needs of seniors. This suggests that the majority of seniors still live in the largest typologies of dwellings. However, among older people aged 75 or over, apartments are much more popular (40%) (CBS, 2020). These results suggest that seniors between 55-65 are still very often living in a large housing typology and also possibly under-occupied, based on the number of single-family homes within this age group and 70+ age group.

For better utilisation of the existing housing stock, it is relevant whether the left home of empty nesters was larger than the new one. It is often thought that empty nesters would leave their single-family home because their household has become smaller and they might need less space. In practice, however, this does not appear to be the case. Current relocation behaviour shows that seniors between age 55-65 tend to move into an equally or even larger home and that older people only move to a smaller home (maximum 70m2) after the age of 75 (Platform 31, 2021). It also appears that all categories of seniors are moving to increasingly larger homes. For all relocated age groups (from age 55 or older), they moved to larger dwellings over the year 2019 than over the year 2014. This means that a general trend of seniors moving to more suitable and smaller housing as they get older has not yet been observed.

Relocation of seniors to another dwelling as a solution

The relocation of seniors to another, more suitable dwelling is a way of ageing in place that has various benefits. The benefits can be divided in *private benefits* (Profits seniors receive when relocating in third age) (Ossokina & Arentze, 2020) as well as *social benefits* (unlocking the housing market for various population groups) (Platform 31, 2021; Hrast, Sendi, Hlebec & Kerbler. 2019).

Research has shown that individuals go through a process of change as they get older. It appears that this inevitable change is related to limitations such as cognitive ability, physical discomfort (both due to declining health) and a reduction of the social network (children leave the house, retirement makes the network smaller) (Pierce & Timonen, 2010). This has implications for housing needs. Research by Ossokina & Arentze (2020) shows that there are essentially 3 main groups of housing characteristics that are considered important by seniors 1: comfort, accessibility & safety, 2: (smaller) size of the dwelling that fits senior's household and 3: (shared) facilities to meet other people. Besides these three factors, other studies present several more factors which can be considered as changing housing needs. From literature, it appears that seniors often want to live in a place where they originate from or where their children live (Schaffar et al. 2018; Bonnet et al. 2010), prefer rented accommodation when they get older (Abramsson and Andersson 2016) and relocate to places where climate is good and taxes are low (Önder and Schlunk 2009; Dorfman and Mandich 2016). When these new housing needs are met through relocation, *private benefits* for a particular household arise.

Social benefits are realized when seniors relocate to smaller dwellings. Here, the larger house that is left behind will be available to other population groups, meaning that multiple chains in the residential mobility will be activated (Gemeente Amersfoort, n.d.; Atkins, 2018.). In addition, Platform 31 (2021) states that improving residential mobility of seniors can be part of the solution in tackling the housing scarcity. Ultimately, a more balanced housing distribution could be achieved here. It turns out that seniors are quite willing to relocate, but often there is a lack of suitable supply (Atkins, 2018). This ultimately means that more focus should be laid on providing suitable housing for seniors and less on creating housing for younger generations, as seniors are primarily the only target group that is willing to "downsize" and thereby make space available.

Apart from the benefits in quality of life among seniors, research shows that as people age, they are less likely to relocate and consider doing so (Smetcoren et al. 2017). Figure 2 shows that the population group aged 55-80 only relocates 4-6% on an annual basis, while for the 25-year-olds this is 31% on an annual basis (CBS, n.d.).
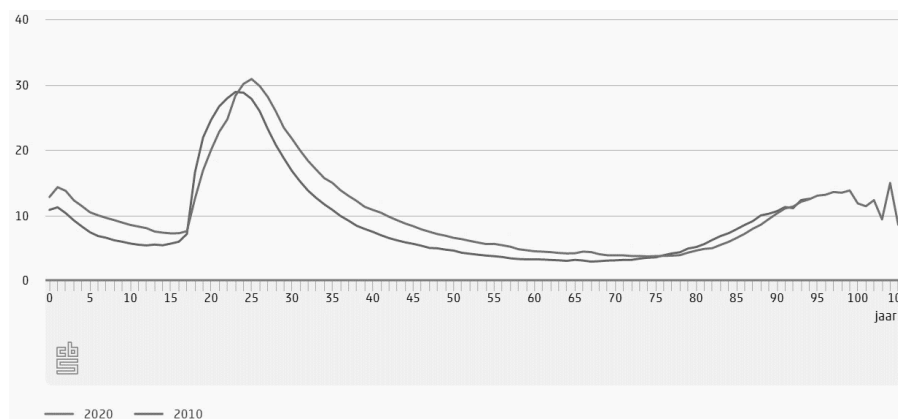
Figure 2: Number of annual relocations compared with age, expressed as a percentage (CBS, n.d.)

In order to stimulate the housing-chain in the Netherlands, 400,000 more dwellings suitable for seniors will have to be built in the coming 20 years (Rabobank, 2020). One drawback of this desired housing stock is the fact that constructing new dwellings takes a long time. Therefore, it is also very important to look at how seniors can make better use of the *existing housing stock* (Platform 31, 2021). In order to make better use of the existing housing stock, it is important to investigate what factors seniors consider important when relocating to a smaller, more suitable dwelling.

Seniors in the social housing sector

Unlocking the housing market through a chain of relocations that seniors can start, is especially important in the public housing. According to OECD (2020) the percentage social housing of the total housing stock in 2010 was about 42% and in 2020 this has been decreased to less than 35%. However, figure 3 visualizes that the Netherlands is still the country with the highest degree of social housing, compared to other OECD countries. Currently, only Austria and Denmark have more than 20% of the housing stock in social rental. This figure also reflects a trend where most countries have seen their share of social renting fall.
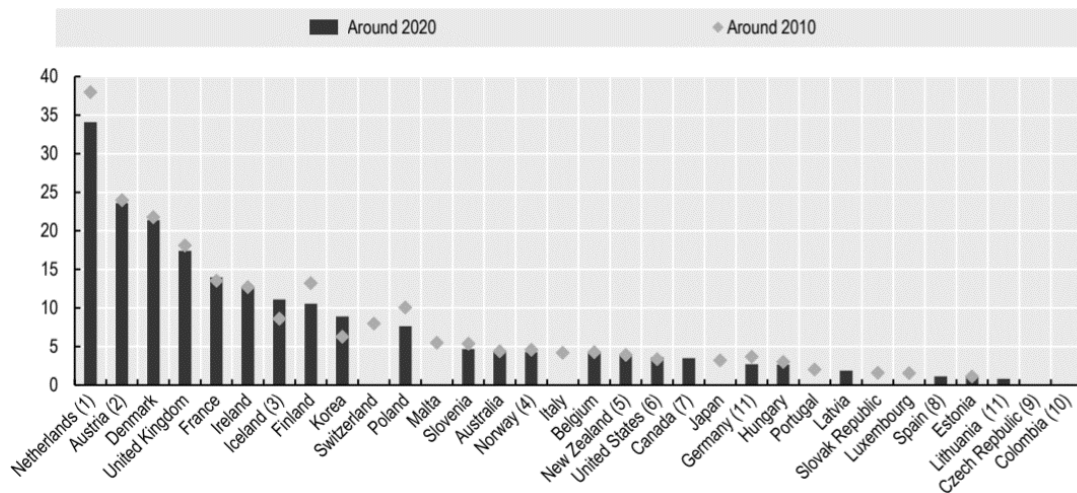
Figure 3: Percentage social housing compared to the total housing stock (OECD, 2020).

Looking globally, 16 countries (of 38 in total) of the OECD (Organisation for Economic Co-operation and Development) are prioritizing seniors in the allocation of social housing. According to the OECD (2020), the Netherlands does not prioritize specifically at seniors. For example, Denmark and Germany are prioritizing seniors and other vulnerable target groups (e.g., disabled persons) in allocating social housing (OECD, 2020). Not prioritizing seniors in the allocation of senior housing is further explained by Dutch Housing Act (Woningwet 2015) where no specific agreements or quantification in terms of social housing for seniors has been determined. It does only describe that housing associations may build and manage residential care buildings (Rijksoverheid, 2015).

Apart from the 2015 Housing Act, the National Performance Agreements for Housing Associations (Nationale Prestatie Afspraken) (2022) states that from 2024, municipalities are required to make a "housing vision" that includes agreements of incorporating local needs in local performance agreements. The living environment and sufficient supply of facilities will also be included in this vision. Secondly, housing associations should contribute to the realisation of 50,000 units in clustered housing (existing and new construction), aimed at seniors from the associations' target group (Ministerie van Binnenlandse zaken en Koninkrijksrelaties, 2022). These units must at least consist of a common meeting space where municipalities facilitate the creation of social interaction and foster well-being. Besides these units, 40 million will also be allocated by housing associations to make the existing stock "life-course-proof" (levensloopbestendig[2] in Dutch). Finally, it has been indicated that local governments and housing associations should focus more on stimulating the residential mobility of seniors. This should include an emphasis on awareness campaigns, rent adjustment, the use of relocation agents, priority schemes (e.g., relocation programs) and relocation allowances (Ministerie van Binnenlandse zaken en Koninkrijksrelaties, 2022). In addition, 95% of housing associations (266 associations) in the Netherlands are affiliated to Aedes (the national trade association of housing associations in The Netherlands) (Aedes, n.d.). This organisation made an agreement with other public institutions to

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[2] Levensloopbestendig (live-course proof) are adapted homes that enable people to live longer independently

construct 60.000 senior dwellings in the coming 5 years. Furthermore, Aedes (2021) admits that creating suitable seniors' dwellings, residential mobility will be stimulated for other target groups such as starters.

Besides the National Performance Agreements, various public organizations (e.g., Aedes) have initiated the "Taskforce wonen en zorg" (Taskforce living and care). This organization stimulates and helps municipalities, housing associations and care-providers in a jointly approach (Taskforce wonen en zorg, n.d.). More specifically, Taskforce aimed in their "working plan 2020" to accomplish the following activities from 2020-2022 (Taskforce wonen en zorg, 2020):

1. In the end of 2020, municipalities should have made an analysis about the local demand in terms of housing, care, wellbeing and liveability for seniors
2. In 2021, municipalities should have made performance agreements about housing, care, wellbeing and liveability as a basis to reach executing for concrete plans
3. In the coming years, in every municipality, projects should be carried out which meets the demands with regarding to housing, care, wellbeing and liveability.

Research by RIGO (2019) shows that people in the age group 23-35 account for 40 to 50% of people looking for social housing. In the Randstad area in particular, it is necessary to have long registration periods (approximately 5-10 years) in order to qualify for social housing. At the same time social rental homes are often underoccupied by seniors (Platform 31, 2021). Since housing associations are owners of 75% of the social rental housing (Woonbond, 2021; Aedes, n.d.), they can actively encourage seniors to choose alternative housing by applying incentives. The choice was made to focus on the social rental market to identify the preferences of seniors. Collaborating with housing associations to map the preferences of seniors and explore what incentives they use to stimulate residential mobility could be very useful. Ultimately, improving relocations among seniors could lead to *private-* and *social benefits*.

Obstacles, incentives, interventions and participation

Although housing needs change in the third age, relatively few seniors make the step to another dwelling. This is shown in figure 1 and stated by Platform 31 (2021). Apart from a possible shortage of suitable supply, this gives the impression that obstacles to not relocate outweigh incentives to choose for relocation. *Obstacles* experienced by seniors can occur in different ways. Seniors often feel that there is no suitable new home that meets their needs (Cheshire & Forrest, 2021; Burgess & Quinio, 2020; Hrast et al. 2019; Adair, Williams, & Menyen, 2014). This may also have to do with the new neighbourhood in which the home is located; place attachment to the home or neighbourhood is often very important (Cheshire & Forrest, 2021; Hrast et al. 2019; Przybyla, Hetdak & Marcak-Kurtyka, 2019; Judd, Liu, Easthope & Bridge, 2014). Also, some seniors can experience a relocation as a lot of effort (Cheshire & Forrest, 2021; Burgess & Quinio, 2020; Adair, Williams, & Menyen, 2014; Judd et al. 2014) and financial obstacles such as an increase in rent or no subsidy for a relocation can also be a reason for seniors to not relocate.

In contrary to obstacles, (intrinsic) *incentives* (that compensate for obstacles) can ensure that seniors do eventually relocate. When unexpected life events occur, they may feel the need to make a forced relocation (PBL, 2020; Hrast, et al. 2019). In addition, close relatives can play a role as an incentive; seniors can be influenced in the consideration to start thinking about a relocation (McFerran et al. 2010; Kahle & Close. 2006. Finally, the changing needs of seniors in third age can persuade seniors to consider relocating to a more suitable, new dwelling which meets their needs.

Practice shows that various (local) governments and housing associations are actively engaged and focused on encouraging seniors to relocate to a more comfortable home. Here, organisations aim to eliminate as many *obstacles* as possible. Various relocation programs in the Netherlands have been carried out such as VGNB (from large to better), Rochdale doorstroomregeling (residential mobility program) and 65+ Verhuisvoordeel (relocation benefit) to contribute to this (Gemeente Amsterdam, n.d;

Rochdale, n.d; Purmerend, 2021). However, a problem here is that these programs are not standardised and often differ per municipality or housing association. Evaluations of relocation programs also show that there is still a lot of unfamiliarity among tenants (Groot et al. 2019). In addition, programs as a collective *incentive* are not always sufficient for seniors to relocate. Therefore, it is important to understand the effectiveness of relocations programs; which programs are already successful and how can they be improved in order to remove even more *obstacles* and ensure that seniors feel more encouraged? In addition, it is important to analyse whether standardisation in best practices is possible.

Research has shown that *participation* between local authorities/market parties and citizens can play a valuable role in decision-making processes. For example, Kruythoff (2008) indicates that top-down processes of urban development in the 60s and 70s from previous century did lead to dissatisfaction among citizens. Demonstrations of citizens against urban development brought a transition whereby citizens were given a more active role; the democratisation of decision-making processes (bottom-up approach) improved satisfaction among citizens and also the quality of the city. In the context of this study, poor participations could affect the success rate of an intervention; seniors need to be convinced of the benefits that an intervention (e.g., relocation program) will bring. Therefore, participation between housing associations and tenants are of high importance. Here, seniors can indicate which factors they consider important when they relocate.

Research question

The aim of this research is to gain insight into how the residential mobility of seniors can be stimulated by using best practice interventions.

Main question: *How can seniors be stimulated to relocate towards a smaller home suitable for their needs, using best practices and participation?*

In order to answer this question, I will first investigate the *obstacles* and *incentives* that seniors face when they consider a relocation (S1). Existing "relocation programs" will be studied as well as the role of seniors' participation in them, and the best practices and drawbacks will be identified (S2, S3). Finally, hypotheses will be derived on which factors are the most successful in stimulating residential mobility. These will be tested using a stated choice experiment (S4).

Sub-questions

To answer the aforementioned main question, the following sub-questions are formulated:

S1: What are the obstacles for seniors to relocate and in which step of a customer journey towards a new home are these obstacles identified?

S2: How can seniors be incentivised to relocate and what are the advantages and disadvantages of relocation programs?

S3: How can participation of seniors in relocation programs speed up the customer journey towards a new home?

S4: How can housing providers improve their existing interventions using a stated choice experiment to understand which factors matter most to seniors when they move?

To answer the research questions the framework of a customer journey will be used, defined by Richardson (2010) as: "a visualization of all experiences a customer has with a certain product or service over tim*e"*. Court et al. (2009) defines a customer journey as a process that a person goes through when purchasing a product. In the context of this study, the process of choosing an alternative dwelling is described by means of a customer journey. The customer journey consists of several steps and starts with the motivation to choose an alternative home. The "customer journey" is described by a conceptual framework from Hamilton (2020), which is described in chapter 3.

1.2.   Relevance

The research to be carried out can be placed in an academic and practical context. For the academic relevance, the current insights about best practice interventions to stimulate seniors to relocate to a smaller, more suitable dwelling are discussed. In addition, recommendations from literature are described which contribute to the topic of this research. The practical relevance is described based on the current best practice interventions which have been already carried out in practice.

Academic relevance

There has been much research into the wishes and/or obstacles of seniors when it comes to choosing where to live. Many studies have identified the reasons why seniors are not willing to relocate to an alternative dwelling, preferably smaller and more suitable for their needs. (e.g., Cheshire & Forrest, 2021; Hrast et al. 2019; Przybyla et al. 2019; Judd et al. 2014; Burgess & Quinio, 2020 etc.). A distinction is made between growing older in the same place "ageing in place" by adapting the current dwelling or relocating to an alternative, more suitable living place. Little research has been done on the latter in terms of encouraging seniors to relocate to smaller and more suitable homes. According to Chesfire & Forrest (2021) the recommendation is to develop "downsize" programs in which (social) housing providers can more easily enter into a conversation with users of an oversized dwelling in a more approachable way instead of penalizing seniors if they live in a too large dwelling (Chesfire & Forrest, 2021). In addition, existing literature describes that there has not yet been sufficient research into the development of social / relocation programs.

Practical relevance

In addition to the academic enrichment of this research topic, the aim is also to make a practical relevant contribution to society. As mentioned previously, the Netherlands (and other countries) are facing an ageing population and poor residential mobility of various population groups. In the past, several best practices have been implemented as an incentive that can contribute to "third age needs" of seniors as well as a solution to improve the residential mobility and better use the existing housing stock. However, these programs differ from each other: they were not always known by tenants (Groot et al. 2019), they differ in type of interventions and in degree of success. Currently, relocation initiatives do not connect seamlessly together and show differences in approach, however there are some similarities in terms of benefits. Platform 31 (2021) states that not every program is an immediate success due to different "third-age" needs from tenants. Often, multiple instruments must be used to achieve success. This research aims to fill in the empirical gap by evaluation and improving current best practice interventions carried out by housing associations and municipalities. This should result in new insights and solutions in order to improve the residential mobility of seniors and contribute to the utilizing of existing social rental dwellings. The purpose is to make it easier and more convenient for seniors to participate in relocation programs in which their wishes and preferences are taken into account.

1.3.   Scope of research

To create a demarcation for this research, several starting points were taken into account. First, this research focuses on the social rental market in the Netherlands because of the possibility of cooperation with housing associations that are directly involved in the supply of housing. In addition, housing associations can provide valuable data which can be used for the benefit of this research. Furthermore, housing associations are key contributors to improve the residential mobility of various age groups, since they are in charge of their own housing stock and can apply interventions to encourage residential mobility of seniors. Secondly, the target group are "seniors", consisting of three subgroups: pre-seniors (55-65), seniors (65-75) and older seniors (75+). Ideally, this target group currently lives in a (single-family) dwelling that is too large (3+ bedrooms or above 70 m^2) for their needs, however, this does not imply that residents of a smaller dwelling (2-bedroom apartments) are directly excluded from this study.

1.4. Jointly written chapters

Some chapters are written together with fellow student Ashwan Rampersad. This decision was made because of several reasons. First, both studies are similar with regards to understanding the preference of seniors in relocating to an alternative home. Here, this study focuses on "best practices" in order to stimulate the residential mobility of seniors and the second study focuses on the role of "place attachment" with regards to relocation. Secondly, a stated choice experiment (SCE) was executed together to increase practical feasibility of obtaining valuable information from several housing associations. This means that some attributes are varying in the SCE with respect to both studies.

1.5. Research design

Figure 4 visualises a design showing the steps to be taken to achieve the aim of this study. The first 4 questions are (partly) answered by means of a literature study. Secondly, question 2, 3 and 4 are answered by literature study, interviews and focus group discussions. Finally, question 5 is answered by conducting a stated choice experiment (SCE).
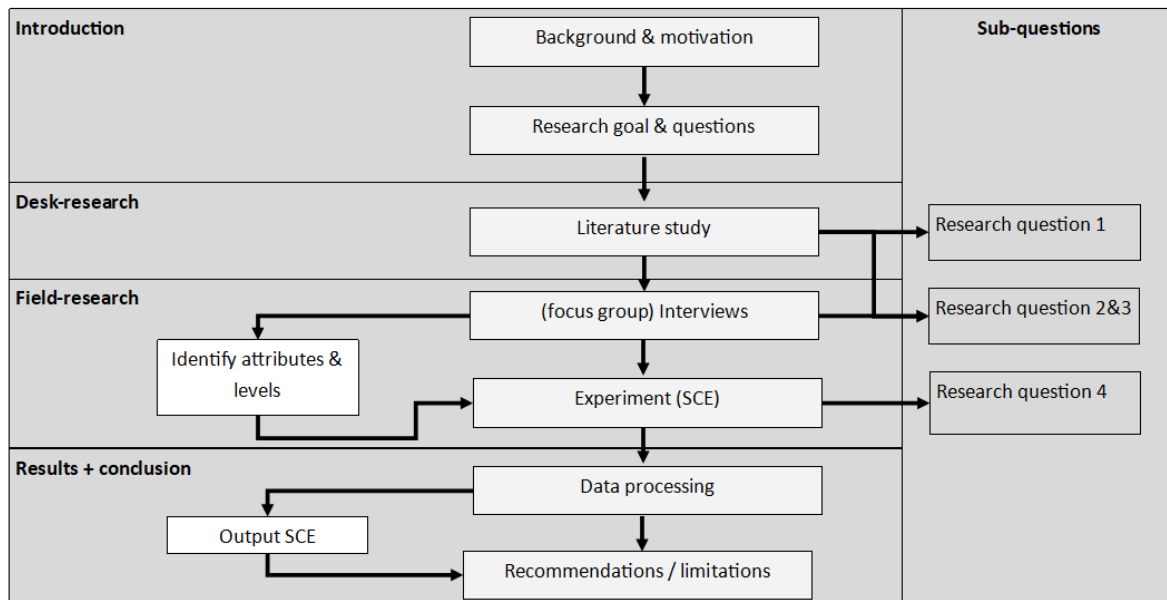

Figure 4: Visualization research design

2. Literature review

This chapter describes changing needs of seniors in third age phase (retirement period). Secondly, this chapter zooms in on existing literature related to the residential mobility of seniors. In this context, it is important to understand the factors that lead seniors to consider relocation and what the current best practices are to stimulate this.

2.1. Third age needs of seniors

An individual's (housing) needs change as a person ages. Research by Pierce & Timonen (2010) shows that changes take place particularly at the physical, social and cognitive levels. In addition, research by Arentze & Ossokina 2020 reveal that in terms of "housing needs" seniors in general value: 1: comfort, accessibility and safety, 2: a desire to live smaller (downsizing) and 3: facilities where other people can be met.

The desire for extra comfort, good accessibility and increased safety comes particularly from (often) reduced mobility and health. This is not always an immediate issue, but can also be a forward-looking view of the future. When seniors are confronted with this, they often relocate to residential areas with high-quality facilities and good health care (Arentze & Ossokina, 2020). In addition, research by Sugiyama et al. (2009) and Friedman et al. (2012) shows that quality of life of people aged 65+ is increased by a pleasant and safe public space (e.g., safe parks to walk).[3]

Secondly, the desire to live smaller is often related to adults become "empty nester". Children leave their parental home and a result of this some seniors have too much space for their needs (Arentze & Ossokina, 2020). In addition, a decrease in income due to retirement may be a reason to relocate to a home with lower fixed costs or a rental property is considered (Herbers, Mulder & Mòdenes (2014).

Thirdly, the desire to have a social network or facilities where people can meet also arises as people age. From research by Bohle et al. (2014), this desire becomes greater as the social network becomes smaller due to retirement. In doing so, people also increasingly choose to live close to their loved ones such as their own children (Schaffar et al. 2018; Bonnet et al. 2010). In addition, research by Friedman et al. (2012) shows that seniors have a need for social cohesion in the neighbourhood. It is also important that the neighbourhood facilitates outdoor sporting activities as this has a positive impact on the wellbeing of seniors (Sugiyama & Thompson, 2006). Finally, research by Rioux & Werner (2011) shows that residential satisfaction is associated with the local living environment, accessibility to (shared) facilities and a good relationship with neighbours.

Apart from the changes in the needs of seniors as they grow older, it still appears that relatively few seniors (see Figure 1) relocate when they are 60 or older. Section 2.2. elaborates on factors which relate to relocation and it presents existing findings of studies that have tried to understand how to trigger seniors relocate to an alternative dwelling that takes third age needs into account.

2.2. Existing studies on residential mobility of seniors

This section elaborates on factors influencing seniors to consider relocation and it discusses previous studies related to social housing programs related to residential mobility of seniors.

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[3] See also Van Wijk (2022) and Ossokina et al. (2022) for insights about which elements of public spaces are important for the seniors.

2.2.1. Motives for seniors to consider relocation

Research by Smetcoren et al. (2017) shows that there are two situations in which relocation to a different home can occur. First, seniors can be forced to relocate because of changing life circumstances such as a decline in health (Ossokina & Arentze, 2022). Forced relocation appear when seniors are not able to live independently anymore in their current home, therefore they are "pushed" to relocate (*push factor*) (lee, 1966). Secondly, *pull factors* can make seniors inclined to relocate or stay in their current home. For example, they like to stay in their homes because of a strong place attachment to their neighbourhood (Ossokina & Arentze, 2022).

Nevertheless, there are also seniors who decide to relocate without being forced. Relocations are usually motivated by general dissatisfaction with the house and the location, visualized in figure 5. This could be the desire to live smaller because of too much maintenance/housekeeping to carry out or the stairs & steps in the house are seen as an obstacle (Smetcoren et al. 2017; Judd et al. 2014; de Jong, Rouwendal & Brouwer, 2021). Secondly, dissatisfaction of the neighbourhood could be a consequence because of poor safety in the area (e.g., high crime rates), poor living conditions or a lack of daily supply / care facilities (Smetcoren et al. 2017; de Jong et al. 2021). In addition, research by Ossokina & Arentze (2022) shows that the willingness to move is greater when seniors are dissatisfied with the current distance to their public transport or the lack of green spaces. Finally, previous studies show that seniors are less likely to relocate when they lose social support, but it is also the other way around; when seniors lack social support in their neighbourhood, they are more likely to relocate (Smetcoren et al. 2017; de Jong et al. 2021). In addition, the presence of close relatives or family members are important considerations for seniors to relocate (Hansen & Gottschalk, 2006). Figure 5 presents two ways of relocating towards an alternative home.

Previous studies show that socio-demographic factors can have a relation with relocation satisfaction. Seniors with a lower income are more often "*pushed*" to relocate because of personal or house technical problems. Seniors with a higher income relocate more often because there is a better house or living environment elsewhere (*pull factor*) (Smetcoren et al. 2017). Precisely because of these reasons, it is important that seniors retain a sense of control when they relocate since this has a positive effect on the relocation satisfaction (Smetcoren et al. 2017). Also, anticipatory conversations with seniors can help them to think about the future which also reduces potential dissatisfaction. Generally, vulnerable people with lower incomes in particular need to be assisted when it comes to relocation, as they are often the ones who are pushed to relocate (Golant, 2014).
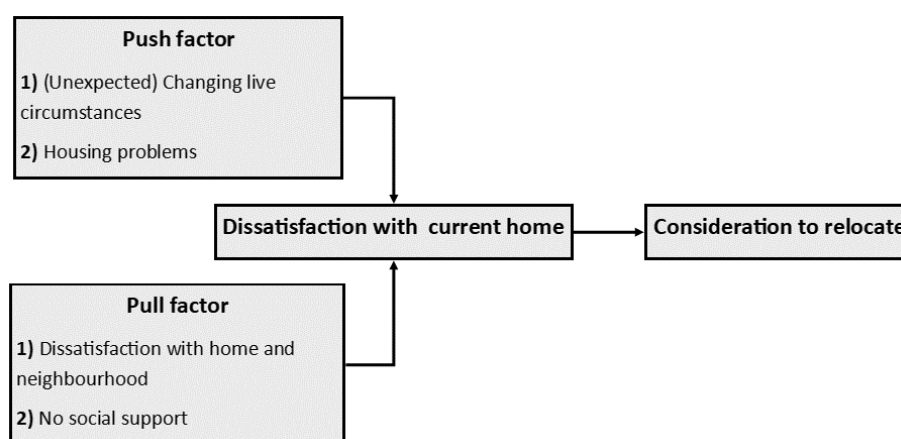

Figure 5: Push and pull factors towards relocation

Nevertheless, "ageing in place" is still the preferred way of living for seniors compared to relocations (Smetcoren et al. 2017; Ossokina & Arentze, 2022). According to de Jong et al. 2021, changing living conditions can become a threat for seniors when ageing. To prevent "pushed" relocation, new innovative

social housing programs should be developed by housing providers to provide good alternative housing options for seniors. The next section elaborates on current specialized housing accommodations / programs which stimulates seniors to relocate to more suitable alternative housing.

2.2.2. Relocation initiatives to stimulate residential mobility of seniors

There has been a change in the approach of housing supply for seniors in their third age. Previously, "senior" housing was mainly aimed at frail older adults, needing support and care. However, Aitken, Cook & Lawson (2019) indicate that there is now also a need for specific housing options for "fit" and pro-active seniors that focus on socially supportive and stimulating living environments. This means that there is a need to look more broadly at the general housing demand of seniors.

In order to meet the third age demand of seniors, there are two options: 1) *ageing in place*, where the home is adapted to the demand of the user or 2) *relocation* to specialized housing such as group home living, extra care environments, larger retirement villages, residential community buildings or new forms of housing such as "modern courtyards[4] " or assisted living facilities (Woonmonitor, 2015; Aitken et al. 2019). It turns out that seniors are generally familiar with some of these housing types. However, due to place attachment, relocating in own neighbourhood is often desired.

Figure 6 presents several specialized housing options (ZorgSaamWonen, 2022). Additional benefits of specialized housing are 1) reduce in loneliness, 2) less likely to relocate to care institution, 3) higher sense of control and 4) less time in hospital. Furthermore, seniors may be inclined to relocate because of the possibility to develop social networks, being included in a community, having accessible facilities, high quality of life, location and size of the complex, enhanced feelings of safety/security and the potential of increased autonomy (Aitken et al. 2019).
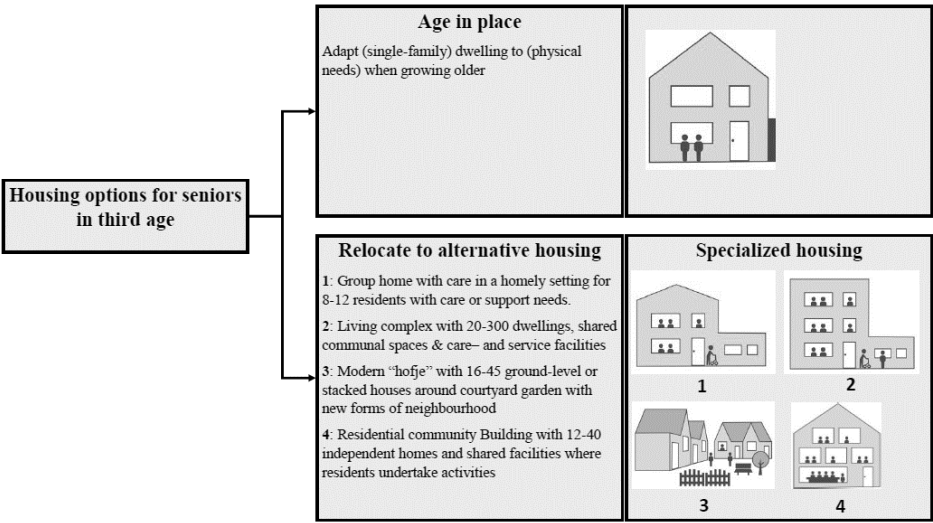
Figure 6: Examples of specialized housing options (adapted from ZorgSaamWonen, 2022).

It turns out that seniors' value safety and security as important factors when relocating to a specialized accommodation. In addition, housing providers should not only focus on providing extra care, but should also look at features such as luxury and potential for social interaction (Aitken et al. 2019).

This emphasis of developing specialized housing accommodations has some similarities to the article by Chesfire & Forrest (2021) which addresses "social programs" (e.g., relocation program) to encourage seniors to downsize to more suitable, alternative housing. Here, the aim is to have conversations with

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[4] "Modern courtyards" or "Moderne hofjes" in Dutch are new housing concepts where senior citizens can live (independent) in a community with other senior citizens. The emphasis here is on living together with like-minded people, meeting each other in common rooms and providing support to each other (Stadsveteranen, n.d.).

seniors about relocation, rather than punishing them for living in too large homes. Platform 31 (2021) conducted research into the effect of relocation programs in the Netherlands. This research was carried out in order to apply new insights to improve utilisation of the social housing stock. Figure 7 visualizes the relocation chains. When the residential mobility of seniors is stimulated, several relocation chains can be activated. For example, families can relocate to a larger home.
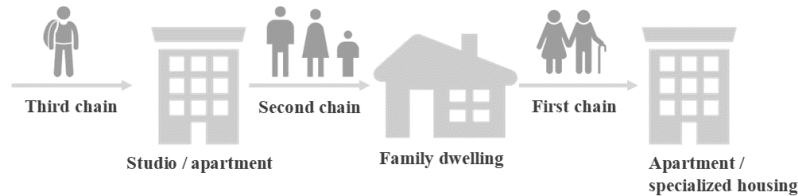
Figure 7: Residential mobility chain

Nevertheless, the research shows that relocation programs are not yet an immediate success to increase relocation numbers. Seniors have different wishes and cannot be seduced by one single intervention (Platform 31, 2021). The five interventions that are mainly applied by housing associations and municipalities are: 1) creating a suitable supply, 2) getting started (personal guidance), 3) unburdening the relocation process, 4) a price incentive (e.g., keep existing rent) and 5) priority to other target groups (Platform 31, 2021). Because seniors have different wishes, different interventions are often applied simultaneously. Creating customisation for seniors, and using multiple interventions or allowing seniors to choose for themselves, can lead to a successful approach (Platform 31, 2021; Aitken, 2019). In order to understand how targeted interventions can be used to stimulate the residential mobility of seniors, it is important to identify the wishes and preferences of this target group. In this way, housing associations can apply more targeted interventions that are more in line with the housing needs of seniors. Therefore, conversations with experts from housing associations and seniors themselves can help in understanding what those needs and preferences (*pull factors)* are. It is also important to understand why relocation programs are not always well known among seniors. (Platform 31, 2021).

A customer journey is applied to visualize the process of how a relocation can take place among seniors. This journey is presented in section 2.3. which involves several steps, and represents the journey of seniors' relocation towards a more suitable home.

2.3. Conceptual frameworks to visualize customer journey of a relocation

This section describes- and compares several models to visualize the customer journey of someone considering relocation. The goal here is to find the most convenient model to visualize the customer journey of seniors. According to Hamilton (2020), in recent years there has been extensive research into the customer journey of a consumer when purchasing a product. Many models have been proposed by experts from the academic world, marketing practice and marketing education (Hamilton, 2020).

Conceptual framework of Court et al. (2009)

The first model by Court et al. (2009) is presented in figure 8. Just like a lot of other models, this model was developed for the marketing domain. Here, the "consumer decision journey" consists of 5 phases: awareness, familiarity, consideration, purchase and loyalty. In this linear journey, customers reduce their options until a purchase is made in the fourth step. In this model, "purchase" is the actual decision to relocate. According to Court et al. (2009) this model fails due to large variety of buying factors in relation to a critical consumer who is often well informed in this day and age. This observation leads to a more holistic concept that is more circular.
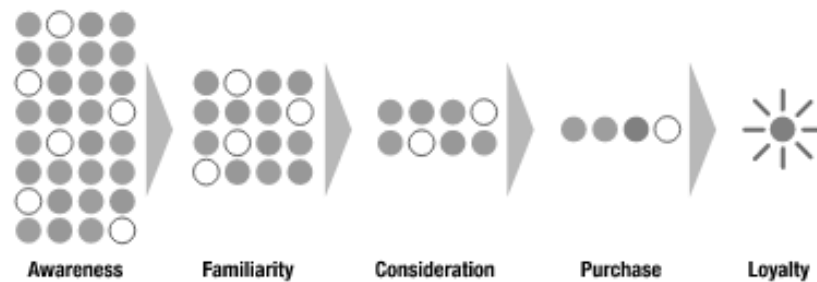
Figure 8: Traditional consumer decision journey (Court et al., 2009).

Conceptual framework of Court et al. (2009) 2nd model

The theory is described by Court et al. (2009) as: "consumer decision theory", and consists of 4 phases: 1) initial consideration, 2) active evaluation, 3) Closure and 4) Post-purchase. It is argued that a customer journey should be more circular where the 4 phases are representing possible battlefields where marketeers can win or lose in attracting the customer. Court et al. (2009) states that the conceptual framework can be of value in understanding the strength or weakness of a brand in a certain phase compared to other brands and therefore drawing lessons from it. In addition, a loyalty loop has been added which is a component of this model. During the post-purchase experience, a trigger can occur which leads to customer loyalty, or the pre-purchase phase is entered again, using an alternative brand (Lemon & Verhoef, 2016).

Conceptual framework of Lemon & Verhoef (2016)

The conceptual framework of Lemon & Verhoef (2016) describes the customer experience through 3 different phases: 1) pre-purchase, 2) purchase and 3) post-purchase. The first phase includes behaviours such as need recognition, search and consideration. Furthermore, it is indicated that this phase includes all experiences prior to purchase, such as recognition of the need/purpose/impulse to the consideration of meeting that need/purpose/impulse with a purchase (Lemon & Verhoef, 2016). The second phase contains all customer interactions with the brand during the purchase event. This phase could for example include choice, ordering and payment. The third phase (post-purchase experience) comprises the customer's interactions with the brand and its environment after the actual purchase. This phase includes behaviours such as product use and consumption, post-purchase engagement, and service requests (Lemon & Verhoef, 2016).

Social customer journey model (Hamilton, 2020)

The model of Hamilton (2020), presented in figure 9, is somewhat similar with the model of Lemon & Verhoef (2016). This model consists of two phases (pre-decision and post-decision). This framework describes the social customer journey of consumers when deciding to choose a product whilst taking into account the social influences that play throughout the journey (Hamilton, 2020). The social influences are referred to in this study as "social others" or "travelling companions" such as housing associations, family or friends. Social others interact with the decision-maker during the relocation to a new dwelling. The model distinguishes itself from previous research in the inclusion of these "influences" during the customer journey. The conceptual framework consists of six steps within the two phases: motivation, information search, evaluation, choice, satisfaction and sharing. The model is linear, however, since a lot of dynamics play a role in decision-making such as iterative processes or seniors starting the journey over again, circular loops are used in order to solve this problem (Hamilton, 2020).
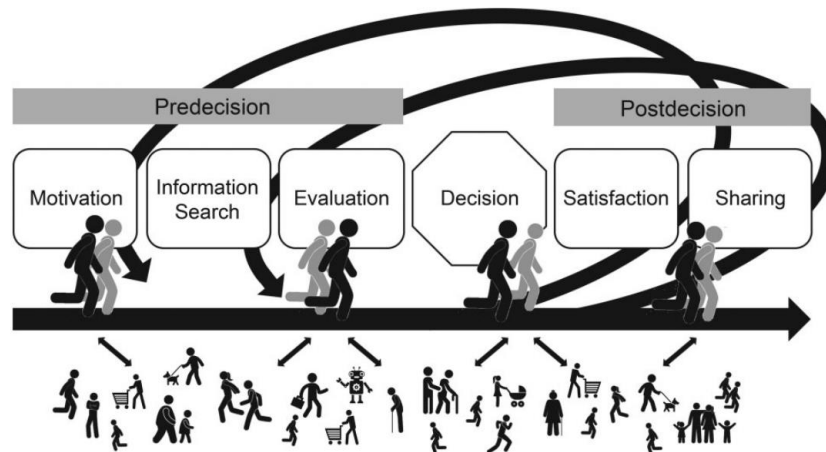
Figure 9: steps of the social customer journey (Hamilton, 2020)

Other conceptual frameworks also emerged that are noteworthy to mention. The conceptual framework (customer decision journey) described in the paper of Colicev et al. (2018) is based on three phases, related to the consumer mindset: brand awareness, purchase intent and customer satisfaction. Here, the phases are interlinked with each other and do not follow a certain sequence (Colicev et al. 2018). Besides the customer decision journey, this model is linked with social media usage and shareholders value which shows a linear sequence. Social media has influence on the customer decision journey and this journey has influence on the shareholders' value.

Another conceptual framework is proposed by Demmers et al. (2020). Here, three phases are included: 1) pre-consumption, 2) consumption and 3) post-consumption. The author states that consumers have different objectives during their journey. The article describes that in the pre-consumer phase, consumers have a need and gather information before arriving at a range of solutions and ultimately select the preferred option. In the consumption phase, consumers experience the benefits of the product or service (e.g., new home). Finally, in the post-consumer phase, consumers assess their experience by comparing the product with their expectations (Demmers et al. 2020). This conceptual framework has similarities with the model of Lemon & Verhoef (2016). However, "purchase" has been substituted for "consumption".

The final conceptual framework is proposed in the research paper by Shavitt & Barnes (2020). Here, the customer journey is as a set of touchpoints that "involve all activities and events related to the delivery of a service from the customer's perspective". The difference between this conceptual framework and other models such as that by Lemon & Verhoef (2016) lies in the addition of the <u>cultural</u> factors within each stage (Shavit & Barnes, 2020). It is argued that people raised in an individual cultural context are likely to adopt the analytical thinking style, where people raised in collective cultural contexts are more likely to adopt the holistic thinking style. Here, holistic thinkers pay attention to the context and they tend to integrate objects (Shavitt & Barnes 2020). Finally, this model also uses the three well-known phases: pre-purchase, purchase and post-purchase and does not differ that much compared to the model by Lemon & Verhoef (2016).

Table 1 presents the conceptual frameworks. It shows that every paper differs in perspective. The paper by Demmers et al. (2020) describes it as pre-consumption, consumption and post-consumption. Colicev et al. (2018) look at it from a different perspective and describes the phases as awareness, purchase intent and satisfaction. Lemon & Verhoef (2016) describe it as pre-purchase, purchase and post-purchase (Santos & Gonçalves, 2021). In the end, there are many phases that have similarities. Secondly, a literature review from Santos & Gonçalves (2021) on customer journeys shows that most studies originate from the marketing domain and to a lesser extent from the management domain.

Paper	Phases / stages				
Court et al. (2009) 1st model	Awareness	Familiarity	Consideration	Purchase	Loyalty
Court et al. (2009 2nd model	Initial consideration		Active evaluation	Close	Post-purchase
Lemon & Verhoef (2016)	Pre-purchase			Purchase	Post-purchase
Hamilton (2020)	**Motivation**	**Information search**	**Evaluation**	**Decision**	**Satisfaction** **Sharing**
Colicev (2018)	Brand awareness		Purchase intent		Customer satisfaction
Demmers et al. (2020)	Pre-consumption			Consumption	Post-consumption
Shavit & Barnes (2020)	Pre-purchase (cultural factors included)			Purchase (cultural factors included)	Post-purchase (cultural factors included)

Compared to all the models described in Table 1, a few key factors of Hamilton's (2020) conceptual framework (highlighted in Table 1) appear to be very suitable for application in this research. Firstly, this model incorporates the insights from previous models. It is a traditional model, but it distinguishes itself in the inclusion of external social influences. Hamilton's (2020) research states that "travelling companions" or "social others" are included during one or more phases within the customer journey. These external factors interact directly or indirectly with the decision maker. In addition, joint journeys can also be created between the individual and a social other, shown in figure 9 by the grey and black figures. This occurs when the social distance between the two clients becomes so small that two or more individuals go through the journey together (Hamilton, 2020). An additional effect here is that an interdependence situation arises in most phases of the customer journey. This makes the journey more difficult because of the complexity it creates and the relationship dynamics that must be maintained. An example of this could be an older person going through the journey to a new home together with a family member or a very close friend. Since important choices for seniors, such as choosing a suitable home, are often not made alone, but with social others such as family members or housing providers, this model lends itself as a foundation for the elaboration of this research.

2.4.   A customer journey in practice

This section describes a scenario of someone who is relocating to another dwelling, using Hamilton's (2020) social customer journey. First, the steps in the conceptual framework are defined in the context of a relocation to a smaller more suitable home (e.g., what does it take to move from one step to the next, what motivations does a person need to continue the customer journey, etc.).

The journey starts with the person's *motivation.* Before a tenant engages with the housing provider to discuss relocation options, the tenant must first be (intrinsic) motivated to consider such an important step. In order to make seniors aware of this, it is important to indicate the most important motives for deciding to relocate, as put forward by seniors themselves: The home is too large for the household (Ymere, 2019; Ymere, 2016), tenant has physical limitations and would like to relocate to a single-floor apartment (RTVA, 2019; de Jong et al. 2021) or the tenant feels the urgency to contribute to a healthy housing market; achieving social benefits (Ymere, 2019; Ymere, 2016). Furthermore, it is important to indicate which factors are important for a housing association to address in this step of the customer journey. Therefore, they should indicate the benefits involved with relocation. In addition, a sense of urgency should be created; in order to keep the housing market available for society it is necessary to stimulate the residential mobility of seniors since they are likely to downsize.

In the *information search* step, seniors move into action; the motivations and benefits to relocate are transformed into seeking and obtaining information from their HA's. It can happen, for example, that

seniors look for information themselves (such as information provided by housing associations), but it can also happen that social others have a pro-active attitude with regards to providing information about benefits in using relocation programs. Here, information can include the following topics: which alternatives are available regarding forms of living, in which neighbourhood is the new home located, does the relocation have financial consequences, is it possible to get support for the actual relocation etc. These topics are important factors for seniors to decide whether or not to proceed to the evaluation step. Research also shows that the source and the behaviour of the information provider play an important role in this step. In short terms, seniors should have a clear view of what effects this choice will have on their personal situation, where the information comes from and whether it is reliable.

In the *evaluation* step of the customer journey, an intention to choose a suitable alternative home has been established. It is now likely that the tenant proceeds in making the actual decision. In this step, the information sources are considered and evaluated. For example, the information and details of the relocation are discussed with the housing provider or close relatives. This can include the financial consequences of the relocation, how much effort the relocation will cost etc. After this step is fulfilled, the actual choice is made in the next step (decision) and the pre-purchase phase is fulfilled.

The *decision* step in the social customer journey consists of "deciding" the new social housing dwelling and "purchasing" it. All the previous steps of the customer journey converge here and lead to the decision of whether or not to choose the alternative, more suitable home. Again, it is important to review and evaluate the information in consultation with close relatives and the housing provider. Here, the provision of information is particularly important because the decision is close by.

The *satisfaction* step is about the experience with the new chosen home. This is the first step in the "post-decision" phase. In this step, it is still important that the housing association is in close contact with the tenant to provide information about the rental dwelling and to offer support in case of inconveniences. When the tenant has a positive experience of living in the new home, the final step of post-decision sharing can begin.

The final step in the customer journey is *post-decision sharing*. In this step, tenants of a new alternative home can share their positive experience through media channels. When the housing providers records the experience in consultation with the tenant, this can have a positive effect on the motivation / awareness of potential new relocators who want to make use of a relocation program. Ultimately, positive experiences can lead to a role as ambassador for the residential mobility in the housing market and to make the relocation programs known to a wider audience. Table 2 presents a customer journey where a tenant relocates to a new dwelling.

Table 2: Customer journey in practice

Customer journey steps	Motivation	Information search	Evaluation	Decision	Satisfaction	Post-decision sharing
Influencing factors	**Obstacles**: prevent from proceeding in customer journey ←					
	Incentives: stimulates seniors to proceed in customer journey →					
Go-through actions	Tenant is intrinsic motivated to move because of "push" or "pull" factors	Tenant seeks for information about relocation programs (with social others)	Tenant evaluates obtained information about the possible move	Tenant decides and chooses the new dwelling	Tenant is satisfied or dissatisfied with his/her new home	Tenant shares information about their own experience

2.5.   Obstacles and incentives in the customer journey

Housing relocation numbers as presented by CBS (n.d.) indicate that seniors only relocate approximately 5% on annual basis. This means that a customer journey to an alternative home can be helpful to understand why seniors do not participate in the customer journey or why they quit prematurely. Figure 10 presents an overview of the customer journey related to *obstacles* and *incentives*. The first factors are holding seniors back during the customer journey and the latter stimulates seniors to complete more easily the customer journey. According to Platform 31 (2021) several incentives together, such as relocation programs consisting of several instruments, can make it easier to persuade seniors to relocate. The following two sections identify obstacles and incentives.
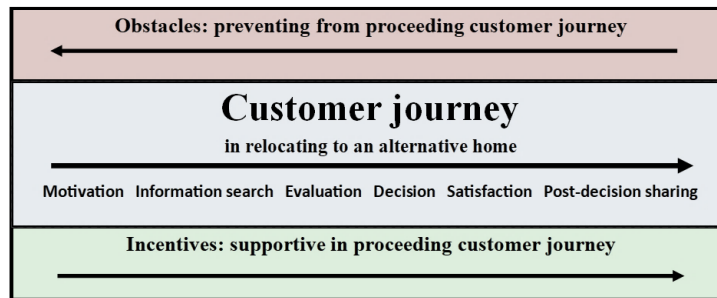

Obstacles: preventing from proceeding customer journey

Customer journey
in relocating to an alternative home

Motivation   Information search   Evaluation   Decision   Satisfaction   Post-decision sharing

Incentives: supportive in proceeding customer journey

Figure 10: Influence of obstacles and incentives in the customer journey

2.5.1. Obstacles

Several obstacles emerge from the literature as to why seniors feel reluctant to opt for an alternative smaller, more suitable dwelling. It appears that the majority of seniors would like to "age in place" rather than relocate to a new, more suitable, dwelling (Cheshire & Forrest, 2021; Hrast et al. 2019; Przybyla, Hetdak & Marcak-Kurtyka, 2019; Ossokina & Arentze, 2022). This implies that many relocations among seniors are initiated only when unexpected life events occur, such as the death of a partner or when the person's mental or physical health declines (PBL, 2020; Hrast, et al. 2019; Forsyth, Molinsky & Ye Kan, 2019). This is also reflected in figure 2 where most annual relocations take place between age 20 and 30 (about 30%) and beyond 80 (CBS, n.d.). In contrast to seniors who want to age "in place", there is also a large group of people who would like to relocate, but are limited by a lack of suitable social rental housing near where they currently live (Cheshire & Forrest, 2021; Burgess & Quinio, 2020; Hrast et al. 2019; Adair, Williams, & Menyen, 2014). For example, some seniors would like to have at least 2 bedrooms, a garden is preferred above a balcony or they do not see themselves living there. Secondly, the failure to find a suitable new dwelling may also be related to their place attachment to their current house or a neighbourhood, which often makes alternative options seem less attractive (Ossokina & Arentze, 2022). It appears that this reason is a frequent mentioned reason to not relocate to a new place (Cheshire & Forrest, 2021; Gibler & Tyvimaa, 2015; Judd et al. 2014). For example, seniors want to continue going to their daily stores in their own neighbourhoods after they relocate. In addition, losing social cohesion with neighbours and other nearby residents is also sometimes important for seniors not to choose to relocate. In contrast, there are also groups of tenants who are satisfied with their current home and do not feel the urge to relocate (Judd et al. 2014). The literature shows that seniors prefer their extra space, after they became "empty nester", to use as an office, study or as temporary accommodation for visitors (Chesfire & Forrest, 2021; Judd et al. 2014; Gibler & Tyvimaa, 2015). In addition, some seniors may have an aversion to moving when they know they will lose out in certain areas, such as losing extra space (Ossokina & Arentze, 2022). Besides the "aversion" of losing, it also emerges that some retired seniors now spend more time at home, making space more important to them (Judd et al. 2014). Another obstacle for tenants not to relocate is the "inconvenience" and the possible financial consequences during- or after the relocation (Cheshire & Forrest, 2021; Burgess & Quinio,

2020; Adair, Williams, & Menyen, 2014; Judd et al. 2014). Seniors do not want to lose out financially (e.g., have to pay more rent or the need to repair their current dwelling) when they relocate to a new home. In addition, some seniors also fear the "efforts" during the relocation such as disassembling- and assembling the home, paying for- and arranging the relocation, etc. (Cheshire & Forrest, 2021; Adair, Williams, & Menyen, 2014; Judd et al. 2014). Finally, the number of relocations among seniors is also related to the composition of the household. Single-person households are more often interested in relocation than multiple-person households (Gibler & Tyvimaa, 2015). Table 3 presents the obstacles which emerge from existing literature. It appears that in general, seniors do not want to relocate because they are not satisfied with alternative housing options (4 times) In addition, they often do not want to relocate because of the preference to age in place, the inconvenience with relocation, financial consequences during- or after relocation, the preference of having more space and because of place attachment for the dwelling or neighbourhood (all 3 times).

Table 3: Summary obstacles perceived by seniors

Obstacles Paper	No supply of suitable dwellings	Desire to "Age in place"	Place attachment dwelling/neighbourhood	Inconvenience during relocation	Financial barriers	Extra space is welcome
Cheshire & Forrest (2021)	No suitable alternative dwellings	Majority of respondents likes to age in place	Want to stay in own neighbourhood	Ease or difficulty with relocation	Costs that come with relocation	Want more than 1 bedroom
Burgess & Quinio (2020):	Lack of suitable smaller homes			Difficulty to relocate in later life		
Hrast et al. (2019)	Acceptance different housing options was low	Ageing in place preferred				
Przybyla et al. (2019)		Ageing in place preferred				
Gibler & Tyvimaa (2015)			Strong place attachment			Extra space is used
Judd., Liu., Easthope & Bridge (2014).			Strong place attachment to neighbourhood/dwelling		Costs of moving	Due to retirement: office space and temporary rooms
Adair &Menyen, (2014).	The lack of appropriate housing			Take too much effort	Financial barriers	
Total obstacles:	4	3	3	3	3	3

Table 4 shows obstacles at different steps of the customer journey for seniors. They face difficulties in starting (being motivated) the customer journey due to insufficient housing options, unwillingness to move, financial concerns and a preference for larger living spaces. Moreover, difficulties in seeking information may lead seniors to leave the customer journey prematurely. Lack of knowledge about relocation support and financial implications also contribute to this (Cheshire & Forrest, 2021; Burgess & Quinio, 2020). In the evaluation and decision-making phase, seniors may realise that the new home is not suitable for their needs or face financial constraints. According to the literature, no obstacles are experienced in the satisfaction and post-decision stages. This study uses interviews with experts and seniors themselves to identify obstacles seniors face in their customer journey, taking into account the obstacles from literature.

Table 4: Obstacles in relation to customer journey

Customer journey	No supply of suitable dwellings	Desire to "Ageing in place"	Place attachment neighbourhood / dwelling	Inconvenience during relocation	Financial barriers	Extra space is welcome
Motivation	X	X	X	X	X	X
Information search	X	N/A	N/A	X	X	X
Evaluation	X	N/A	N/A	N/A	X	N/A
Decision	X	N/A	N/A	N/A	X	N/A
Satisfaction	N/A: no obstacles perceived in this step					
Post-decision sharing	N/A: no obstacles perceived in this step					

Note 1: "X" means that factor is involved in customer journey

2.5.1. Incentives

Incentives can contribute into more easily proceeding the customer journey. One of the most common incentives to relocate can come from unexpected life events, such as health problems or the loss of a partner (*pushed*) (Hrast et al. 2019; Chesfire & Forrest, 2021). Often it is a "forced" incentive because most of the seniors would like to stay in their own house. The increase in annual relocations by seniors aged 80 and over (Figure 2) seems to explain this claim. However, Forsyth et al. (2019) argue that needs and preferences of seniors in the third age can change rapidly due to health problems. This could indicate that seniors recognise that a relocation is inevitable because living alone at home is no longer possible. Another incentive to start the customer journey could be that vital seniors prefer a single-floor dwelling instead of climbing stairs every day to anticipate on getting older. According to Malone & Lepper (1987) a demand of "control" is a factor which is important of getting motivated. For example, seniors want to have control over themselves with regards to their own physical discomforts: e.g., desire to have less maintenance and climbing no stairs anymore. In addition, several other factors are important in regard of getting (intrinsic) motivated about a change: challenge, cooperation and competition, curiosity and recognition (Malone & Lepper, 1987). External factors such as "social others" / close relatives can also act as facilitators to get people motivated about a relocation (Hrast et al. 2019).

The *motivation* step is described in Hamilton's (2020) research by means of two different social others; proximal social others and distal social others. "Proximal" social others are individuals who provide valuable input and are able to influence the customer journey (McFerran et al. 2010). They are often close by and may belong to an important member of their circle of knowledge. "Distal" social others are often further away from the customer and may be, for example, a large group that is not personally acquainted with the customer. Customers may also be motivated to "purchase" something for societal benefits (Haws, Winterich & Naylor, 2014). An example could be to make a large house available to a family in order to stimulate residential mobility.

Information search is about using memory and the external environment to acquire information. Previous research by Friestad and Wright (1994) suggests that word-of-mouth advertising was long preferred to obtaining information from a company because it is more objective. Currently, customers are more likely to seek information from "distal" social others because of the large volume of anonymous reviews or references including personalized information and recommendations (Hamilton, 2020). Here, conclusions are drawn on rating from social media platforms, instead of explicitly offered information. However, close relatives are mentioned by Kahle and Close (2006) as another important source of information. An incentive for information search can also come from housing associations developing special "residential mobility" programs aimed at seniors. In this way, they can easily obtain information about relocation to a new home and ultimately live longer independently (Cheshire & Forrest, 2021; PBL, 2020)

Evaluation of a product can be difficult for a consumer. It is difficult to find the ideal product (e.g., alternative dwelling) that meets the customer's needs, as there are numerous factors that are considered in the consumer's decision-making process when making a purchase. According to Hamilton (2020), social others are influential and can be persuasive in the evaluation of information. In the case of the source of information, the appearance of the source is influential. Reinhard, Messner & Sporer (2006) states that a friendly person can be more persuasive since it is likeable that they do not have an ulterior motive, compared to their unfriendly counterparts. According to Hamilton (2020), customers rely on the general customer evaluation. It indicates that average positive reviews are more convincing than extremely positive reviews. In conclusion, a combination of distant and proximal influences can also be potentially powerful in influencing information evaluation.

The *decision* is a realisation of all the previous phases, because it takes into account all the social influences that one has had to deal with up to that point (Hamilton, 2020). Furthermore, a decision consists of 2 separate steps: "decide"; to prepare one's thought about what to buy and "purchase"; to buy

a product. Social others are influential in the *decision* step. Research shows that the physical presence of social others can influence customers; it can also be relevant at the time of purchase, as these individuals can provide valuable product information or reveal their own preferences. This lays in line with the reasoning that seniors should be assisted and have a feeling of social control during the consideration of relocation. Ultimately, social inputs are very important in this step of the customer journey compared to inputs provided in the pre-choice phase due to the proximal distance to the product (Hamilton, 2020).

Satisfaction after using the product can be influenced by social others. Compliments from someone about your new home can improve satisfaction with the choice. In addition, experiencing something in the presence of others can cause emotional attachment, with customers showing greater emotion than if they experienced the same thing on their own. This can then lead to either improved satisfaction or greater dissatisfaction (Ramanathan & McGill, 2007). Furthermore, social others influence the customer to create a complete experience about the product they have received (e.g., new dwelling). In addition, in joint journeys, the assessment of satisfaction can relate to both the outcome and the process: dissatisfaction with the process or even with other members of the journey can be reflected in the individual's level of satisfaction with the product or service (Hamilton, 2020).

The final step of Hamilton's model (2020) is *post-decision sharing*. A qualitative shift has taken place where customers can more easily share/review their experience through technological advances. The motives for sharing an experience can include social affiliation and identity signalling, which has motivated the entire customer journey (Hamilton, 2020). In addition, Ofir (2005) states that publishing a good review about the product contributes to reducing the uncertainty whether the product will be bought again. Customers are more likely to share an experience where they have a strong positive or negative thought about it. (Akhtar & Wheeler, 2016). Customers also share their experiences with others to create a sense of belonging.

Table 5 provides an overview of the incentives that may arise during the customer journey of relocating to a more suitable home. Existing research shows that seniors are often "forced" to relocate because of health problems or other unexpected events in their lives. In addition, changing needs of seniors in their third age can also persuade them to relocate. For example, a living environment that is comfortable, accessible and safe is more highly valued as people get older. Also, too much maintenance or in general a house that is too big can persuade seniors to relocate. Furthermore, people can be influenced by social others during the customer journey. These "social others" can be close relatives (proximal others) or people who do not belong to their inner circle (distal social others). Social benefits (e.g., freeing up a large home for a family) can also be an incentive for seniors to relocate. Furthermore, advertising the benefits of relocating and presenting the relocation programs themselves can also help to make seniors enthusiastic about considering relocating. Finally, personal guidance in the customer journey can encourage seniors to go through the steps in the customer journey more easily. It appears that changing needs of seniors play a major role in considering moving (5 times). Secondly, "forced" relocation due to unexpected life events is also mentioned often (4 times). The other incentives are seen less: stimulated by social others (2 times), social benefits (once), advertising (2 times), the presence of relocation programs (2 times) and personal guidance through the customer journey (once).

Table 5: Summary incentives perceived by seniors

Incentives Paper	Forced relocation: un-expected live events	Changing needs[5] in third age & dissatisfaction	Influence of social others; proximal and distal others	Societal benefits	Advertising /review about relocation programs	Relocation programs to incentivise seniors	Personal guidance in customer journey
Cheshire & Forrest (2021)	Seniors downsizes when partner is ill or passed away	Dwelling too large or difficult to maintain				Downsize programs aimed at seniors	
Ossokina & Arentze (2020)		Changing needs can lead to downsizing					
Hamilton (2020)			Social others are influential in customer journey		Reviews are influential in customer journey		Personal guidance during customer journey
PBL (2020)	Health problems may persuade seniors in considering relocation					Housing concepts to live longer independently	
Hrast et al. (2019)	Increase health needs & loss of partner, no care facilities	Social benefits more convenient dwelling	Relatives are facilitators in a possible relocation				
Forsyth et al. (2019)	Health problems persuade seniors in relocation	Needs of seniors in third age can change rapidly					
Malone & Lepper (1987)		Sense of "control" (and more factors) can incentivise seniors					
Haws, Winterich & Naylor 2014				Purchase for societal benefit			
Akhtar & Wheeler (2016)					Sharing experience may lead to social affiliation and identity signalling		
Total incentives:	**4**	**5**	**2**	**1**	**2**	**2**	**1**

Table 6 shows the relationship between incentives and steps in the customer journey. The most common "incentive" for seniors to start the customer journey is because of unexpected live events. In addition, literature shows that people's needs change as they grow older: unsatisfied with their own home (e.g., stairs are difficult, too large or a lot of maintenance) or the neighbourhood is no longer perceived as suitable. It turns out that "social others" such as families / close relatives can influence the choices made throughout the customer journey. Furthermore, it appears that seniors can be stimulated to start due to societal benefits which are associated with relocation programs and because personal guidance is given by the HAs throughout the customer journey. In terms of information provision, unsatisfied tenants with their current dwelling may seek information about a new home. In addition, social others (e.g., HA) can present information about new relocation options or give information about other tenants who have made the step throughout a relocation program. Finally, personal guidance plays a role in the search for a new home. The evaluation step corresponds to the provision of information which means that the same incentives are influential. Seniors often make their own decisions; however, their inner circle can still influence. The relocation benefits can also influence the final choice. The last two steps satisfaction and post-decision sharing have less influence. Social others are again influential in the sense that tenants share their experience. Seeing like-minded people who have made the same choice can also influence their own satisfaction and willingness to share their experience.

Table 6: Incentives in relation to customer journey

Customer journey	Forced relocation: unexpected live events	Changing needs in third age & dissatisfaction	Influence of social- others; proximal and distal others	Societal benefits	Advertising /review about relocation programs	Relocation programs to incentivise seniors	Personal guidance in customer journey
Motivation	X	X	X	X	X	X	X
Information search	N/A	X	X	N/A	X	X	X
Evaluation	N/A	X	X	N/A	X	X	X
Decision	N/A	X	X	N/A	N/A	X	X
Satisfaction	N/A	N/A	X	N/A	N/A	N/A	N/A
Post-decision sharing	N/A	N/A	X	N/A	X	N/A	N/A

Note 2: "X" means that factor is involved in customer journey

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[5] Changing needs are broadly interpreted in this regard: 1: comfort, accessibility and safety, 2: a desire to live smaller (downsizing) and 3: facilities where other people can be met (Arentze & Ossokina, 2020)

2.6. Improving participation in relocation programs

Participation is a frequently studied topic in the literature. Participation is relevant in many sectors, such as health care or housing. In the case of this research, participation by seniors There are different definitions for "participation". According to Dedding & Slager (2013) participation is a situational and interactive process in which stakeholders (e.g., housing associations and tenants) in policy and research are in dialogue with each other, doing justice to the experiences, knowledge and competences of all actors involved. Emphasis is placed on those stakeholders whose lives and bodies are at stake (e.g., seniors who can no longer live independently in a dwelling). Furthermore, it emerges, especially in the health-care sector, that the aim here is to improve the quality of care and to create a more inclusive society (Dedding & Slager, 2013). In the context of this study, the aim is to improve participation of housing providers in stimulating seniors in their decision making process by offering a relocation program. Using a relocation program could help for seniors in relocating towards a home that meets their needs.

To improve the success rate of relocation programs for seniors, it is important to involve them in the decision-making process. Seniors who actively participate – loosely defined as involvement in the process of relocation using relocation programs - in the process of relocation are more likely to be satisfied with their new home and to have their wishes and requirements met. Vulnerable seniors, in particular, may benefit from active participation as they are more likely to experience "pushed" relocation. Housing providers have an important role in convincing potential future residents to relocate to an dwelling in a more age-friendly environment, and involving seniors in the decision-making process is essential to creating such environments. The World Health Organization (2016) emphasizes the importance of involving seniors in new housing initiatives to ensure age-friendly environments are created. Therefore, it is crucial to understand how to collaborate with seniors who are willing to relocate.

Research has shown that seniors from various generations have different preferences and needs when it comes to a participation process. Older seniors are generally less active to create social change, compared to (young) seniors who are often more eager to participate actively and work together (Groot & Abma, 2018). This might imply that the approach for a participatory process with seniors towards a more suitable, smaller home is different for each person. Also, since seniors have different ideas about goals, tasks and responsibilities, misunderstandings can occur which results in disappointments or conflicts (Montreuil, Martineau & Racine, 2019).

According to Tavy et al. (2022) differences in wishes and preferences can be accounted for when seniors are actively involved during participatory activities that relate to their new housing. In addition, by giving sufficient feedback about the process can help in facilitating a good participation process (van Hoof et al. 2021). When developing new housing initiatives, it is important to take several factors into account since the context can have influence on the participation process (Tavy et al. 2022). First of all, seniors are involved in the type of home in which they will live by themselves. Secondly, the group of participants has their own dynamics. Finally, third age needs (e.g., extra care need) of seniors are coming into play which can have influence on the outcome.

2.7. Conclusion

It turns out that comfort, accessibility, safety, downsizing house and access to shared facilities are particularly important for seniors as they age. Secondly, factors that influence seniors to relocate to a home (push and pull factors) that meets their needs are described. It turns out that this is often the result of dissatisfaction with the house, location and facilities. At the same time, reasons why seniors prefer to stay in their current home have also been briefly explored. It turns out that the majority of seniors wants to age in place (e.g., because of place attachment). In order to stimulate residential mobility of seniors, research has been done into current relocation initiatives. It turns out that emphasis should be laid on

relocation initiatives that take into account fit and vital seniors who are willing to relocate to a home that meets their third age needs. In addition, familiarisation with these initiatives should be improved.

This research uses a conceptual framework of a customer journey in which a relocation of an individual can be placed. In order to understand how a customer journey should look like, a fictitious situation of someone relocating was identified in section 2.4. Because relocation numbers among seniors are low (CBS, n.d.), *obstacles* for seniors not to relocate have been identified, as well as the step in which these obstacles fall during the customer journey. It turns out that seniors want to 1) age in place, 2) have a feeling of unsuitable supply, 3) have a strong place attachment, 4) are afraid of financial consequences and 5) moving takes too much effort. In addition, incentives have been identified in the literature that can enhance the process of the customer journey. The obstacles and incentives in relation to the customer journey are particularly important to use as discussion material in interviews.

Active participation between housing providers and seniors can help ensure that seniors are satisfied with their new home and that their wishes and requirements are met. It is important to actively stimulate seniors by showing the benefits of using relocation programs. Seniors have different housing needs. Therefore, it is important to account for these differences. Feedback and understanding the context of the participation process are also essential to facilitate a successful participation process. Overall, by involving seniors in the decision-making process, housing providers can tailor the programs towards their needs help to increase the residential mobility of seniors.

3. Relocation programs and interviews

This chapter examines the impact of relocation programs on the customer journey, benefits of such programs, and obstacles and incentives identified through expert interviews. The interviews aimed to align these factors with the literature and identify any additional factors. These insights will be used in designing an experiment discussed in chapter 6. Seniors who had used a relocation program were interviewed to gather their experiences and factors influencing their decision. Finally, the role of participation in collaboration with housing associations was discussed.

3.1.   Existing relocation programs to stimulate customer journey

This section presents four examples of relocation programs initiated and implemented by housing associations and municipalities in the Randstad area of the Netherlands. The purpose behind the establishment of these programs within the social housing sector is explained, as well as the requirements and potential advantages in using them.

1)   Van Groot naar Beter (VGNB) (From Large to Better)

VGNB is initiated by the municipality of Amsterdam and carried out by many housing associations in Amsterdam (Gemeente Amsterdam, n.d.). The aim of this program is to encourage tenants who live in a dwelling with at least 70 m^2 and 4 or more rooms to relocate to a smaller, more suitable home. Seniors can apply for relocation to a home that has not more than 60 m^2 of living space or it has a "senior" label. The benefit is a one-time subsidy amount depending on the number of rooms the tenant leaves behind. This amount varies from 4000 to 6500 euros. Evaluation of the program (Groot, Koopman, & Bes, 2019) has shown that this initiative has had a limited effect on the number of relocations among seniors. This has mainly to do with unfamiliarity since the program is often not known and the benefits are not clear. An example is housing association Rochdale. Here, due to personnel capacity problems this program is not proactively addressed among seniors; they have to consult the website themselves. This means that relocation numbers can be increased if supervisors are more pro-actively involved in participation with seniors. Ultimately, this could increase the familiarity and success rate of this program.

2)   Doorstroomregeling senioren Zaanstreek Waterland (Relocation program seniors)

The "Doorstroomregeling senioren Zaanstreek Waterland" (residential mobility program seniors Zaanstreek Waterland) is a sub-program of "langer thuis" which is an overarching policy program initiated by the Ministry of Health, Welfare and Sport. In this program, several sub-programs have been initiated that not only focus "ageing in place" but also look at relocation in a suitable way (Taskforce wonen en zorg, 2021). This sub-program is initiated by 8 municipalities within the region Zaanstreek-Waterland in province North-Holland of the Netherlands. This program has a lot of benefits for seniors: tenant receives priority[6] for the specific designated "residential mobility" dwellings, the current rent is maintained, a financial relocation contribution of 1,000 euros and tenants receive guidance in their search for a new home (VNG, 2021). The aim of this program is to encourage seniors via a regional approach to remove obstacles in relocating to a more suitable dwelling (VNG, 2021). The success rate is not known since this program has not yet been evaluated.

3)   Rochdale doorstroomregeling (Rochdale relocation program)

This program, initiated by Rochdale, helps tenants find a more suitable and smaller dwelling. If tenants exchange their large dwelling (minimum of 70 m2 or 4 rooms) for a smaller home, they receive relocation benefits. To qualify, households should have a maximum of 3 persons, an income that's not

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[6] Seniors with at least one household member aged 65 or above are given priority in housing designated as "senior" dwellings. Priority is given to seniors because of long waiting times for dwellings.

too high, and the tenant should be registered by Woningnet. Seniors keep their current rent. However, seniors may not be familiar with the program, which may hinder its use. Currently, seniors need to proactively apply, and resident supervisors may not have enough time to inform them about the program.

4) Wooncoach sociale huur + woonlastengewenning (residential coach for social housing + cost of living adjustment)

Due to the housing market in Amersfoort being "locked in" and to stimulate residential mobility, several relocation programs for seniors in the municipality of Amersfoort have been initiated by housing associations "de Alliantie", "Omnia" and "Portaal" (leef3.nu, 2021). One of these programs is "Wooncoach sociale huur + woonlastengewenning". People aged 55 or above who would like to relocate can receive help from a residential coach who discusses their wishes during a home visit and provides support in finding a suitable home and everything that is involved in a possible relocation (leef3.nu, 2021). In special cases, a "residential coach" can provide extra support in finding a customized solution. In addition, tenants can get cost of living adjustment: whenever the new rent is more than 50 euro higher each month compared to their previous rent, they receive a yearly discount[7]. In addition, tenants can also claim a subsidy of 750 euro. According to discussions with a residential coach from housing association "de Alliantie", seniors are often concerned about financial consequences when relocating. In addition, tenants often expect extensive guidance through their journey in finding a new dwelling, however housing association "de Alliantie" is not always able to provide this.

Discussion

The described programs aim to encourage seniors' residential mobility in the municipality. Platform 31 (2021) notes that while relocation initiatives share similarities, they also have differences in approach and may not seamlessly connect. Success is not guaranteed, and customization is necessary as every tenant is unique. Customization can involve collaboration between market parties, local authorities, and foundations. The programs' characteristics can help analyse their impact on the customer journey, allowing targeted interventions in the appropriate step of the journey to determine where emphasis is needed when creating new programs. Table 7 shows benefits for seniors in each program.

Table 7: Benefits for seniors by relocation program

Relocation program	Benefits for seniors
Van Groot naar Beter (VGNB) (From Large to Better)	- One-time relocation subsidy (4000-6500 euro) depending on number of rooms
Doorstroomregeling senioren Zaanstreek Waterland (Relocation program seniors)	- Priority status in looking for a new (senior) home - Rent is maintained - One-time relocation subsidy of 1000 euro - Guidance in search for new home
Rochdale doorstroomregeling (relocation program)	- Rent is maintained
Wooncoach sociale huur + cost of living adjustment (Residential coach social rent)	- Guidance from residential coach in searching for new home - Cost of living adjustment - One-time relocation subsidy of 750 euro

With regards to *motivation,* the first 3 programs are aimed at creating awareness among seniors: in terms of financial incentives the current rent can often be kept the same or the rental price is sometimes gradually increased throughout the years of rental and removal allowance is given based on the number of bedrooms. Since seniors are often not starting the journey because of possible financial consequences, this incentive is valuable for seniors.

With regards to *information search* seniors can seek for information about relocation programs by using media channels (newspaper, website, leaflets etc.). Secondly, some of the existing relocation programs

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[7] If the rent of the dwelling is 50 euros or more, the tenant receives a discount on the new rent for three years

are more actively engaged in providing (personal) information. For example, program 4 discusses the wishes and preferences of seniors in finding an alternative dwelling. In special cases, customed information may be needed. In addition, the first three programs are more reactive and do not always provide personal guidance in the information search. This more re-active approach is often due to a lack of personnel capacity. Here, information is only placed on the website.

Insights about program 1 and 3 related to *evaluation* have shown that seniors mainly have to make their own decision about relocating. It is also indicated that seniors can apply for housing from different HA's, however, they have to evaluate the options by their own due to a lack of personnel capacity. Nevertheless, programs 1 and 3 show that, when seniors clarify their wishes, they can play a role in helping them finding a new home. It is not known whether program 2 is committed to this step, but it appears from information about this program that seniors themselves have to carry out the evaluation process. Program 3 contacts tenants who had initially signed up for a relocation program to see if they are still interested in alternative housing. They are then asked if the person has any questions or needs help in evaluation the dwelling.

It is not known whether programs are actively engaged in the *decision, satisfaction,* and *post-decision sharing* step of the customer journey. Based on these insights it is clear that most relocation programs put emphasis on the *motivation* and *information search* step. The programs place little or no emphasis on a thorough evaluation process, making the final decision together and the steps after buying the product (post-decision steps). Table 8 visualizes the influence of relocation programs on the customer journey. The colours indicate the degree of influence. Especially in the motivation step and the information search step, there is an influence from the housing association. However, not all perceived obstacles by seniors in the literature can be eliminated. In the motivation step, seniors can be motivated by a financial incentive. In the information search step, the programs use a reactive approach; information is provided by media channels. Program 4 distinguishes itself by starting a conversation with interested tenants. In the other three steps, there is little or no influence from the housing association. At most, housing associations call interested tenants to ask how the process is going.

Table 8: Influence of existing relocation programs on customer journey

Relocation program	Customer journey					
	Motivation	Information search	Evaluation	Decision	Satisfaction	Post-decision sharing
(VGNB) (From Large to Better)	Current rent will be kept the same + one-off subsidy based on current rooms	Media channels (e.g., website) are available for seniors	Seniors have to look by their own where they would like to live	Tenant makes their own "purchase"	Sometimes HA calls tenant to talk about their (dis)satisfaction	Asks tenants who used a program to share their experience
Doorstroomregeling senioren Zaanstreek Waterland (Relocation program seniors)	Current rent will be kept the same + one-off subsidy of 1000 euro's	Media channels (e.g., website) are available for seniors	No influence of program	Tenant makes their own "purchase"	Not known	Not known
Rochdale doorstroomregeling (relocation program)	Current rent will be kept the same	Media channels (e.g., website) are available for seniors	Have to look for themselves where they would like to live; contacts seniors who were interested	Tenant makes their own "purchase"	Sometimes HA calls tenant to talk about their (dis)satisfaction	Asks tenants who used a program to share their experience
Wooncoach sociale huur + cost of living adjustment (Residential coach social rent)	Cost of living adjustment + one-off subsidy of 750 euro's	Media channels are available for seniors. Discusses wishes and preferences of seniors	Not always available to provide extra guidance during evaluation phase	Tenant makes their own "purchase"	Sometimes HA calls tenant to talk about their (dis)satisfaction	Not known

Note: The colours represent the degree of influence the program has on the customer journey for seniors

■ *program highly involved,* □ *program involved,* □ *program little involved,* ■ *program not involved / not known*

The following section describes findings from expert interviews and interviews with seniors regarding the rationale for implementing relocation programs and provides insights into what factors (obstacles

and incentives) arise during the customer journey for seniors. Insights from current relocation programs and factors from the literature form the basis for the interviews.

3.2. Interviews with experts and seniors

Rowley (2012) states that interviews are used to collect facts and gain insights into experiences, opinions, attitudes, processes, behaviours, or predictions. In this research, interviews were conducted to understand why housing associations use programs to stimulate residential mobility of seniors, and to identify obstacles and incentives that seniors may encounter during the customer journey. These factors were assessed based on the literature and supplemented with new factors from the respondents' own experiences. Respondents were carefully selected based on their relevance to residential mobility of seniors and most were actively involved in the application of relocation initiatives. Other incentives were also discussed that can trigger seniors to choose a new home. Finally, interviews were conducted to understand the role of participation in facilitating the customer journey and stimulating residential mobility among seniors.

Table 9 lists the experts who were interviewed for this study. For the interview, "experts" are defined as people who are actively engaged in the implementation of relocation programs and are in close contact with seniors who could potentially use them. Respondents have affinity with the relocation topic in various forms. Some are active at the strategic level, and other experts are practically involved in implementing relocation programs. Relevant information such as position of respondent, organisation, type of position and reason why this interview took place are described.

In this study, the aim was to conduct focus group interviews in which several seniors were interviewed at the same time. Normally, group interviews take place in sizes of 5 to 10 people although there are also exceptions up to 25 people (Verhoeven, 2018). This type is characterised by the fact that one single topic is addressed (Swanborn, 2010). The characteristic of a focus group interview is that respondents are more likely to share information based on interaction with other like-minded people (Van Selm, 2007). For this research, focus group interviews were not conducted due to practical implications. The goal was to get seniors to participate in three focus group sessions, where about 5 seniors at a time could share their experience of using a relocation program (aim 15 seniors total). Due to practical infeasibility, only three households (5 seniors in total) have been interviewed, shown in table 10.

Table 9: List of expert interviews

Interview	Date of interview	Organization	Type of organization	Job title	Reasoning
Respondent 1	13-01-2022	Rochdale	Housing association	Advice & residential service	Participates in relocation programs
Respondent 2	17-02-2022	Rochdale	Housing association	Resident supervisor	Participates in relocation programs
Respondent 3	23-02-2022	Municipality of Amersfoort	Municipality	Advisor residential	Participates in relocation programs
Respondent 4	04-03-2022	De Alliantie	Housing association	Resident supervisor	Participates in relocation programs
Respondent 5	13-04-2022	Woonzorg NL	Housing association	Advisor Strategy & Innovation |	Participates in relocation programs
Respondent 6	09-06-2022	De Key	Housing association	Advice & residential service	Participates in relocation programs
Respondent 7	09-06-2022	AM	Real estate developer	Development manager	Develops senior housing concepts

Table 10: List of interviews with seniors

Household 1 (2 seniors)	18-05-2022	Rochdale	N/A	N/A	Relocated through relocation program
Household 2 (1 senior)	01-06-2022	De Alliantie	N/A	N/A	Relocated through relocation program
Household 3 (2 seniors)	04-07-2022	Rochdale	N/A	N/A	Relocated through relocation program

Interview design – experts

Table 11 gives an overview of the questions asked during the 7 interviews. For the purpose of this study, a semi-structured interview was used. This type of interview allows for targeted questions (open and closed questions), but also for further questions on specific subjects when more clarification of an answer is needed (Verhoeven, 2018). In addition, a semi-structured interview can have different forms and a varying degree of adaptation to accommodate the respondent (Rowley, 2012).

The interview begins with two general questions to understand the motive behind seniors' residential mobility. Second, current advantages and disadvantages in using relocation programs were explored. After this, the set-up of the interview was based on the customer journey to an alternative home, consisting of the six steps as described earlier. The aim here was to explore to what extent housing associations are involved during the customer journey but also what obstacles & incentives are identified per step in the customer journey.

Table 11: Overview interview questions with experts

Topic	Question
Relocation programs	1. What is the reason to be concerned with relocating seniors? 2. What are advantages and disadvantages of relocation programs?
Motivation	3. How do you think seniors are motivated by relocation programs? 4. How do you judge these obstacles and incentives from the literature in relation to motivation; are there any missing factors from practical experience with relocation programs? 5. What role does physical- and mental health play in the motivation of seniors to participate in a relocation program?
Information search	6. How does organization X provide good information for seniors? 7. How do you assess these obstacles and incentives from the literature in relation to information provision; are there any missing factors from practical experience with relocation programs? 8. What role does physical- and mental health play in the provision of information for seniors?
Evaluation:	9. How does organization X contribute to a good evaluation process for seniors? 10. How do you assess these obstacles and incentives from literature in relation to evaluation; are there any missing factors from practical experience with relocation programs? 11. What role does physical- and mental health play in the evaluation process for an older person?
Decision	12. To what extent do you think that the preceding steps influence the actual decision? 13. How do you assess these obstacles and incentives in the literature in relation to the decision; are there any missing factors from practical experience with relocation programs?
Satisfaction	14. To what extent do tenants of a new home indicate whether they are satisfied over time? 15. Do you feel that positive experiences can influence seniors to sign up for relocation programs?
Post-decision sharing	16. Do you think that sharing experiences can contribute in more seniors applying for relocation programs?

Interview design – seniors

In essence, interviews with seniors are complementary to the expert interviews, but from a different perspective. Again, it is important to understand the *obstacles* and *incentives* that seniors experienced in the customer journey or why it did not work out as planned. In addition, this research looked at what role participation played in the relocation process. Table 12 shows the questions which were asked during interviews with seniors. Based on the customer journey, several questions have been asked that are related to the specific step in the customer journey (e.g., motivation).

Topic	Question

Motivation	1. What was your motivation to make use of a relocation program?
	2. Had you been convinced for some time to relocate to more suitable dwelling?
	    a. If not, which obstacles were there to not relocate yet?
	3. What was the main motive for you to choose for a relocation program?
	    a. Are there also social motives to relocate? (e.g., making housing available to family?)

Information search	4. Did you think there was enough information about how to use a relocation program? 5. In your opinion, was there sufficient participation with the housing association in the search for a new home? 6. Are there any improvements in the provision of information?
Evaluation:	7. Did you need assistance from the housing association in evaluating a new home? 8. Did you feel there were enough options to relocate? 9. Could housing association X take a more active role during the evaluation process?
Decision	10. Did you need a lot of time in making the final decision? 11. Did active cooperation with housing association X make it easier to make a choice?
Satisfaction	12. How do you look back on the relocation, are you satisfied? 13. Are there any points for improvement in the relocation process?
Post-decision sharing	14. what are the advantages and disadvantages of using a relocation program by your opinion?
Additional	15. Do you consider the following factors (attributes) important when relocating?

Outcome interviews

This section discusses the outcomes of the expert interviews and the interviews with seniors. The factors from the literature were discussed in the interviews and related to new factors that emerged from the interviews. In this way, it becomes clear which factors from the literature are identified by experts and seniors and which new factors are seen as supplementary.

The outcome of this part relates to the first two questions, shown in table 12. It turns out that relocation programs are mainly applied by housing associations and local authorities because of 1) housing shortage, 2) long waiting lists for social dwellings, 3) rising prices and 4) underoccupancy of larger dwellings. For example, a lot of young families are currently living in too small dwellings. In contrary, a lot of empty nesters live in dwellings which have too many bedrooms for their needs. It also emerged that some seniors experience physical problems as they grow older (e.g., unable to climb stairs); housing associations want to offer their tenants a place to live where they can live comfortably and independently.

The advantages of using relocation programs are diverse. Seniors can often 1) keep their current rent and are sometimes entitled to a 2) relocation allowance. Tenants also regularly have 3) priority when choosing a new home with a "senior label". The municipality of Amersfoort also indicates that seniors receive 4) information regarding the alternative housing options. In addition, seniors can live in a home that 5) meets their wishes and needs (e.g., single floor apartment). In addition, Housing Association: "De Alliantie" also endorses the societal benefits; many homes have become vacant through the application of a relocation program.

Dis have also been identified. Relocation programs are 1) often focused on their own municipality; a program can only be applied in their own municipality. 2) the conditions are also different (what is the minimum size of a house required to qualify?) and 3) it is not always clear where the responsibility lies (housing association or municipality). Furthermore, the programs can be 4) too technical for seniors (e.g., not able to find information with computer) and 5) there is not always capacity at housing associations to create awareness among seniors in using these programs. Furthermore, people over 55 (empty nesters) would sometimes like to take part in the programs, but these programs sometimes start from age 60/65+. Therefore, it is not always 6) tailored. Another disadvantage is that the new home may have 7) a maximum of 3 rooms and some seniors would like to have more bedrooms. Finally, 8) place attachment is important; tenants find leaving behind their home where they have made many memories

difficult. In addition, having less space is also seen as something difficult; sometimes seniors have to dispose some of their belongings due to a lack of space.

Obstacles from interviews related to literature

The outcome of this part relate to questions 3-16, shown in table 12. Table 13 presents customer journey *motivation* step. Four obstacles emerged from expert interviews: 1) High place attachment, 2) financial barriers, 3) poor comfort and 4) loss of space. First, it appears that seniors like to live in their own neighbourhood, where they have lived for years and built up their social circle, and being close to daily facilities. In the area of financial barriers, some tenants are afraid of rent increase or possible repair costs when the dwelling has to be restored to its original state. Thirdly, poor comfort manifests itself in people being not registered with housing system: Woningnet and therefore cannot apply for alternative housing, seniors see the relocation as inconvenience and sometimes seniors have to look for new facilities which could be experienced as unpleasant. Finally, seniors are sometimes afraid to lose their current space since they have a lot of belongings.

It appears that there are many similarities between literature and field research: place attachment is also an obstacle perceived from literature; people often would like to stay in their own neighbourhood close to daily facilities. In addition, similar to expert interviews, tenants sometimes are afraid of the costs from relocating and financial consequences related to the actual relocation (financial barriers). Furthermore, comfort has similarities with the literature; the actual relocation is seen as inconvenience because it takes too much effort at older age. Finally, some people do not want to lose space since they often like to have more than 1 bedroom, space for temporary accommodation or just extra space because retirement period influences the amount of time being at home. The reasoning by seniors in terms of extra space corresponds to the literature. Following obstacles are supplementary: 1) Inconvenience of not being registered in the housing system: Woningnet, 2) repair costs involved with relocation and 3) getting rid of belongings.

Table 13 Obstacles from the literature in the *motivation* step of the customer journey related to interviews

Customer journey: Motivation					
Feeling of no suitable housing	Ageing in place preferred over relocation	High place attachment to current dwelling or neighbourhood	Lack of comfort related to relocation	Financial barriers involved with relocation	Seniors afraid of losing their current space
The feeling of unsuitable alternative dwellings (Chesfire & forrest (2021); Burgess & Quinio (2020)	Preference to age in place compared to relocation. (Chesfire & forrest, 2021); Hrast et al. (2019); Przybyla et al. (2019	Staying in own area and have a strong attachment to their place and home (Chesfire & Forrest, 2021); Gibler & Tyvimaa (2015); Judd et al. (2014)	Difficulty to relocate in later live since it takes too much effort (Chesfire & Forrest, 2021); Burgess & Quinio (2020); Adair & Menyen (2014)	Possible costs of relocating and financial barriers Chesfire & Forrest, 2021); Judd et al. (2014); Adair & Menyen (2014)	Demand of multiple bedrooms or keeping their current space because of their retirement period (more time) (Chesfire & Forrest, 2021; Gibler & Tyvimaa (2015); Judd et al. (2014)
Obstacles have been supported in expert interviews	*Obstacles have been supported in expert interviews*	*Obstacles have been supported in expert interviews*	*Obstacles have been supported in expert interviews*	Afraid of rent increase (expert interviews)	Disposing some belongings due to reduce space (interview with seniors)
			No registration with Woningnet (expert interviews)	Repair costs involved with relocation (expert interviews)	

Table 14 presents the: *information search* step in the customer journey. Four obstacles emerged from expert interviews: 1) unsuitable supply, 2) poor information provision, 3) lack of comfort and 4) lack of personal guidance. Differences in preferences in supply manifest themselves in someone wanting a storage room, other people want a property with a lift or without thresholds, or someone wants a garden or a balcony. Secondly, looking for information can be difficult: information is in different places, often digital or without a central point, since HA's do this in several different ways. For example, you have to search for a house digitally via Woningnet and you have to find all the information digitally about the relocation programs. Thirdly, it appears that HAs not always work together and that the wishes of seniors are not always clear. In addition, not being able to find information about the actual relocation is experienced as an inconvenience; seniors do not know if support is available. Fourthly, lack of personal

guidance is difficult for seniors who needs help to actually start thinking about it; they often don't know how to begin or how to search.

Some similarities between literature and interviews are observed. The obstacle related to unsuitable supply is frequently mentioned in the literature. A lot of tenants do have different wishes regarding a new dwelling. This means that it is very likely that some aspects of the provided dwellings are not meeting their wishes. Just as conversations with experts, suitable supply is a very important aspect in the information search step. In addition, 2) inconvenience (lack of comfort) of relocating at an older age has, just as in literature, been identified by discussions with seniors as difficult. Following obstacles are supplementary: lack of personal guidance between HA's and poor information provision.

Table 14: Obstacles from the literature in the *information search* step of the customer journey related to interviews

Customer journey: Information search					
No suitable supply according to information provision	Lack of comfort related to relocation	Financial barriers involved with relocation	Seniors afraid of losing their current space	Poor information provision (added from expert interviews)	Lack of personal guidance (added from expert interviews)
The Acceptance of different housing options is low (Hrast et al, 2019); Adair & Menyen (2014)	Relocation takes too much effort at later life (Chesfire & Forrest, 2021); Burgess & Quinio (2020); Adair & Menyen (2014)	Actual costs of relocating and financial barriers Chesfire & Forrest, 2021); Judd et al. (2014); Adair & Menyen (2014)	Wish of 1+ bedrooms or keeping current space because of retirement period (Chesfire & Forrest, 2021); Gibler & Tyvimaa (2015); Judd et al. (2014)	Information provision is not given in a "central place" and HA's approach information provision in different way. Seniors lose overview	Seniors do not know how to start or look for information related to a new dwelling
Wishes of seniors are very diverse (interviews with experts)	Relocating takes a lot of effort (discussions with seniors)				
	HA's do not always work with each other (expert interviews)				

Table 15 presents customer journey *evaluation* step. One obstacle emerged from expert interviews: 1) lack of personal guidance. This shows that it is difficult for seniors to perform many actions before the evaluation process can begin. In addition, it is indicated that a joint evaluation with a HA is often not practical: tenants often know their desired living place and a lack of personal relationship between HA and the tenant makes it even more difficult. Therefore, seniors and their close relatives are better able to assess a new place to live. Furthermore, HAs are not yet actively involved in the evaluation step; only the wish is inventoried, but when it is indicated that the tenant is not able to search- and evaluate the dwelling, support is sometimes given. Other HAs indicate that some tenants expect too much; they would like to be relieved in their search and evaluation of a new home, which can make the process more difficult. Comparing literature to incentives from interviews, it appears that there are no similarities. However, the obstacle lack of personal guidance is supplementary.

Table 15: Obstacles from the literature in the *Evaluation* step of the customer journey related to interviews

Customer journey: Evaluation		
No suitable supply according to information provision	Financial barriers involved with relocation	Lack of personal guidance (added from expert interview)
After evaluation: possibility that acceptance of different housing options is still low (Hrast et al, 2019); Adair & Menyen (2014)	Costs of relocating and financial barriers could still be an obstacle after the evaluation Chesfire & Forrest, 2021); Judd et al. (2014); Adair & Menyen (2014)	1) HAs are not actively engaged in evaluation step. 2) seniors have to make the decision themselves. 3) some tenants expect too much from HA's (expert interview)

Table 16 presents customer journey *decision* step. One factor emerged: 1) lack of personal guidance. As in the evaluation step, it is stated that tenants must ultimately make their own decision of where to live and in which house. When literature is related to the obstacles from interviews, it appears that there are no similarities. However, the obstacle lack of personal guidance is supplementary.

Table 16: Obstacles from the literature in the *Decision* step of the customer journey related to interviews

Customer journey: Decision		
No suitable supply according to information provision	Financial barriers involved with relocation	Lack of personal guidance (added from expert interview)
Acceptance of different housing options is still low and therefore decision to not relocate could occur (Hrast et al, 2019); Adair & Menyen (2014)	Costs of relocating and financial barriers could still be an obstacle to ultimately not decide to relocate Chesfire & Forrest, 2021); Judd et al. (2014); Adair & Menyen (2014)	Help from the HA's has little effect; seniors know best where (in which neighbourhood) they would like to live. 2) Seniors ultimately take the decision themselves

The steps *satisfaction* and *post-decision sharing* step were not discussed during the interviews due to practical reasons, but it can be noted that the steps after the actual decision are less important as seniors have already relocated.

Incentives from interviews related to literature

Incentives can play a role in starting the customer journey for tenants who are looking for a new home. HAs believe that many seniors are not really interested in relocating to a new home. Seniors who are pro-active sometimes contact the HA to help them look for a new home. On the other hand, there are also tenants who do want to relocate, but who sometimes cannot read or are illiterate. In addition to being proactive tenants, HAs can also play a more active role, such as actively contacting tenants to discuss relocation options. For example, if a dwelling is in need of maintenance, they can discuss an alternative new home that does not require renovation. Another important aspect here is creating awareness. However, when the tenant is aware, it often takes them a long time to actually process the information and think about starting the customer journey.

Table 17 presents customer journey *motivation* step. Five factors emerged from expert interviews: 1) changing needs, 2) personal guidance, 3) financial benefits, 4) societal benefits, and influence of 5) social others. Seniors can start the customer journey by a shared, community-based living environment with like-minded people (changing needs) or to live closer to their children. Here, seniors can meet, support and undertake activities together. Secondly, changing needs can happen on building level: seniors might want to have a single-floor apartment without stairs, or at least two bedrooms. Furthermore, having a garden instead of a balcony and having the bathroom at the same level as their bedroom is also desired (interviews) Secondly, actively presenting the advantages of relocation options by HAs and propose a custom-made program (personal guidance) can motivate seniors. In addition, some seniors would also like to have a priority status in Woningnet so that they are more quickly selected for suitable alternative dwellings. Thirdly, some seniors also find it attractive if they can take their existing rent with them, relocate to a dwelling with lower energy costs or receiving a relocation allowance and free registration at Woningnet when relocating. Fourthly, when seniors make their homes available, the current home is used with regards to social benefits (e.g., family) (social benefit). Finally, social others can play a role since they often have more influence than HAs themselves.

Comparing literature to incentives from interviews, it appears that there are some similarities. First of all, changing needs appears in both literature study as well as the interviews. From literature, it appears that some tenants are downsizing because of too much maintenance or because seniors want to live in a community which is more socially oriented and in alignment with their third age needs. In addition, seniors can be incentivised when societal benefits are reached (e.g., freeing up dwelling for a family) or receiving proper personal guidance throughout the customer journey. This was both mentioned in literature as well as interviews. Financial incentive occurred as a new incentive in the interviews. It appears that seniors could get motivated if they know that their current rent will remain the same or by getting a financial subsidy.

Customer journey: Motivation							
Forced relocation: un-expected live events lead to relocation	**Changing needs in third age & dissatisfaction with dwelling or location**	**Influence of social others; proximal and distal others**	**Societal benefits involved with relocation**	**Advertising / reviews about relocation programs**	**Relocation programs to incentivise seniors**	**Good personal guidance in customer journey**	**Financial incentive to relocate**
Relocation is more triggered when health problems occur in household (Cheshire & Forrest, 2021); PBL, (2020); Hrast et al. (2019); Forsyth et al. (2019)	Changing needs can lead to relocation and downsizing (Ossokina & Arentze, 2020); Forsyth et al. (2019); Malone & Lepper, (1987) *incentives have been supported in interviews*	social others are influential in customer journey (Hamilton, 2020); Hrast et al. (2019)	Purchase something for societal benefit (e.g., freeing up dwelling for family) (Haws, Winterich & Naylor, 2014)	reviews are influential in customer journey (Hamilton, 2020)	Housing concepts / downsize programs aimed at seniors to live longer independent (Cheshire & Forrest, 2021); (PBL, 2020)	Personal guidance during customer journey (Hamilton, 2020)	Keeping their current rent with them, lower energy costs (expert interviews & discussions with seniors)
incentives have been supported in interviews	Dwelling too large or difficult to maintain and social benefits (Cheshire & Forrest, 2021); Hrast et al. (2019)	Social others can influence the decision of seniors to start the customer journey (expert interviews)	Freeing up their larger dwelling to someone who need it more (e.g., family) (discussions with seniors)	Seniors can get motivated by someone sharing their experience (Akhtar & Wheeler, 2016)	*incentives have been supported in interviews*	motivated when HAs propose a tailored program and give priority status in housing system (expert interviews)	Free registration in Woningnet, removal allowance and subsidy to repair dwelling (expert interviews)
	Seniors would like to have a single-floor apartment, and at least two bedrooms (expert interviews & discussions with seniors)			*incentives have been supported in interviews*			

Generally, HA's provide information about their relocation programs at the *information search* step. For example, annual newspapers are provided, information can be found on the website, information is provided at the tenants' association/committee, etc.

Table 18 presents customer journey *information search* step. Four factors emerged from expert interviews: 1) personal guidance, 2) advertising, 3) changing needs and 4) targeted search. Firstly, a proactive (personal) approach should be carried out by HA's: information should be tailored to the needs of seniors who are interested in information about relocation. When tenants ask for repairs to their dwellings, HAs should take a proactive approach in finding alternative housing. Furthermore, residential coaches can visit seniors to provide information on practical matters. Finally, overarching organisations (e.g., !WOON), which offer support to tenants, should be addressed by HAs. Secondly, advertising (e.g., newspapers, films and leaflets) about relocations can contribute to providing information to seniors. Thirdly, housing that is suitable for seniors (e.g., ground single-floor apartment, less rooms) should be given a "senior citizen" label on the Woningnet registration system (targeted search). Finally, suitable supply for seniors can contribute to proceeding into a new step of the customer journey.

Comparing literature to incentives from interviews, it appears that there are some similarities. First of all, changing needs appears in both literature study as well as the interviews. Seniors themselves seeks for information about the supply of alternative dwellings. This both appeared in literature study as well as in interviews. Furthermore, it appeared that advertising/giving information about a possible relocation is important in both literature study and interviews. Giving good personal guidance was also mentioned in both literature study and interviews. Incentive: Targeted search for searching dwellings with a senior label, has been identified as a new incentive. It appears that seniors could find more easily information when certain dwellings are specifically marked with a label.

Customer journey: Information search					
Changing needs in third age & dissatisfaction with dwelling or location	**Influence of social others; proximal and distal others**	**Advertising / reviews about relocation programs**	**Relocation programs to incentivise seniors**	**Good personal guidance in customer journey**	**Targeted search (added from expert interview)**
Changing needs can lead to look for information about a relocation (Ossokina & Arentze, 2020); Forsyth et al. (2019); Malone & Lepper, (1987)	social others (e.g., close relatives) are influential in customer journey step: information search (Hamilton, 2020); Hrast et al. (2019)	reviews are influential in during information search step in customer journey (Hamilton, 2020)	Housing concepts / downsize programs aimed at seniors to live longer independent (Cheshire & Forrest, 2021); (PBL, 2020)	Personal guidance during information search step of customer journey (Hamilton, 2020)	Using "senior labels" for dwellings that are suitable in housing registration system (expert interviews)
Looking for information about new dwelling: Dwelling too large or difficult to maintain (Cheshire & Forrest, 2021); Hrast et al. (2019)		Advertising about relocating can contribute to providing information to seniors. Newspapers, films and leaflets are used by several HA's (expert interviews)		HAs should take proactive approach: 1) tailor-made information, 2) offer alternative moving options when passing house, 3) engage housing coach to provide information (expert interviews)	
Suitable supply (e.g., ground floor, barrier-free) for seniors can contribute to the inclusion of seniors in a new step in the customer journey (expert interviews)					

HA's play a small role during the *evaluation* step. In the end, seniors usually have to take the steps themselves: responding to dwellings via Woningnet, doing the viewings themselves and ultimately deciding to rent the dwelling. It is also indicated that HAs do not always have insight in other dwellings outside their own housing stock and therefore do not always know what options tenants have. However, if tenants really express their wishes regarding a neighbourhood they would like to live in, HAs can indicate when a house becomes available that meets their needs. Other HAs indicate that in fact only a few questions are asked with regard to effectiveness; e.g., how long would you otherwise have continued to live here. Finally, it was indicated that a HAs calls tenants when they notice that the household has not yet responded to Woningnet. They then check whether support is needed or whether there are any questions. Discussions with seniors revealed that seniors who were relocated through a relocation program did not need help because they wanted to look at the dwelling themselves.

Table 19 presents customer journey *evaluation* step. Three other factors emerged from the expert interviews: personal guidance, targeted search, and advertising. Firstly, some HAs can offer personal guidance and evaluate alternative dwellings during the evaluation when the tenant makes his/her wishes known. Secondly, HAs should better describe their "senior" housing on Woningnet. It would also be an incentive for seniors when HAs work closely together when it comes to providing suitable housing. In addition, relocation to another HA would also be helpful as it would make more housing options available. Finally, the evaluation step can be made easier if seniors can see experiences of other tenants who have relocated through a program. Comparing literature to incentives from interviews, it appears that there are similarities in terms of personal guidance and advertising. The literature review presents advertisement as "influential" in evaluating information and from interviews, advertisement can lead to others proceed to the actual decision of the customer journey. The incentive: Targeted search for evaluating dwellings with a (senior) label occurred as a new incentive in the interviews. It appears that seniors can more easily evaluate when dwellings are marked with a label.

Table 19: Incentives from the literature in the *Evaluation* step of the customer journey related to interviews

Customer journey: Evaluation					
Changing needs in third age & dissatisfaction with dwelling or location	**Influence of social others; proximal and distal others**	**Advertising / reviews about relocation programs**	**Relocation programs to incentivise seniors**	**Personal guidance in customer journey**	**Targeted search (added from expert interview)**
Changing needs may lead to evaluate possible relocation (Ossokina & Arentze, 2020); Forsyth et al. (2019); Malone & Lepper, (1987)	social others (e.g., close relatives) are influential in customer journey step: evaluation (Hamilton, 2020); Hrast et al. (2019)	reviews are influential during evaluation step in customer journey (Hamilton, 2020)	Advantages of relocation may become decisive factor in evaluation step when deciding to relocate (Cheshire & Forrest, 2021); (PBL, 2020)	Personal guidance during evaluation step of customer journey (Hamilton, 2020)	In terms of targeted search, HAs should better describe their "senior" housing on Woningnet (expert interviews)
Evaluating information about a new home: current home is too large or difficult to maintain (Cheshire & Forrest, 2021); Hrast et al. (2019)		The evaluation step is easier if potential relocators can see the experiences of others through advertisements (expert interviews)		HA's can offer personal guidance & evaluate other dwellings during evaluation when tenant makes wishes known (expert interviews)	

Table 20 presents customer journey *decision* step. Here, experts were asked whether a good preliminary process with HAs could help make the actual decision. Some HAs said seniors already know where they want to live and showing them options again has little effect. Others said a good preliminary process can help by bringing up objections, leading to choosing a different program. If HAs contribute poorly, seniors may wait until it's too late (e.g., forced relocation). Proactive steps, such as showing alternative homes, may be useful. It's unclear if a good preliminary process leads to quicker decisions, but some indicated that only two options in a year made deciding faster. Personal guidance emerged as a factor from expert interviews. HAs should present available options again, and a residential coach can help seniors think things through. Only personal guidance was found as a similarity between literature and incentives from interviews. No new incentives were observed.

Table 20: Incentives from the literature in the *Decision* step of the customer journey related to interviews

Customer journey: Decision			
Changing needs in third age dis-satisfaction with dwelling or location	**Influence of social others; proximal and distal others**	**Relocation programs to incentivise seniors**	**Personal guidance in customer journey**
Changing needs may lead to actually choose for a relocation towards a more suitable home (Ossokina & Arentze, 2020); Forsyth et al. (2019); Malone & Lepper, (1987)	social others (e.g., close relatives) are influential in customer journey step: decision (Hamilton, 2020); Hrast et al. (2019)	The advantages of housing concepts / downsizing programs may become the decisive factor in the decision step (Cheshire & Forrest, 2021); (PBL, 2020)	Personal guidance during information search step of customer journey (Hamilton, 2020)
			Showing the options again can lead to the actual "purchase" of the dwelling (expert interviews)

The last two steps, *satisfaction* and *post-decision sharing* were not discussed during the interviews because 1) it was not practically feasible and 2) the steps after "purchasing" the product are of less importance since the decision is already made. Nevertheless, the experience and degree of sharing can still have influence in other people starting the customer journey. Section 3.3. zooms in on the long list of factors which emerged from literature and interviews, based on obstacles and incentives.

3.3. Conclusion interviews - List of relocation factors

Table 21 presents a list of factors that came out of literature and interviews. Relocation factors to proceed into the customer journey have been labelled as *incentive* (column 1) and *obstacles* are also shown here. Column 2 shows the relocation factors grouped into main factors. Columns 3 and 4 describes possible attributes levels. In addition, a reasoning is described as to why these factors are valuable in relocation. Finally, the factors were described based on the customer journey. It appears that most factors occur in the first 2 steps of the customer journey. Due to practical feasibility, the last three steps (decision, satisfaction and post-decision sharing) were not always (completely) discussed during the interviews.

Table 21: List of relocation factors

	Factor	Level 0	Level 1	Reasoning
		Customer journey: Motivation		
Obstacle	Changing needs / supply	Shops ≥ 15 minutes' walk	Shops ≤ 5 minutes' walk	Primary facilities for seniors located at 5 min walking distance or 400m (Alves et al. 2020)
Incentive	Changing needs / supply	Residential building without communal area	Living with like-minded people in a community	Some tenants have a preference for communal living
Incentive	Changing needs / supply	Single-floor apartment with 1 bedroom	Single-floor apartment with 2 or more bedrooms	Most seniors want 2 bedrooms when moving
Incentive	Changing needs / supply	Travel to close relatives ≥ 15 minutes' walk	Travel to close relatives ≤ 5 minutes' walk	Tenants prefer to relocate nearby their family/children
Incentive	Changing needs / supply	No priority	Priority to permanent alternative housing during renovation	A renovation can be seen as an "inconvenience" for seniors
Incentive	Personal guidance	No personal guidance by HA in looking for a new dwelling	HA provide personal guidance in searching for a new dwelling	Some tenants are not able to carry out the relocation process
Incentive	Personal guidance	No priority status in Woningnet	Priority status in Woningnet	Tenants are sometimes not registered; unable to relocate
Incentive	Financial	Rent increase ≥ 100 euro	Rent increase 0 euro	Keeping existing rent is an incentive for seniors
Incentive	Financial	4000 euro ≤ relocation subsidy	No subsidy	Removal allowance / repair costs
Incentive	Societal interest	No specific allocation for families.	Dwelling is allocated to family to stimulate residential mobility	Social interest sometimes plays a role for seniors
Incentive	Social others	Relatives do not provide additional incentive to relocate	Relatives provide additional incentive to relocate	Social others can influence to start customer journey
		Customer journey: Information search		
Obstacle	Personal guidance	Relocation rules are different in each city	Relocation rules are cross-city	Different rules are difficult for seniors to find suitable housing
Obstacle	Advertisement	Information only "digitally" distributed among seniors	Information is physically delivered	Seniors sometimes lack digital skills
Incentive	Personal guidance	HAs are reactive towards seniors through customer journey	HAs are pro-active towards seniors through customer journey	Interviews tell that some seniors are in need for personal guidance
Incentive	Personal guidance	No proactive attitude when seniors request repairs	Proactive attitude when seniors request repairs	Respond to wishes of seniors by addressing relocation programs
Incentive	Personal guidance	Organization WOON! only helps in case of an urgency	Organization WOON! helps in the search for alternative housing	Support by Organization WOON! to support in customer journey
Incentive	Advertisement	No promotion towards seniors	HA's sends leaflets, newspapers and shows promotional films	Advertisement to address relocation programs
Incentive	Changing needs	No extra comfort	House warmer in winter and cooler in summer and energy savings	Comfort is important factor in seniors' third age needs
Incentive	Changing needs	No attention for tenants who want to relocate with neighbours	Possibility to relocate together with neighbours	Some seniors would like to live together with close neighbours
		Customer journey: Evaluation		
Incentive	Personal guidance	No "joint" evaluation with seniors	HAs actively evaluates alternative dwellings with seniors	A joint evaluation can be valuable for seniors
Incentive	Targeted search	Houses are not offered specifically for seniors	"senior" dwellings are better described on Woningnet	Seniors benefit from "labelled" senior housing on Woningnet
Incentive	Advertisement	No product reviews are shown	Show product reviews to seniors who have already relocated	Showing experiences of others can help in evaluation step
		Customer journey: Decision		
Incentive	Personal guidance	No active involvement of HA's during decision step	Present options to seniors again / use of residential coach	HA involvement can ensure that seniors are persuaded
		Customer journey: Satisfaction		
-	-	-	-	-
		Customer journey: Post-decision sharing		
Obstacle	Advertisement	Seniors cannot share "moving" experience in an anonymised way	Seniors can share "moving" experience in an anonymised way	Privacy is an important aspect for seniors to share their experience

4. Merging of two studies[8]

This chapter brings together two studies that both focus on the relocation of seniors data. First, it is important to note that both studies focus on addressing the housing needs of seniors, particularly in the context of relocating to a more suitable home that meets their third-age needs. While one study focuses mainly on improving existing best practices with an emphasis on financial considerations, the other study examines the role of place attachment in the relocation process. By integrating these two studies, the researchers aim to expand their data collection efforts by working with different housing providers, with the goal of obtaining more comprehensive and representative results. To begin with, a list of relocation factors was compiled based on the findings from both studies. Although each study put forward its own set of relocation factors, arising from literature review and interviews, they complement each other, as shown in figure 11. Section 4.1. describes the relocation factors that are relevant when moving and also presents the personal characteristics (socio-demographic, physical condition and satisfaction with home and living environment) that are included.

4.1. Operationalization of relocation and personal attributes in the utility

Figure 11 shows a selection of the relocation- and personal factors affecting the utility of relocation. The selection of these factors is described in section 4.1.1. and 4.1.2. The right part of the figure gives an overview of relocation-related characteristics, aggregated into three groups. The left part of the figure shows person-related characteristics. We aim to test empirically how important are the relocation factors and whether this importance differs by type of seniors. It can be concluded that factors (location, daily facilities, rent and relocation subsidy) emerge from both studies. Factor 3 (walking paths) comes from the study on "Place-attachment" and factor 4 (Indoor climate & energy bill) comes from the study on "best practices". To ensure practical feasibility and reduce possible cognitive burden among participants, we will restrict the number of possible factors, as compared to the long lists that came out of the literature and interviews. The relocation factor "personal guidance", shown in table 21 was omitted. Literature study and interviews revealed that personal guidance throughout the customer journey can be very helpful for seniors, as it is sometimes difficult to carry out a relocation on their own. Since this factor was mostly observed during interviews and not from interviews, it was decided to omit this factor. In addition, the factor) "social activities" was also omitted. It appeared that social activities can prevent loneliness among people. Furthermore, the factors "opportunity to live closer to children / close relatives", coming from both studies, was omitted as well. Interviews revealed that seniors sometimes like it when support can be provided by people in their own circle. Furthermore, relocating to a dwelling with "at least 2 bedrooms", coming from the study on best practices was omitted. Finally, the factor "living with like-minded people in a community" was omitted as well. From interviews, some tenants prefer innovative living environments where they can undertake activities together and provide support to each other if needed.

4.1.1. Explanation of relocation characteristics

The first factor is *location*. The literature (chapter two) revealed that people are attached to the home, the neighbourhood and the people in the neighbourhood. Furthermore, the presence of a social network are also important for seniors an In addition, some studies such as Tyvimaa & Kemp, 2011; Boldy et al.,2010; Bekhet et al., 2009 indicated that having a community nearby or being near family may also influence the consideration of relocation. Moreover, most expert interviews revealed that seniors often want to live as close to their current home as possible. Therefore, the location of the home is identified as a relevant factor.

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[8] Jointly written

The second factor is proximity to daily amenities. It appears that daily routines are a factor influencing place attachment (Roy et al., 2018). Daily routines may include shopping or going to the doctor. These aspects were mentioned in the literature review (Boldy et al.,2010; Stimson & McCrea, 2004; Tyvimaa & Kemp, 2011; Costlow et al., 2020) and were confirmed during interviews with experts. The third factor is the presence of accessible green walking paths near the dwelling. The literature review showed that walkability is important (Stimson & McCrea, 2004). Van Wijk (2022) and Ossokina et al. (2022) also specifically stated that walkways should be accessible. Moreover, interviews revealed that seniors who live close to greenery are less willing to move to a place without greenery or walking areas. Since this emerged from the literature and interviews, it was decided to include this aspect in figure 11. The fourth factor is based on *living comfort* (indoor climate & reduction of energy bills). Literature review and interviews with experts show that living comfort, accessibility and shared facilities become increasingly important as people reach the third age (Ossokina & Arentze, 2020). This factor is therefore also included in Figure 11. The fifth factor is *rent level*. The financial status was found to be able to influence place attachment (Weeks et al., 2012) which was also supported during the interviews. In addition, people are reluctant to relocate if they suffer financial deterioration or have to pay more rent per month (Cheshire & Forrest, 2021; Judd., Liu., Easthope & Bridge, 2014; Adair & Menyen, 2014). Therefore, rent level is included as a relocation factor. The final and sixth attribute is *relocation subsidy*. Several interviews revealed that a relocation subsidy can encourage seniors to relocate. One of the reasons why a relocation subsidy can compensate for location considerations with regard to relocation is that seniors have to deliver the house upon completion in the condition it was in at the start, and this often involves additional costs. Therefore, a relocation subsidy can help overcome this obstacle and therefore is included in figure 11.

4.1.2. Explanation of personal characteristics

The personal characteristics are included because it is known that different groups of seniors differ in their preferences (e.g., study by de Jong et al. (2021) that there is not a single type of senior). The personal characteristics are divided into three categories: 1) socio-demographic, 2) physical condition and 3) current housing characteristics. The categories emerge from various studies into preferences of seniors such as the residential survey of CBS (2017). Social demographics consist of age, gender, education level, ethnicity and household composition. Socio-demographic characteristics of participants are useful for housing associations to understand the needs of tenants from different backgrounds. Housing characteristics are divided into current living comfort and rental level and satisfaction with current home and living environment. Finally, the physical condition (e.g., how easily a person can climb stairs) of seniors forms a separate block.
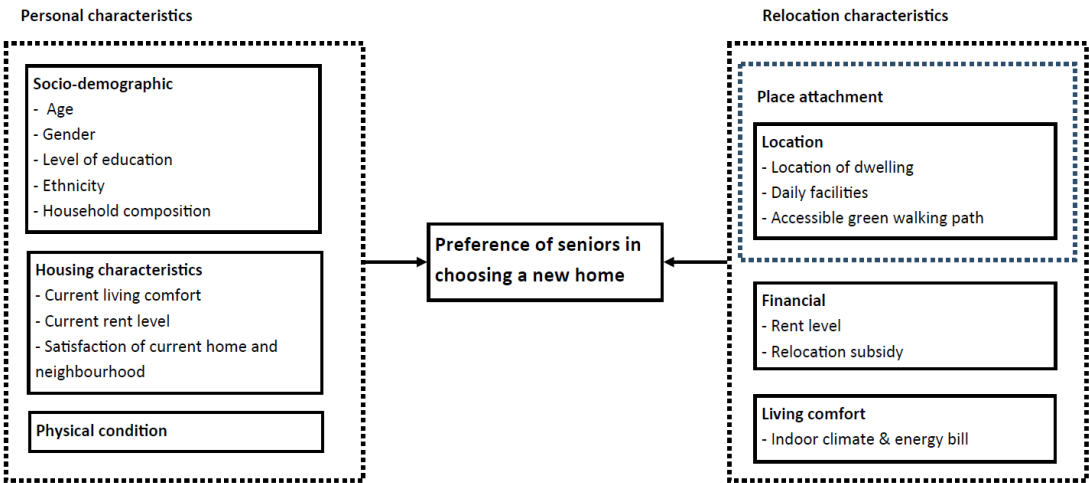

Figure 11: Overview of factors potentially influencing seniors' preferences in a move

4.2.   Hypotheses[9]

Hypotheses can be tested for various reasons. For example, (poor) physical conditions could have positive effect on the willingness to relocate. In addition, satisfaction of tenants about their current home and living environment (e.g., neighbourhood or travel time to daily facilities) can determine whether these factors influence the willingness to relocate. For example, poor current living comfort may persuade seniors to choose a home with improved comfort and a more efficient indoor climate. In addition, low current rent could influence seniors in the decision to not relocate since it would be likely that rent increases.

H1 = Keeping the same housing costs is more important than a one-off subsidy
Investigating whether seniors find maintaining the same rent more important than a one-off relocation subsidy (4000 euro's). It is assumed that constant low housing costs are more favourable than a one-off relocation subsidy.

H2 = Seniors with housing costs of less than 400 euros are less willing to move than seniors with higher housing costs
Interviews with experts suggest that financial consequences when moving (e.g., a higher rent) may make seniors less inclined to move. Therefore, it is expected that tenants with a lower rent are actually less willing to move to a property with a new, higher rent. In contrast, seniors with an already high rent are expected to be more inclined to move if certain characteristics are favourable to them.

H3= Financial attributes (keeping existing rent, receiving 4000 euro's relocation subsidy) & energy efficiency are more important factors than location attributes
The literature and interviews suggest that seniors consider financial aspects & comfort important when moving, such as maintaining rent, receiving one-time relocation subsidy and a home with a pleasant indoor climate with low energy bills. According to interviews with seniors some people are willing to relocate towards a new neighbourhood, as long as the rent does not increase. Therefore, this hypothesis assumes that financial attributes, based on the existing relocation package VGNB, are more important than location factors.

4.3.   Conclusion

Chapter 4 presents the merging of two studies focusing on the housing needs of seniors and their relocation to more suitable dwellings. The establishment of relocation factors emerged from both studies, with a focus on best practices with an emphasis on financial aspects and the role of place attachment in the relocation process. By integrating the findings of both studies, the researchers were able to establish a comprehensive framework that includes six relocation factors: location, daily facilities, energy efficiency, rent, relocation subsidy, and walking paths. The three hypotheses suggest that financial attributes are more important than location attributes when it comes to seniors' decisions to move to a new home. Specifically, the first hypothesis suggests that seniors prioritize maintaining low housing costs over a one-time relocation subsidy. The second hypothesis suggests that seniors with lower housing costs are less willing to move to a new home with higher rent. The third hypothesis emphasizes the importance of financial attributes, such as maintaining the same rent and receiving a relocation subsidy, as well as energy efficiency, over location attributes when it comes to seniors' decisions to relocate. Overall, these hypotheses provide insights into the factors that influence seniors' decisions to relocate, highlighting the importance of financial considerations in these decisions.

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[9] Hypotheses are individually formulated

5. Methodology[10]

This chapter describes the methodology to achieve the objective of this research. This research focuses on the preferences of seniors with respect to the features of place attachment and best practices that may influence the willingness-to-relocate and overcome the barrier of place attachment. Apart from literature study and interviews a stated choice experiment (SCE) is developed and carried out that will indicate which factors are perceived as important to seniors in relocating to an alternative home. The experiment is introduced in this chapter and designed in chapter 6.

5.1. Introduction to a stated-choice experiment (SCE)

In order to stimulate the residential mobility of seniors and to make relocation programs more successful, it is important to understand their preferences when relocating to smaller, more suitable dwelling. Insights from interviews showed several factors (obstacles & incentives) which might influence the willingness to relocate of seniors; however, these insights are still from the perspective of the housing association. In addition, although qualitative data has emerged from interviews with various seniors in relation to the experience of using a relocation program, this data is still limited.

To be able to test various hypotheses related to the preferences and characteristics of tenants when relocating to a smaller, more suitable dwelling, it is important to obtain quantitative insights on individual level. As an example, it could be that the age of seniors plays a role in a relocation. Older seniors (75+) may have other wishes than seniors between the age category of 55-75. Also, the current amount of rent that tenants have to pay each month could influence their willingness to relocate. Therefore, the aim of this experiment is to test several hypotheses where tenants can indicate their preferences and make a decision between two relocation programs or choose for "none of these " option. Ultimately, this will allow housing associations to improve their existing best practices. In essence, there are two different data collection approaches which are often used for testing preferences and decisions: revealed- and stated modelling approaches. The main difference here is the type of data used. In a revealed approach, data is collected from real observations made in practice, whereas in stated approaches the researcher observes in controlled hypothetical situations (Kemperman, 2000).

Both methods have advantages and disadvantages in their application. A disadvantage of a revealed modelling approach is that only one observation can be made per respondent and that many respondents are needed which results in higher data collection effort. Secondly, the actual specification of the "choice set" is not always clear for the researcher. For example, not all alternatives may be observed by the researcher and therefore outcomes of "unknown" alternatives could lead to biased parameters estimates (Kemperman, 2000). Stated approaches can potentially deal with these disadvantages. First, it is possible to have control over hypothetical alternatives and attribute levels presented to the respondents. In addition, more observations can be made among respondents; several alternatives can be presented. This increases the practical feasibility of the data collection. A potential disadvantage of stated experiments is the possibility of having low external validity since hypothetical choices may differ from their actual choices (Kemperman, 2000). As relocation programs in practice are limited in their variation, a "stated" approach is applied. In addition, it would be very time consuming and expensive for housing associations to develop new choice alternatives in a real situation. In addition, discussions with experts show that relocation among seniors often takes a long time, so it would be difficult to implement new relocation programs which are carried out in the time-span of this research. Figure 12 presents, a "stated" approach consists of two possibilities: stated preference (SP) and stated choice (SC) (Kemperman, 2000). Generally, a SP (compositional and de-compositional) is about *ranking* attributes (e.g., which attributes are preferred and which are least preferred) or *rating* attributes (which attributes are rated

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[10] Jointly written

higher on a scale?) (Louviere, Hensher & Swait, 2000). For example, a preference *ranking* related to this research could be seniors choosing their preference order in terms of outdoor space; e.g., garden more preferred than balcony and communal inner garden, balcony preferred above communal inner garden. However, this says nothing about the degree of preference (Louviere et al. 2000). In addition, in terms of *rating* individuals can assess their preference on a category rating scale. For example, seniors can assess possible outdoor areas in terms of ratings (e.g., own garden = 8, balcony = 7, communal inner garden =5). However, differences between numbers (e.g., '3' and '5') are difficult to interpret (Louviere et al. 2000). In contrary to SP, SC (stated choice) present alternatives (choice sets) where someone can choose from. Here, several alternatives are presented as well as the "no alternative" option (Louviere et al. 2000; Kemperman, 2000). Ultimately, this means that three different methods can be used within this study: *ranking* (de-compositional, conjoint), *rating* (compositional, no conjoint) and *choice* (de-compositional, conjoint).
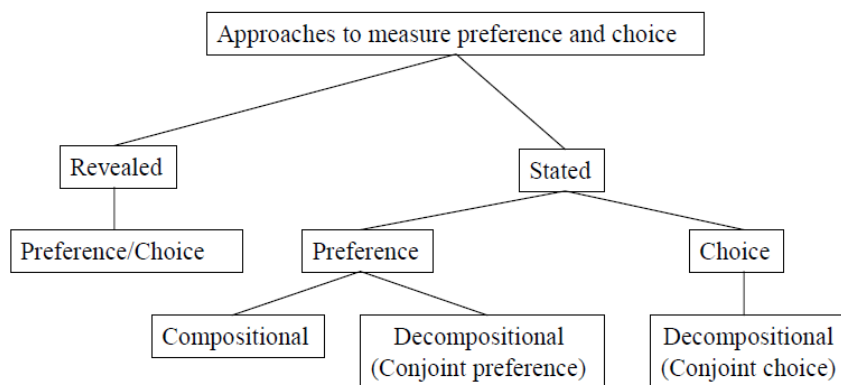

Figure 12: Overview of preference and choice measurement approaches (Kemperman, 2000)

Although a compositional approach holds some advantages, Green and Srinivasan (1990) listed various problems (e.g., respondents may not hold all else equal when they provide ratings for the levels of an attribute) with using a compositional approach and therefore this study chooses between de-compositional approaches. The difference between both methods is that in a *ranking* task, respondents have to rank the profiles in order of preference (most to least preferred). A disadvantage here is that no insights are obtained related to the degree of preference respondents have for profiles (Ben-Akiva, et al., 1997). Secondly, ranking several relocation programs would be difficult since respondents can only handle a limit number of profiles (Kemperman, 2000). For this research a *stated choice experiment* is carried out since respondents (seniors) are forced to actually make a choice between two or more hypothetical alternatives (relocation programs). Secondly, according to previous research *stated choice* tasks also have some benefits in comparison to *stated preference* tasks. Choice tasks give a more realistic view of a current (real world) situation compared to rating or ranking tasks. In a real-world situation, seniors also have to make decisions in terms of choosing the right housing alternative for their needs. Secondly, choice tasks also give the opportunity to include a "none of these" option (Kemperman, 2000). A drawback of using a *stated choice experiment* is the difficulty of developing models on individual level since nothing is known about the no-alternative option. Therefore, more observations are needed to develop individual models (Kemperman, 2000).

5.2.   Stated choice experiment

According to Hensher et al. (2015), the origin of a stated choice experiment lies in its experimental design. This experimental design observes effects of variables where levels of an attribute or multiple attributes can be manipulated. The manipulation takes place in the "design phase" of the experiment. Furthermore, each attribute is called a "treatment". A combination with multiple attributes and different levels is then called a "treatment combination" or a profile (Hensher et al., 2015). Within this research

attributes and profiles are used as terminology instead of treatment and treatment combination. Figure 13 presents the steps in developing a stated choice experiment.
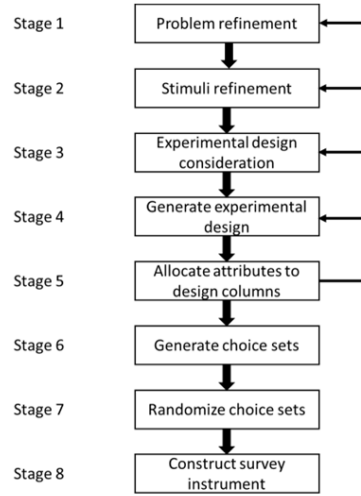

Stage 1	Problem refinement
Stage 2	Stimuli refinement
Stage 3	Experimental design consideration
Stage 4	Generate experimental design
Stage 5	Allocate attributes to design columns
Stage 6	Generate choice sets
Stage 7	Randomize choice sets
Stage 8	Construct survey instrument

Figure 13: Experimental design process (adapted from Hensher et al. 2015d)

5.3. Utility of the alternative

Utility of alternatives where seniors can you from is determined by formula (1. Here, the alternative with the highest utility U_{iq} is assumed to be chosen as an alternative by individual q.

$$(1)\ U_{iq} = V_{iq} + \varepsilon_{iq}$$

Where V_{iq} is a structural component and ε_{iq} is a random utility component. Subscript i is determined by the alternative. Since every senior is different in choosing their preferred relocation program, structural utility component is included with q (individual). By summing V_{iq} and ε_{iq} the utility is determined. The structural utility V is determined by the sum of each attribute X_n multiplied by its relative weight β_n of all attributes defining a relocation program. To include utility for seniors that are not willing to choose one of the packages, the "none of these" option is incorporated as a constant α. This is shown in formula 2.

$$(2)\ V_{iq} = \alpha + \sum_n \beta_n\, X_{inq}$$

The probability P that senior q chooses alternative i over the other alternatives in the choice set can be determined, shown in formula 3. Here, the exponent of the structural utility of alternative i is divided by the sum of the exponent of each alternative. When calculating the probability that someone chooses an alternative compared to other alternatives, the probability is always summed up to 1. In this way, it can be determined what the probability is that someone chooses a specific relocation program.

$$(3)\ P_{iq} = \frac{EXP\,(V_{iq})}{\sum EXP\,(V_{iq})}$$

5.4. Conclusion

Besides the qualitative insights, quantitative data is needed to test various hypotheses related to individual preferences. For this study, a stated choice experiment is carried out. A SCE provides advantages, such as relevant attribute selection, trade-off determination, and self-defined attribute levels. Ultimately, the results of this experiment will provide valuable information for housing providers to improve their existing best practices in the context of senior relocation.

6. Experimental design[11]

This chapter presents the experimental setup of the stated choice experiment, based on figure 13. The *second* stage of the experiment involves refining the list of alternatives, attributes, and attribute levels. The *third*, *fourth*, and *fifth* stages of conducting an experiment involves creating profiles, generating experimental designs, and allocating attributes. Here, the decision is also made to choose a full factorial design or a fractional factorial design. In the *sixth* and *seventh* stage in an experiment the choice sets are generated and question groups are randomly assigned to the respondents. The *eighth*- and final stage within a SCE is constructing the survey instrument. Here, general questions such as social- demographic characteristics are asked and choice sets combinations are inserted into software (e.g., Lime survey).

6.1.   Stimuli refinement

In the second stage, as shown in figure 13 (stimuli refinement), the researcher considers refining the list of *alternatives*, *attributes* and *attributes levels*. In creating the list of alternatives, literature study and interviews may aid in alternative identification (Hensher et al., 2015). When having sufficient identified alternatives, the list should be culled to create a manageable list for the execution of the experiment. Here, the researcher can exclude insignificant alternatives. However, these decisions can be somewhat subjective and have more to do with practical than theoretical considerations. In the choice experiment conducted for this study, two alternatives were used along with a "none of these" option. This decision was made with the target group in mind - seniors. It is important to consider that seniors may find it difficult to process and choose from a large number of options. Providing too many alternatives could lead to cognitive burden, potentially resulting in the seniors quitting the experiment. By limiting the number of alternatives to two and providing a "none of these" option, the seniors are presented with a manageable set of options that are easy to understand. The next step was to determine the attributes and attribute levels. This can be a difficult task since each alternative can include different attributes and different levels. When having identified the attributes, the levels can be determined. The levels can be quantitative (e.g., numbers such as travel time) or qualitative (e.g., colour) (Hensher et al., 2015).

Table 22 reports the operationalization of the relocation attributes into levels. See 4.1 and 4.2 for an description of the chosen attributes.

Table 22: Relocation attributes and their levels

Attribute	Levels	
Where is the new home located	0.	Outside own neighbourhood
	1.	In own neighbourhood (max. 15 min walking)
Where are the facilities (e.g., Supermarket/ doctor/ -community house) located	0.	Distributed in the neighbourhood; everything within 15 minutes' walk
	1.	All together; a 5-minute walk from the dwelling
Well-accessible green walking route nearby	0.	No
	1.	Yes
Indoor climate & energy usage	0.	The same as current dwelling
	1.	the house is energy efficient (cooler in summer & warmer in winter, fewer draughts and lower energy bills
New rent / mortgage costs?	0.	Rent /mortgage costs goes up 100 euros a month
	1.	Remains the same
Relocation subsidy	0.	No
	1.	Yes, a one-off 4,000-euro subsidy

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[11] Jointly written

6.1.   Experimental design

The third stage (experimental design consideration) is about creating profiles, the *fourth* step is about generating the experimental design and the *fifth* step is allocating the attributes to the designed columns. Profiles can be determined based on a full factorial design and a fractional factorial design. A full factorial design includes all possible combinations of attributes and levels. In this study, a full factorial design consisting of two levels per attribute would create 64 possible combinations (profiles) (2^6=64). With a large number of possible profiles cognitive burden may arise among respondents when carrying out a lot of choice sets (Hensher et al., 2015). An alternative for this is (1) reducing the number of levels, (2) fractional factorial design and (3) blocking the design. For the purpose of this research, a fractional factorial design is described. For this study, 16 different profiles were used. This choice was made because a larger number of profiles leads to a larger number of unique combinations. This allows the results to be estimated more accurately. The design with 16 profiles, using dummy coding is shown Appendix C.

6.2.   Generate choice sets & Randomize choice sets

In the *sixth* and *seventh* step, a total of 40 question groups were developed, with each group having 4 choice sets. Every participant was assigned with a randomly chosen question group. In addition, the choice sets (where each choice set consists of 2 profiles) were also randomly constructed. The randomization eliminates potential biases that may have resulted from a fixed order of set. It is important to note that the randomization was not based on any theoretical considerations or predetermined criteria. Instead, it was done purely to ensure that each respondent was presented with a different set of alternatives, thereby increasing the diversity of the data collected.

6.3.   Construct survey instrument

In the development of the experiment, the focus was on ensuring that the survey questions were easy to understand for respondents. This includes looking at the number of questions and the description of the questions. Lime survey was used for the digital design of the experiment to collect the data. The stated choice experiment conducted in this study includes personally identifiable data of the participants. Since privacy is an important factor, it was important to describe how to deal with this. In addition, it is important that data management goes in accordance with the rules set by the Eindhoven University of Technology. Before the data was collected, the survey had an ethical review, taking into account the privacy regulations for data collection and storage. Hereby, the survey was reviewed by the supervisors of the study as well as by the Ethical Review Board (ERB) of TU/e (TU/e, n.d.), as shown in appendix A. In addition, the FAIR principle was taken into account when collecting data. By implementing a set of guiding principles, it makes it possible to make the data findable, accessible, interoperable and reusable (TU/e, n.d.).

In the actual experiment, participants were firstly informed about the ethical review and their privacy regarding the survey. An agreement was then signed by the respondents. Secondly, participants were asked some general questions about 1) socio-demographic, 2) physical condition and 3) current housing characteristic. Thirdly, a hypothetical situation was presented where the respondent's housing association explains a possible relocation to an alternative dwelling, using a relocation program. Here, the benefits associated with relocating to an alternative home were revealed (e.g., less incidents at home, living longer independent etc.). The complete survey is shown in Appendix B.

6.1.   Number of respondents

According to Rose & Bliemer (2013), several studies have come out with rules of thumb to determine the minimum sample size for a stated-choice experiment. A commonly applied rule of thumb to examine

main effects and not interaction effects between samples is presented by Orme's (1998) research is shown in formula 4:

$$\frac{NTA}{C} > 500 \qquad (4)$$

N = Number of respondents
T = Number of choice tasks
A = number of alternatives in each task
C = maximum levels per attribute

Because of the choice to estimate main effects, this formula can be applied. By presenting 4 choice tasks (T), 2 alternatives for each task (A) and 2 levels for each attribute (C), a total of at least 125 respondents are needed. However, Orme (2019) suggests that statistical analysis requires at least 200 or 300 respondents for quantitative research. The differences between these numbers are based on whether the authors analyse differences between group of respondents (300 respondents), or 200 if no comparisons between subgroups are performed. Interestingly, Rose & Bliemer (2013) indicate that these assumptions are based on experience from a limited number of studies rather than statistical theory. In addition, Orme (2019) indicates that the suggestions, from at least 300 respondents, are also based on the cost of the study and own experience, application of statistical principles and sound judgement. In this study, the experience of the research group indicates that 125 would be sufficient and practically feasible.

6.2.   Conclusion

This chapter describes the steps in creating a stated-choice experiment. In the second phase, a list of alternatives is established, consisting of six attributes and with each two attribute levels. In the third stage, 16 profiles are established and in the fourth stage, the experimental design is made (shown in Appendix C. The fifth stage involves assigning attributes to the designed columns using a fractional factorial design to avoid cognitive burden. In the sixth and seventh phases, four choice sets are generated and randomised for presentation to each respondent. Here, 40 unique questions groups consisting of 4 choice sets were created on a random basis. In the eighth stage, the survey instrument is constructed to ensure that respondents can easily understand it. Finally, section 6.1. addressed the minimum sample size required for a stated-choice experiment. It is indicated that at least 125 respondents are needed.

7. Data analysis[12]

Before the actual data collection started, it was important to determine the target group. Initially, the intention was to ask only respondents to participate who currently live in a social rented house, but as it was not practically feasible to cooperate with several housing corporations, it was also decided to extend the experiment wider to the owner-occupied sector. For the rental variant, housing corporation Vidomes sent the experiment to around 500 respondents on their behalf. In addition, several platforms such as Facebook and LinkedIn were used to send the experiment to social-rental tenants. This was also done for the owner-occupied sector. A total of 135 people fully completed the survey (88 owner-occupied and 47 rental).The target group consisted of people above the age of 55.

Because of the distinction between owner-occupied and rental sector, the number of respondents coming from a rented or owner-occupied house has been indicated separately. In the descriptions of socio-economic, physical condition and satisfaction with home and environment, the outcomes are described for the owner-occupied sector and the rental sector separately.

7.1.   Descriptive statistics

This section describes subsequently: socio-economic, physical condition and satisfaction with home and living environment. Figure 14 shows that most participants in owner occupied are between 55-65 years of age (74%). In rent, most people are as well between age category 55-65 (51%), however the population 75+ is 17% in rent compared to 2% in owner-occupied. Therefore, the age categories in rent are more even distributed than in owner-occupied.
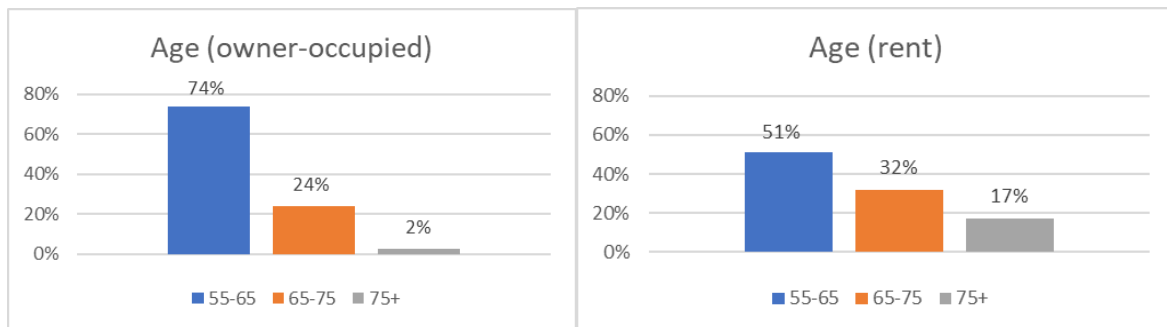

Figure 14 :Socio-economic data from sample (age)

In terms of household composition, figure 15 shows that most participants within the owner-occupied sample are a couple (58%). The rental sample shows that there are as many singles as couples in percentage terms (43%). In contrast, 10% of the owner-occupied sector consists only of single households. This large difference is remarkable. Furthermore, 32% of the owner-occupied sample still lives with their children, compared to 15% in rental sample. This is not remarkable, since the age of people in rental sample is generally higher.
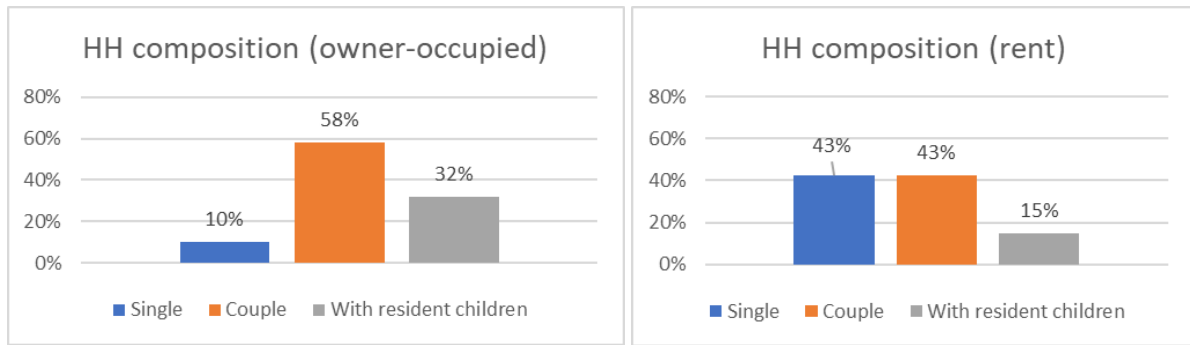
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[12] Jointly written

Figure 15: Socio-economic data from sample (household composition)

In terms of educational level, figure 16 shows that only 39% of the owner-occupied sample have a high level of education[13]. However, the educational level of the rent sample is lower with 24%. The low level of education is not remarkable as studying used to be less accessible and participants are 55 or older. Full socio-economic data are given in Appendix D.
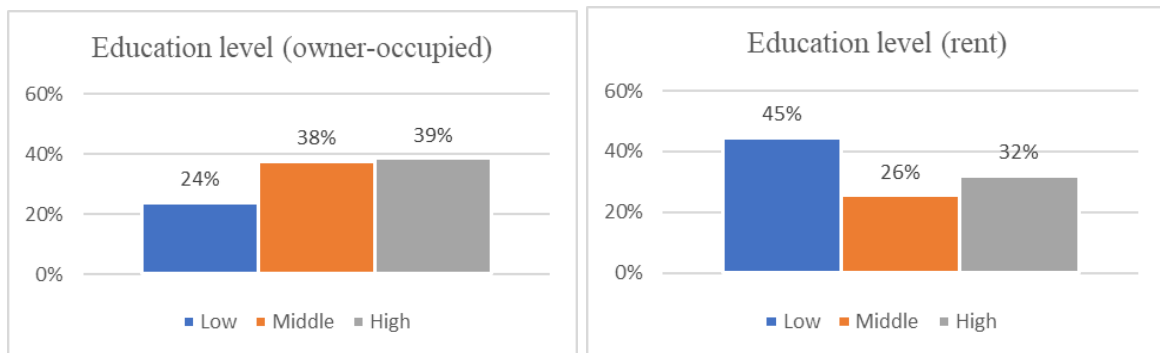

Figure 16: Socio-economic data from sample (educational level)

Data about physical condition in figure 17 show that most participants in owner-occupied sample have good health (61%). The rental and owner-occupied sectors are largely similar, except that in the owner-occupied sector, more people describe their health as "very good" (18%) compared to 9% in the rental sector. In conclusion, only about 20% of both samples perceive their health as not good.
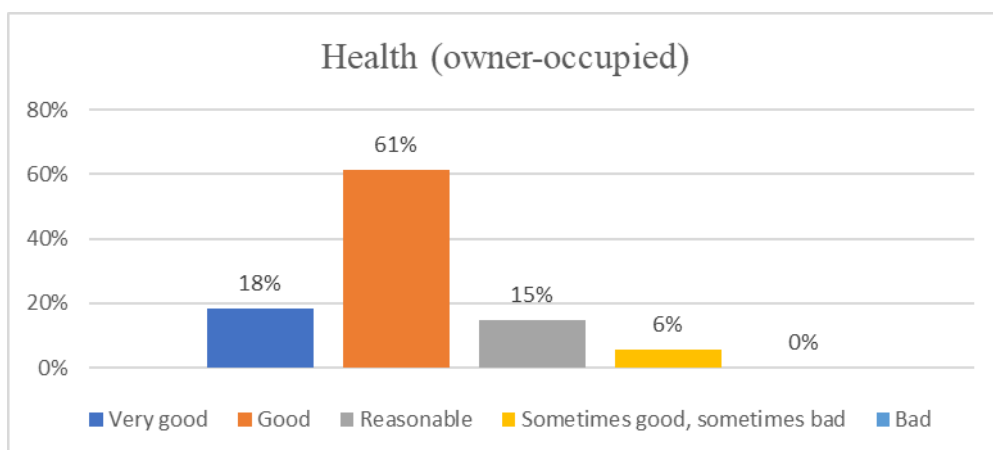
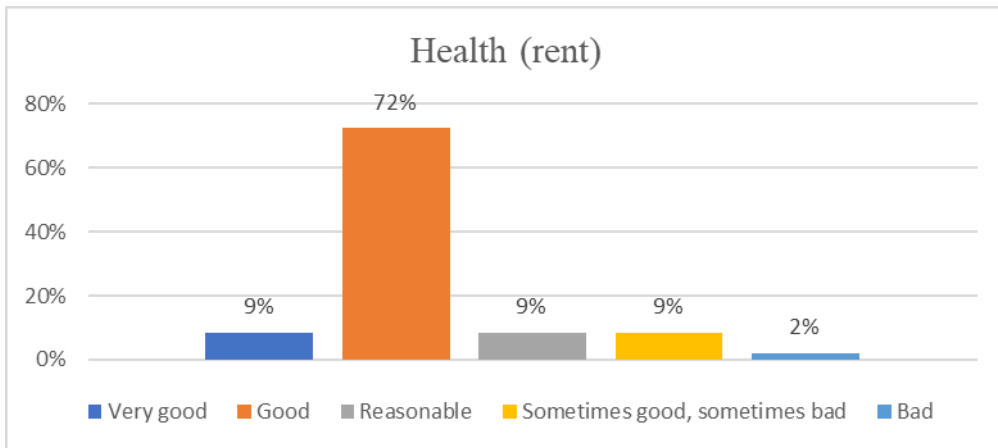[13] Participants attending University or a University of Applied Sciences, Bachelors or higher.

Figure 17: Physical condition data from the sample (health)

The last part describes participants' current satisfaction with their own home and living environment. Figure 18 shows that most respondents from both samples are satisfied with their current home, facilities, and social cohesion within their neighbourhood (e.g., "good" ranges between 49-70% of participants). In addition, 34% of participants in the owner-occupied sample are very satisfied with their home, compared to only 13% in the rental sample. Of the three factors, social cohesion scores lower compared to the home itself and the neighbourhood. Finally, only 1-6% of participants in the owner-occupied sample are dissatisfied with their home, neighbourhood and social cohesion, compared to the rental sample where 9-15% of the people perceives their home, neighbourhood or social cohesion as bad. Since most people are (very) satisfied with the aforementioned three aspects, this may mean that not everyone is ready to relocate immediately.
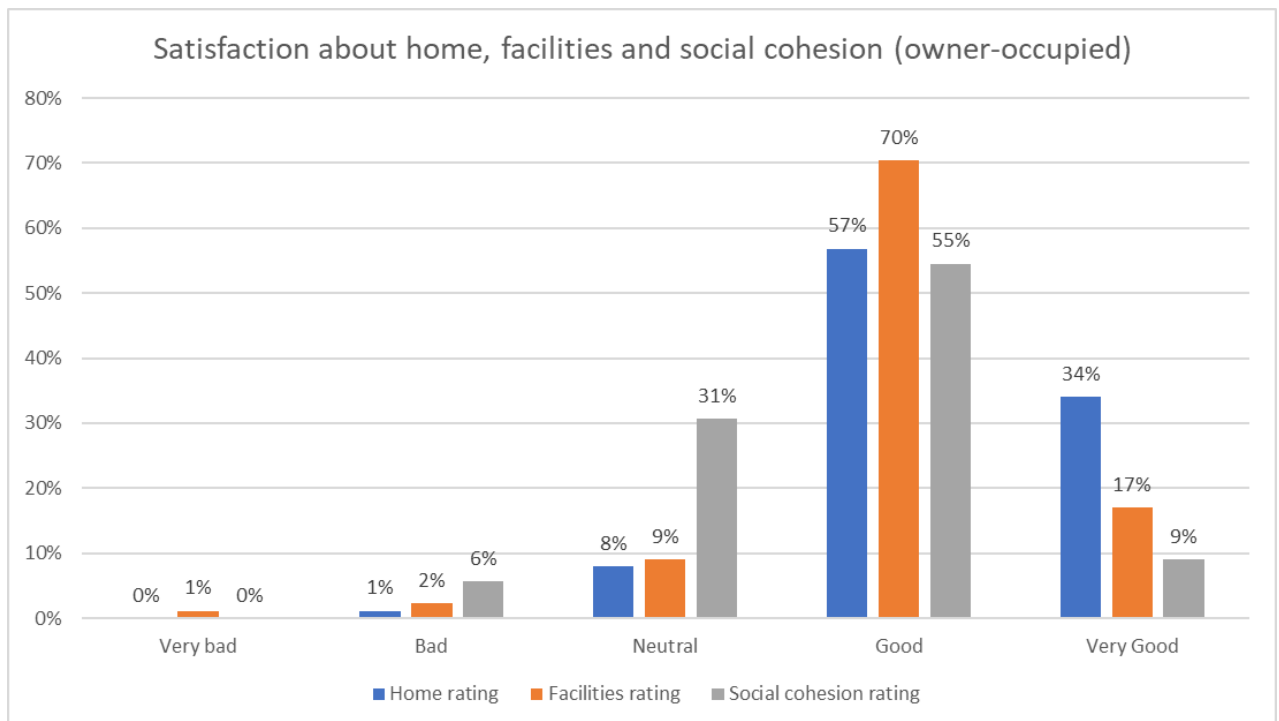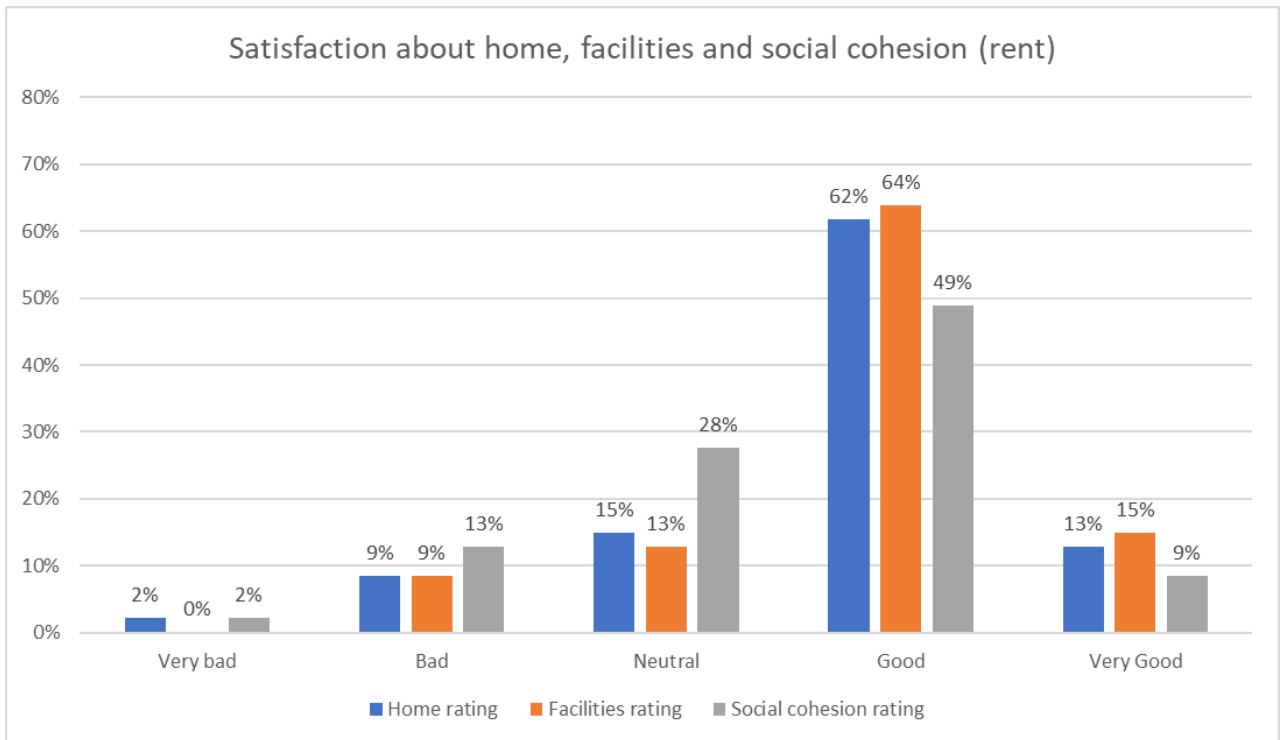
Figure 18: Current satisfaction of home, facilities and social cohesion data from the sample

Figure 19 shows that the vast majority of people in the owner-occupied sample currently live in a single-family dwelling (74%). This is higher compared to the rental sample with only 60%. Furthermore, (nearly) all single-family dwellings do have a garden. The rental sample shows a higher degree of apartments (32%) compared to 16% in the owner-occupied sample.
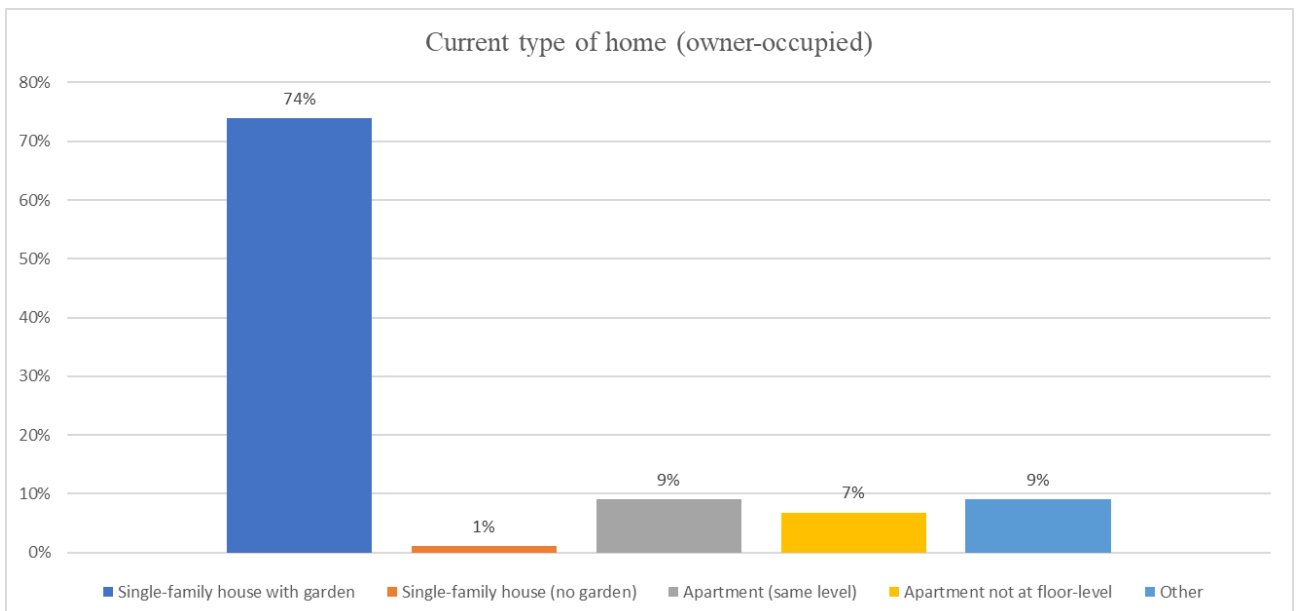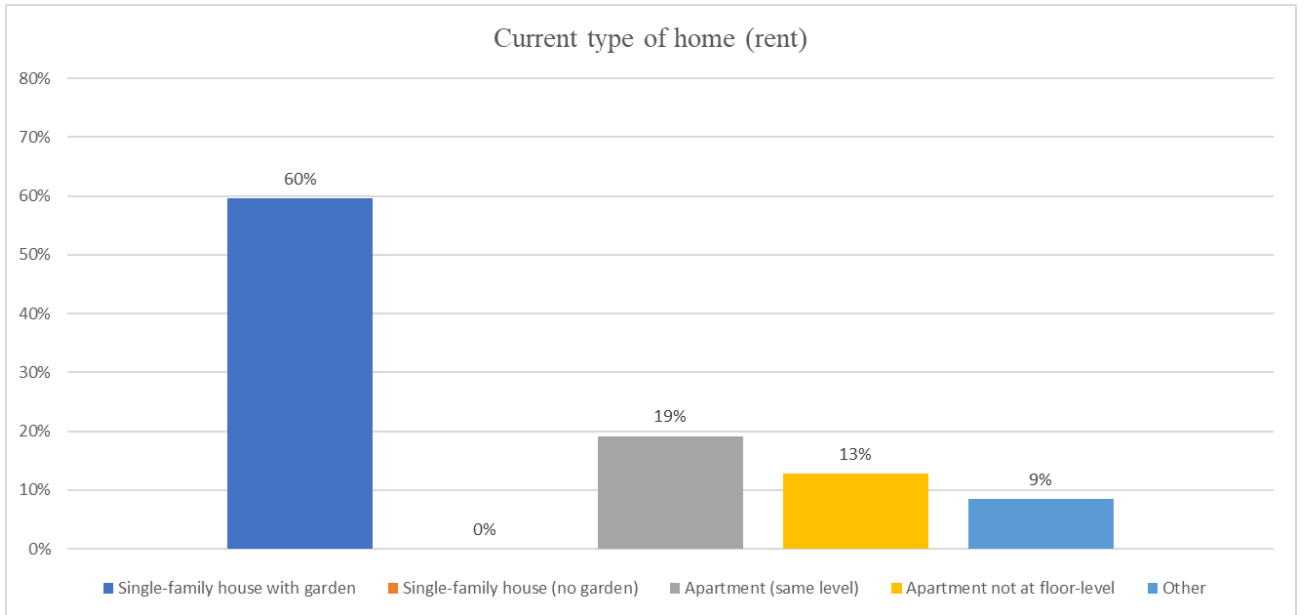
Figure 19: Current type of home

Figure 20 presents the size of the dwellings. It also shows that the houses in the owner-occupied sector are generally larger than 90 m2 (74%), but in the rental sector, on the other hand, this share is only 32% and spread across all sizes. This may mean that respondents, living in rental properties, sometimes already live in smaller and more suitable homes.
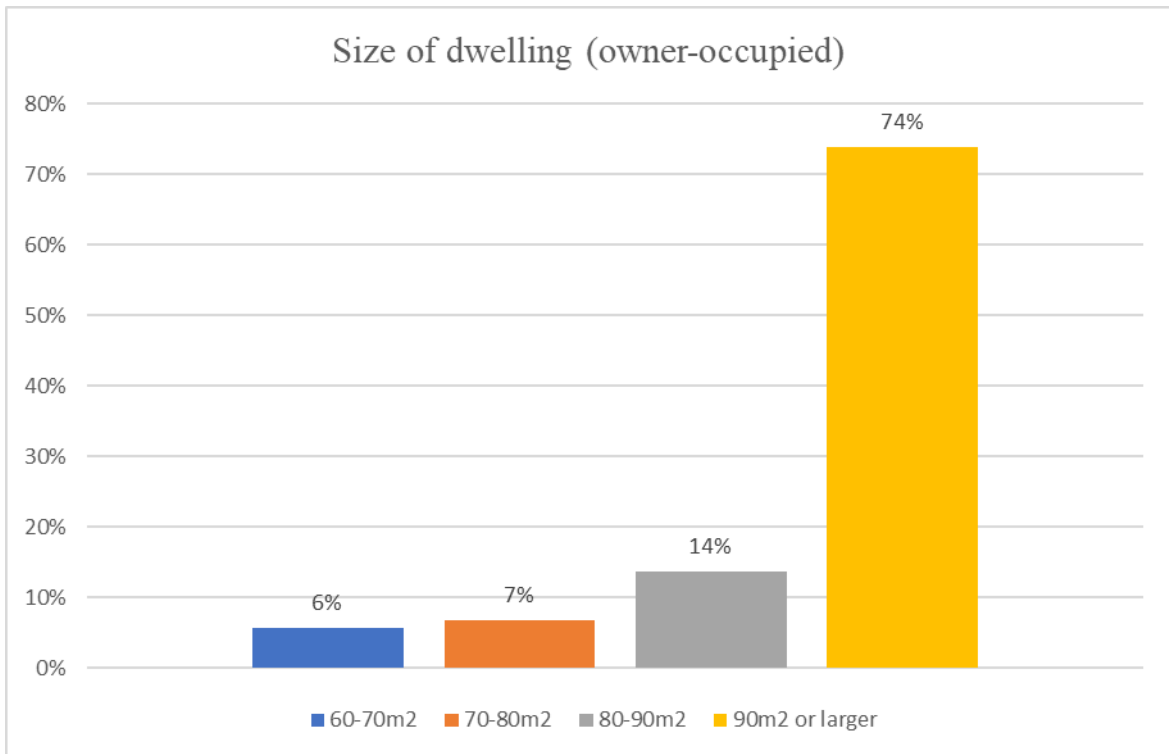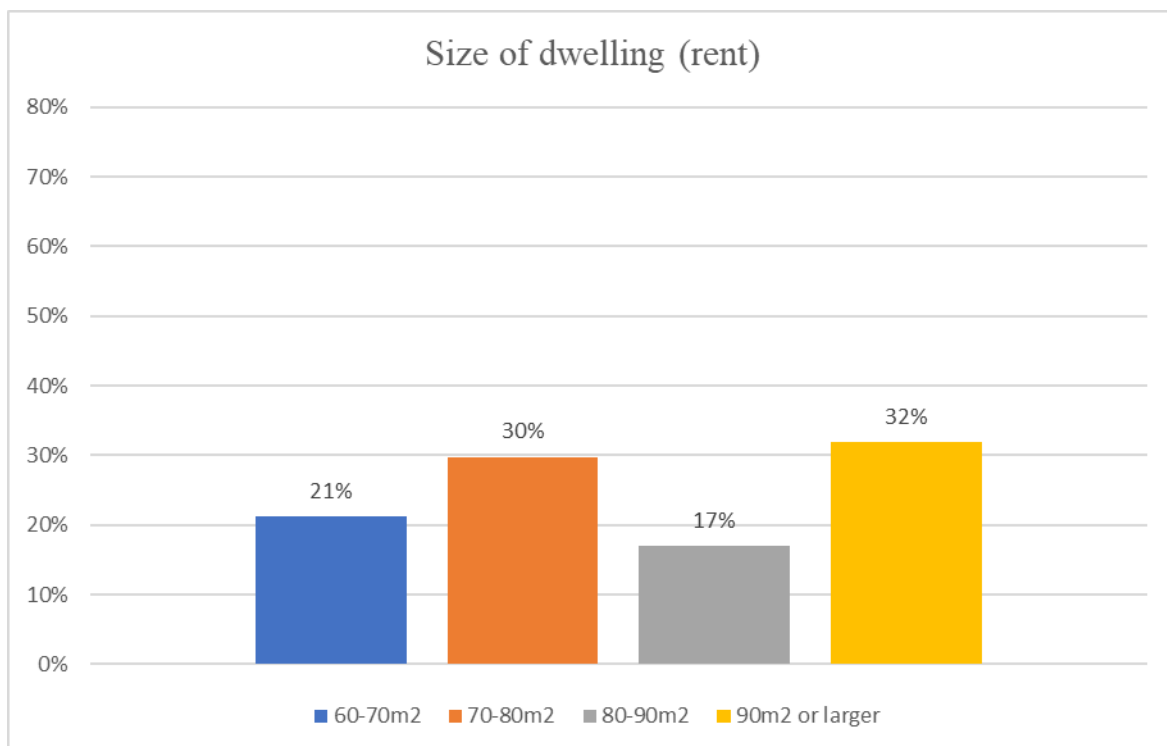
Figure 20: Size of dwelling

Figure 21 shows that participants in owner-occupied dwellings have often already (partly) paid off their mortgage, with 45% having a mortgage below 400 euros, as shown in Figure 15. In the rental sector, on the other hand, this is evenly distributed, with many respondents paying more than 600 euros (89%). It is remarkable that no one within the rent sample is paying less than 400 euros, while only 11% of the sample is paying less than 600 euro.
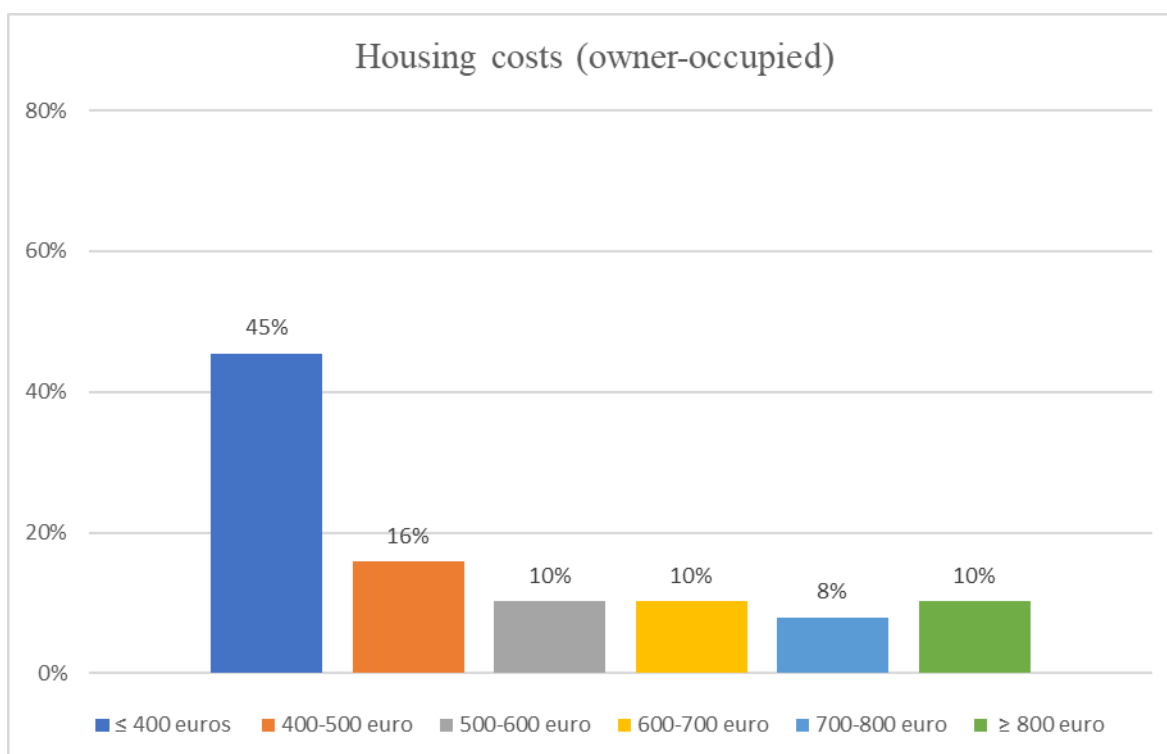
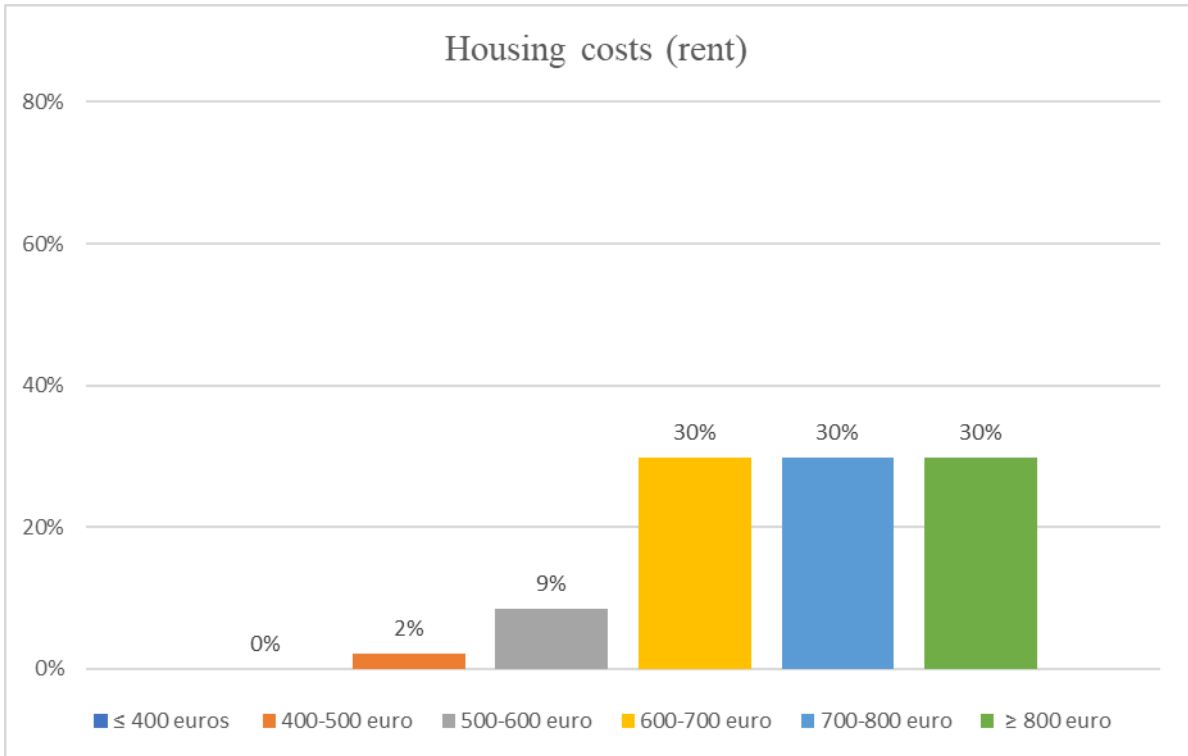**Figure 21: Mortgage and rent levels**

Figure 22 shows that most people from owner-occupied sample need between 5 and 10 minutes travel time to get to their daily facilities (44%). This may indicate that many people already live in urban areas. In addition, the travel time within the rental sample is closely distributed between 5 and beyond 15 minutes of travel time. Only 15% has a maximum of 5 minutes.
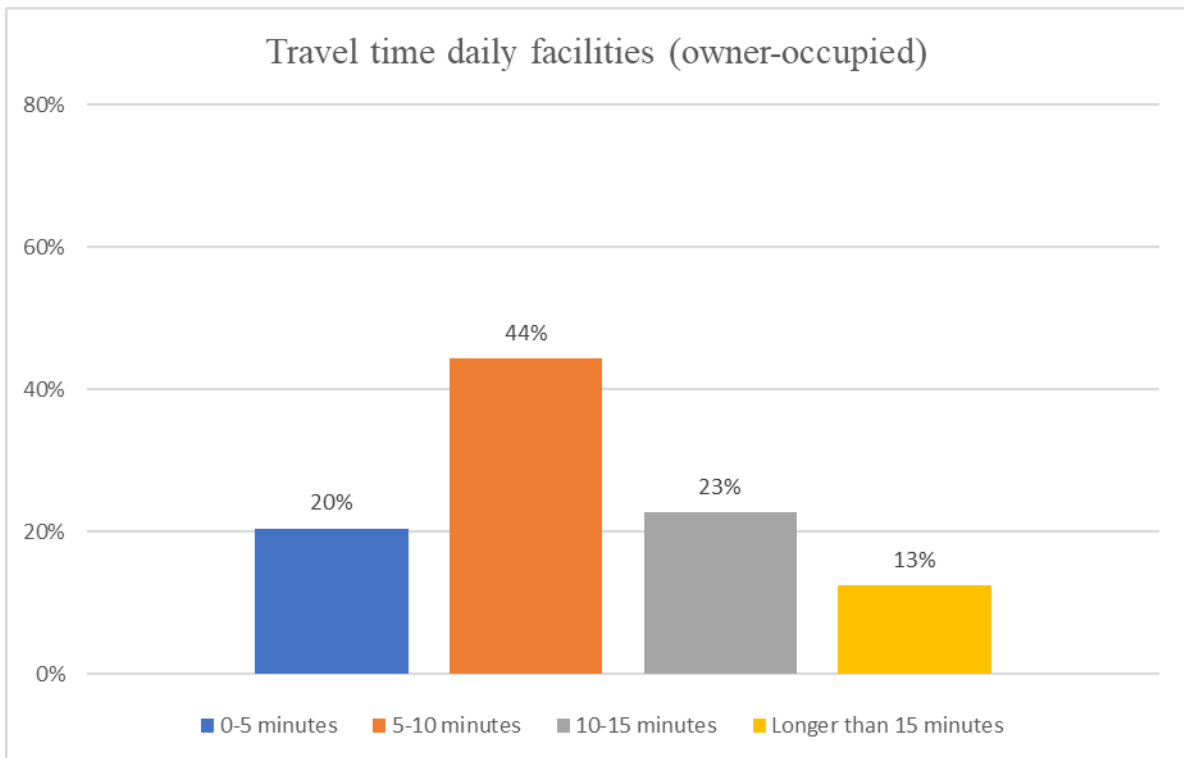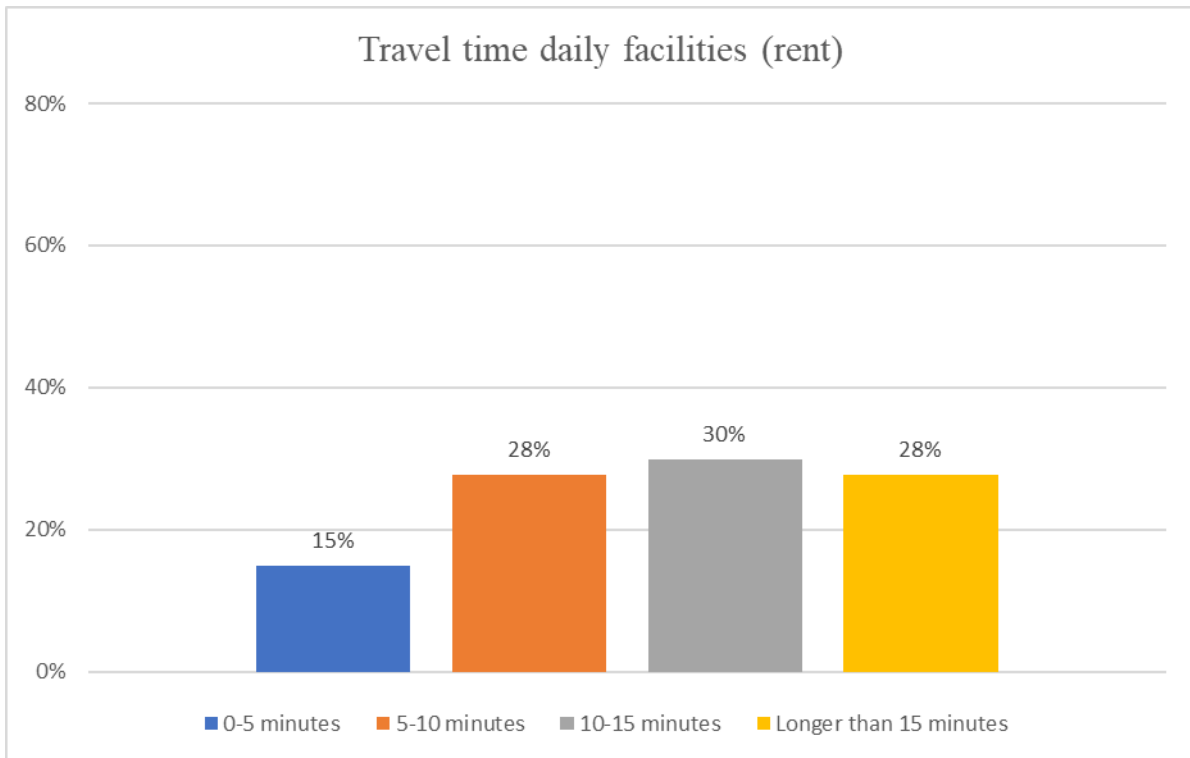
Figure 22: Travel time daily facilities

Figure 23 shows that people within the owner-occupied sample often have a green, accessible route close to their home (72%). 29% does not have a green route and 11% do have, however it is not accessible (e.g. poor road surface, obstacles, poor lighting). The results of the rent sample show similar outcomes.
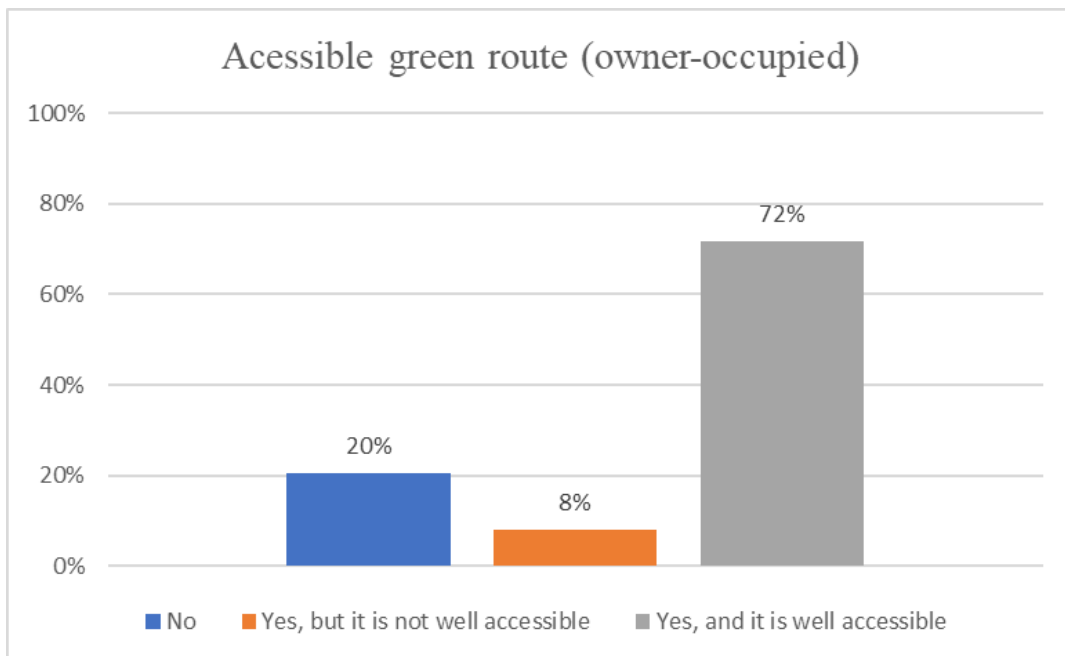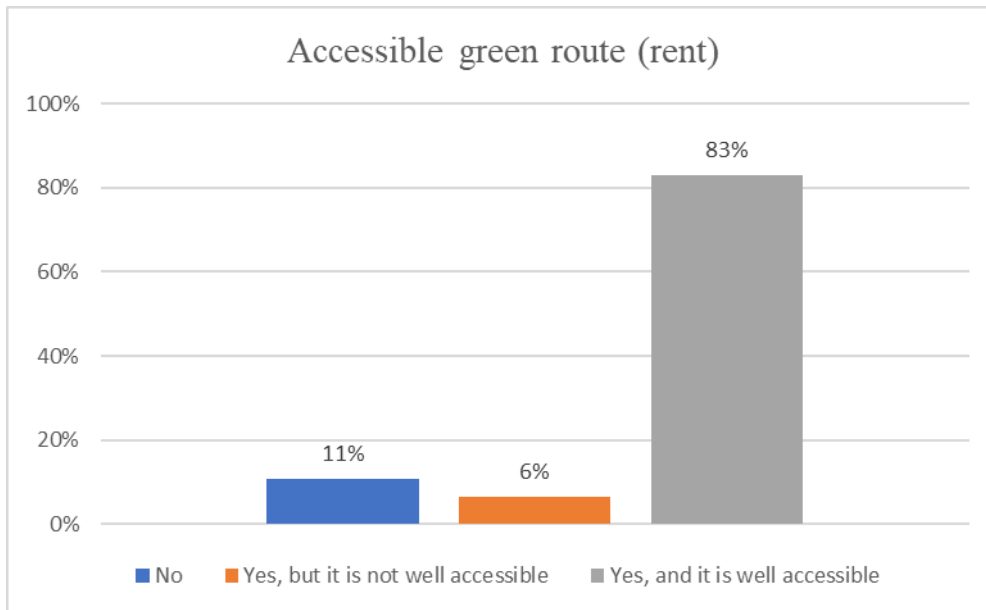
Figure 23: Presence of an accessible green route

Figure 24 shows the willingness to relocate. For the owner-occupied sample, nearly 50% does absolutely not want to relocate in the coming 5 years. 44% of the sample do not rule out relocating one day. The results of the rent sample show different results. Here, nearly 25% is willing to relocate, however, they are not able to find something. In contrary, about 36% definitely do not wish to relocate. In conclusion, results show a higher willingness to relocate for the rent sample compared to the owner-occupied sample.
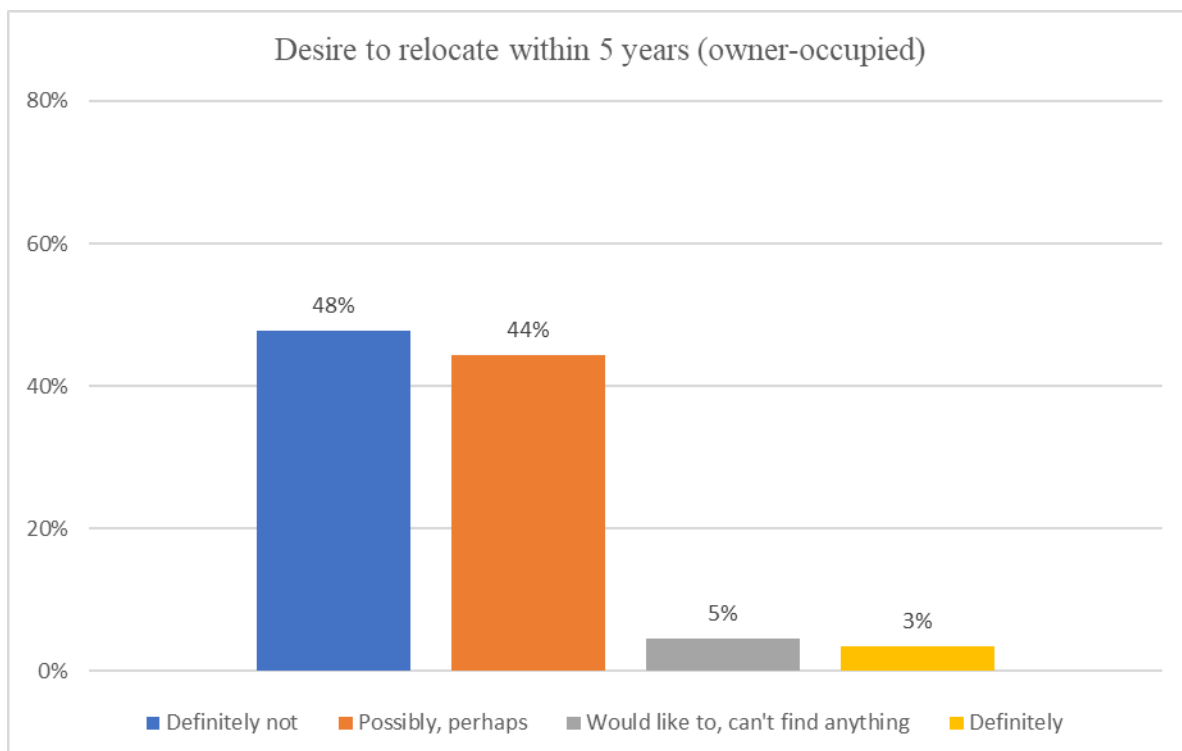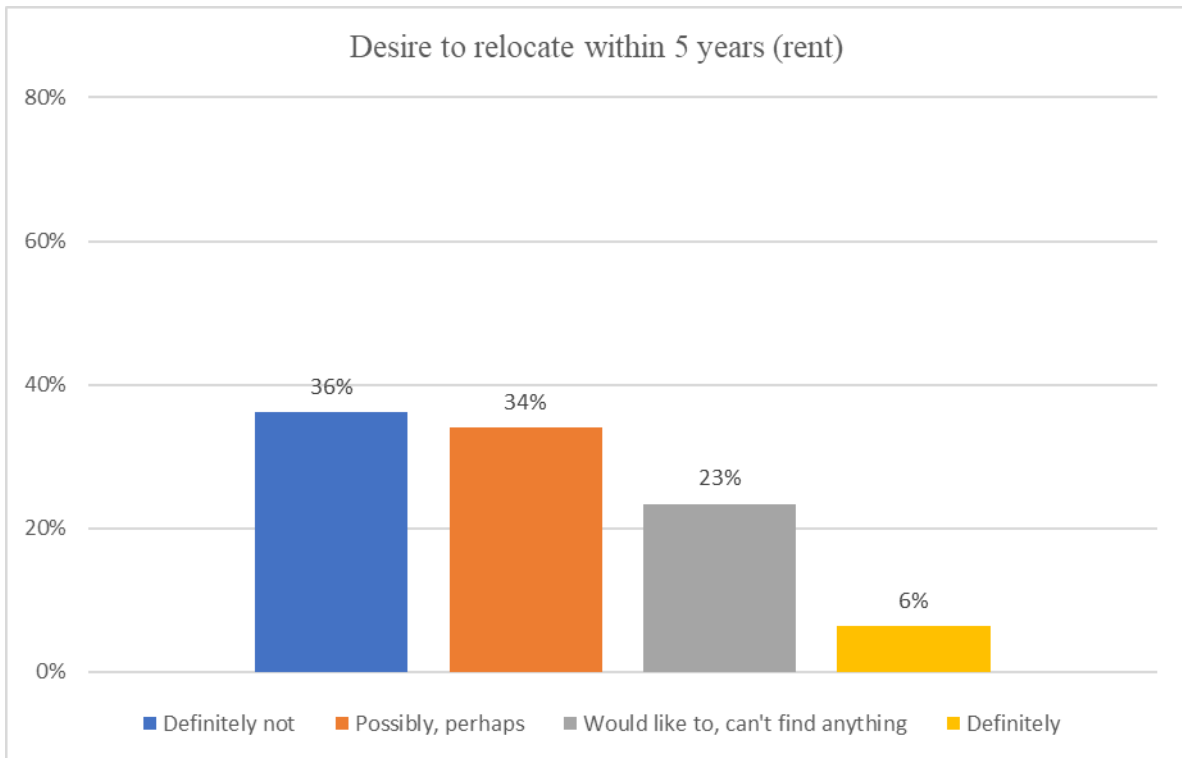
Figure 24: Desire to relocate in the next 5 years

Figure 25 shows several reasons to relocate. Most respondents from both samples indicate that the reason for a possible relocation would be to live in a single-floor dwelling. In addition, 31% of the owner-occupied sample would like to downsize towards a smaller dwelling, with only 15% of the rent sample. This is not remarkable since respondents living in social rental dwelling often already live smaller (Figure 16). The alternative reason for moving is mainly characterised by the desire to live near their children or choose an energy-efficient home. In addition, some seniors want to live in a different neighbourhood, closer to the city centre, or in a location outside urban areas. Some other seniors want to live more rural or want less fixed expenses. Finally, some seniors say they want to move because of the death of their partner and some also say they do not want to move because their current home is already life-proof.
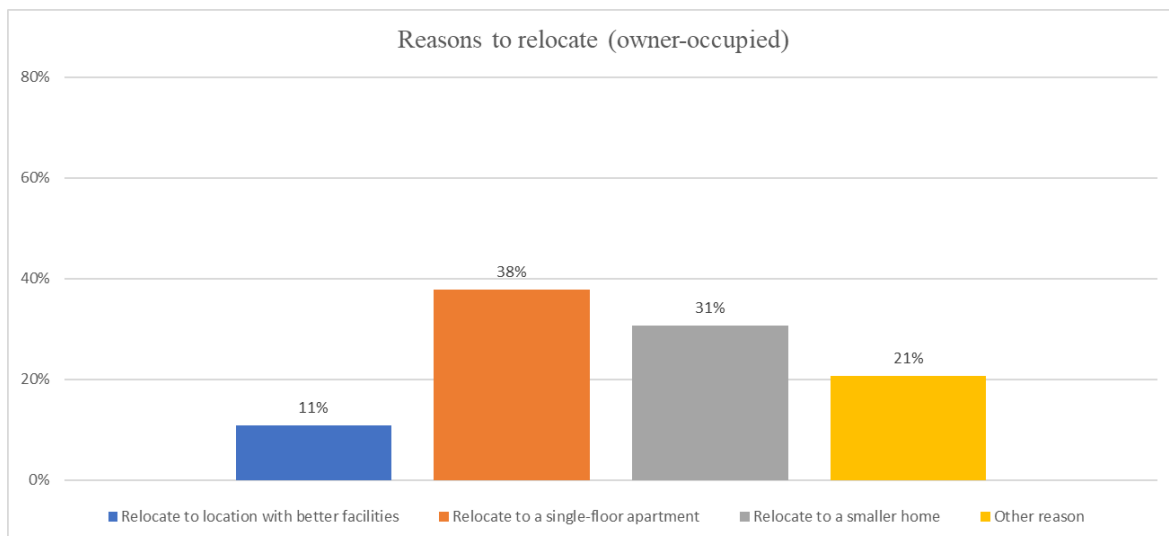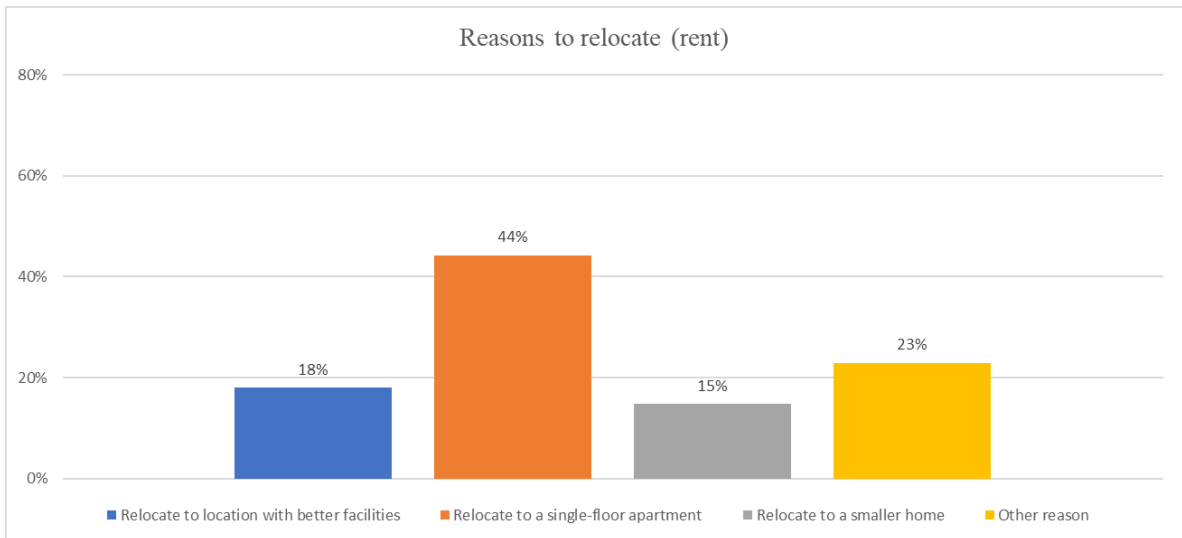
Figure 25: Reasons to relocate

Figure 26 shows the complaints seniors experience about their current home. In both samples, the majority indicate that they have no complaints about the home. In the owner-occupied housing sample, a number of people indicate that their home is too hot in summer and too cold in winter. High energy costs are also noted. Complaints in the rental sample are more evenly distributed. The results show that many seniors are satisfied with their current home. More information with regards to satisfaction about current home is shown in Appendix D.
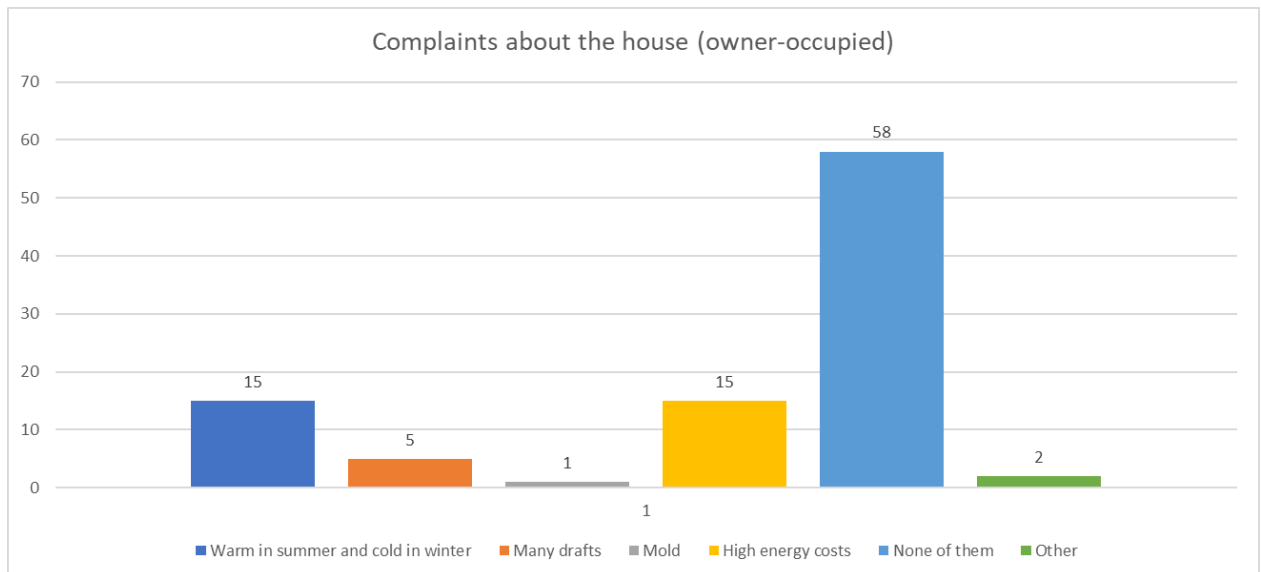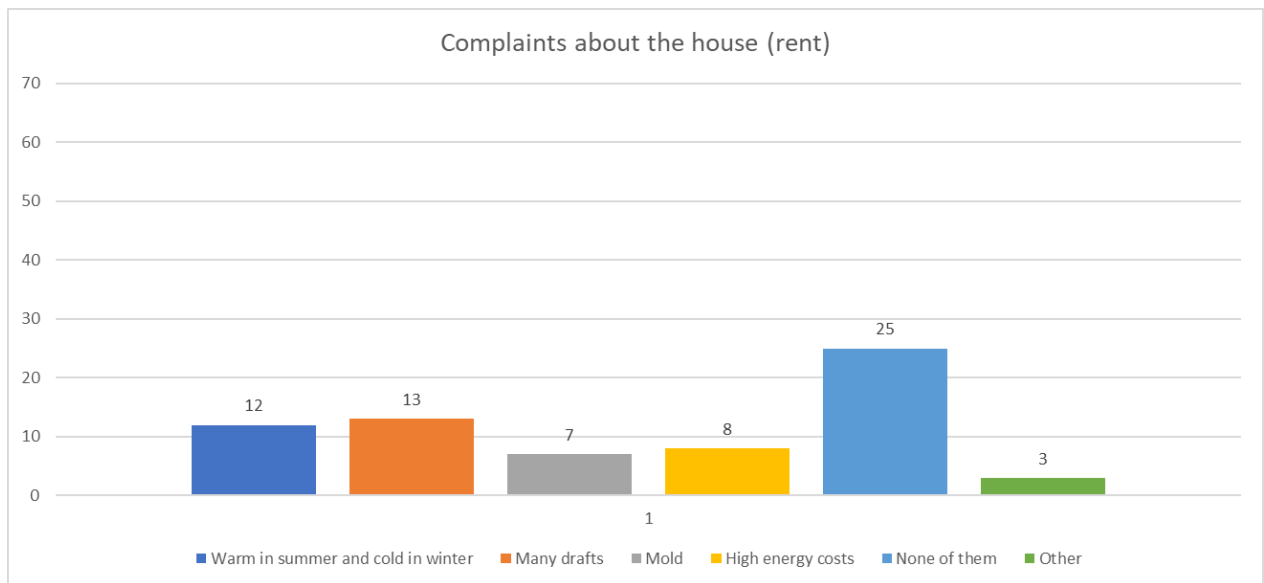
Figure 26: Complaints about the house

7.2.   Conclusion

Descriptive statistics were presented in this chapter. The description showed that most participants were 55-65 years old, in good health and rated housing, living environment and social cohesion as good. In addition, most participants lived in a single-family house of more than 90 m2. In the rental sector, the distribution of housing typology was more evenly distributed. Moreover, the data showed that participants with a rental house had higher housing costs than participants with an owner-occupied house, this may be related to the fact that many seniors have already paid off their mortgages. Finally, many participants did not want to relocate, but if they want to move, it is often about wanting to live smaller or on one level.

8. Results of the multinomial logit[14]

This chapter presents a discrete choice model to analyse the stated choice experiment data. First, a multinomial logit model (MNL) is used to analyse how different housing and location attributes affect the willingness to relocate of the seniors. Second, cross-effects within the MNL model are introduced to test the formulated hypotheses.

8.1. Multinomial logit model

Model performance

To estimate the goodness-of-fit, the McFadden's Rho-square (p^2) can be applied. The dependent variable is the choice respondents make. The coefficients (betas) are estimated in a way that the log-likelihood is maximised. A Rho-square between 0.2 – 0.4 indicates a good fit (Hensher and Stopher, 2021). The Rho-square is based on the log-likelihood when the betas (shown in formula 3) are optimised. Formula 6 shows how to determine the rho square:

$$p^2 = 1.0 - \left[\frac{LL(\beta)}{LL(0)} \right] \qquad (6)$$

LL (β) log-likelihood using estimated parameters
LL (0) Log-likelihood using null model (all parameters β equal to 0.0)

Owner-occupied- and rent sample

A multinomial logit model (MNL) is used to understand the role of different attributes when deciding to relocate to an alternative home. For all 6 variables level 0 is used as the reference and suboptimal relative to level 1. Table 8 shows the results for the owner-occupied- and rent sample. There are 37 respondents for the rental sample and 88 respondents for the owner-occupied sector. There is an owner-occupied sample because the data for the rental sample was too small. Most coefficients from the owner-occupied sample are statistically significant. The coefficients *green route* and *indoor climate & energy bill* are highly statistically significant (p<0.01). Coefficient "rent" is also significant (p<0.05) and the variables *dwelling location* and *relocation subsidy* are to a lesser extent significant (p<0.1). The variable *daily facilities* is not significant. The outcomes of the coefficients in the MNL model are as expected. However, the option to not relocate "none of these" is positive. This is as expected since only 5% of seniors is relocating on annual basis in the Netherlands (CBS, 2021). However, this coefficient is not statistically significant. The attribute level "yes" for the attribute *walkable green route* has the highest utility, followed by an energy-efficient dwelling (attribute indoor climate & energy bill). Furthermore, living cost has the 3rd highest part-worth utility, relocation subsidy is valued as the fourth, location of the dwelling as the fifth and finally location of daily facilities has the lowest utility.

The rent sample, in table 23, shows that coefficient *Relocation subsidy* is highly statistically significant (p<0.01). Furthermore, coefficients *house location* and *housing costs* are also significant (p<0.05). The coefficients *daily facilities*, *walkable green route* and *indoor climate & energy bill* are not significant. The outcomes of the coefficients in the MNL model are as expected. As expected, the option to not relocate "none of these" is positive. This is not remarkable since only 5% of seniors is relocating on annual basis. In addition, this coefficient is statistically significant (p<0.05). The attribute level "no" for the attribute "relocation subsidy" has the highest utility, followed by an "Rent". Furthermore, location has the 3rd highest utility, energy efficient dwelling is valued as the fourth, green route as the fifth and finally location of daily facilities has the lowest utility. The final row of table 23 shows that the rho-squared of the MNL model is equal to 0.086 for owners and 0.091 for rent. This means that the model-

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[14] Jointly written

fit is not high enough *(r² > 0.2)* to say that the model adequately describes the choice behaviour of seniors. This also applies for the rho-squared of the rental sample (0.091).

<div align="center">Table 23: MNL model</div>

Attribute	Description	Owner-occupied (88 respondents / 352 choice tasks) Coefficients MNL (Std. error)	Rent (37 respondents / 148 choice tasks) Coefficients MNL (Std. error)
Home location (ref l0: outside own neighbourhood)	In own neighbourhood	0.361 (0.178) *	0.571 (0.220) **
Facilities (ref l0: distributed in neighbourhood)	Daily facilities at 5-minute walking distance from the dwelling	0.128 (0.169)	0.015 (0.210)
Well-accessible green walking route nearby (ref l0: no)	Yes	0.873 (0.180) ***	0.177 (0.215)
Indoor climate & energy usage (ref l0: same as current dwelling)	House is energy efficient	0.846 (0.181) ***	0.425 (0.222)
Rent level / mortgage costs (ref l0: increases 100 euro a month)	Remains the same	0.494 (0.163) **	0.596 (0.208) **
Relocation subsidy (ref l0: no)	Yes, a one-off 4000- euro subsidy	0.392 (0.172) *	0.765 (0.224) ***
No alternative		1.598 (0.265)***	0.923 (0.355) **
Rho square		0.086	0.091

Note 3: Statistical significance: *p<0.1; **p<0.05; ***p<0.01

8.2. Heterogeneity cross effects MNL

This section examines whether there is heterogeneity among one subgroup in the dataset. As there is insufficient data from the rental sample, the owner-occupied group is used to test for heterogeneity. In addition, section 7.1 revealed that many seniors in the data sample have similar characteristics in terms of: age (55-65), satisfaction with home, neighbourhood and facilities, general health and physical condition. Therefore, only one cross-effect for the green walking route was estimated.

The cross-effects are determined by first creating a dummy variable for whether the respondent have low housing costs and is created as follows: 0 => housing costs above 400 euros or 1 => lower housing costs (costs < 400 euro) The next step was to create a cross-effect between the dummy variable and the no alternative option. The final step was to estimate the cross effects. The cross effects are shown in table 24.

Attribute	Levels	Coefficients MNL (Std. error)	Housing costs < 400 euro's
Home location (ref l0: outside own neighbourhood)	L1: In own neighbourhood	0.361 (0.178) *	0.361 (0.178) *
	X person variable	n/a	n/a
Facilities (ref l0: distributed in neighbourhood)	L1: All together	0.128 (0.169)	0.126 (0.169)
	X person variable	n/a	n/a
Green walking route nearby (ref l0: no)	L1: Yes	0.873 (0.180) ***	0.868 (0.180) ***
	X person variable	n/a	n/a
Indoor climate & energy usage (ref l0: same as current dwelling)	L1: Yes, house is energy efficient	0.846 (0.181) ***	0.845 (0.181) ***
	X person variable	n/a	n/a
Housing costs (ref l0: increases 100 euro a month)	L1: Remains the same	0.494 (0.163) **	0.492 (0.172) **
	X person variable	n/a	n/a
Relocation subsidy (ref l0: no)	L1: Yes, a one-off 4000- euro subsidy	0.392 (0.172) *	0.388 (0.172) *
	X person variable	n/a	n/a
No alternative		1.598 (0.265) ***	1.674 (0.299) ***
	X person variable		-0.134 (0.244)
Rho square		0.086	0.099

*Note 4: Significance: *p<0.1; **p<0.05; ***p<0.01*

8.3.   Hypotheses testing

This section presents the results of the hypotheses introduced in Section 4.2. Hypothesis 1 posited that retaining the same housing costs is more important than a one-time relocation subsidy. For the owner-occupied sample, this hypothesis is supported, as the coefficient for retaining the same housing costs (0.49) is higher than that of the relocation subsidy (0.39). In contrast, for the rental sample, this hypothesis is not supported, as the coefficient for retaining the same housing costs (0.60) is lower than that of the relocation subsidy (0.77).

Hypothesis 2 suggested that seniors with current low housing costs (less than 400 euros) are less likely to relocate than those with higher housing costs. However, the results do not support this hypothesis, as the coefficient for individuals with low housing costs (<400 euros) is lower (1.674 -0.134=1.54) than that for those without low housing costs (1.67). Additionally, the cross-effect coefficient is not significant, indicating a lack of support for this hypothesis.

Hypothesis 3 posited that financial attributes (maintaining existing rent and receiving relocation subsidy) and energy-efficient dwellings are more important than location attributes. This hypothesis is supported for both the owner-occupied and rental samples, as the utility for the former group is higher (1.73) than that for location attributes (1.36), and the utility for the latter group is higher (1.79) than that for location attributes (0.76). However, it should be noted that the coefficients for location and daily facilities are both insignificant in the rental sample. Therefore, while the results suggest that financial attributes and energy-efficient dwellings are more important than location attributes, the significance of location attributes cannot be completely ruled out due to the non-significant coefficients. In addition, when the insignificant location-related parameters are set to zero, the hypotheses is even more supported.

8.4. Conclusion

This study used a multinomial logit model to investigate the factors that influence seniors' decisions to relocate to an alternative home. The study found that the attribute: green walking route has the highest utility, followed by an energy-efficient dwelling (attribute indoor climate & energy bill), maintaining housing costs, relocation subsidy, location of the dwelling, and finally location of daily facilities.

The study also tested three hypotheses and found that retaining the same housing costs is more important than a one-time relocation subsidy for the owner-occupied sample, while the opposite is true for the rental sample (hypothesis 1). Hypothesis 2 is not supported. In fact, the coefficient for individuals with low housing costs (<400 euros) is lower than that for those without low housing costs, indicating that seniors with lower housing costs may actually be slightly more likely to consider relocating. However, It's worth noting that the cross-effect coefficient is not significant. Finally, the results of the study support Hypothesis 3, indicating that financial attributes and energy-efficient dwellings are more important than location attributes for both owner-occupied and rental samples. However, the significance of location attributes cannot be completely ruled out in the rental sample due to the non-significant coefficients. When the insignificant location-related parameters are set to zero, the hypotheses is even more supported.

9. Application[15]

This chapter introduces and discusses a tool based on the results of SCE and the MNL model, aimed at housing associations. This tool will give insights in how to interpret the MNL results. An example of a tool that utilizes the results of the MNL model is presented in Karigar's (2022) study, which focuses on estimating tenants' willingness to accept renovation packages. This tool provides a way to calculate the impact of energy renovation packages, thus increasing tenants' renovation acceptance. Specifically, the probability of choosing the renovation package is estimated, compared to the alternative of not renovating. Another study that demonstrates the practical application of the MNL model is the study by Ossokina, Kerperien, and Arentze (2021), which examines the willingness of tenants to renovate. In this study, the researchers created four packages based on the attributes used and calculated four possible renovation combinations, which were then compared to the option of not renovating.

This study presents an application similar to those developed by Ossokina, Kerperien, & Arentze (2021) and Karigar (2022). Using the results of the MNL model, this tool will estimate seniors' willingness to relocate. As in Ossokina et al.'s study, the tool will construct several packages based on attributes.

Table 25 shows the relocation packages based on commonly used programs, such as VGNB (a relocation program), Ouderen Hub (a senior hub), and "Langer Thuis Wonen + Ontwerpen" (longer living at home and designing for seniors). Package 1 is a reference model with zero levels for all attributes, representing seniors' willingness to relocate given all attributes zero. Packages 2, 3, and 4 are based on the VGNB program with different attribute combinations. The standard VGNB program offers seniors a relocation subsidy and housing costs, which is included in all VGNB packages. The other attributes are not part of the original program. Package 5 is a development by the municipality of Rotterdam that aims to provide suitable residential concepts and facilities to enable seniors to live independently. Two housing concepts are planned for Prinsenland/Lageland and Hoogvliet in Rotterdam. Seniors may need to relocate outside their neighborhood, but facilities will be nearby. The development of new housing initiatives also provides energy-efficient housing. This package does not consider financial characteristics. Finally, package 6 is based on "Langer Thuis Wonen + Ontwerpen".

Table 25: Relocation packages related to experiment attributes

	Package 1	Package 2	Package 3	Package 4	Package 5	Package 6
Attributes	Reference model	VGNB	VGNB + same location & facilities close by	VGNB + energy efficient dwelling	Senior hub	Longer at home + development for seniors
Home location own neighbourhood	No	No	Yes	No	No	Yes
Facilities	No	No	Yes	No	Yes	Yes
Well-accessible green walking route nearby	No	No	No	No	Yes	Yes
Indoor climate & energy usage	No	No	No	Yes	Yes	No
Housing costs	No	Yes	Yes	Yes	No	No
Relocation subsidy	No	Yes	Yes	yes	No	No

To determine the probability of seniors choosing a specific relocation package, data from the owner-occupied sample was used, as more data and significant coefficients were obtained for this group. It should be noted that this application was developed based on the SCE and its attributes. Consequently, changes in conditions, such as the addition of a third alternative, may alter the results. Since the SCE featured two alternatives and "none of these" option, this application was similarly developed. The

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[15] Jointly written

calculations were performed by determining the utility of a relocation package based on Table 9 for owner-occupied properties. Then, the utility of the two choice alternatives and the no relocation option, namely (1) no relocation, (2) package 1, and (3) relocation package (packages 2 to 6), were calculated. Finally, the exponential of the utility was divided by the sum of the exponential of the two choice alternatives and the "none of these" option. A calculation for package 2 is shown below and the rest is shown in figure 27.

- Utility package 2 (Table 25, owner occupied) = 0.494 (rent level) + 0.392 (relocation subsidy) = 0.885.
- Utility two choice alternatives and the "none of these" option = 1.597 (Utility not relocating, table 25 owner occupied) + 0 (Package 1) + 0.885 (package 2)
- EXP (0.885) / EXP(1.597) + EXP(0) + EXP(0.885))= 28.98%

Figure 27 shows the results of the calculations. These indicate that all relocation programs result in a higher probability of seniors moving compared to the reference model (package 1). The combination of several attributes leads to a higher probability of relocation, with the highest probabilities observed for packages 4 and 5. In package 4, moving to an energy-efficient home was found to be an important factor, which may be attributed to the higher gas and electricity prices during November and December 2022 at the time of collecting the data, making seniors more willing to choose for energy-efficient homes with lower energy costs. However, maintaining rent and relocation subsidy also contributes. On the other hand, the probability of moving is high when implementing a senior hub (package 5), mainly due to the presence of an accessible green walking path with the highest coefficient.

It is important to note that the design of the stated choice experiment was taken into account when presenting the results. The experiment consisted of two alternatives with a "none of these" option, where one of the alternatives was always zero for all attributes. Even though the probability of moving was 14%, it is questionable whether the current dwelling is worse than the reference package (package 1). Furthermore, seniors in the experiment were presented with only two relocation options, whereas in reality, they may have more or fewer options available, leading to a lower / higher probability of moving.
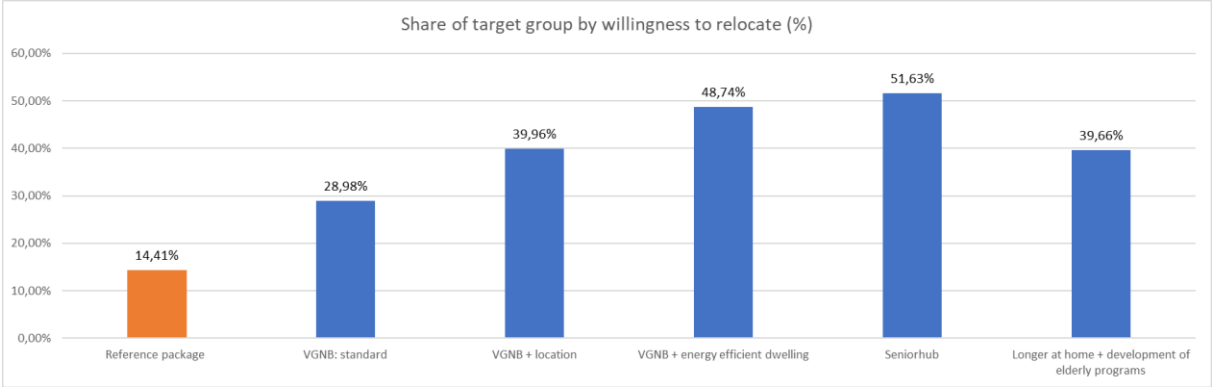
Figure 27: Probability that seniors relocate (%)

This chapter presented a tool based on the MNL model to estimate seniors' willingness to relocate. The tool has five relocation packages and helps housing associations interpret MNL results to increase seniors' relocation acceptance. Results show all relocation programs increase the probability of relocation, with the highest probabilities observed for packages 4 and 5. The tool provides valuable insights into seniors' preferences and needs, allowing housing providers to develop effective policies and programs. However, changes in conditions may affect the results.

10. Conclusion and discussion

10.1. Conclusion

This report has sought to contribute to a better understanding of how to support seniors in moving to a home that meets their third-age needs. A home may become unsuitable as seniors age or experience life events that may affect their willingness to look for a new home. Therefore, it is important to understand how seniors can be encouraged to move from a large and unsuitable home to one that meets their third-age needs. This study examined current best practices such as relocation programs and assessed the suitability of these programs to promote residential mobility. Several programs were investigated that differ in nature and focus on factors such as location, comfort and financial. The ultimate benefit of improved residential mobility of seniors is both private and social: private benefits are achieved when seniors can live independently for longer in a smaller home and social benefits are achieved when other age groups can move to a larger home. Moreover, by encouraging seniors' residential mobility, housing associations can improve the efficiency and usability of their housing portfolio. The methodology in this study is based on literature review, expert interviews and interviews with seniors.

A stated choice experiment took place. This study tried to answer the following research question: "*How can seniors be stimulated to relocate towards a smaller home suitable for their needs, using best practices?*

To answer this research question, several sub-questions were formulated.

S1: What are the obstacles for seniors to relocate and in which step of the customer journey are these obstacles identified?

First, literature research was conducted to understand what changing needs seniors have as they age. The literature shows that various initiatives such as relocation programmes respond to these changing needs: seniors can live in homes where they can live independently and often with like-minded people. Yet research shows that relocations among seniors are lacking: the obstacles seniors experience in moving outweigh incentives such as these new initiatives. A customer journey is the process seniors go through when moving to another home, consisting of the steps 1) Motivation, 2) Information seeking, 3) Evaluation, 4) Decision, 5) Satisfaction and 6) Sharing after the decision. A customer journey was used to understand what factors influence seniors when moving to a more suitable home.

From literature review and interviews it turned out that seniors are facing several obstacles when starting the customer journey: 1) desire to age in place, 2) feeling that there is a lack of supply, 3) having a high place attachment to the home or neighbourhood, 4) discomfort associated with relocation and 5) possible financial consequences when relocating. Furthermore, it emerged from interviews that a lack of personal guidance from the housing association causes seniors to be unknown how to get the right information with regards to relocation. In addition, interviews reveal that most of the obstacles are in the first two steps of the customer journey where in the last steps of the customer journey, on the contrary, there is less involvement from housing associations to support seniors in the journey.

S2: How can seniors be incentivised to relocate and what are the advantages and disadvantages of relocation programs?

Incentives that may compensate for obstacles during the customer journey have been explored by literature review, interviews with experts and discussions with seniors. There are various ways for seniors to get incentivised about a relocation: 1) seniors can be "pushed" into a relocation because of life events, 2) changing third needs & dissatisfaction about the home or neighbourhood, 3) close relatives can influence seniors, 4) reaching societal benefits by freeing-up dwellings, 5) relocation programs, 6) personal guidance carried out by housing associations and 6) financial.

According to the literature study and interviews, most incentives are observed in the first two steps of the customer journey. In addition, some factors are still important when evaluating a relocation. Furthermore, several relocation programs have been analysed and discussed during interviews. From interviews it appears that advantages in using those programs are clear: 1) getting seniors aware of relocation by convincing through the benefits, 2) offering housing where the rent is not increased or, on the contrary, is entitled to relocation subsidy, 3) relocating within one's own neighbourhood and 4) offering personal guidance. In contrary, several disadvantages emerged from interviews with experts such as: 1) program often focused on specific municipality & different conditions, 2) responsibilities are not clear (municipality or HA), 3) programs are sometimes too technical for seniors and 4) lack of personnel capacity among HA's to create awareness. These factors may result in the fact that relocation programs are still often not used. Finally, many seniors are not familiar with the programs - and also the potential benefits - or simply do not want to relocate because obstacles are still outweighing incentives.

S3: How can participation of seniors in relocation programs speed up the customer journey?

Literature study and interviews revealed that thorough participation between housing providers and older people, the wishes and preferences of seniors can be better taken into account. Participation within this study is defined as: "seniors participating in relocation programs, in collaboration with housing providers". As part of this research, a Stated Choice Experiment (SCE) was conducted that serves as a tool to improve participation of seniors in relocation programs and understand their preferences. By understanding the wishes of a large population of seniors, housing providers can better respond to them and apply more targeted interventions that may well overcome seniors' obstacles. Ultimately, this can speed up the customer journey when awareness / motivation is reached and information about the relocation is given by housing providers.

S4: How can housing providers enhance their existing interventions using the results in order to understand which factors are the most important for seniors when relocating?

A stated choice experiment was conducted to understand which attributes seniors consider important when relocating. This revealed that having a well-accessible green walking route nearby was considered most important, followed by having an energy-efficient home, maintaining rent, home located in the same neighbourhood, getting a relocation subsidy and daily facilities at 5-minute walking distance from the dwelling .

Hypothesis 1: *keeping the same housing costs is more important than a one-off relocation subsidy".*

For the owner-occupied sample, this hypothesis is supported, as the coefficient for retaining the same housing costs is higher than that of the relocation subsidy. In contrast, for the rental sample, this hypothesis is not supported, as the coefficient for retaining the same housing costs is lower than that of the relocation subsidy.

Hypothesis 2: *seniors with current low housing costs (less than 400 euros) are less likely to relocate than those with higher housing costs*

The results do not support this hypothesis, as the coefficient for individuals with low housing costs (<400 euros) is lower than that for those without low housing costs. Additionally, the cross-effect coefficient is not significant, indicating a lack of support for this hypothesis. Due to a lack of data, no cross effects were estimated for the rental sample.

Hypothesis 3 stated: *"financial attributes (retaining existing rent and receiving 4000 euro of relocation subsidy) and energy-efficient dwellings are more important than location attributes*

This hypothesis is supported in both the owner-occupied and rental samples. However, the coefficients for location and daily facilities are insignificant in the rental sample. Therefore, while the results suggest

that financial attributes and energy-efficient dwellings are more important than location attributes, the significance of location attributes cannot be completely ruled out due to the non-significant coefficients.

Furthermore, this research tried to establish several relocation packages in order to improve the probability of seniors relocating.

The main research question of this report was: "*How can seniors in social housing be involved in relocating to a smaller home that is suitable for their needs, using best practice interventions and participation?*".

The study found that relocation programs can be valuable in encouraging seniors to relocate if existing relocation programs such as VGNB are made extra attractive with additional benefits. By implementing an existing VGNB package, which focuses on financial aspects such as maintaining rent and getting relocation subsidy, the statistical model shows that 28% of seniors is willing to move while completing the customer journey. Housing associations need to provide additional incentives such as offering a property with financial benefits and energy efficiency: this makes almost 50% of the seniors willing to relocate. The same applies to a senior hub: here, seniors receive an energy-efficient home and accessible walking routes in addition to facilities nearby. In conclusion, it is not the case that existing packages are directly successful, but rather a combination of factors leads to increased willingness to move. It is also true that housing providers need to do awareness-raising and good information early in the customer journey to make the programs well known.

10.2. Recommendations & limitations and future research

A number of recommendations can be formulated from this study. First, it is important to increase participation between housing associations and seniors. An SCE is a tool to increase participation and serves to enable seniors to indicate their housing needs. In this way, housing associations will gain more insight into the wishes of seniors and be able to manage them accordingly. To ensure the best possible response to seniors' diverse housing needs, it is important to put together relocation packages, each with a unique character. Some do not want to deteriorate financially, while others would like to stay in the same neighbourhood. Finally, seniors' wishes may differ geographically and it does not mean that certain interventions will work in other areas.

This research has several limitations. First, as it proved difficult to reach seniors to participate in group discussions regarding their experience of relocation, it was not possible to conduct interviews with several seniors at the same time. In the end, 3 interviews were conducted with three different households (separately). The aim was to have at least 3 discussions with in total approximately 15 seniors. Secondly, not all attributes, which came from literature review and interviews, could be used in the experiment. This was decided to avoid cognitive burden for seniors participating in the experiment. This means that attributes could only be formulated in a few areas such as financial, location and energy. Attributes in the area of personal guidance from housing associations, for example, could not be included. Thirdly, not enough housing associations saw participation in the experiment as practically feasible within the time span of the thesis. They contributed much in many other ways, e.g., through arranging interviews with experts and seniors. Fourthly, we had to approach a mix of owners and renters, instead of the social rental sector only since not enough people from the social housing sector were able to fill in the survey. Fifthly, the participants who conducted the experiment ended up being fairly homogeneous. In general, socio-demographic characteristics, physical condition and satisfaction with home, neighbourhood and facilities were very similar to each other. As a result, only one hypothesis was established to test for heterogeneity. In future research, it would be interesting to involve multiple housing associations and conduct analyses in different regions of the country. In this way, relocation preferences of seniors from different neighbourhoods can be clarified and (local) interventions (e.g., relocation programs) may also be better applied. Further, more insight into heterogeneity is needed.

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Appendices

Appendices A: Approved ethical review of research proposal

Mr. Juriën van Arum
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TU/e
EINDHOVEN UNIVERSITY OF TECHNOLOGY

Date	Reference
May 12, 2022	ERB20228622

Ethical Review Board TU/e

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intranet.tue.nl/ethics

Ethical review research proposal

Dear Mr. Van Arum,

It is a pleasure to inform you that the Ethical Review Board (ERB) has discussed and approved your application "A study to investigate how elderly in social housing should be involved in relocating to a smaller home that is suitable for their needs, using best practise interventions".

The Board wants to draw your attention to the terms and conditions in the appendix.

Success with your research!

Sincerely,

Dr. D. Lakens
Chair Ethical Review Board TU/e

Enclosures
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TU/e

APPENDIX 1

Terms and conditions

Amendments
When considerable amendments are made to the design of the study or educational activity, or when the time period between ERB approval and start of the study is longer than one year, please consult the ERB.

Privacy and research data management
The ERB would like to point out that collecting, handling and storing personal information is subject to the General Data Protection Regulation. Please visit TU/e intranet for the latest information and regulations on www.tue.nl/rdm

Choice game

Choice game accessible living

When one gets older, good accessibility of the home and surroundings becomes very important. Accessible living can be arranged in various ways. Your housing association would like to figure out which ways the tenants find best. We invite you to think about this together.

TU Eindhoven has developed for this a game-of choice. In the game you get 4 times a choice from 2 different accessible homes. We ask you to indicate which one you would consider relocating to. You may also choose neither. We also ask a few questions about yourself. All answers will be processed anonymously and kept confidential.

Participation only takes 15 minutes. Your input will help housing associations develop better housing concepts for seniors.

Please take the time to read the explanations carefully. If you have any questions, please send an email to Ashwan Rampersad & Juriën van Arum, master students at TU Eindhoven: a.rampersad@student.tue.nl (mailto:a.rampersad@student.tue.nl) or j.v.arum@student.tue.nl (mailto:j.v.arum@student.tue.nl).

Many thanks in advance for your participation!

✱This game is not shown properly on a telephone. In case you are logged in on a telephone, would you please switch to a computer or tablet (ipad).

On which devide are you participating?

❶ Choose one of the following answers

○ Computer | ○ Tablet or ipad | ○ Telephone

Consent form

✱First of all, thank you for participating. But before you start, we need your consent. Please read the following statements and the Consent form (/upload/surveys/798436/files/Consent%20form.pdf) thoroughly. If you understand and agree with them, please give your consent. Please notice: if you do not consent, you will leave this questionnaire. The questionnaire takes about 15 minutes to complete.

- I agree with participation of this research
- I read the consent form. I was able to ask question. I have had enough time to decide whether I wanted to participate.
- I know that participation is voluntary. I also know that I can decide to quit at any moment.
- I give permission to collect and use my data to answer the research question
- I give permission to storage of aggregated anonymized information from this re-search in data-archives, to be used for replication purposes and future research.

❶ Choose one of the following answers

○ I agree and wish to participate

Some questions about yourself and your dwelling (1/3)

We will now ask some questions about yourself.

*What is your age?

❶ Choose one of the following answers

○ 55 till 65 years   ○ 65 till 75 years   ○ 75 +

*What is your gender?

❶ Choose one of the following answers

○ Male   ○ Female

*What is your household composition?

❶ Choose one of the following answers

○ Single   ○ Couple   ○ With resident children

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✱What is your level of education?

❶ Choose one of the following answers

Please choose...	⌄

✱What is your zipcode? (4 digits and 2 letter without space, so for example 1234AB)

❶ Please check the format of your answer.

✱What is your native language?

❶ Choose one of the following answers

○ Dutch ○ Turkish ○ Moroccan ○ Surinamese ○ Other

Some questions about yourself and your dwelling (2/3)

✱How is your health, in general?

❶ Choose one of the following answers

○ Very good

○ Good

○ Reasonable

○ Sometimes good, sometimes not

○ Bad

✱Are you restricted in your normal daily activities, because of health reasons?

❶ Choose one of the following answers

○ Severely restricted

○ Somewhat restricted, not much

○ Not restricted at all

✱Is your partner restricted in his/her normal daily activities, because of health reasons?

❶ Choose one of the following answers

○ Severely restricted

○ Somewhat restricted, not much

○ Not restricted at all

○ I do not have a partner

✱How easy can you enter or leave your dwelling from the street?

❶ Choose one of the following answers

○ Without effort

○ Some effort

○ Great effort

○ Only with help from others

❋Can you walk the stairs?

❶ Choose one of the following answers

○ Without effort

○ Some effort

○ Great effort

○ Only with help from others

❋How long can you walk without having to take a break to rest?

❶ Choose one of the following answers

○ Maximum of 5 minutes

○ Maximum of 15 minutes

○ More than 15 minutes

❋In general, how satisfied are you with your life? On a scale from 1 to 10, what would you rate it?

❶ Choose one of the following answers

| Please choose... ⌄ |

Some questions about yourself and your dwelling (3/3)

✱Would you please give your opinion about your house and neighbourhood

	Very bad	Bad	Neutral	Good	Very good
How do you rate your dwelling?	○	○	○	○	○
How do you rate facilities in your neighbourhood (shops, health care, recreation)?	○	○	○	○	○
How do you rate social cohesion in your neighbourhood?	○	○	○	○	○

✱What type of home do you currently live in?

ℹ Choose one of the following answers

○ Single-family house (e.g. terraced house) with garden

○ Single-family house without garden

○ Apartment (same level)

○ Apartment (different levels)

○ Other

*How large is your current home?

❶ Choose one of the following answers

○ 70-80 m²

○ 80-90 m²

○ 90-100 m²

○ > 100 m²

*What is your current rent price?

❶ Choose one of the following answers

| Please choose... ⌄ |

*Do you receive rent allowance?

❶ Choose one of the following answers

○ Yes

○ No

✱Do you have any of the following complaints about the house? [multiple answers possible]

❶ Check all that apply

☐ House too warm in summer and too cold in winter

☐ House has drafts

☐ House has mold

☐ Too high energy costs

☐ None of these

☐ Other: [ ]

✱How long is the walking time to supermarket/ family doctor/ public transport (mention the longest time)

❶ Choose one of the following answers

○ 0 - 5 minutes

○ 5 -10 minutes

○ 10 - 15 minutes

○ Longer than 15 minutes

✱Is there a green walking route near your home? (A route of about 15 minutes along trees/grass.)

❶ Choose one of the following answers

○ No

○ Yes, but it is not well accessible (bad pavement, obstacles, bad lighting, too narrow, etc.)

○ Yes, and it is well accessible

✱How long have you currently lived in your home ?

❶ Choose one of the following answers

○ 0 - 5 years

○ 5 - 10 years

○ More than 10 years

✱Do you want to relocate within five years?

❶ Choose one of the following answers

○ Definitely not

○ Eventually yes, maybe

○ Would like to, can't find anything

○ Definitely yes

✱What would be the important reasons for you to relocate? [multiple answers possible]

❶ Check all that apply

☐ Relocate to location with better facilities

☐ Relocate to a single-floor apartment

☐ Relocate to a smaller home

☐ Other: [   ]

Example Game-of-choice

Please imagine that you can participate in a relocation program from your own housing association. You could then relocate without a waiting list to a senior-friendly apartment of 70m2 with a medium-sized balcony. The property is located in an apartment complex with lift and a bus stop just outdoors. It is suitable to live in until old age (wide doorways, barrier-free, walk-in shower etc).

In the next pages, you will be given four choices of two dwellings from this program. We ask you to indicate which of the two you would consider relocating to. You can also choose not to relocate. The homes proposed differ in: location, living comfort and financial.

Below is an example. You don't have to choose yet.

Housing characteristic	Appartment 1	Appartment 2
Location		
Where is the new home located?	In own neighbourhood (on walking distance from current home)	Outside own neighbourhood
Where are the facilities? (Supermarket/ doctor/ -community house)	Spread through the neighbourhood on walking distance	All clustered together just outside your front door
Is there a well-accessible green walking route nearby?	No	Yes
Living comfort and Financial		
How is the indoor climate & energy usage?	Energy-efficient home (cooler in summer, warmer in winter, less draft and lower energy bill)	Same as now
What will be my new rent?	Rent goes up 100 euros a month	The rent remains the same
Is there a relocation subsidy?	No	Yes, one time 4000 euros

Please click **Next** and the game will start!

Game of choice Accessible living

＊Choice 1/4

Below you see two houses. Both are senior-friendly apartments of 70m2 with a middle large balcony, suitable to live in until very old age. Both are located in an apartment complex with lift and a bus stop in front.

Which one would you consider moving to?

	Apartment 1	Apartment 2
Location		
Where is the new home located?	In own neighbourhood (on walking distance from current home)	In own neighbourhood (on walking distance from current home)
Where are the facilities? (supermarket/ doctor/ community centre)	Spread through the neighbourhood on walking distance	All clustered together just outside your front door
A well-accessible green walking route nearby?	Yes	No
Living comfort and Financial		
How is the indoor climate & energy use?	Energy-efficient home (cooler in summer; warmer in winter; less draught and lower energy bill)	Energy-efficient home (cooler in summer; warmer in winter; less draught and lower energy bill)
What will be my new rent?	Rent stays the same	Rent goes up 100 euro a month
Is there a relocation subsidy?	No	No

❶ Choose one of the following answers

○   Apartment 1   ○   Apartment 2   ○   None

Appendices C: Fractional factorial design

Alternative	Profile	Location	Facilities	Walking rout	Indoor climate & energy usage	Rent	Relocation subsidy
1	000000	Outside own neighbourhood	Distributed in the neighbourhood; everything within 15 minutes' walk	No	The same as current dwelling	Rent /mortgage costs goes up Remains the same00 euros a month	No
2	011001	Outside own neighbourhood	All together; a 5-minute walk from the dwelling	Yes	The same as current dwelling	Rent /mortgage costs goes up Remains the same00 euros a month	Yes
3	011010	Outside own neighbourhood	All together; a 5-minute walk from the dwelling	Yes	The same as current dwelling	Remains the same	No
4	000011	Outside own neighbourhood	Distributed in the neighbourhood; everything within 15 minutes' walk	No	The same as current dwelling	Remains the same	Yes
5	001100	Outside own neighbourhood	Distributed in the neighbourhood; everything within 15 minutes' walk	Yes	the house is energy efficient (cooler in summer & warmer in winter, fewer draughts and lower energy bills	Rent /mortgage costs goes up Remains the same00 euros a month	No
6	010101	Outside own neighbourhood	All together; a 5-minute walk from the dwelling	No	the house is energy efficient (cooler in summer & warmer in winter, fewer draughts and lower energy bills	Rent /mortgage costs goes up Remains the same00 euros a month	Yes
7	010110	Outside own neighbourhood	All together; a 5-minute walk from the dwelling	No	the house is energy efficient (cooler in summer & warmer in winter, fewer draughts and lower energy bills	Remains the same	No
8	001111	Outside own neighbourhood	Distributed in the neighbourhood; everything within 15 minutes' walk	Yes	the house is energy efficient (cooler in summer & warmer in winter, fewer draughts and lower energy bills	Remains the same	Yes

9	110000	In own neighbourhood (max. 15 min walking)	All together; a 5-minute walk from the dwelling	No	The same as current dwelling	Rent /mortgage costs goes up Remains the same00 euros a month	No
10	101001	In own neighbourhood (max. 15 min walking)	Distributed in the neighbourhood; everything within 15 minutes' walk	Yes	The same as current dwelling	Rent /mortgage costs goes up Remains the same00 euros a month	Yes
11	101010	In own neighbourhood (max. 15 min walking)	Distributed in the neighbourhood; everything within 15 minutes' walk	Yes	The same as current dwelling	Remains the same	No
12	110011	In own neighbourhood (max. 15 min walking)	All together; a 5-minute walk from the dwelling	No	The same as current dwelling	Remains the same	Yes
13	111100	In own neighbourhood (max. 15 min walking)	All together; a 5-minute walk from the dwelling	Yes	the house is energy efficient (cooler in summer & warmer in winter, fewer draughts and lower energy bills	Rent /mortgage costs goes up Remains the same00 euros a month	No
14	100101	In own neighbourhood (max. 15 min walking)	Distributed in the neighbourhood; everything within 15 minutes' walk	No	the house is energy efficient (cooler in summer & warmer in winter, fewer draughts and lower energy bills	Rent /mortgage costs goes up Remains the same00 euros a month	Yes
15	100110	In own neighbourhood (max. 15 min walking)	Distributed in the neighbourhood; everything within 15 minutes' walk	No	the house is energy efficient (cooler in summer & warmer in winter, fewer draughts and lower energy bills	Remains the same	No
16	111111	In own neighbourhood (max. 15 min walking)	All together; a 5-minute walk from the dwelling	Yes	the house is energy efficient (cooler in summer & warmer in winter, fewer draughts and lower energy bills	Remains the same	Yes

Appendices D: Results SCE

Socio-economic data of sample

Characteristic	Categories	Rental (47 resp.)	Owner-occupied (88 resp.)	Total % Sample (135 resp.)
Age	55-65	50%	74%	66%
	65-75	33%	24%	27%
	75+	18%	2%	7%
Gender	Male	51%	55%	53%
	Female	49%	45%	47%
Household	Single	41%	10%	20%
	Couple	44%	58%	53%
	With resident children	15%	32%	26%
Education level	Low	68%	61%	64%
	High	32%	39%	36%
Native language	Dutch	90%	86%	88%
	Not Dutch	10%	14%	12%

Physical condition data of sample

Characteristic	Categories	Rental (47 resp.)	Owner-occupied (88 resp.)	% Sample (135 resp.)
Health level in general	Very good	7%	18%	15%
	Good	74%	61%	66%
	Reasonable	9%	15%	13%
	Good/Bad	9%	6%	7%
	Bad	0%	0%	0%
Restricted in normal daily activities due to health reasons?	Severely restricted	0%	3%	2%
	Somewhat restricted	21%	20%	21%
	Not restricted at all	79%	76%	77%
Partner restricted in his/her normal daily activities due to health reasons?	Severely restricted	4%	0%	1%
	Somewhat restricted	28%	18%	20%
	Not restricted at all	64%	81%	77%
	I do not have a partner	4%	1%	2%
Easiness in entering or leaving your home from the street?	Without effort	93 %	94 %	94%
	Some effort	7%	2%	4%
	Great effort	0%	2%	2%
	Only with help from others	0%	1%	1%
Can you walk the stairs?	Without effort	79%	84%	82%
	Some effort	21%	15%	17%
	Great effort	0%	0%	0%
	Only with help from others	0%	1%	1%
How long can you walk without having to take a break to rest?	Max. 5 min.	5%	2%	3%
	Max. 15 min.	7%	10%	9%
	More than 15 min.	88%	88%	88%
Satisfaction life	Low (1-6)	14%	5%	8%
	Average (7-8)	56%	69%	65%
	Good (9-10)	30%	26%	27%

Characteristic	Categories	Rental (47 resp.)	Owner-occupied (88 resp.)	% Sample (X resp.)
Home rating	Very bad	2%	0%	1%
	Bad	9%	1%	4%
	Neutral	12%	8%	9%
	Good	63%	57%	59%

	Very Good	14%	34%	27%
Facilities rating	Very bad	0%	1%	1%
	Bad	7%	2%	4%
	Neutral	14%	9%	11%
	Good	63%	70%	68%
	Very Good	16%	17%	17%
Social cohesion rating	Very bad	2%	0%	1%
	Bad	12%	6%	8%
	Neutral	26%	31%	29%
	Good	51%	55%	53%
	Very Good	9%	9%	9%
Current type of home	Single-family house with garden	58%	74%	69%
	Single-family house (no garden)	0%	1%	1%
	Apartment (same level)	21%	9%	13%
	Apartment not at floor-level	14%	7%	9%
	Other	7%	9%	8%
Size of dwelling	60-70 m2	21%	6%	11%
	70-80 m2	28%	7%	14%
	80-90 m2	19%	14%	15%
	90 m2 or larger	33%	74%	60%
Current rental price / mortgage each month	400 euros or lower	0%	45%	31%
	400 euro - 500 euro per month	2%	16%	11%
	500 euro - 600 euro per month	9%	10%	10%
	600 euro - 700 euro per month	30%	10%	17%
	700 euro - 800 euro per month	30%	8%	15%
	Higher than 800 per month	28%	10%	16%
Rental allowance	Yes	23%	n/a	23%
	No	77%	n/a	77%
Travel time to facilities	0-5 minutes	16%	20%	19%
	5-10 minutes	30%	44%	40%
	10-15 minutes	30%	23%	25%
	Longer than 15 minutes	23%	13%	16%
Green walking route nearby home	No	11%	20%	17%
	Yes, but it is not well accessible	6%	8%	7%
	Yes, and it is well accessible	83%	72%	76%
Current time of residence in home	0-5 years	14%	17%	14%
	5-10 years	12%	9%	8%
	More than 10 years	74%	80%	78%
Plan to relocate in coming 5 years?	Definitely not	37%	48%	44%
	Possibly, perhaps	35%	44%	41%
	Would like to, can't find anything	21%	5%	10%
	Definitely	7%	3%	5%
What is the most important reason for you to relocate?	Location with better facilities	18%	11%	13%
	Single-floor apartment	44%	38%	40%
	Relocate to a smaller home	15%	31%	25%
	Other reason	23%	21%	22%