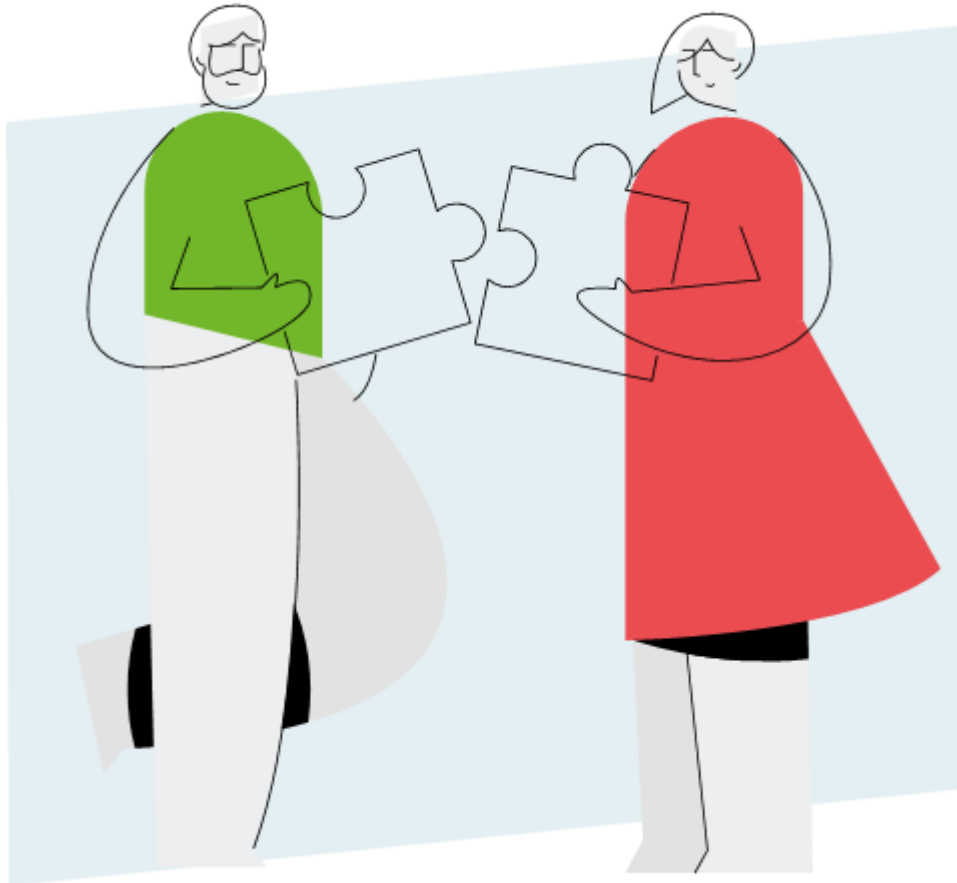


“Move on Up”

Exploring Later-Life Residential Mobility in the Netherlands between 2015-2020.



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Summary

The issues involving the increasingly ageing (Dutch) population have progressively become a body of interest of policy makers, and academics. This unprecedented situation of having more elderly does not only pressurises contemporary healthcare systems, but also the mobility in the housing market. The older adults, people aged 55 years and above, tend to have relatively the lowest residential mobility of all age groups. This Master's thesis will delve into which (contextual) factors contribute to older adults' propensity to relocate, and what is hampering prone to relocate older adults to realize their move in the 2015-2020 period. These limitations unveil a discrepancy in terms of what older adults intended to do (stated preference), and their actual residential behaviour (revealed preference).

In short, this research is inspired by, and tries to build further on, previous studies executed on stated preference (Meskers, 2020), revealed preference (Van der Pers et al., 2015), and the discrepancy between stated and revealed preference (De Groot et al., 2008).

This has resulted into the formulation of the central research question:

*'To what extent is there a **discrepancy** between **stated preference** and **revealed preference** in terms of relocation of older adults in the Netherlands during 2015-2020, and what is the influence of triggering factors (especially **intergenerational proximity, widowhood, and health**) on the **propensity** of older adults to relocate, and **probability** to realize their relocation intention?*

To answer this research question, logistic regression analyses have been applied using longitudinal data from the Housing Research Netherlands (HRN), and the Social Statistical Database (SSD). The HRN 2015 dataset consists of detailed information about 73660 respondents in the Netherlands. In 2015, these individuals were interviewed about their housing situation at the time, their propensity to move, and their residential preferences in the nearby future. The HRN 2015 was even further enriched with socio-economic information, such as for example income. Combining the HRN 2015 with the SSD register data, following the methods of De Groot et al. (2008), resulted in the possibility to follow respondents residential behaviour between the 2015-2020 period.

Thanks to the support of *Companen (Advisory Bureau for the Housing Market and Residential Environment)* and Statistics Netherlands (CBS), this data became available for this research.

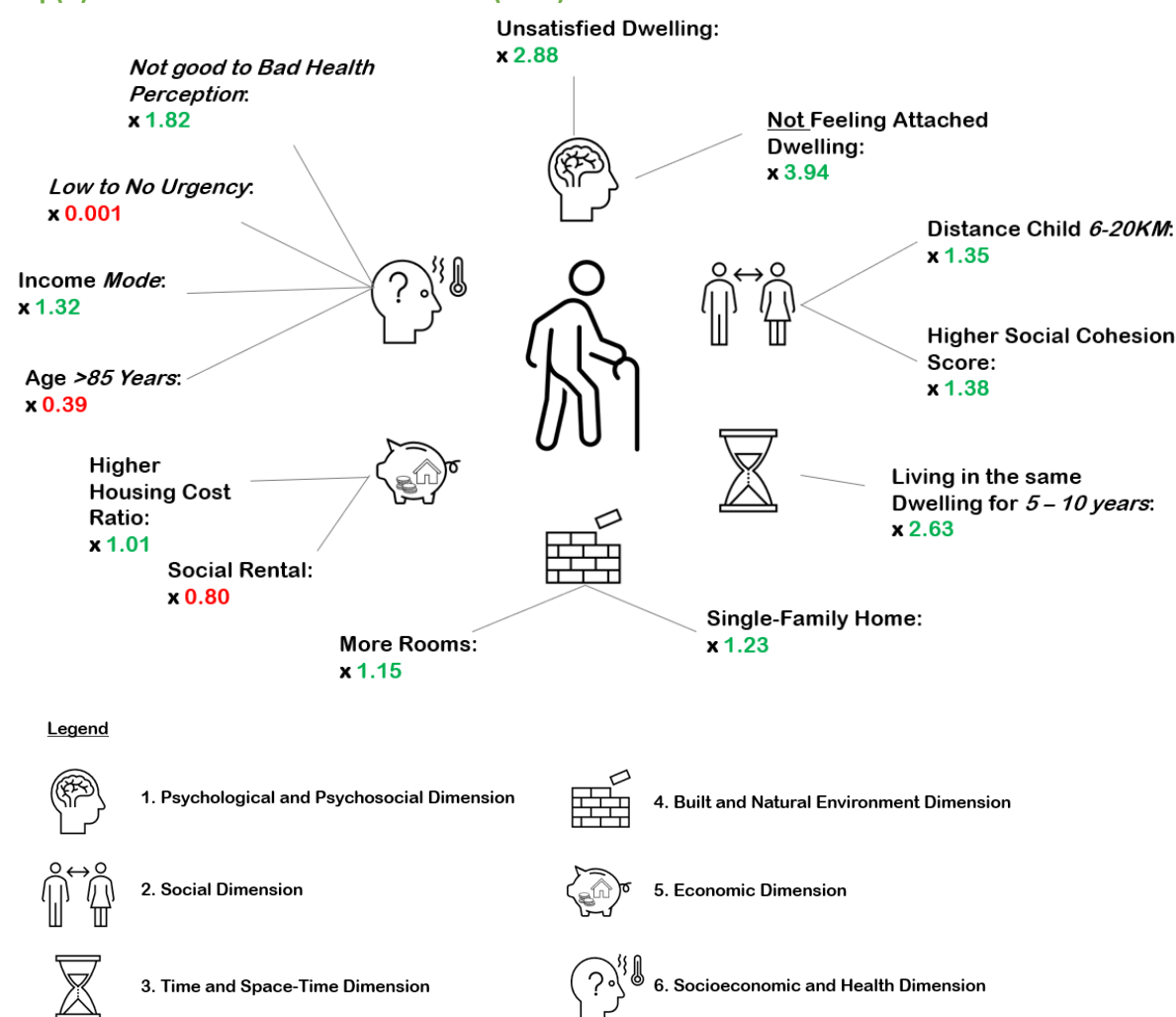
The research in itself can be divided into roughly two parts:

Firstly, by creating a multinomial logistic regression model (Model A), the influence of factors (i.e., variables) driving older adults' propensity to relocate (**stated preference**) has been estimated. Secondly, with the construction of the binary logistic regression Models B1 and B2, the influence of factors on the probability of realizing a relocation (**revealed preference**) has been calculated.

To categorize all the 25 selected independent variables used in these regression models, the Roy and colleagues (2018) six dimensions of older adults' housing decision has been applied (figure S.1 and S.2). The most significant, and remarkable results of Model A (figure S.1) and Model B1 & Model B2 (figure S.2) have been summarized into these two figures.

Within Model A, the multinomial logistic regression model which estimates the influence of the selected variables on older adults' propensity to relocate in 2015, particularly not feeling attached to the dwelling in 2015 appeared to have a strong effect on the propensity to relocate. Older adults who felt not attached to their dwelling in 2015 were significantly more prone to relocate compared to peers who felt attached to their dwelling. An explanation for this could be this variable is a sum of negative scores within other variables (f.e., great geographical distance, bad social cohesion and few years living in the same dwelling).

**Figure S.1 Summary of Multinomial Logistic Regression Propensity to Relocate in 2015:
Exp(B) of Definite Intention to Relocate ('Yes')**



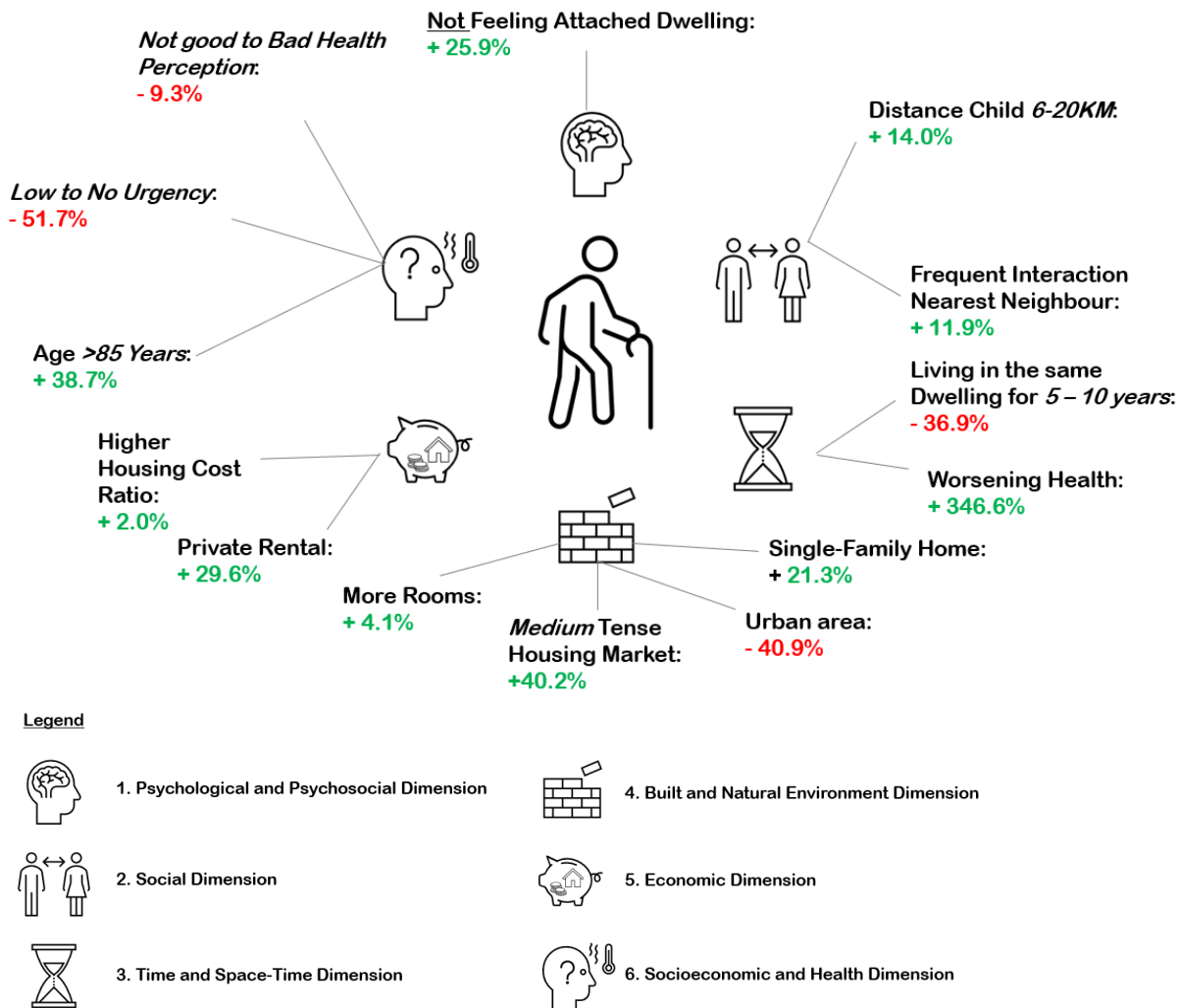
Source: HRN, 2015

Both the binary logistic regressions in Model B1 and Model B2 (figure S.2) estimate the influence of the selected variables on the probability a interviewed older adult of the HRN 2015 is able to realize a relocation in the 2015-2020 period. Model B2 differs with Model B1 on the aspect of regional housing market tension, as this separate independent variable is only taken into account in Model B2 to test its mediating effect. In overall, the mediating effect of the regional housing market appeared to be marginally, but still altering the effect of most variables within the regression model.

In figure S.2, the most significant, and highest probability can be observed with *Worsening Health*. This is probably caused by the fact *Worsening Health* is defined as the moment an older adult obtains a Wlz-indication, indication of eligibility for institutional care in the Netherlands. Obtaining this Wlz-indication almost always results into a relocation to an institutional care facility, so the strong effect is not so surprisingly.

The second strongest effect in Model B2 has been observed for the intensity of the regional housing market (i.e., *Medium Tense Housing Market*). This strong effect can be explained in light of the favourable regional housing market conditions, which consists of residential supply meeting regional demand, making relocations more probable and facilitate higher rates of residential mobility.

Figure S.2 Summary of Binary Logistic Regression Model B2 Revealed Relocation 2015-2020 (in%)



Source: HRN, 2015; SSD, 2022

The most significant discrepancies between stated and revealed preference have been observed within the variables *Age*, *Years in Dwelling*, and *(Personal) health perception*. Despite the oldest age cohort (>85 years) was the least prone to relocate in 2015, in terms of their revealed preference, they are relatively the most relocated age cohort. This finding suggests that most of these relocations were unprecedented, and probably involuntary, as some event or something as triggered these old-elderly (>85 years) to relocate. One of these triggers could be living more than twenty years in the same dwelling.

Contrastingly to the propensity to relocate, the time-frame of 5-10 years in the same dwelling appeared to have a negative effect on the realization of a relocation in the 2015-2020 period. Also contradicting the observed effect within the propensity to relocate is the negative effect of *(Personal) health perception* on the realization of the relocation. As older adults with a *Not good to bad health perception* significantly were more prone to relocate in 2015, this negative *health perception* had a negative effect on realizing this relocation intention.

All in all, the central research question cannot be answered in simple terms. Older adults' stated and revealed residential preferences have been proven to be complex, as the interplay between the numerous factors influencing these preferences is not completely straightforward. Nonetheless, this Master's thesis has

ascertained the special role of older adults' attachment to their dwelling. This attachment keeps these older adults, whether they intended to relocate or not in 2015, from realizing a relocation. This attachment could consist of having family and friends living nearby, accumulated memories over the decades, having little financial issues, which combined could result in a low urgency to relocate.

Concluding, as this thesis has tried to unveil the (irrational) residential behaviour of older adults (i.e., the discrepancy between stated and revealed residential preference), it can be concluded that further research and policy should not focus on changing this irrational behaviour, but should focus on identifying the group of older adults who want to relocate, and try to help them realizing this intention.

Chapter 1: Introduction

All the conflicts and pandemic troubles in our contemporary world aside, the past few years we as humankind are doing something well: on average, people all over the world live longer (World Health Organization [WHO], 2021; United Nations [UN], 2019). Thanks to better health care and relative wealth increase, most people are expected to live into their sixties and beyond. In regard to the Dutch housing market, everything is going crescendo as well. According to former Minister for Housing Stef Blok, the Dutch housing market did no longer need a ministry (Cats, 2017; Van der Stok, 2021). At the end of his reign, Blok proudly claimed he was the first VVD¹ party member who ‘abolished an entire ministry’ and his job was ‘done’ (Cats, 2017).

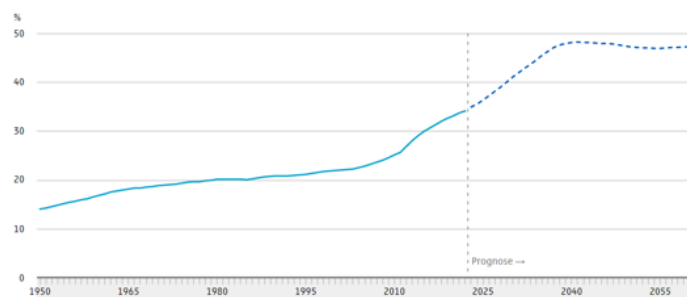
Until this day, Stef Blok has not retracted his strongly criticized statements, and he is not expected to do so in the nearby future. This thesis on the other hand will argue the contemporary issues relating the ageing population and their (residential) behaviour in the Dutch housing market are now more urgent than ever.

§1.1 Ageing population

Starting with the ageing population. Thanks to the combination of relatively low fertility rates, and a greater quantity of people staying alive for a longer period of time, the population in the Netherlands is increasingly ageing.

In line with other countries in Europe, the average life expectancy of Dutch citizens has risen over the last decades towards 85 years, and is expected to rise even further in the next few years (Statistics Netherlands [CBS], 2018a). In combination with relatively low fertility, the current share of older adults² in the Netherlands is growing and has almost doubled in the last thirty years to 34.1 percent of the total adult population in the Netherlands in 2022 (CBS, 2022).

Figure 1.1 The share of people aged 65 years and over in the Netherlands between 1950-2055



Source: Statistics Netherlands, 2022

One of the biggest contributors to this accelerated ageing is the ‘baby boom generation’³(De Groot, Van Dam & Daalhuizen, 2013; Ministry of the Interior and Kingdom Relations [BZK], 2019). This ageing process is not only impactful thanks to its numbers, but it is also happening at a fast pace, as the number of older adults is expected to grow from 3.3 million (in 2019) to 4.2 million (in 2030) in the Netherlands (CBS, 2018b).

This significant increase of an ageing population will have a significant impact on the Dutch society on numerous levels. It is predicted to pose an intense pressure on the health care system, the existing income system (i.e., pensions), and the focus of this research, the housing market (De Jong, Rouwendal, Van Hattum & Brouwer, 2012; Van der Pers, Kibele & Mulder, 2015; Bom, 2021; Commissie Toekomst zorg thuiswonende ouderen [CTZTO], 2020).

¹ Liberal political party in the Netherlands.

² De Jong et al. (2022) also used the term ‘older adults’ to refer to people aged 55 years and older. For the purpose of consistency, this thesis will also use the term ‘older adults’ to refer to people aged 55 years and over.

³ People born after WO II between 1946 and 1955 (De Jong et al., 2022). In these years fertility rates skyrocketed compared to other generations thanks to peace, improved health care, and increase in prosperity.

§1.2 Rutte II Health Care Reforms

To anticipate to this disruptive (expensive) prospect of an ageing population, the Rutte II administration reformed the Dutch Health Care System more intensively in 2015 (Bakx et al., 2015; Bom, 2021; CTZTO, 2020; Government of the Netherlands, n.d.).

Financially, these reforms were heavily needed, as the Netherlands relatively has one of the highest Long-Term Healthcare costs (LTC) in the world⁴ (Bom, 2021; Commissie Toekomst zorg thuiswonende ouderen [CTZTO], 2020; OECD, 2019). Furthermore, due to the increase of the number of older adults, the Central Planning Bureau (in CTZTO, 2020) has estimated the total health care expenditures as a share of the Dutch GDP will rise from 9% in 2016 to 15% in 2040.

To subdue these higher costs, in 2015, the original public LTC financing system was divided into three different acts (Long-term Care Act (**Wlz**), the Health Insurance Act (**Zvw**), and the Social Support Act (**Wmo**)) (Bakx et al., 2015; Bom, 2021; CTZTO, 2020; Government of the Netherlands, n.d.).

These three different acts cover three types of LTC costs (Bom, 2021):

- **Wlz**: covers institutional care and home health care, and is primarily financed by the Dutch national government.
- **Zvw**: covers nursing and personal care, primarily financed by insurance companies.
- **Wmo**: covers social support, assistance, and housekeeping services, primarily financed by local governments.

In short, the general notion among policy makers was and is: older adults are more able and more willing to stay longer in their homes. On the premise of the earlier mentioned higher life-expectancy, it was expected of current older adults to be more able to stay longer in their homes compared to their predecessors (De Groot et al., 2013; Heijinga, 2020). To postpone the expensive move to a institutional care facility, Dutch citizens are stimulated 'to seek help in their own social network before turning to government-funded formal care' (Bom, 2021).

For day-to-day care and social support, citizens are eligible for *Wmo*-subsidies and assistance (Bom, 2021). If they needed additional day-to-day care, they could receive this from informal caregivers ('mantelzorgers') and neighborhood nurses ('wijkverpleegers', *Zvw*) to reduce the collective LTC costs (Heijinga, 2020; Bom, 2021). Only if (older) people needed more intensive care, they are eligible for a long-term care indication⁵ (*Wlz* indication) (Heijinga, 2020; Bom, 2021).

As a result of this, less older adults were eligible for institutional care facilities compared to previous years and therefore it was planned to shut down 800 retirement homes (Heijinga, 2020). Because of these closures, critics claim the reforms created a gap between current dwelling and nursing homes for older adults, forcing older adults to stay in their current dwelling (CTZTO, 2020; Heijinga, 2020).

§1.3 Ageing in Place

However, these reforms possibly only amplified the already present trend of more 'ageing in place' (Van der Pers et al., 2015; De Jong et al., 2022). This term refers to 'the desire and tendency of older persons to stay in their current dwelling units for as long as possible' (Pynoos in De Jong et al., 2022). More than half (56%) of Dutch citizens aged 55 years and over stated to prefer to stay at their current dwelling for a longer time (Algemene Nederlandse Bond voor Ouderen [ANBO], 2019; CBS, 2020; Heijinga, 2020; De Jong et al., 2022). De

⁴ The Netherlands has relatively the highest LTC expenditures of all OECD countries, with 3.7 percent of the Dutch GDP in 2019 (Bom, 2021; CTZTO, 2020; OECD, 2019).

⁵ The Care Needs Assessment Centre (CIZ) allocates which kind of long-term care indication an patient will be given (Government of the Netherlands, n.d.). In line with the severeness of this indication, the patient will be allocated an suitable institutional care facility. These assessment criteria of this indication are stricter compared to the previous situation (Bom, 2021). For example, older adults with a social network capable of providing sufficient informal care are not entitled to a long-term care indication (Bom, 2021).

Jong et al. (2022) their research confirms this preference of older adults to stay in their current dwellings, especially for the older age cohorts. Other findings contradict this notion, as they provide evidence particularly the youngest age cohort of older adults (55-65 years) has relatively the highest relocation propensity (CBS, 2020; Meskers, 2020).

§1.4 Discrepancy between stated and revealed relocation preference

Nonetheless, numerous academic studies have provided evidence for the claim people their stated preference (whether to move or to stay in the current dwelling) most of the time differs from the actual revealed preference (i.e. realizing the earlier stated preference) (Rossi, 1955; Speare, 1974; De Groot et al., 2008). Yet, the size of this discrepancy, in terms of realization rates, varies significantly between the different studies. This is caused by the difference in used research methods, but also represent the different waves of residential mobility in time and regions.

One of the influential factors responsible for the discrepancy between stated and revealed preference is the change of health (Litwak & Longino, 1987; Golant, 2011; De Groot et al., 2013). Related to especially the later-life phase, worsening of health could induce a previous not-prone relocater to be eventually relocated due to health issues, as these could negatively affect a person's ability to take care of themselves. Though, this could be also true the other way around, as a previous prone relocater has not been able to realize their intention (f.e. institutional limitations described in §1.2).

Next to this, geographical location has been proven to be influential in terms of realization rates in the Netherlands (De Groot et al., 2008). De Groot and colleagues (2008) their study provided evidence for the notion especially peripheral regions (i.e. Zeeland, Twente, and Zuid-Friesland) have relatively the highest realization rates.

§1.5 Filtration

Considering all the ascribed above, and the other factors/dynamics (i.e. phase in the lifecycle) which will be described extensively in chapter 2, have most likely contributed to the housing supply deficit of almost 300.000 houses in 2020 in the Netherlands (De Groot et al., 2013; BZK, 2021; Stuart Fox, Blijie, Gopal, Steijvers & Van Zoelen, 2021; Van Klaveren et al., 2021).

The combination of the already present low residential mobility and scarcity within the Dutch housing market, and the growth of the most immobile age cohort⁶ that consist of mostly owner-occupiers, has likely contributed to this current situation.

A possible solution to tackle this deficit could be stimulating filtration⁷ of older adults in the housing market (Ratcliffe, 1949; Turner & Wessel, 2019; Van Klaveren et al., 2021). This filtration could benefit multiple actors:

⁶ According to Stuart-Fox et al. (2021), in the past decade less than 15 percent of the total relocated people in the Netherlands was aged 55 years and over.

⁷ Ratcliffe (1949) defined filtering (down) as 'the changing of occupancy as the housing that is occupied by one income group becomes available to the next lower income group as a result of decline in market price, i.e., in sales price or rent value.' (Turner & Wessel, 2019).

However, in this thesis, the term filtration ('Doorstroming') will be used to refer to the changing of occupancy in terms of households moving to more appropriate housing to create vacancy for other households. These 'old' occupants leave single-family units behind, which can be occupied by 'new' occupants with a bigger household size. These 'new' occupants will most likely leave other (generally smaller and less expensive) units behind themselves, which in itself creates vacant housing supply for other (younger) households with a urgent relocation intention.

- **Older adults:** as the driving actors of the housing filtration receive more suitable housing for their (future) needs. These houses could be adjusted/made life-cycle friendly to extend the time the older adults can live independently and could reduce the total demand of LTC.
- **Younger age cohorts:** who want to rent/buy an house, but can't at the moment due to scarce supply and high prices, could benefit of this in terms of the properties that the older adults inhabited become available. This could induce an snowball-effect for occupants of different type of dwellings, who want to move but previously couldn't because of no available supply. In the new situation, these occupiers can move and create more availability of properties demanded by others.
As a result of all this, the total demand for houses could decrease which results in relaxation of rent prices and property values (Geltner, Miller, Clayton & Eichholtz, 2014).
- **Housing corporations:** could thanks to this possibly have more effective occupation of their properties in having more tenants using more suited dwellings to their needs (Van Klaveren et al., 2021).
- **Dutch Municipalities:** state insufficient filtration in the housing market, especially immobility among older adults, is the biggest issue of the current housing crisis (Van der Parre, 2021). However, the Dutch Elderly Association (ANBO) states municipalities are incapable of solving this crisis, as they lack the funds and instruments to build enough Life-cycle friendly dwellings (ANBO, 2019).

§1.6 Problem definition

Thanks to the omnipresent (future) challenges of the increasingly ageing Dutch population described above, older adults and their influence on the housing market has progressively become an subject of interest for policy researches, (Dutch) municipalities, and there has been an growing body of academic literature investigating 'ageing in place' and older adults' residential mobility (De Groot et al., 2008; Van der Pers et al., 2015; Meskers, 2020; De Jong et al., 2022).

Nevertheless, according to Meen (2016), there should be more economic research conducted related to older adults and their behaviour within the housing domain. Furthermore, most of the academic literature is qualitative of nature, as there has been little quantitative academic research carried out in the past few years.

Therefore, the aim of this research is to fill this quantitative gap in the academic literature and provide more insights into the factors influencing older adults' propensity to relocate and which factors enable/limit them to realize their relocation intention. As stated earlier, older aged people tend to be immobile in terms of residential relocation due to their preferences to 'age in place' (De Jong et al, 2022; Van der Pers et al., 2015). It is therefore interesting, on behalf of more optimal filtration in the housing market, to gain better understanding of older adults' stated and revealed preference, and which factors are influencing the discrepancy between these preferences.

The intention of this research is to build further on previous longitudinal research regarding to the discrepancy between older adults' stated and revealed preference in terms of relocation (De Groot et al., 2008; Bloem et al., 2008; Boumeester, Dol & Mariën, 2015; Van der Pers et al., 2015; Roy, Dube, Despres, Freitas & Legare, 2018). Moreover, in order to investigate the stated relocation preference (i.e. propensity to relocate), this thesis will also build further on the research of Meskers (2020) and De Jong et al. (2022).

The goal of this Master's thesis is to add mainly two new aspects to the existing literature. Firstly, more actual data in relation to older adults' stated and revealed relocation preference in the Netherlands. Similar research has been conducted in 2008 by de Groot and colleagues (2008) with data from 2002.

Bearing the disruptive health care reforms in the Netherlands during the 2015-2020 period in mind, this thesis will explore if older adults' stated and revealed relocation preference has changed during this timeframe (2015-2020) compared to previous years, to observe the effect of the reforms.

Secondly, this thesis will follow up the suggestions made by De Groot et al. (2008), Van der Pers et al. (2015), and De Jong et al. (2022) to use more detailed register data on changes in health, intergenerational proximity (the distance between parents and their children), partnership status, and regional disparities.

Thus, this thesis' central research question is:

*'To what extent is there a **discrepancy** between **stated preference** and **revealed preference** in terms of relocation of older adults in the Netherlands during 2015-2020, and what is the influence of triggering factors (especially **intergenerational proximity, widowhood, and health**) on the **propensity** of older adults to relocate, and **probability** to realize their relocation intention?*

In support of this central research question, two sub questions have been formulated:

1. Which factors influence older adults' stated preference to relocate in 2015?
2. Which factors influence older adults, who stated to be prone to relocate in 2015, to realize their stated preference in the 2015-2020 period?

§1.7 Reading Guide

Shortly after this introduction, Chapter 2 will expatiate on all the selected relevant theories related to (later-life) residential mobility within the Dutch historical context. On the basis of these theories, hypotheses have been constructed to be tested in Chapter 4.

Chapter 3, will describe, and justify the chosen methods. This thereby entails the operationalization of the chosen (in)dependent variables, and their descriptive statistics.

In Chapter 4, the results of this Master's Thesis will be described, and analysed. Whether a hypothesis has been accepted or not, has been colour marked for every subsection title. The colour green resembles the acceptance of the hypothesis in question. Orange resembles the hypothesis is partially accepted, and the colour red resembles the hypothesis is rejected.

Using the outcomes of the regression models (see §3.3, §4.1 & §4.2), Chapter 5 will conclude the most (significant) influential factors related to older adults' propensity to relocate, and which factors enable/disable them to realize their relocation intention in the 2015-2020 period. These conclusions will be made more vividly by means of *Prototype A*. *Prototype A* is the hypothetical prototype of a 'definite prone-to relocate older adult' in the Netherlands during the 2015-2020 period, which will be constructed using the outcomes of Chapter 4.

Chapter 2: Theoretical framework

In order to capture most of the dynamics involved in older adults' relocation behaviour, this theoretical framework chapter will start off in paragraph 2.1 with describing the recent history of housing policy in the Netherlands. Secondly in paragraph 2.2, stated and revealed preference will be defined and related scientific literature will be described. Paragraph 2.3 will shortly touch upon the influential approaches (Cross-sectional & Longitudinal) used to unveil the discrepancy between stated and revealed preference. In paragraph 2.4 the theoretical models of the Lifecycle approach and the Lifecourse approach will be described. This chapter will be concluded by the Roy and colleagues framework (2018), and will cover per dimension which (selected) factors are influential in older adults' housing decision.

§2.1 Policy Framework Older Adults' Residential Mobility in the Netherlands

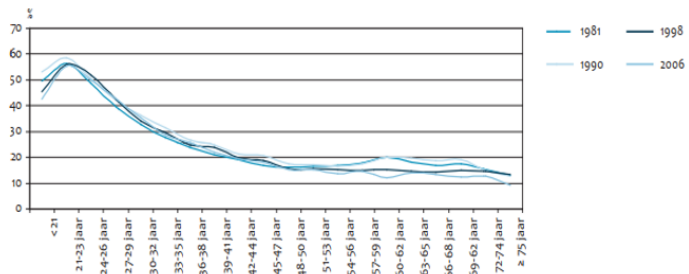
Older adults are generally speaking not prone to move and not frequent movers (De Groot et al., 2008; Angelini & LaFerrère, 2012; Hillcoat-Nallétamby & Ogg, 2014; Boumeester et al., 2015; Meskers, 2020; Stuart-Fox et al., 2021). Historically, older adults in the Netherlands have a lower propensity to relocate compared to younger age cohorts (figure 2.1) (De Groot et al., 2008; Stuart-Fox et al., 2021).

Furthermore, despite making up one third of the total Dutch population (33%), older adults in the Netherlands play a marginal role (15%) in terms of the total national residential relocations (Figure 2.2).

Bearing this in mind, the increasingly ageing population will halt the housing market filtration even more, as the number of these immobile age cohorts will rise in share and quantity (Meskers, 2020; CBS, 2022).

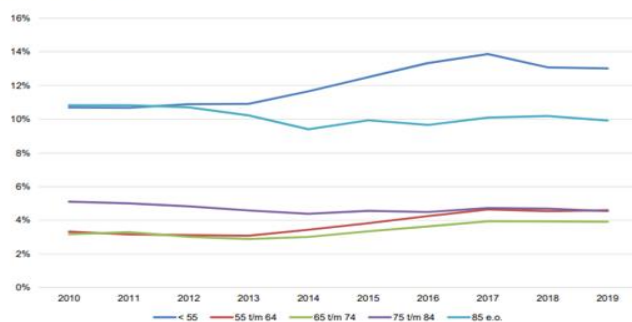
Van der Pers and colleagues (2015) state this low propensity and low mobility among older adults is caused by the simple fact 'people do not change residence unless they have a substantive reason for doing'⁸. However, authors claim national policy (supporting private home ownership and 'ageing in place') has induced this residential immobility among older adults (Bloem et al., 2008; De Groot et al., 2013; De Jong et al., 2022).

Figure 2.1 The share of prone movers in the Netherlands, categorized per age cohort in the period 1981-2006



Source: De Groot et al., 2008

Figure 2.2 Mobility rates divided by age cohorts in the period 2010-2019 in the Netherlands



Source: Stuart-Fox et al., 2014

⁸ Factors and conditions influencing older adults their housing decision will extensively be described later on in this chapter.

§2.1.1 Supporting private homeownership

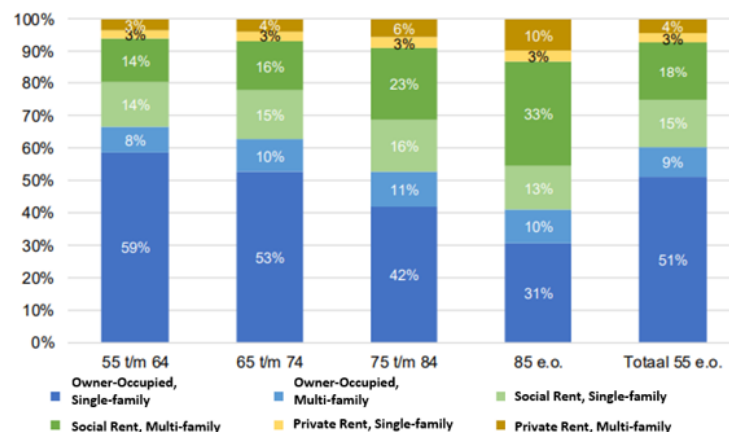
First of all, older adults in the Netherlands have increasingly become owner-occupants (figure 2.3 and figure 2.4) (Vanderyvere & Zenthöffer, 2012; De Groot et al., 2013; De Jong et al., 2022). The Dutch national government has been supporting private home ownership with several policy measures (Vanderyvere & Zenthöffer, 2012; De Jong et al., 2022).

Two of these measures are the Mortgage Interest Deduction (MID) and the National Mortgage Guarantee system (NMG) (Vanderyvere & Zenthöffer, 2012). Thanks to the MID, homeowners in the Netherlands can deduct their mortgage interest from their taxable income. Lower taxes result into a higher disposable income, which consequently enlarges the amount a bank is willing to mortgage. Moreover, homebuyers can

insure their risk of default on their mortgage (up to €355.000) thanks to the NMG (Vereniging Eigen Huis, n.d.; Vanderyvere & Zenthöffer, 2012). As a result of this nationally subsidized insurance⁹, financial institutions are willing to offer lower interest rates, which resulted in more households were able to buy a house.

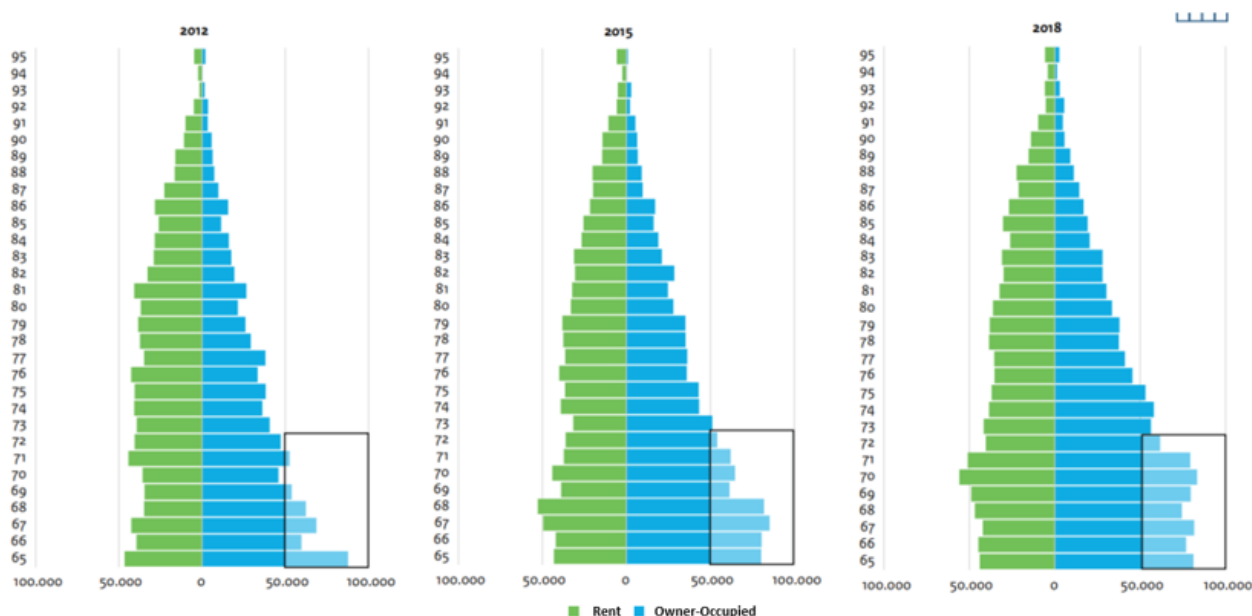
Especially contemporary older adults (aged 55 to 74 years old) have been able to capitalize these beneficial measures in combination with an increasing wealth and higher education level compared to preceding generations, as visualized in figure 2.3 (De Groot et al., 2013; BZK, 2019; Stuart-Fox et al., 2021).

Figure 2.3 Tenure status divided by age cohorts in 2019 in the Netherlands



Source: Stuart-Fox et al., 2021 (Translated by Bruins, 2022)

Figure 2.4 Development tenure status divided by age in 2012-2018 in the Netherlands



Source: BZK, 2019 (Translated by Bruins, 2022)

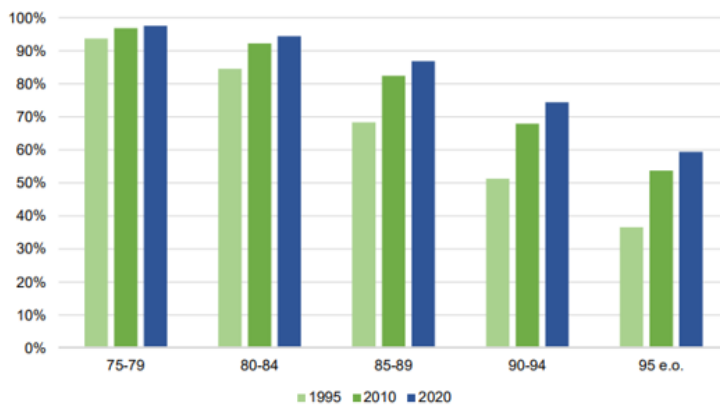
⁹ The NMG is covered by the Dutch National Government and Dutch municipalities (Vanderyvere & Zenthöffer, 2012)

§2.1.2 Ageing in place

Next to supporting private home ownership, Dutch care policy has nudged older adults in the Netherlands to ‘age in place’ (Bloem et al., 2008; Bom, 2021; Stuart-Fox et al., 2021; De Jong et al., 2022). ‘Ageing in place’ refers to the growing ‘desire and tendency of older persons to stay in their current dwelling units for as long as possible’ (Pynoos et al. in De Jong, 2022).

Introduced in the UK in the 1990s, and recently adapted in Sweden (Andersson & Abramsson, 2012; Löfqvist, Granbom, Himmelsbach, Iwarsson, Oswald & Haak, 2013) and the Netherlands (Bom, 2021), the community care systems for elderly in Western countries have been reformed to facilitate ageing in place and enable elderly ‘to live independently for as long as possible’ (Bloem et al., 2008). Whereas 83% of old-elderly (75 years and over) in the Netherlands lived independently in 1995 (Figure 2.5), in 2020 92% of old-elderly lived independently (Stuart-Fox et al., 2021). Specially, the share of the oldest age cohort (95 years and over) living independently has relatively experienced the biggest increase (37% in 1995, 59% in 2020) (Stuart-Fox et al., 2021). Enabling older adults to stay put, and postponing the move to a institutional care facility, serves the social and financial greater good.

Figure 2.5 Development of later-life independent living in the Netherlands (in %)



Source: Stuart-Fox et al., 2021

As stated earlier, older adults are less likely to move, because they are apparently not prone to move and have a low residential mobility (Bloem et al., 2008; ANBO, 2019; CBS, 2020; De Jong et al., 2022). Facilitating this apparent preference would therefore serve the personal interest of older adults.

Meskers (2020) his study investigated which factors influenced older adults in the Netherlands their relative low propensity to relocate. Particularly tenure status, health, housing market tension, type of dwelling and proximity to public transport were influential in estimating Dutch older adults their propensity to relocate. De Jong and colleagues (2022) used a self-designed survey experiment to explore to what extent if older adults in the Netherlands were ageing in place by choice or constraint. In a nutshell, respondents were given a choice between several alternatives based on general characteristics (e.g. features of an apartment) compared to their current dwelling (De Jong et al., 2022). Most of the respondents preferred their current dwelling, even if this dwelling partially did not align with the preferred housing characteristics.

Secondly, research has provided evidence ageing in place is beneficial for older adults in terms of enhancing their ‘sense of independence, identity, security and their embeddedness with the local environment’ (De Jong et al., 2022). Thanks to this, older adults their quality of life could be higher compared to living in a institutional care facility (Sixsmith & Sixsmith, 2008; De Groot et al., 2013).

Lastly, having more older people stay longer in an independent dwelling reduces the costs of institutionalized care (Kendig et al., 2012; De Groot et al., 2013; Hillcoat-Nallétamby & Ogg, 2014; Bakx et al., 2015; Bom, 2021).

As mentioned earlier, the 2015 Rutte II Health care reforms have resulted in lower eligibility to government-funded formal care, and have resulted in the closure of approximately 800 nursing homes in 2020 (Heijinga, 2020; Bom, 2021).

Informal caregivers

However, these policies to facilitate ageing in place also have its disadvantages. As older adults are stimulated 'to seek help in their own social network before turning to government-funded formal care', they are less eligible in receiving institutional care compared to previous years (Bom, 2021). Through eligibility assessments, (local) government agencies can limit access to government-funded formal care if the person has someone in their social network who is able to take care of them (i.e., informal caregiver) (Bakx et al., 2015; Bom, 2021). Older adults in need of non-acute care are hence heavily reliant on their informal caregiver(s), as the 'traditional nursing home' is not available for them anymore (Heijinga, 2020).

As a result of all this, the total number of informal caregivers in the Netherlands has increased rapidly with almost 20% in the 2012-2016 period towards more than 3 million individuals in 2016 (Bom, 2021). Bom (2021) estimated on average informal care givers provide 9.5 hours of care a week, and most caregivers are aged 45 to 60 years old. This tendency to provide informal care, will likely impose pressure on the labour market and health of these caregivers (Heijinga, 2020; Bom, 2021). Due to the fact these informal care givers provide help, they have less spare time to work or relax. Thanks to this (in)voluntary burden, they can experience higher levels of stress and exhaustion due to their care tasks (Heijinga, 2020; Bom, 2021).

§2.2 Stated and Revealed Preference

As described in the introduction (Chapter 1), preferring to 'age in place' does not necessarily means the older adults in question will 'age in place'. In this paragraph, stated and revealed preference will be differentiated, and the related scientific discrepancy literature will be introduced.

§2.2.1 Stated preference

As stated earlier, the central research question of this thesis is to compare the stated and revealed preference in terms of relocation of older adults in the Netherlands. Jansen and colleagues (2011) defined **stated preference** as the 'stated choices and preferences in response to survey questions ...'. Within these type of surveys, respondents are presented hypothetical alternatives, and their response to alternatives should reflect their hypothetical preference (Kim, Pagliara & Preston, 2005).

§2.2.2 Revealed preference

However, Jansen and colleagues (2011) note this stated preference is only the degree of attractiveness an individual holds for a specific object. This subjective valuation of the object only partially influences the actual behaviour (**revealed preference**), as this behaviour is also influenced by other constraining factors (e.g., personal factors, market conditions, availability of property) (Jansen et al., 2011; De Jong et al., 2022).

§2.2.3 Discrepancy between stated and revealed preference

As a result of this, it is likely to assume there will be likely a discrepancy between the stated and prevailed preference. This difference between residential preference and actual behaviour has been researched by numerous (academic) authors (table 2.1., and table 2.2).

Table 2.1 and table 2.2. present an overview of the results presented by the above-mentioned studies. In these tables, the realization rates of respondents, who stated they expected to move and actually moved within one year (table 2.1) or two years (table 2.2), are presented. All the studies show a discrepancy between the stated and revealed preference, quantified in realization rates, but the size of the discrepancy differs quite significantly (De Groot, 2011). According to De Groot (2011), these different outcomes could be explained due to different research methods¹⁰ and different definitions of concepts.

De Groot (2011) states particularly the different definitions of stated preference in mobility studies are the biggest contributor to the disparity in realization rates in table 2.1 and table 2.2. For example, Speare (1974) used the term mobility 'wishes' to capture stated preference (De Groot, 2011). De Jong and colleagues' study (2022) also uses the term 'desire', but other academics claim 'expectations' (i.e., intentions) is a more adequate term to capture stated relocation preference (Rossi, 1955; Lu, 1998; Crowder, 2001; Sheeran, 2002; De Groot, 2011). By reason of an expectation is likely a result of internal evaluation on the possible move, which takes possible constraints into account (Lu, 1998; De Groot, 2011). Especially the latter is the difference between wishes/desires and expectations, as wishes and desires are considered to be unconstrained preferences (Crowder, 2001; De Groot, 2011).

Table 2.1 Overview Realization Rates moving within 1 year after interview in different studies

Author	Research method	Realization rate moving within 1 year	Research Area
Rossi (1955)	Longitudinal	80%	Philadelphia, USA
Speare (1974)	Longitudinal	37%	Rhode Island, USA
Landale & Guest (1985)	Longitudinal	39%	Seattle, USA
Kempen et al. (1990)	Longitudinal	15%	Utrecht, NL
Hooimeijer & Poulus (1995)	Cross-sectional	47%	The Netherlands
Goetgeluk (1997)	Longitudinal	50%	Utrecht & Arnhem, NL
Haffner et al. (2008)	Cross-sectional	47%	The Netherlands

Source: Speare, 1974; Landale & Guest, 1985; De Groot et al., 2008; 2011

Table 2.2 Overview realization rates moving within 2 year after interview in different studies

Author	Research method	Realization rate moving within 2 years	Research Area
Ministry for Housing, Spatial Planning and the Environment [VROM] (2007)	Cross-sectional	58%	The Netherlands

¹⁰ The Cross-Sectional and the Longitudinal approach will elaborately be discussed in paragraph 3.2.1 and paragraph 3.2.2.

Boumeester et al. (2015)	Longitudinal	40%	The Netherlands
Goetgeluk et al. (1992)	Cross-sectional	58%	The Netherlands
Van Groenigen & Van der Veer (2006)	Cross-sectional	55%	The Netherlands
Haffner et al. (2008)	Cross-sectional	47%	The Netherlands
Kan (1999)	Longitudinal	46%	The United States of America
GfK (2009)	Cross-sectional	42%	The Netherlands
Lu (1998)	Longitudinal	44%	The United States of America

Source: Lu, 1998; Kan, 1999; De Groot et al., 2008; 2011

§2.3 Cross-sectional Approach vs Longitudinal Approach

In the referred reports and articles above, two different approaches to unveil the gap between stated and revealed residential preference can be distinguished: the cross-sectional approach and the longitudinal approach (De Groot, 2011; Boumeester et al., 2015). This paragraph will shortly touch upon these approaches, as in chapter 3 (Methods) the approaches will be described more extensively.

In short, the cross-sectional approach is a snapshot of the current situation and the dynamics within the housing market (De Groot, 2011; Boumeester et al., 2015). Since the early sixties, this type of approach has been used to explore residents' propensity to relocate in relation to actual relocations. The cross-sectional approach consists of a historical comparison of survey respondents, and the actual number of relocations within a certain period.

The advantage of this approach is it enables to have an overview of the current housing market situation (including realization rates of intended relocators). Downside to this method is the realization rates could be overestimated due to the fact actual relocations also include unintended moves (f.e., having an accident could result a move to a care institution) (De Groot, 2011).

The longitudinal approach tries to mend this issue by tracking the interviewed respondents individually over a longer period of time (Jansen et al., 2011). The longitudinal approach is therefore not a picture, but more like a movie which can track residential behaviour on the individual level. This approach is thereby more precisely compared to the cross-sectional approach in its estimations for the probability a respondent is able to realize their relocation intention (Jansen et al., 2011; De Groot, 2011).

§2.4 (Residential) life explained in theoretical models

To have a better understanding of the earlier described discrepancy between stated and revealed preferences in regard to housing, and (later-life) residential mobility dynamics in general, scientific researchers have constructed numerous models to capture the important drivers of relocation behaviour (Rossi, 1955; Litwak & Longino, 1987; Mulder & Hooimeijer, 1999; Buys, Kromhout, Bakker, Berkhout, 2014).

§2.4.1 Life-cycle approach

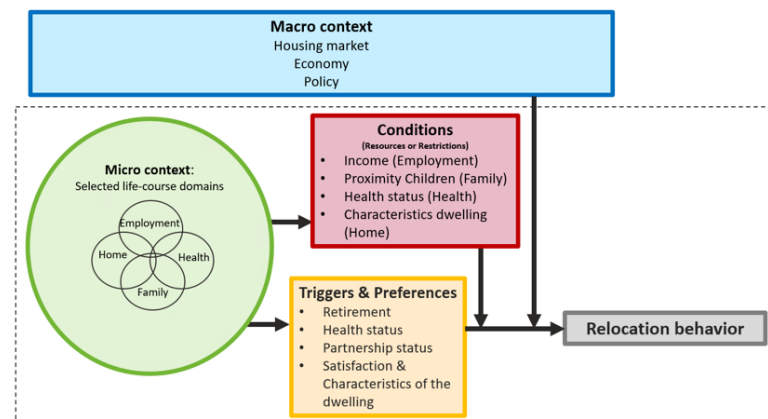
Most of residential mobility research has its origin in Rossi's (1955) family life-cycle model (De Groot et al., 2008; Jansen et al., 2011; Meskers, 2020). In his book *Why families move*, Rossi (1955) describes the different stages¹¹ in life (Jansen et al., 2011). Every stage is characterized by different residential preferences/needs (De Groot et al., 2008). For example, Household A consists of a married couple with six children. Household A therefore needs/most likely prefers a big house in a family-friendly neighbourhood. When Household A moves to a next stage in life (e.g., all children leave the house), Rossi (1955) states there is a trigger that could create a discrepancy between the current residence and the residential preferences (De Groot et al., 2008; Jansen et al., 2011). In time, this mismatch becomes a breeding ground for residential dissatisfaction, which in Rossi's analysis is an important trigger in people's intention to relocate.

§2.4.2 Life course approach

Contrary to this life-cycle approach, the life course approach does not perceive life as a fixed sequence of stages, but as a path with several interdependent life-course domains that influence a person their life-path (Bloem et al., 2008; Jansen et al., 2011; Meskers, 2020).

Following this line of reasoning, a person in Household A in reality does not necessarily need to follow the 'traditional' path¹². Child Y from Household A could for example live his entire life at his parents' house and thereby guide their actual behaviour to 'stay put', even if they stated to relocate. In short, the life-cycle approach states a person their life-path is not so linear as described in the life-cycle approach. Life is unpredictable, and not homogenous, and thereby not frameable into a fixed sequence of stages.

Figure 2.6 Lifecourse model of Mulder & Hooimeijer (1999)



Source: Mulder & Hooimeijer, 1999; Meskers, 2020 (Translated and edited by Bruins, 2022)

As can be seen in figure 2.6, the life course approach asserts life is an outcome of colliding, parallel careers in different *life domains* (Mulder & Hooimeijer, 1999; Bloem et al., 2008; Jansen et al., 2011; Meskers, 2020). The lifecourse model of Mulder & Hooimeijer (1999) differentiates triggers and conditions related to relocation (Bloem et al., 2008).

Triggers (i.e., Life events) are event-based changes in a life domain that could trigger a move. For example, *older adult Z* gets an heart attack (event), which limits *older adult Z* their ability to live independently (changes in the Health- and Home life domain), and this could¹² result in a move to a care institution.

Conditions (i.e., resources) are more continuous by nature. These conditions are the personal resources an individual has, which could moderate (i.e., stimulate or restrict) the residential relocation behaviour (Bloem et al., 2008).

¹¹ Refers to the traditional stages of households (Rossi, 1955; Jansen et al., 2011): The first stage is family formation (cohabitation or marriage); the second stage is expansion (birth/adoption of children); The third stage is contraction (children moving out), and dissolution (divorce or death of a partner).

¹² Bloem et al. (2008) amplify life events (f.e. heart attack) do not always result in a move. In one case this event could serve as a trigger to move, but in another case could be a condition/restriction to stay put (f.e. not physically able to change residence).

Moreover, the lifecourse model of Mulder and Hooimeijer (1999), in contrast to the life-cycle approach, takes macro-influences into account, as it studies the interaction between the earlier mentioned life domains and (external) changes, for example economic inflation and price changes within the housing market (Kok, 2007; Jansen et al., 2011; Meskers, 2020).

§2.4.3 Litwak & Longino Lifecourse Model of Migration

More specified to older adults' relocation behaviour, Litwak and Longino (1987) constructed their lifecourse model of migration (Bloem et al., 2008; Van der Pers et al., 2015). This model of Litwak and Longino (1987) (table 2.3) also follows the lines of reasoning of the lifecourse approach, but is more focussed on the '... moves following various events in the lives of older people ...' (Bloem et al., 2008). Litwak and Longino (1987) suggest after the age of retirement older adults have, in general, three different types of motivations to relocate: *retirement* moves; *comfort* moves; and *care* moves (Bloem et al., 2008). These moves occur in this successive order, as each type of move occurs after a certain life event.

Table 2.3 Litwak & Longino Lifecourse Model of Migration

Types of Migration Motivations (Litwak & Longino, 1987)	Description	Health status
1. Retirement moves (Leisure)	Shortly after retirement, mainly married couples in good health who are primarily motivated by lifestyle considerations .	Good
2. Comfort moves (Support)	Motivated by day-to-day chronic disabilities (i.e. Difficulty in everyday household tasks). Furthermore, adjustment of current dwelling is not possible or would not satisfy assistance needs.	Mediocre, less severe chronic disabilities than care moves, but worse compared to retirement moves.
3. Care moves (Care)	Older adults have severe forms of chronic disabilities, and the resources needed to provide support and care at home are insufficient.	Bad, more severe forms of chronic disabilities

Source: Bloem et al., 2008; Van der Pers et al., 2015

As described in table 2.3, the retirement move is based on lifestyle considerations. Shortly after the age of retirement (a trigger event in the lifecourse model), older adults are more able and/or prone to move (Bloem et al., 2008). At this point in life their economic and parental burdens have decreased with lower mortgage liabilities and a 'empty nest'¹³.

The other two types (comfort moves and care moves, outlined in red) are more related to the worsening health status (trigger event) of older adults. The comfort move takes place after the retirement move, and occurs when older adults face moderate (chronic) disabilities performing day-to-day household tasks (Bloem et al., 2008; Van

¹³ Empty-nesters are in the study of Liu and Guo (2007) demarcated as an elderly household (one older adult or an elderly couple) who have children, but they do not longer live in the same dwelling with their children. Meskers (2020), defines the 'empty-nest fase' as the upward moment of 55 years old when children move out, and the older adult parents are questioning their current housing situation.

der Pers et al., 2015). The 'last move' (the care move) has relatively the most urgency, as this takes place when an older individual develops more severe chronic disabilities compared to care moves (Bloem et al., 2008; Van der Pers et al., 2015). This older adult in question cannot be taken supported in their current home, so they, in general, move to an institutional care facility.

Bloem and colleagues (2008) used and compared the lifecourse models of Litwak & Longino (1987) and Mulder & Hooimeijer (1999) to examine the probability older Dutch adults would make a move to a residential care facility, adapted housing or regular housing. Both lifecourse models were used to investigate whether the impact of life events (Litwak & Longino, 1987) or triggers and conditions (Mulder & Hooimeijer, 1999) provide the most valid node of analysis. Bloem and colleagues (2008) concluded life events triggered specific moves, but there was no evidence for 'a specific trajectory of moves associated with consecutive life events.' as the Litwak and Longino model (1987) suggested (Bloem et al., 2008). Adding conditions into the equation (as described in the Mulder & Hooimeijer model (1999)), for example the impact of a decline in health to realize a move was partially moderated by the condition of having children living in the vicinity (Bloem et al., 2008).

§2.4.4 The Push and Pull Factor model

The Amenity Retirement Process model (Haas and Serrow in Bai & Chow, 2014), also denoted as **the Push and Pull Factor model** (Bloem et al., 2008; Buys et al., 2014; Meskers, 2020), relatively corresponds with the lifecourse model of Mulder & Hooimeijer (1999), as it perceives relocation behaviour as an outcome of a long decision process. Within this process, households are subject to push and pull factors, moderated by thresholds ('drempels'), influencing their relocation decision (Buys et al., 2014; Meskers, 2020).

A push factor could, for example be, getting involved in a romantic relationship (i.e. wish to cohabit). This push factor triggers the individual to intend to relocate (Buys et al., 2014; Meskers, 2020). Thresholds are conditions which can make it difficult to realize this move, for example satisfaction of the current dwelling ('keepfactor'). On the other hand, there are pull factors, for example for elderly, appealing (health care) amenities (Boldy, Grenade, Lewin, Karol & Burton, 2011; Buys et al., 2014; Meskers, 2020).

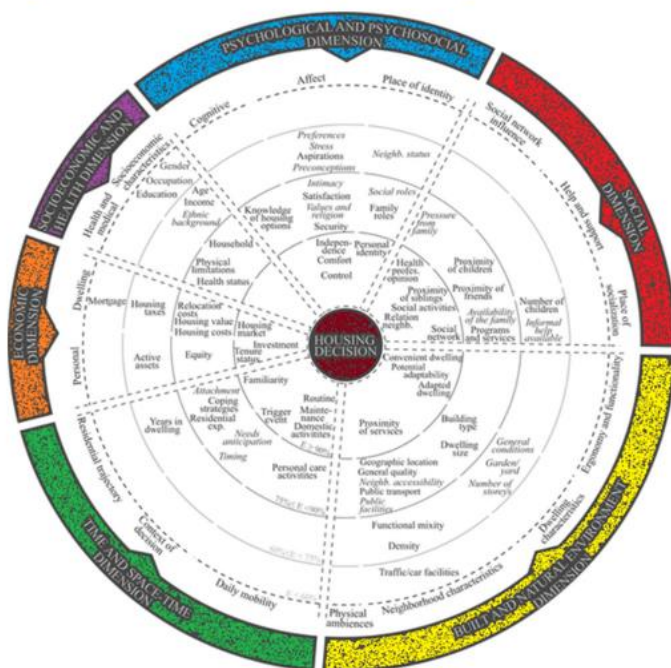
Bloem and colleagues (2008) criticize the push and pull factor model for being too much focussed on housing and area characteristics. Furthermore, it is hard to distinguish what is a pull factor or a push factor, as what could be a push factor for one (f.e. influx of young bohemians in the neighbourhood) could be a pull factor for someone else (Bloem et al., 2008). This argument also applies for triggers and conditions in the Mulder & Hooimeijer model (1999), but this model is more sophisticated as it takes more life domains and their joint effects into account (Bloem et al., 2008).

§2.5 Dimensions of The Experience and Meaning of Home (Roy et al., 2018)

Next to these theoretical life trajectory models, there is the systematic literature review of Roy, Dube, Despres, Freitas & Legare (2018) (Meskers, 2020). Roy et al. (2018) their review tries to evaluate which factors influence older adults' – who do not have cognitive disabilities – their housing decision. In the contrary to this Master's thesis, Roy et al. (2018) defined older adults in their literature selection as people aged 65 years and over, but without any argumentation why they did so. Nonetheless, Roy et al. (2018) found eighty-six independent studies eligible from the 761 potential studies investigating the factors influencing housing decisions in later-life.

To categorize these eighty-six studies, the Deprés & Lord (2005) framework¹⁴ was adapted and visualized Roy et al. (2018). into a pie chart figure (see figure 2.7). The following paragraphs will (clockwise) describe the dimensions' related scientific literature and their outcomes. The scientific articles are gradually¹⁵ classified on their overall reported effect (E) on older adults' housing decision (Roy et al., 2018). In his study, Meskers (2020) also applied the Roy and colleagues model (2018) to explore to what extent factors influenced Dutch older adults their propensity to relocate. So, the next paragraphs will build predominantly further on these works, and describe similarly a select number of factors for every dimension, with some additions/divergencies.

Figure 2.7: Factors influencing the housing decision of older adults, classified into dimensions



Source: Roy et al., 2018 (colorized by Bruins, 2022)

“Genuine feelings cannot be produced, nor can they be eradicated... the body sticks to the facts.” – Alice Miller

§2.5.1 Psychological and Psychosocial Dimension

Within the psychological and psychosocial dimension the following influential factors have been selected: *residential satisfaction, comfort and feeling safe* (Roy et al., 2018; Meskers, 2020).

First of all, residential satisfaction is the overarching factor within the psychological and psychosocial dimension. This factor is overarching due to the fact the level of residential satisfaction is a result of the outcomes within

¹⁴ This framework perceives older adults' housing decisions through the lens of the concept of *home* (Roy et al., 2018; Deprés & Lord, 2005). Deprés & Lord (2005) propose six dimensions (economic; socioeconomic and health; psychological and psychosocial; social; time and space-time; and built and natural environment) to categorize factors for the meanings and experiences of home.

¹⁵ The distance between the centre resembles the gravity of a factor on the housing decision (Roy et al., 2018). Factors close to the centre have relatively the strongest effect. Factors in the fringe of the circle have relatively the weakest effect.

other psychological factors (i.e., comfort and security) (Erickson et al., 2016). As residential satisfaction is a sum of outcomes all related to subjective evaluations, it is a useful predictor of older adults' psychological well-being and coupled propensity to relocate (Erickson et al., 2016; Fernandez-Portero, Alarcón & Barrios Padura, 2016). Residential satisfied older adults have proven to have a lower propensity to relocate (Erickson et al., 2016; Meskers, 2020). On the contrary, residential satisfaction's antipole, dissatisfaction, has been proven to have a strong positive effect on older adults' propensity to relocate (Hillcoat-Nallétamby & Ogg, 2014; Meskers, 2020). Particularly dislikes about their immediate home environment resulted in a higher propensity to move, despite being satisfied about their neighbourhood characteristics.

Not so ground-breaking, but still relevant, being in the comfort zone can result into lower residential mobility among older adults (Boldy et al., 2011; Golant, 2011; Granbom et al., 2014). Granbom and colleagues (2014) describe this residential comfort zone as the situation when '... people experience pleasurable, hassle-free and memorable feelings about where they live ...'. Respondents of Boldy and colleagues' research (2011) confirmed notion as they rated 'comfort' as the most important factor to stay in their current dwelling.

However, getting out this comfort zone can trigger a move (Granbom et al., 2014). According to Fonad and colleagues (2006) this could be caused by an increased feeling of insecurity and unsafety in the current residence. Especially when older adults their health deteriorates, they can feel insecure in their current residence and become afraid for an accident. Help from community services did not reduce this feeling of unsafety, in as much as 'the elderly were left alone for a major part of the day and during the night' (Fonad et al., 2006).

This insecurity, also among relatives, can result into a intention to move to for example a retirement home. Still, actually making this move can be difficult and scary in itself, as it brings uncertainties and can be quite a hassle (Fonad et al., 2006).

H1a: Low satisfaction of current living conditions (including neighbourhood satisfactory) positively influences the probability to be prone to relocate in 2015.

H2a: Low satisfaction of current living conditions (including neighbourhood satisfactory) positively influences the probability of being relocated in the 2015-2020 period.

“The simple act of Caring is heroic” – Edward Albert

§2.5.2 Social Dimension

Next up is the social dimension, focussed on potential informal caregivers. Within the Roy and colleagues (2018) pie chart (figure 2.7) the following factors have been proven to be significantly influential: *proximity of children*, and *relationship with neighbours* (Meskers, 2020). *Partnership status* is not a separate factor within the Roy et al (2018) chart (figure 2.7), but researchers have provided evidence for the notion of having a partner to be an influential (mediating) factor in regard to older adults' propensity to relocate (Meskers, 2020), and their actual relocation behaviour (Bloem et al., 2008; Van der Pers et al., 2015). According to Bom (2021), Partners, relatives (i.e children), and neighbours tend to be potential informal care givers an older adult in most cases can rely on, and are therefore the selected factors within the social dimension.

Proximity of children (i.e. intergenerational geographical proximity) has been quite extensively investigated by a number of researchers (De Jong et al., 1995; Silverstein, 1995; Rogerson, Burr & Linn, 1997; Bordone, 2009; Mulder & Van der Meer, 2009; Pettersson & Malmberg, 2009; Smits, 2010; Zhang, Engelman & Agree, 2013; Van der Pers et al., 2015). Especially Van der Pers and colleagues (2015) state when a person their health deteriorates and social relationships become hard to maintain, the presence and support of adult children becomes more essential. Especially in the absence of an partner, an adult child is most likely to be the primary caregiver (Van der Pers et al., 2015; Bom, 2021).

Furthermore, the geographical distance between children and their parents is an important aspect in terms of older adults' relocation behaviour (Mulder & Van der Meer, 2009; Van der Pers et al., 2015). In the same study of Van der Pers and colleagues (2015), co-residing children or having children living within a five kilometre range had a negative effect on relocation. Older adults having children living outside the five kilometre range were more likely to relocate, and having children living forty kilometres away seemed to stimulate a move to a care institution.

Having no children at all also stimulated a move to a care institution, as these older adults have more often no informal caregiver to provide assistance (Dykstra, 2006; Van der Pers et al., 2015). Furthermore, childless older adults tended to have a lower residential mobility, as they 'do not have the option of moving in the direction of their children' (Van der Pers et al., 2015).

Furthermore, having a partner has been proven to be significantly influential in older adults' relocation behaviour (Abramsson & Andersson, 2012; Van der Pers et al., 2015). Key reason is the important role partners play in older adults' day-to-day life, as they are the primary provider of support and intimacy (De Jong Gierveld, Broese van Groenou, Hoogendoorn & Smit, 2009; Van der Pers et al., 2015). Therefore, Van der Pers and colleagues (2015) stated: 'Partnership status is known to be a strong predictor of residential relocations at older age ...'. At the moment this partner (in)voluntary disappears¹⁶, the older adult left behind is more prone to move and realize this move (Van der Pers et al., 2015).

Lastly, having relatively a good relationship with neighbours results into a lower propensity to relocate (Hansen & Gottschalk, 2006; Crisp, Windsor, Anstey & Butterworth, 2013; Meskers, 2020). Respondents of the Crisp and colleagues (2013) study affirmed they were particularly discouraged by the prospect of losing their neighbours if they moved, indicating a relatively close inter-neighbour relationship and coupled place attachment (Crisp et al., 2013; Kramer & Pfaffenbach, 2016; Meskers, 2020).

H1b: Having children living outside a 20 km range is positively influence the probability to be prone to relocate in 2015.

H1c: Having a partner will negatively influence probability to be prone to relocate in 2015.

H1d: Worse social cohesion positively influences the probability to be prone to relocate in 2015.

H2B: Having children living outside a 20 km range will positively influence the probability of being relocated in the 2015-2020 period.

H2C: Not having a partner will negatively influence the probability of being relocated in the 2015-2020 period.

H2D: Worse social cohesion will positively influence the probability of being relocated in the 2015-2020 period.

¹⁶ Losing a partner can be in terms of separation or widowhood. Widowhood as an event will be described in paragraph 2.5.3 (time- and space-time dimension).

'Time is the wisest counsellor of all.' – Pericles

§2.5.3 Time and Space-Time Dimension

One of the most influential approaches within the time and space-time dimension is the Time-geography approach developed by Thorsten Hägerstrand (Lenntorp, 1999). To quote Lenntorp (1999), 'Time-geography is not a subject area per se, or a theory in its narrow sense, but rather an attempt to construct a broad structure of thought ... '. However, in the sake of clarity, this thesis will simplify Time-geography as the approach which tries to describe a journey or 'a path, starting at the point of birth and ending at the point of death' (Hägerstrand, 1970).

Within this life path, people interact with certain locations at specific moments in time. Hägerstrand (1970) asserts this life path is not random, but guided by three kinds of constraints: capability-, coupling-, and authority constraints.

Capability constraints are for example physical limitations of our bodies, such as sleep, but also deteriorating physical mobility (Hägerstrand, 1970). Hägerstrand (1970) confirms the importance of a 'home-base', as it is the influential starting point of individuals in their (day-to-day) life path, because people (generally) sleep in these locations and store their personal belongings.

The trajectory of the individual their (day-to-day) life is further on guided by coupling constraints. For example, living in a rural area with insufficient public transport used to be no issue. But as the years go passing by, it becomes a problem due to the fact older adults are less mobile in terms of transport.

Lastly an authority constraints are the restrictions posed by authorities on a intended relocater to move to an elderly (nursing) home, as the (local) institutions decide they are still capable to live independently whether they want to or not.

Bearing this in mind, within the time and space-time dimension the following significant factors are selected to describe people their life path: *trigger event(s)*, and *years in dwelling* (Roy et al., 2018; Meskers, 2020).

In line with the lifecourse approach (§2.4.1), trigger events (i.e Life events) are event-based changes in a life domain that could trigger a move (Bloem et al., 2008). For example, the disruptive moment an older adult becomes widowed (Bloem et al., 2008; Van der Pers et al., 2015). Especially recent widowed older adults have been proven to relocate more often, even if they previously stated they did not had a intention to relocate. These recent older adult widows tend to move towards their children and/or to institutional care facilities (Bloem et al., 2008; Van der Pers et al., 2015).

On the contrary, trigger events in theory could also reduce older adults' propensity to relocate. For example, the event of the birth of a grandchild. This could induce the older adult to stay in the vicinity of their (grand)children, and thereby lower the propensity to relocate or lower the probability to have relocated.

The years in the current dwelling could also limit older adults their propensity to relocate (Kramer & Pfaffenbach, 2016; Meskers, 2020). Following the line of reasoning of 'place-identity' studies, Kramer and Pfaffenbach (2016) provided evidence for the notion place attachment grows with the years living in the same residence, which decreases the propensity to relocate (Meskers, 2020). This (emotional) attachment could be caused by having your children growing up in this house, or other specific vibrant memories.

However, living more years in the same dwelling does not necessarily lower the probability to be relocated (Kramer & Pfaffenbach, 2016; Meskers, 2020). People who recently had moved, and people who lived more than ten years in their current dwelling, were less prone to relocate. These groups are just settling down, and in the case of more than ten years, could be too attached to their current location, and thereby less likely to relocate.

The most prone relocators are living five to ten years in the same residence, as this is considered to be a ‘tipping point’ when individuals question whether they would like to move (Kramer & Pfaffenbach, 2016; Meskers, 2020).

H1e: Living for 5 to 10 years in the same dwelling will positively influence the probability to be prone to relocate in 2015.

H2E: Living for 5 to 10 years in the same dwelling will positively influence the probability to be relocated in the 2015-2020 period.

H2F: Losing a partner within the 2015-2020 period will positively influence the probability of being relocated in the 2015-2020 period.

H2G: Having a worsening health status will positively influence the probability of being relocated in the 2015-2020 period.

‘Our house, in the middle of our street.’ – Madness

§2.5.4 Built and Natural Environment Dimension

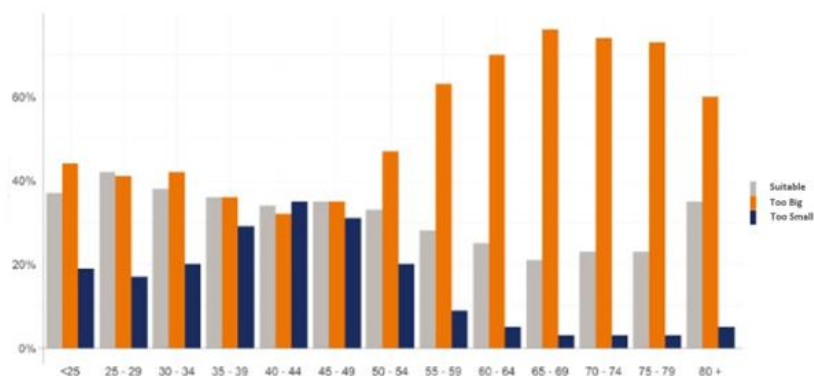
To represent the built and natural environment dimension, *dwelling size*, and *geographical location* combined with *density*, have been selected in the Roy and colleagues (2018) pie chart (figure 2.7).

Dwelling size

On average, contemporary Dutch occupants have 65 square meters living space (CBS, 2018; Crutzen & Hagen, 2020; Van Bockxmeer & De Korte, 2021; Van Klaveren et al., 2021). Compared to 1900 (10 m²), the average living space has quintupled (Van Bockxmeer & De Korte, 2021). In addition to this, since 1950 the dwelling utility has reduced from 4.5 persons per dwelling to 2.14 persons per dwelling in 2021 (Van Klaveren et al., 2021). According to Hansen & Gottschalk (2006), this increase in average living space lowers people their propensity to relocate (Meskers, 2020). Meskers (2020) even provided evidence for the relationship between the number of rooms and older adults’ propensity to relocate. The increase in the number of rooms in the current residence positively influenced older adults to propensity to relocate.

Related to having more rooms is the type of dwelling, as single-family homes generally have more rooms than multi-family homes. Living in a single-family home also lowers older adults’ propensity to relocate (Meskers, 2020).

Figure 2.8 Suitability of the dwelling divided by age cohort



Source: Crutzen & Hagen, 2020

Klaveren et al., 2021). Crutzen and Hagen (2020) suggest this could be caused by the fact older adults have become ‘empty-nesters’, leaving parents with a too spacious house to comply with their current needs. Furthermore, older adults are relatively more owner-occupants compared to younger age cohorts, and have thereby relatively lower cost of living thanks to, for example, lower mortgage liabilities (Crutzen & Hagen, 2020; Van Klaveren et al., 2021).

Geographical location & Density

Alongside dwelling size, geographical location influences the probability an individual is able to realize his/her relocation intention (De Groot et al., 2008; Jansen et al., 2011; Meskers, 2020). Being located in a specific housing market region in the Netherlands, significantly influences older adults’ propensity to relocate (Meskers, 2020), and older adults’ actual relocation behaviour (De Groot et al., 2008).

This geographical effect differs per region, as the propensity to relocate is related to the regional differences in terms of demography and housing stock (De Groot et al., 2008; Meskers, 2020). Especially regions with relatively more younger, tenant inhabitants have a higher average propensity to relocate compared to regions with more elderly, owner-occupants. As these younger age cohorts are generally more intended-starters, their urgency to move is higher compared to older adults who already occupy a dwelling (De Groot et al., 2008). This lower urgency to move has also its results in the moving distance among older adults (Boumeester et al., 2015). Due to lower urgency, older adults tend to move within their region, and relatively shorter distances in contrast to younger age cohorts, who have a higher willingness (i.e., urgency) to relocate over greater distances.

Furthermore, residents of urban regions have been proven to have a higher propensity to relocate compared to more peripheral regions (De Groot et al., 2008). However, the probability an individual is able to realize their relocation intention is influenced by the degree of urbanization of their region and the local housing market situation (i.e., housing market pressure) (Van der Vlist, Gorter, Nijkamp & Rietveld, 2002; De Groot et al., 2008; De Groot, 2011; Trucotte & Schellenberg in Weeks et al., 2012; Van der Pers et al., 2015; Meskers, 2020). The amount of pressure an housing market region is exposed to is dependant of the supply-demand balance. The moment demand exceeds the available housing stock (supply) in a specific region, the pressure becomes more tense, and the probability to realize a relocation intention diminishes, as prices will rise up and the amount of available housing stock will be limited (De Groot et al., 2008; Meskers, 2020).

Bearing this in mind, the apparent discrepancy between stated and revealed preference in the Dutch urban regions can be explained. These urban regions in the Netherlands have relatively the highest housing demand, and too little housing stock, which results in relatively high levels of housing market pressure (De Groot et al., 2008; De Groot, 2011; Meskers, 2020). As a result of this, realization rates in these urban housing market regions

are relatively low compared to more peripheral regions (De Groot et al., 2008; De Groot, 2011; Boumeester et al., 2015). For example, Intended-filterers, looking for a new home in the Zeeland housing market region in 2002, were almost 15 percent more successful in realizing their relocation intention when compared to intended-filterers with the preference for the Amsterdam region (De Groot et al., 2008).

H1f: Living in a single-family home negative influences the probability to be prone to relocate in 2015.

H1g: Living in a urban area positively influences the probability to be prone to relocate in 2015.

H1h: Living in a high intensity regional housing market region positively influences the probability to be prone to relocate in 2015.

H1i: Having more rooms, and low dwelling utility positively influences the probability to be prone to relocate in 2015.

H2H: Living in a single-family home will negatively influence the probability of being relocated in the 2015-2020 period.

H2I: Living in an urban area negatively influences the probability to be relocated in the 2015-2020 period.

H2J: Living in a high intensity regional housing market region negatively influences the probability to be relocated in the 2015-2020 period.

H2K: Having more rooms, and low dwelling utility negatively influences the probability to be relocated in the 2015-2020 period.

*‘We shape our buildings, and afterwards our buildings shape us.’
– Winston Churchill*

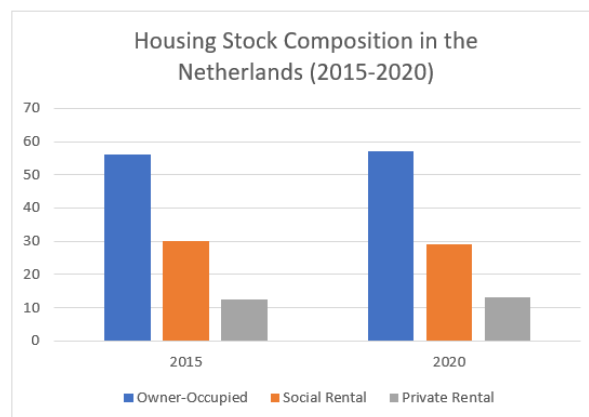
§2.5.5 Economic dimension

Within the economic dimension, the following significant factors have been selected: *tenure status*, and *housing costs* (Roy et al., 2018; Meskers, 2020).

Firstly, tenure status and the composition of the Dutch housing market. To paraphrase De Groot and colleagues (2008), a homogeneous entity such as a Dutch housing market does not exist. This is due to regional disparities in the likes of different housing stock composition, demography and realization rates within Dutch housing market regions, and even bigger disparities on the national level (De Groot et al., 2008). These disparities in the Netherlands are a result of a 'long history of public involvement in the housing market and of highly interventionist housing policies with the aims of stimulating homeownership and making good-quality (rental) housing affordable to low-income households (Vandevyvere & Zenthöfer, 2012).' (De Jong et al., 2022).

Compared to other European countries, the Netherlands (figure 2.9) has a relatively large share of affordable (social) rental houses (30.1 % of the total stock in 2015) and a relatively low share of owner-occupied houses (56.2 % in 2015) (Bloem et al., 2008; Vandevyvere & Zenthöfer, 2012; CBS, 2020). Nonetheless, the share of owner-occupied houses has risen over the past decades, whereas only 42% of the total Dutch housing stock were owner-occupied houses in 1980, 57% was owner-occupied in 2020 (Vandevyvere & Zenthöfer, 2012; CBS, 2020; De Jong et al., 2022).

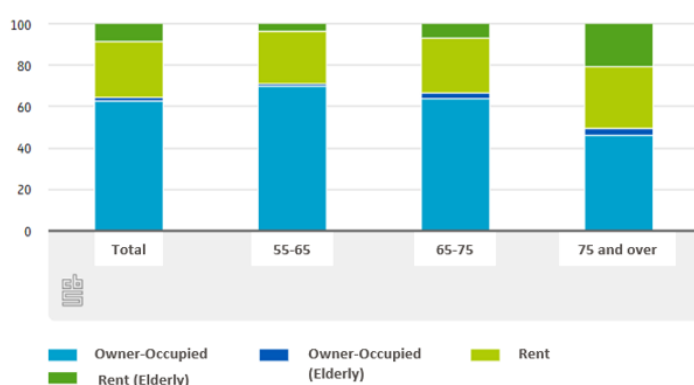
Figure 2.9 Housing Stock Composition in the Netherlands in (2015-2020)



Source: CBS, 2020

If we zoom in on older adults in the Netherlands, older adults are progressively owner-occupants (De Groot et al., 2013; Akkerman, Kloosterman & Reep, 2020; Stuart-Fox et al., 2021; De Jong et al., 2022). Whereas only 30% of older adults were owner-occupants in the late 1990s, almost 65 percent of Dutch older adults owned a private dwelling in 2020 (Figure 2.10) (Akkerman et al., 2020; De Jong et al., 2022). Next to earlier mentioned reasons in paragraph 2.1.2 (*Ageing in place*), this increase in private home ownership in the later-life could be caused by governmental subsidies for home adaptations, which could postpone a (in)voluntary relocation (Bloem et al., 2008).

Figure 2.10 Tenure Division by age cohort in 2020



Source: Akkermans et al., 2020 (Translated by Bruins, 2022)

This increase in private home ownership could reduce older adults' low propensity to relocate even further, as homeownership negatively influences the propensity to relocate (De Groot et al., 2008; Boumeester et al., 2015; Meskers, 2020). Owner-occupants are less prone to relocate, due to their in general less urgent relocation intention, as they are in a more favourable housing situation compared to tenants (Boumeester et al., 2015). However, Meskers (2020) provided evidence for the notion of Dutch older adults in the social housing sector have a lower propensity to relocate compared to their owner-occupant peers.

Furthermore, in terms of realization of relocation intentions, the preferred type of tenure (i.e., rented, or owner-occupied dwelling) plays a significant role (De Groot et al., 2008; De Groot, 2011; Boumeester, 2015). Tenants tend to have a higher realization rate compared to owner-occupants, thanks to their lower mobility costs (i.e transaction costs) (Angelini & Laferre, 2012; Meskers, 2020).

Moreover, access to the owner-occupied sector relatively depends heavily on the affordability of owner-occupied homes in relation to one's financial resources (De Groot, 2011). This involves resources in terms of buying a house, but also the financial capacity to fulfil monthly housing costs (Angelini & Laferre, 2012; Meskers,

2020). In Meskers' study (2020), having a higher share of housing costs positively influences older adults' propensity to relocate.

In the 2015-2020 period, the national average selling price for a house in the Netherlands increased significantly with 45,3 percent (€230.194 in 2015, €334.488 in 2020), thereby limiting access to the owner-occupant housing market (CBS, 2022; Winke, 2021). Especially people who preferred owner-occupant houses in Dutch urban housing market regions, were relatively unsuccessful to realize their intention, as the housing prices in these regions are relatively the highest in the country (De Groot et al., 2008; Boumeester et al., 2015). Nonetheless, 31% of Dutch old-elderly (75 years and over) who stated to be prone to move in 2018, preferred to move to an owner-occupied dwelling (Stuart-Fox et al., 2021).

H1j: Living in a social rental dwelling negatively influences the propensity to relocate in 2015.

H1k: Having relatively low housing costs negatively influences the propensity to relocate in 2015.

H2L: Living in a rental dwelling (social or private) will reduce the probability of being relocated in the 2015-2020 period.

H2M: Having relatively low housing costs negatively influences the probability of being relocated in the 2015-2020 period.

H2N: Preferring to move to an owner-occupied dwelling will reduce the probability of being relocated in the 2015-2020 period.

'Health is like money, we never have a true idea of its value until we lose it.' – Josh Billings

§2.5.6 Socioeconomic and Health Dimension

Lastly, the following factors have been selected to represent the socioeconomic and health dimension: *income*, *education*, *age*, and *health status* (Roy et al., 2018; Meskers, 2020).

To quote De Groot (2011): 'The impact of income on realization ratio of stated intentions to move is not straightforward'. The general notion of 'money can buy you everything' does not completely correspond with reality, as several studies contradict each other if income has a (positive) effect on realizing relocation intentions (Goetgeluk, 1997; Erickson et al., 2006; De Groot, 2011; Meskers, 2020). De Groot and colleagues (2008) assert income and education only play a significant role in process of thinking about a potential move, but do not affect the actual realisation of a stated relocation intention, which has been confirmed by Boumeester and colleagues (2015) and Meskers (2020). This contradicts the notion of Mulder and Hooimeijer (1999), which asserts income is an influential resource to be able to realize an intended move (Meskers, 2020).

We return to the life-course model of Mulder and Hooimeijer (1999). As an individual ages, the different life-course domains are probably increasingly disturbed by triggers (f.e. worsening health). This could alter older adults' relocation intention and coupled relocation urgency. However, as can be seen in figure 2.5 (paragraph 2.1.2), Dutch old-elderly (75 years and over) are increasingly living independently and are relatively not prone

to relocate (81% of old-elderly were not prone to relocate in 2018) (Stuart-Fox et al., 2021). This low propensity could be due to the fact these old-elderly already made a 'last' move to a more life-cycle friendly residence. Notwithstanding, if older adults have an intention to relocate, one of the most important motives are 'in need of care or health related' (Stuart-Fox et al., 2021). The Bloem and colleagues study (2008) confirmed this notion with worsening health as one of the most influential factors related to a move to a residential and/ or institutional care facility.

These unexpected life events, like worsening health, can reinforce the relocation urgency (De Groot, 2011). This high urgency has proven to be influential in terms of realizing the intended relocation. According to De Groot (2011), urgent intended relocators are people who stated to intend to move, and have actively (within 1 year) been searching for a new residence. In the same study it came to light that these urgent intended relocators 'are estimated to be 3.7 times more likely to move as those with a less urgent intention to move.' (De Groot, 2011). However, it should be considered *intended-filterers* have considerably less urgency to relocate compared to *intended-starters* (De Groot et al., 2008).

H1l: Being 75 years or older negatively influences the probability to be prone to relocate in 2015.

H1m: High income and high education level positively influence the probability to be prone to relocate in 2015.

H1n: Older adults with a urgent intention to relocate have a higher probability to be prone to relocate in 2015.

H1o: A negative health perception positively influences the probability to be prone to relocate in 2015.

H2O: Being 85 years and over positively influences the probability to be relocated in the 2015-2020 period.

H2P: Income and Education do not have a significant effect on the probability to be relocated in the 2015-2020 period

H2Q: Older adults with an urgent intention to relocate have a higher probability to be relocated in the 2015-2020 period.

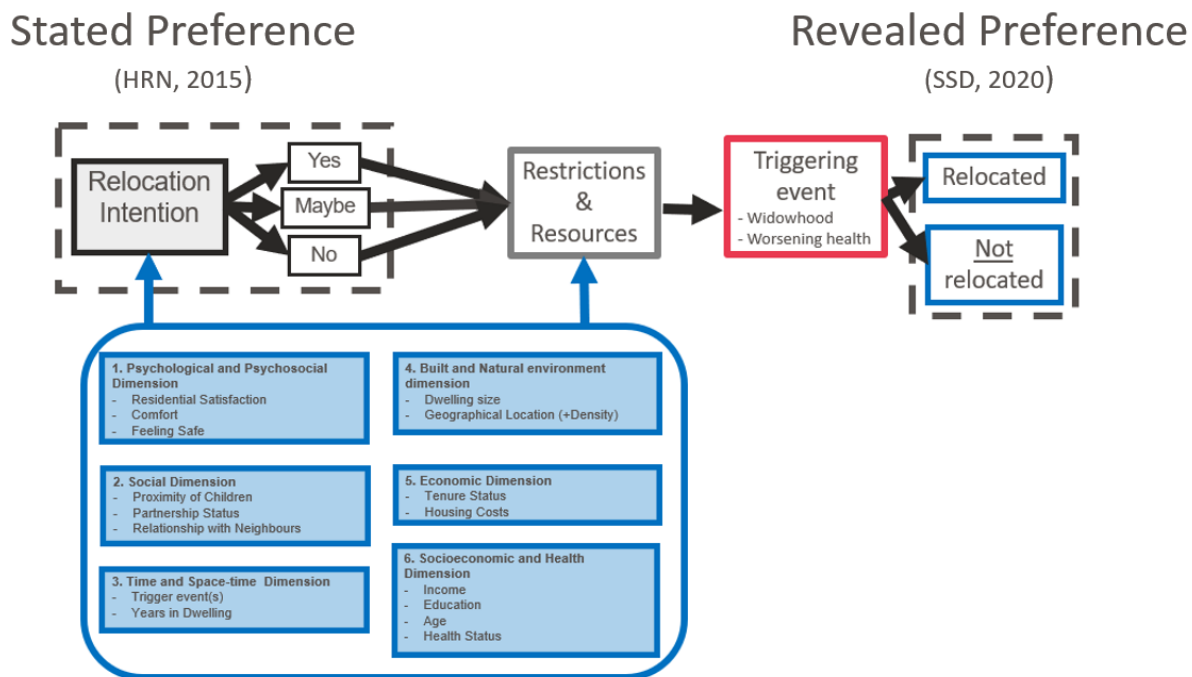
H2R: A negative health perception positively influences the probability to be relocated in the 2015-2020 period.

§2.6 Conceptual Model

The conceptual model of this thesis is visualized in figure 2.11. The left side of the model resembles older adults' stated relocation preference in the Housing Research Netherlands (HRN) 2015 (see paragraph 3.1 for a in depth description of the used data sets). This relocation intention is respondents their response in regard to the question whether they would like to move within two years. They could answer: *Yes*; *Maybe, eventually*; or *No*. On the basis of the literature described in this chapter it is assumed that this stated preference is influenced by the factors within the six dimensions of the Roy and colleagues framework (2018).

In addition, just as in Meskers (2020), the Mulder & Hooimeijer framework (1999) is implemented, as these selected factors of the Roy and colleagues framework (2018) also shape respondents' restrictions and resources (i.e., possibly limit or improve respondents' ability to realize their relocation intention). Next to this, trigger events could disrupt the previous described process, as it could alter the previous stated preference and coupled ability to realize the relocation intention.

Figure 2.11 Conceptual Model Stated and Revealed Relocation Preference



Chapter 3: Methods

According to Neuman and Robson (2014), a methods chapter refers to the collection of specific techniques used 'in a study to select cases, measure and observe social life, gather and refine data, analyse data, and report on results.' (Neuman, 2014).

Thereby, this methods chapter will describe and justify the selected variables, research techniques and data which have been used to answer the central research question of this research. The chosen methods will build further on previous longitudinal research (De Groot et al., 2008; Meskers, 2020) their research methods and designs, with some additions from other works (Bloem et al., 2008; Van der Pers et al., 2015).

Paragraph 3.1 will describe the used data sets (Housing Research Netherlands 2015 and Social Statistical Database 2020) and their contents. In paragraph 3.2 the difference between cross-sectional and longitudinal methods will be discussed. Paragraph 3.3 described the used instrument for the quantitative analysis (the logistic regression). Paragraph 3.4 will elaborate on the selected variables, which are categorized on the basis of the six dimensions constructed by Roy et al. (2018), and

3.1 The Data Set: The Enriched Housing Research Netherlands 2015

In line with the De Groot and colleagues study (2008), this thesis combines large national 'survey data with longitudinal register data at the individual level' in order to get a better understanding of the process of older adults' stated and revealed relocation preferences (De Groot, 2011). The used survey data sets for this research are the Housing Research Netherlands (HRN, 'WoOn') 2015 edition, and register data from the longitudinal Social Statistical Database (SSD, 'CBS Microdata') between 2015 and 2020.

Since 2006, The HRN¹⁷ has been conducted every 3 years in the Netherlands (De Groot, 2011; Boumeester, 2011; Boumeester et al., 2015; Meskers, 2020). The HRN research has been, and still is carried out by the Ministry of Internal Affairs (BZK) and Statistical Netherlands (CBS). People aged 18 years and above, who live in the Netherlands, were asked numerous questions related to housing, which is enriched with register data (f.e., the annual income) (Janssen, 2016). Thanks to this, the HRN datasets 'contain detailed information about socio-demographic characteristics, the current housing situation, the intention to move, and preferences concerning the future home and the residential location.' (De Groot, 2011). The HRN 2015 consists of 1104 variables, which give detailed information about 73660 respondents. Because this research focusses on the discrepancy between stated and revealed preferences of older adults, respondents who were younger than 55 years in 2015 have been filtered out. Furthermore, respondents who stated already to already have found a new residence, were also filtered out. Lastly, due to publication restrictions of Statistics Netherlands, all numbers used for the analyses and tables needed to be rounded by the nearest five.

The used data set for this thesis thereby consist of 24745 respondents. Within the research period of 2015-2020, a select number of respondents has probably passed away. This assumption is based on the fact that these respondents were not registered anymore in the SSD. Due to limitations, it cannot be ruled out some of these

Companen (Internship)

Since 1965, Companen is a renowned housing market research/consultancy agency in Arnhem (Companen, n.d.). The company especially works for governmental institutions and housing associations in terms of conducting research and/or contributing to policy papers in regard to housing in the Netherlands. Thanks to the support of Companen, this thesis of investigating the discrepancy of stated preference and revealed preference has been established.

Especially the *Housing and Care (Wonen en Zorg)* department of Companen has assisted this thesis' research process, but also methods of this thesis have been applied in practice in several projects (f.e. intergenerational proximity in a project for the province of Flevoland).

¹⁷ Before 2006, the HRN was called Housing Demand Survey (HDS, 'WBO') and was conducted less frequently (De Groot, 2011; Janssen, 2016).

‘missing’ older adults moved to another country. However, most of these ‘missing’ older adults were aged 75 years and over. So it is not unlikely to assume they have probably died in the 2015-2020 period. Nevertheless, whether these respondents were deceased or not, their residential behaviour and characteristics are still taken into consideration in the analyses.

Nevertheless, the newly created data set is still representative at multiple geographic scale levels. Thanks to sophisticated measurement methods used in the creation of the HRN data sets, the samples of the HRN are representative for the national, provincial, and regional level (Janssen, 2016; Meskers, 2020).

To have a better understanding of older adults’ revealed relocation preference, the HRN 2015 data set is enriched with register data from the SSD (De Groot, 2011). Similarly to De Groot and colleagues (2008), the HRN 2015 and SSD data were linked on the basis of unique, anonymous, personal identification codes (De Groot, 2011). Thanks to this enrichment, HRN 2015 respondents their residential behaviour can be tracked, but also trigger events/conditions can be detected in the 2015-2020 period. This is translated in newly created variables *Verhuisd_ouder*, *Widowed*, *Dist_Child*, which will be described in paragraph 3.4.

§3.2 Cross-sectional VS Longitudinal Approach

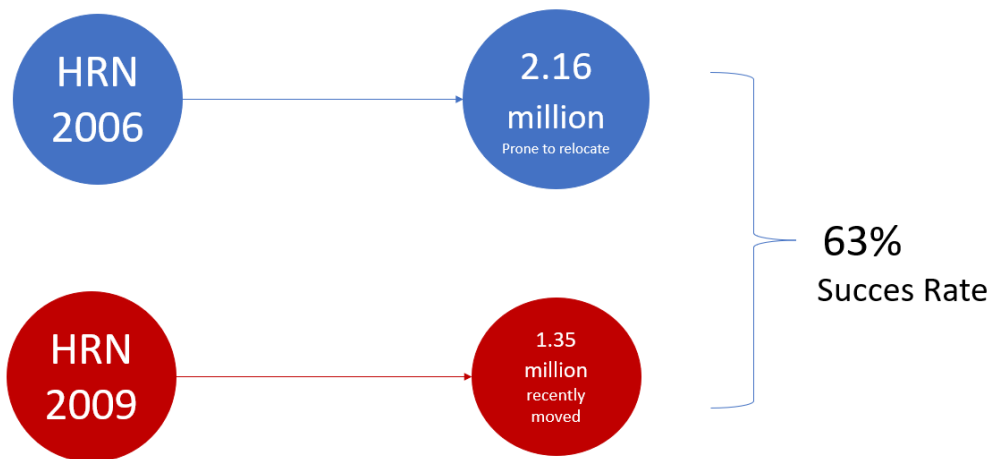
§3.2.1 Cross-sectional Approach

The cross-sectional approach within the academic field has been developed by Goetgeluk, Hooimeijer and Dieleman (1992) in the early nineties of the twentieth century (De Groot et al, 2008; De Groot, 2011). Due to the unavailability of a large in-depth longitudinal data on individual household their relocation intentions and behaviour in the Netherlands, Goetgeluk and colleagues (1992) tried to construct a ‘quasi-longitudinal’ method (De Groot, 2011). This method entails a historical comparison between two respondent groups who participated in different Housing Demand Surveys (HDS, since 2006 Housing Research Netherlands (HRN)) (Boumeester et al., 2015; De Groot, 2011). To exemplify how the cross-sectional approach works, a visualisation (Figure 3.1.A) has been made using the example described in Boumeester and colleagues (2015):

Respondents who participated in HRN 2006 were asked if they would like to relocate within two years (‘Wilt u binnen 2 jaar verhuizen?’). Three years later, it can be determined how many respondents of HRN 2009 have recently moved. The number of households who were prone to relocate in HRN 2006 are divided by the number of recently moved households in HRN 2009, which results in the estimated success rate/propensity to relocate of 63 percent for Dutch households who were prone to relocate in 2006 (Boumeester et al., 2015). Until quite recently, the cross-sectional approach has been used quite often in institutional studies to determine the discrepancy between stated and revealed residential preference.

However, it should be noted this ‘quasi-longitudinal’ method has its limitations (Boumeester et al., 2015; De Groot, 2011). Due to the earlier mentioned data limitations and its indirect nature, the calculation of the success rate is only an estimation, as it does not follow the individual households interviewed in the HRN 2006. De Groot and colleagues (2011) state, therefore, this estimated success rate could be overestimated, as the cross-sectional approach does not take into account people who have moved without a predeceasing stated intention. On the other hand, the success rate could be an underestimation of reality, as some people who had an intention to move, took their time and intentionally did not succeed within the two-year timeframe (De Groot, 2011).

Figure 3.1.A Visualisation Cross-sectional approach



Source: Boumeester et al., 2015 (Translated by Bruins, 2022)

§3.2.2 Longitudinal Approach

In contrast to the cross-sectional approach, the longitudinal approach is able to calculate more precisely the probability of relocation if an individual states that he/she is prone to relocate (De Groot, 2011). The longitudinal approach analyses the same sample of respondents at different points in time, which can be executed using a wide variety of statistical techniques (Jansen et al., 2011). Jansen and colleagues (2011) define the goal of the longitudinal approach as: ‘to examine how characteristics or circumstances at one point in time shape individual outcomes or decisions at a later point in time.’ To achieve this goal, the dataset must consist of longitudinal data with variables about these characteristics and circumstances (Jansen et al., 2011).

As stated earlier, until quite recently, a large national longitudinal dataset regarding relocation was not available in the Netherlands (De Groot et al., 2008; De Groot, 2011; Boumeester et al., 2015). However, De Groot and colleagues (2008) were the first Dutch study to enrich survey data with individual register data to construct a longitudinal mobility dataset¹⁸ (De Groot, 2011). They merged the HDS 2002 data with register data from the longitudinal Satellite Spatial and Social Mobility of the Social Statistical Database (SSD) of Statistics Netherlands (De Groot et al., 2008; De Groot, 2011). Since 2012, this type of enrichment was included in the ensuing HRN datasets, but only included register data of the year the survey was conducted, and thereby not longitudinal on itself.

In line with the studies mentioned in paragraph 2.2, De Groot and colleagues (2008) investigated to what extent there is a discrepancy between stated preference and revealed preference in terms of relocation in the Netherlands during the 2002-2005 period. To gain insights into the influence certain characteristics (independent variables) have on the realization of relocation expectations (dependent variable), a multivariate analysis was executed (De Groot et al., 2008; De Groot, 2011). The independent variables were categorized into the following categories: Spatial characteristics (‘Ruimtelijke kenmerken’); Social demographic characteristics (‘Sociaaldemografische kenmerken’); Socio economic characteristics (‘Sociaaleconomische kenmerken’); and current housing situation (‘Huidige woonsituatie’) (De Groot et al., 2008).

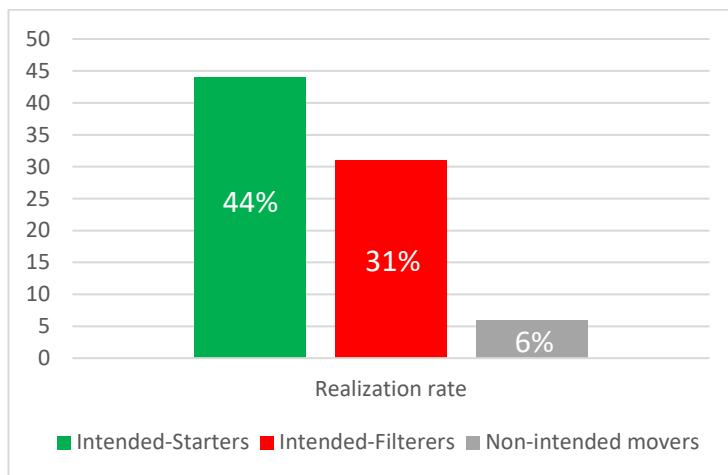
¹⁸ More in detail description about the The Housing Demand Survey (HDS) and its successor the HRN in Chapter 3: Methods.

Furthermore, in the study, the relocated HDS respondents were divided into three groups (De Groot et al., 2008; De Groot, 2011):

- *Intended-starters* ('Starter' = individuals who intend to move to their first independent dwelling);
- *Intended-filterers* ('Doorstromers' = individuals who stated to move from one independent housing situation to another);
- *Non-intended movers* ('Spontane verhuizers' = individuals who stated they did not want to move, but moved within two years).

The De Groot and colleagues study (2008) concluded of all HDS respondents 23% stated to have an intention to move within two years in 2002 (De Groot et al., 2008; De Groot, 2011). Only 31% of those intended to move, had actually realized this intention to move. In figure 3.1.B, the realization rate has been differentiated between the three groups (intended starters; intended filterers; and non-intended movers). All the groups show a discrepancy between stated and revealed preference, but intended starters have relatively the highest realisation rate (44%) (De Groot et al., 2008; De Groot, 2011). Next to these two groups, six percent of those who stated in 2002 not to have the intention to move, realized a move. According to previous studies (Rossi, 1955; Kan, 1999; Mulder & Hooimeijer, 1999), this non-intended move is probably caused by an unforeseen life event. As this life event (f.e. death of a partner) has likely triggered them to change their intention to relocate, which they have succeeded to realize within two years (De Groot, 2011).

Figure 3.1.B Realization rates Intended starters and intended filterers in the Netherlands (2002-2005) in %



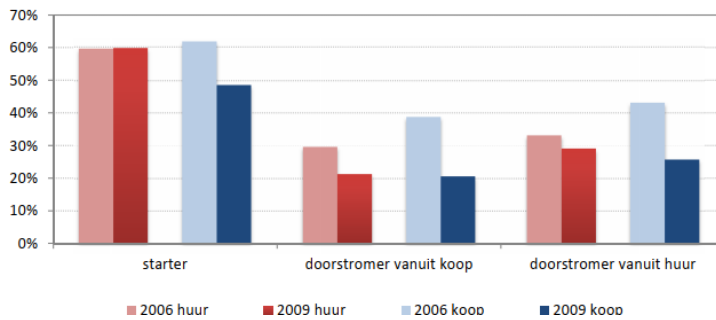
Source: De Groot, 2011

A few years after the research of De Groot and colleagues (2008), the Moving module ('Verhuismodule WoON') was introduced as a new module of the HRN (Boumeester et al., 2015; Statistics Netherlands, 2016). This Moving module is similar to the enrichment conducted by De Groot and colleagues (2008), and consist of the combination of the HRN datasets with register data over three years after the survey was conducted (Boumeester et al., 2015; Statistics Netherlands, 2016). During these three years, respondents could be tracked whether the following aspects of their life changed: location and characteristics of their dwelling; household composition; and income. So in short, thanks to this module, the discrepancy between stated relocation preference and revealed preference could be explored. By reason of precision, control, and flexibility in constructing the dataset, there has been chosen to not include the Moving module 2015, as the computation of some variables could be unclear.

Boumeester and colleagues' report (2015) described the results of the Moving modules 2006 and 2009. The share of respondents to have a propensity to relocate in 2006 (24%) and 2009 (23%) where relatively close to the propensity in 2002 (23%) (De Groot et al., 2008; Boumeester et al., 2015).

Boumeester and colleagues (2015), unlike De Groot and colleagues (2008), split intended filterers on the basis of tenure status, owner-occupants ('Koop') and tenants ('Huur'). Comparing the results of the two studies is thereby difficult on behalf of intended filterers, but intended starters can relatively be compared. As visualized in figure 3.1.C, the realization rate of intended starters in 2006 (almost 60%) and 2009 (almost 55%) is significantly higher compared to the realization rate of intended starters in 2002 (44%, figure 3.1.B).

Figure 3.1.C Realization rate in the 2006-2009 period in the Netherlands



Source: Boumeester et al., 2015

§3.3 Logistic regression models

To answer the central research question and sub questions properly, there has been chosen to use logistic regression models. These regression models are chosen because of their ability to estimate the probability of respondents' stated relocation preference (Model A) and whether they moved or not revealed preference (Model B1 and Model B2), taking into account the effect of the independent variables which will be described in paragraph 3.4 (De Groot et al., 2008).

Figure 3.1 Formula Logistic regression model

$$\log \left[\frac{p_i}{1 - p_i} \right] = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 (X_1 X_2) + \dots + \beta_k X_k,$$

Source: Allisson in De Groot, 2011

As a whole, the logistic regression model calculates the probability of a certain event (for example, being relocated) (De Groot, 2011; De Vocht, 2017). Figure 3.1 presents the general formula for a logistic regression model (Allisson in De Groot, 2011). The contents of this formula are sophisticatedly described by De Groot (2011):

'If P is the probability of the occurrence of an event, and O is the odds of the event, then the odds is the probability of the event occurring divided by the probability of no event: $O = P/(1-P)$. Logistic regression applies the maximum probability estimation after transforming the dependent variable into a logit (the natural log of the odds of the event occurring or not).' (De Groot, 2011).

Furthermore, in figure 3.1, α is the intercept, β_1, \dots, β_k are the logistic regression coefficients, and $(X_1 X_2)$ is the interaction term (to incorporate the joint effects of independent variables) (De Groot et al., 2008; De Groot, 2011). The impact of the independent variables (The odds ratio) are later on in the regression expressed as $\text{Exp}(\beta)$, because the odds ratio is an exponent of the regression coefficients (β).

Serving the purpose of clarity, the logistic regression models in this research are divided per sub question. For sub question 1 ('Which factors influence older adults' stated propensity to relocate in 2015?'), one multinomial logistic regression model has been constructed, in line with comparable research (Bloem et al., 2008; De Groot et al., 2008; Van der Pers et al., 2015; Meskers, 2020). This model is multinomial, because of the categorical nature of the dependent variable *Verhwens*, as *Verhwens* has three categorical possible outcomes ('Definitely yes', 'eventually, maybe', 'Definitely no') (De Vocht, 2016; Meskers, 2020).

To answer sub question 2 ('Which factors influence older adults' probability to be relocated in the 2015-2020 period?') two binomial logistic regression models have been constructed, in line with De Groot (2011) and Meskers (2020). These models are binomial, because the dependent variable *Verhuisd* only has two outcomes ('Relocated' and 'Not relocated'). Following Meskers (2020) research design, the binomial logistic regression models are separated into two different models, to test in the second model to what extent the geographical variable *Housing market pressure* changes the effect of the other independent variables.

Thereby, the first binomial logistic regression model will test the influence of the independent variables related to the six dimensions of Roy and colleagues (2018) on the dependent variable *Verhuisd* (Meskers, 2020). In the second model, the variable *Housing market pressure* is added into the equation, to test if the effect of the other independent variables on the dependent variable changes.

§3.4 Variables Operationalization & Descriptive Statistics

§3.4.1 Dependent variables: Propensity to relocate in 2015 (*C_Verhwens*) & being relocated in the 2015-2020 period (*Verhuisd_ouder*)

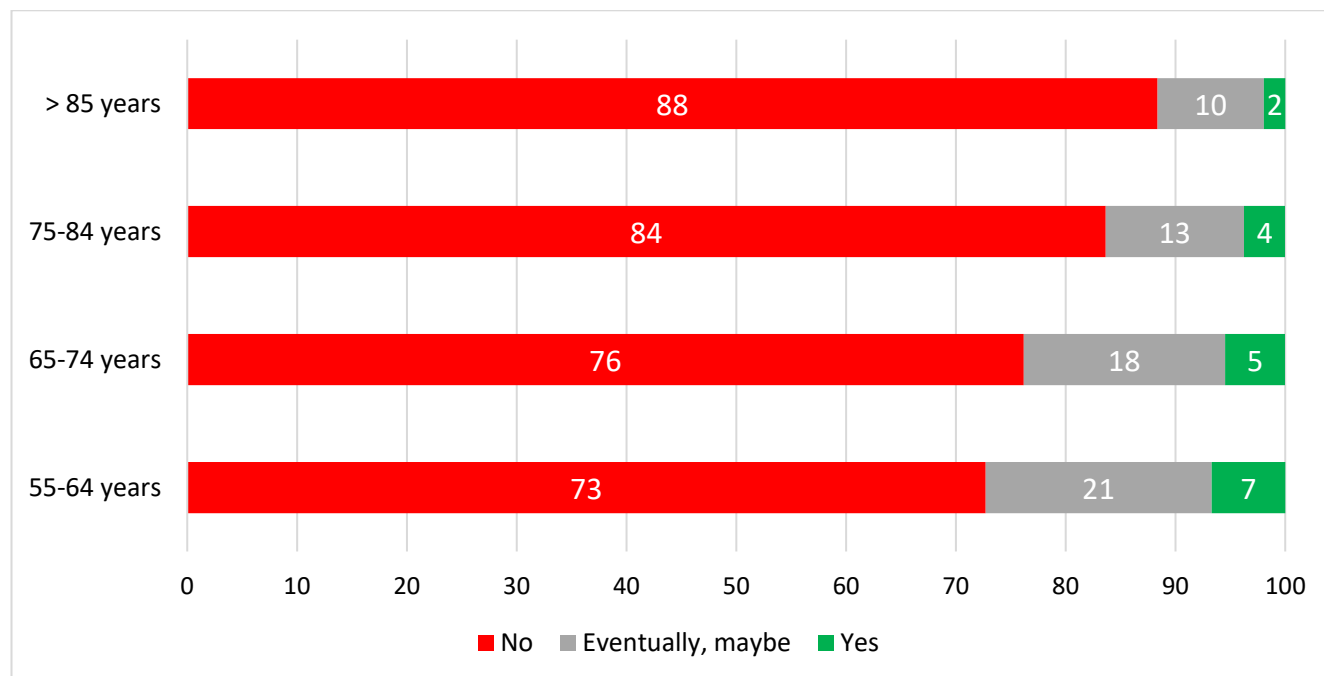
As described in paragraph 3.3, this research has been divided into two separate models to answer the sub questions independently, and thereby this research has two dependent variables.

Within Model A (multinomial logistic regression), the dependent variable is *C_Verhwens*. The variable *Verhwens* represents the outcomes of respondents' response to the question '*Do you want to move within 2 years?*'. Originally, the possible outcomes were '*Definitely yes*', '*Eventually maybe*', '*Would like to, but can't find anything*', and '*Definitely no*'. The option '*Would like to, but can't find anything*' has been merged with '*Definitely yes*', as both outcomes represent a positive relocation intention.

As presented in table 3.1, the majority of respondents is not prone to relocate in 2015 (76.8 %). This is a relatively higher share compared to the Meskers' study (2020), which had 75.4% of all respondents stating to be not prone to relocate in 2018. However, the share of prone relocators ('*Definitely yes*' plus '*Eventually, maybe*' = 23.24%) in 2015 is relatively in line with the findings of Meskers (2020), De Groot et al. (2008), and the historical propensity of older adults to relocate in the Netherlands since 1981 (range between 15% to 20% (De Groot et al., 2008)).

Furthermore, the age distribution in Figure 3.1.1 confirms the earlier described notion in the theoretical framework, which state older adults are increasingly less prone to relocate as they age (De Groot et al., 2008; Stuart-Fox et al., 2021). The youngest age cohort in our sample (55 to 64 years old) are relatively the most prone relocators with 6.7% stating '*Definitely yes*', and 20.6% '*Maybe, eventually*' (See table A.1, Appendix A).

Figure 3.1.1 Dependent Variable Propensity to Relocate (*C_Verhwens*) distributed over age cohorts (*C_lftop*) in 2015 (in %)



Source: HRN, 2015

Table 3.1 Descriptive Statistics Dependent Variable Propensity to Relocate (*C_Verhwens*) in 2015

Variable name	Items	N	%
<i>C_Verhwens</i> (Propensity to relocate)	Definitely yes	1355	5.48
	Eventually, maybe	4395	17.76
	Definitely no	18995	76.76
	Total	24745	100.00

Source: HRN, 2015

Within Model B1 and B2 (binomial logistic regression), the dependent variable is *Verhuisd_ouder*. This variable is newly created, and follows the design of De Groot and colleagues (2008) and De Groot (2011). *Verhuisd_ouder* represents whether a respondent is relocated or not between the 2015-2020 period. Thanks to the enrichment of SSD register data, a possible relocation is derived from the change of a respondent his/her municipality code in the Personal Record Database (BRP) in the 2015-2020 period. It should be noted that a respondent could have moved within the municipality borders. Due to limitations the database could not be specified on the neighbourhood level, so it cannot be excluded more respondents moved in reality.

Notwithstanding this limitation, as presented in table 3.2 and figure 3.2, the majority of the respondents in this dataset were not relocated in the 2015-2020 period (78.4%). As presented in figure 3.2, only half of the definite intended relocators (Yes) were able to realize their relocation intention.

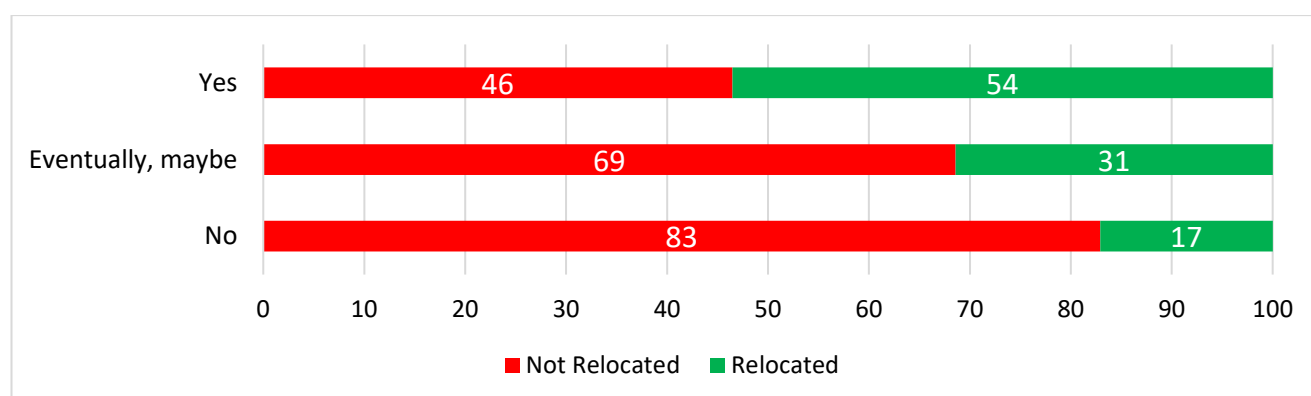
Despite being the least prone to relocate, especially old-elderly (85 years and above) relocated the most (36.8%) compared to younger age cohorts (Table A.2 , Appendix A). This confirms the findings of Van der Pers et al. (2015), as they also observed the age of 85 years to be a tipping point in relocations. As a result of this, the share of relocated non-intended movers in the oldest age cohort (85 years and over) in figure 3.3 is relatively the highest (34.6%). This high share could be due to the fact that these not-intending- to-relocate older adults are generally more fragile, and thereby their relocation could be forced by an incident or worsening health.

Table 3.2 Descriptive Statistics Dependent Variable Being Relocated (*Verhuisd_ouder*) in the 2015-2020 period

Variable name	Items	N	%
<i>Verhuisd_ouder</i> (Relocated)	Yes	5350	21.62
	No	19395	78.38
	Total	24745	100.00

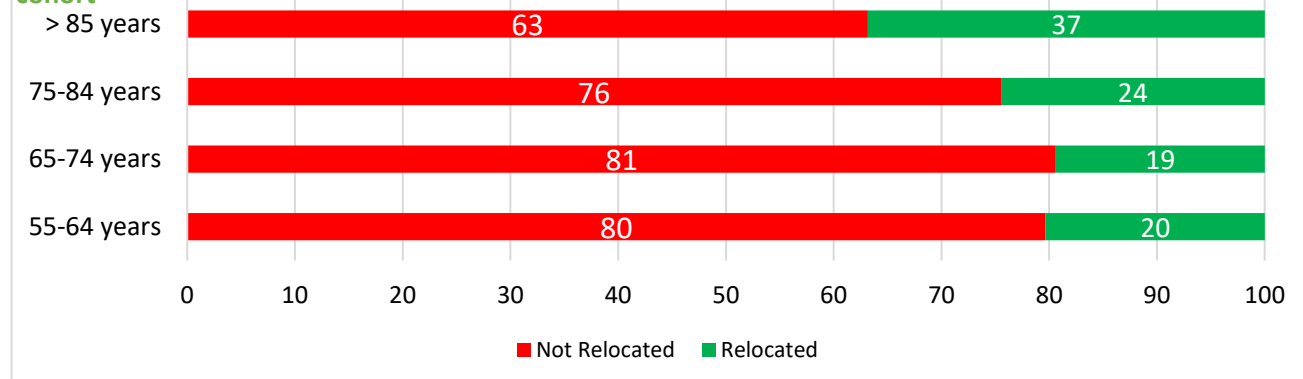
Source: HRN, 2015; SSD, 2022

Figure 3.2 Dependent Variable relocated in 2015-2020 period (*Verhuisd_ouder*) by *C_Verhwens*



Source: HRN, 2015; SSD, 2022

Figure 3.3 Realization Rate by stated relocation preference in 2015, distribution within age cohort



Source: HRN, 2015; SSD, 2022

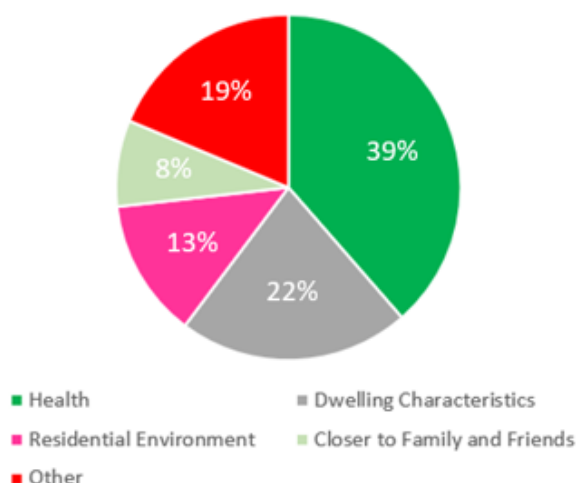
Thanks to figure 3.2.1 and figure 3.2.2, we are able to zoom in why respondents stated either to intend to relocate or their motivations to prefer the opposite.

Respondents who stated to intend to relocate were asked what was their most important reason to move (*TBelangRdVH*). Health is the most prevalent type of reason with 39% (Figure 3.2.1). Second best is the current dwelling and its defects (22%). These two reasons could suggest the intended older adults were living in unsuitable houses which did not meet their (future) needs.

Respondents who stated to have no relocation intention at all were asked their most important reason why they did not want to move. As displayed in figure 3.2.2, neighbourhood attachment (*I do not want to leave this neighbourhood*) is the most prevalent (31%) reason not to move. Second best were satisfaction of the current dwelling and the residential vicinity. This could suggest neighbourhood attachment and residential satisfaction are relatively influential for older adults' propensity to relocate.

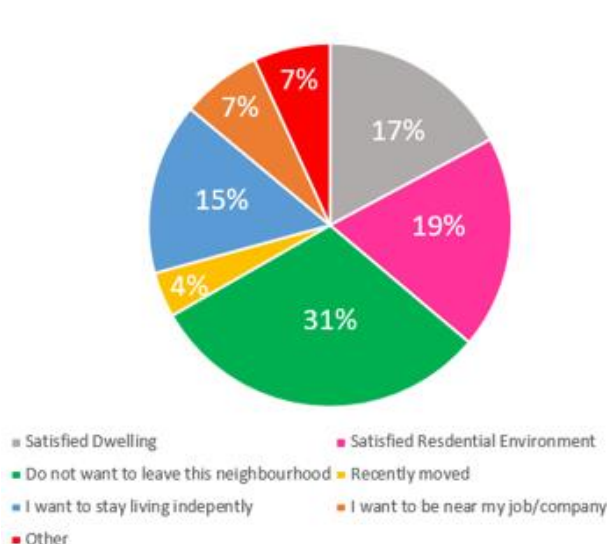
Due to the construction of the HRN 2015, all respondents were asked either their most important reason to relocate or their most important reason to not relocate. Because of this, *C_Belangrd* and *C_redennietverhuis* cannot be included into the regression analysis.

Figure 3.2.1 Most important reason to move (*C_Belangrd*)



Source: HRN, 2015

Figure 3.2.2 Most important reason Not to Move (*C_redennietverhuis*)



Source: HRN, 2015

§3.4.2 Independent Variables

Similarly to Meskers (2020), in this paragraph the selected independent variables for the multinomial- and binomial logistic regressions will be described in categorical order of the Roy and colleagues (2018) dimensions.



Psychological and Psychosocial Dimension

To represent the selected influential factors from the scientific literature in paragraph 2.3.1 (residential satisfaction, comfort, and feeling safe) the independent variables in table 3.3 have been selected to be used in

the logistic regressions. As feeling safe was not a separate variable in the HRN 2015, it has been chosen to use the variables *Brtthuis* ('I feel at home in this neighbourhood') and *TGehecht* ('I feel attached to this neighbourhood') to capture respondents their feelings about their residential vicinity. If these feelings are positive, it can be presumably assumed they feel safe in their neighbourhood.

In the likes of the variables *TWoning*, and *TWoonOmg*, respondents were asked to what extent they were satisfied with their current dwelling and residential environment (1 = Really Satisfied, 2 = Satisfied, 3 = Neutral, 4 = Unsatisfied, 5 = Really Unsatisfied). To be more compatible in the logistic regression analyses, *TWoning* and *TWoonOmg* have been abbreviated into *C_TWoning* and *C_TWoonOmg*. *Really Satisfied* and *Satisfied* have been merged into *Satisfied*. *Really Unsatisfied* and *Unsatisfied* have been merged into *Unsatisfied*.

Variable *HechtWn* reflects respondents' response to the question to what extent they are attached ('gehecht') with their current dwelling (1 = Really Attached, 2 = Attached, 3 = Not Attached, 4 = Really Not Attached). Also, to be more compatible for the regression analyses, *HechtWn* has been abbreviated into *C_HechtWn* (Attached, Not Attached, and Really not Attached).

The variables *Brtthuis* and *TGehecht* are statements, which respondents could react to what extent they agree with the statements (1 = Completely Agree, 2 = Agree, 3 = Do not Agree/Agree, 4 = Disagree, 5 = Completely Disagree). Also for compatibility reasons, these variables have been abbreviated into *C_Brtthuis* and *C_TGehecht* (Agree, Neutral, and Disagree).

As can be seen in table 3.3, the mean values of the variables suggest that older adults in this research sample are relatively satisfied with their current dwelling and residential environment, but they are relatively more satisfied with the characteristics of their current dwelling (*TWoning* mean = 1.63 > *TWoonOmg* mean = 1.86). Furthermore, they are relatively the most attached to their current dwelling (*HechtWn* mean = 1.77), with the limitation *HechtWn* has a smaller range compared to the other variables.

Table 3.3 Descriptive Statistics Independent Variables Psychological Dimension

Items	N	Mean	σ	Min.	Max.
<i>TWoning</i> (<i>'To what extent are you satisfied with your current dwelling?'</i>)	24745	1.63	0.709	1	5
<i>TWoonOmg</i> (<i>'To what extent are you satisfied with your current residential environment?'</i>)	24745	1.86	0.806	1	5
<i>Brtthuis</i> (<i>'I feel at home in this neighbourhood.'</i>)	24745	1.96	0.755	1	5
<i>HechtWn</i> (<i>'To what extent are you attached to your current dwelling?'</i>)	24745	1.77	0.734	1	4

<i>TGehecht</i> (‘I feel attached to this neighbourhood’) = Place attachment	24745	2.29	0.979	1	5
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Source: HRN, 2015



Social Dimension

To depict the selected influential factors (see paragraph 2.5.2) of the social dimension, the following independent variables have been selected: *Dist_Child*, *Partner*, and *Social_Cohesion* (including items).

In line with the methodology of Van der Pers and colleagues (2015), and thanks to the SSD enrichment, the variable *Dist_Child* (Distance to nearest child) has been created (see Table 3.4). Using *ArcGIS Pro*, and the SSD register data, a buffer analysis has been executed to determine the distance between the municipality of the older adult in 2015, and the municipality of the nearest child in 2015. If respondents did not have a registered child in 2015, they were coded to have no children.

Almost half of the respondents (48.9%) has children living within a 5 kilometre (km) range. Furthermore, a quite substantial share of the respondents (36.8%) has no children at all. In figure 3.4, the descriptive statistics of *Dist_Child* are categorized by age cohort. The youngest age cohort (55-64 years old) has relatively the highest share of children living outside a 20 km range of all age cohorts. This could be explained by the fact that this age cohort generally have a higher probability to have younger children, who could be studying or working further distances away from their parents.

Next to *Dist_Child*, the independent dummy variable *Partner* has been created to estimate the influence partnership status has in the propensity to relocate and the revealed relocation behaviour. Compared to the Van der Pers and colleagues study (2015), the share of older adults in this research sample is relatively higher (57.4% in table 3.4, and 46.5% in Van der Pers et al. (2015)). An explanation for this difference could be the difference in methods.

As Van der Pers et al. (2015) only selected older adults aged 75 years and over, thereby relatively more respondents' partner in their research sample could be deceased at the time of interview. The tipping point at the age of 75 in terms of partnership status is confirmed in table A.4 (Appendix A). The share of partnered older adults with the age between 75 and 84 years (42.0%) is significantly lower compared to the partnered older adults between 65 years and 74 years (62.2%).

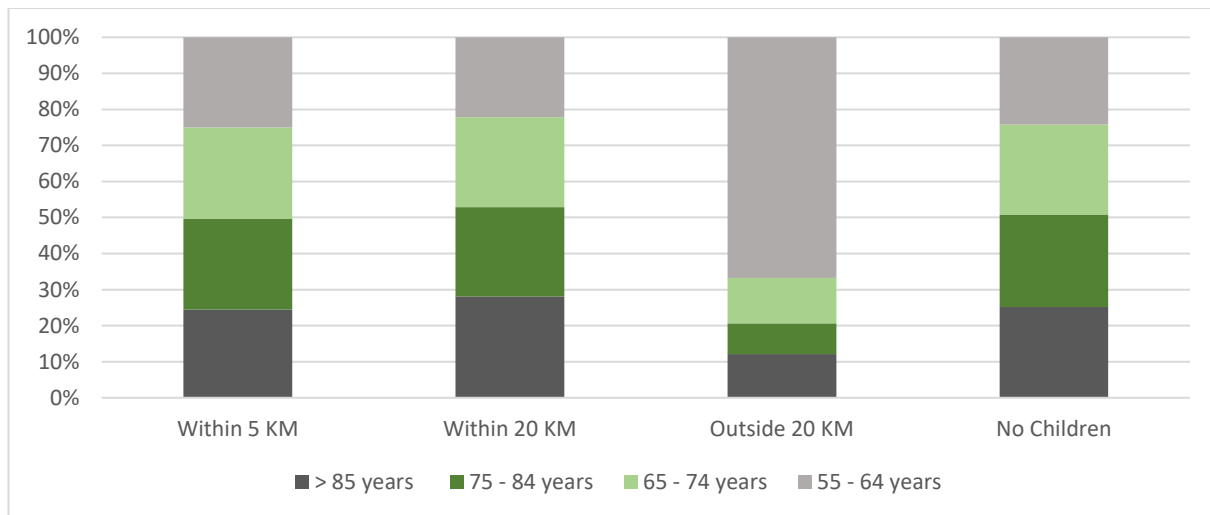
Table 3.4 Descriptive Statistics Independent Variables Distance to nearest child (*Dist_Child*) and Partnership status (*Partner*)

Variable name	Items	N	%
<i>Dist_Child</i> (Distance to nearest child)	Within 5 km	12000	48.49
	Within 20 km	3090	12.49

	Outside 20 km range	540	2.18
	No Children	9115	36.84
	Total	24745	100.00
	Partner		
	(Partnership status)		
	Yes	14210	57.43
	No	10535	42.57
	Total	24745	100.00

Source: HRN, 2015; SSD, 2022

Figure 3.4 Distance to nearest child in 2015, distribution within age cohort



Source: HRN, 2015; SSD, 2022

The last variable within the social dimension is *Social_Cohesion* (Table 3.5). Reproducing the methods of Meskers (2020) and BZK (2019), this variable is formed in making a Likert score of selected statements which should resemble the social construct social cohesion. This construct will be used to represent to what extent respondents have a good relationship with their neighbours. Respondents could state to what extent they agree to the statements if they had a lot of interaction with their direct neighbours (*ConBuur1*), whether people in their neighbourhood are nice to each other (*Brtpret*), and if they live in a neighbourhood, and residents help each other and participate in joint activities (*gezelbuurt*). Respondents their answers are quantified into (1) is Completely Agree to (5) is Completely Disagree. The internal consistency of the selected items were tested with a reliability analysis. The Cronbach's Alpha of 0.788 suggests the items are internally consistent, and this did not increase when deleting one item.

The variable *Conbuur1* has been transformed into *C_Conbuur1* in the regression analyses, just as the other variables in the psychological and psychosocial dimension, into three classes (Agree, Neutral, and Disagree). On average, respondents mildly agreed with the selected statements, but agreed relatively the least to *gezelbuurt* (Mean = 2.64, SD = 0.973) (Table 3.5). The average social cohesion score (*Social_CohesionI*) of 2.54 suggests respondents have a mildly positive perception of the social cohesion in their neighbourhood.

Table 3.5 Descriptive Statistics Social Cohesion

Items	N	Mean	Standard Deviation (σ)	Min.	Max.
<i>Conbuur1</i> (‘I have a lot of interaction with my direct neighbours’)	24745	2.54	1.035	1	5
<i>BrtPret</i> (‘In this neighbourhood people are nice to one another’)	24745	2.11	0.707	1	5
<i>gezelbuurt</i> (‘I live in a nice neighbourhood, and residents help each other and participate in joint activities’)	24745	2.64	0.973	1	5
<i>Social_Cohesion</i> (Likert Scale) (Sum of response of the selected items)	24745	2.54	0.731	1	5

Source: HRN, 2015



Time and Space-Time Dimension

The selected variables for the Time and Space-Time dimension are *Years_dwel*, and the trigger event variables *Widowed* and *Worsening_health*. Only *Years_dwel* is taken into account in all logistic regressions models, as it describes the years respondents were living in their dwelling in 2015. The trigger event variables occurred in the 2015-2020 period, so they are only considered in Model B1 and B2.

In line with the theoretical framework, most of the respondents in this sample were living 20 years and over in their dwelling in 2015 (51.6% in Table 3.6). In table A.5 (Appendix A) it can be seen the distribution per age cohort is relatively similar to the distribution in table 3.6.

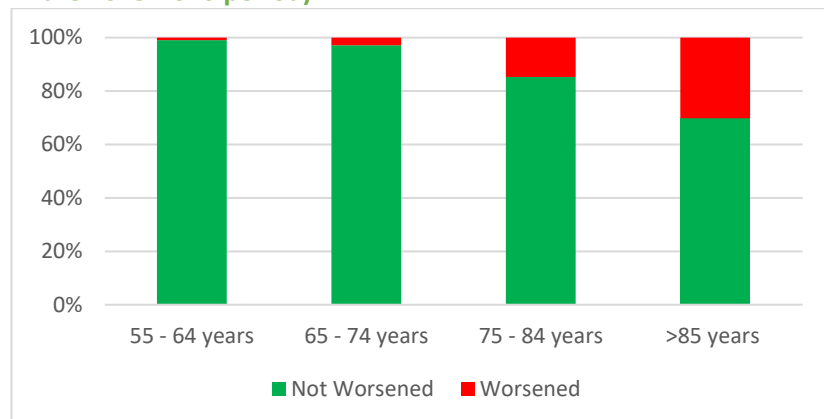
The dummy variable *Widowed* was created to represent the event of losing a partner. Widowed older adults are in this analysis defined as respondents who had a partner in 2015, and whose registered relationship ended due to the death of a partner.

During the 2015-2020 period, only 9.2% of the respondents lost a partner. When split up by age, the 75-84 year old age cohort has relatively the highest share of widowed respondents with 17.1% (Table A.6, Appendix A). A possible explanation could be the average life expectancy is within this age cohort (83 years old), and thereby increasing the probability to lose a partner. The oldest age cohort (85 years and over) have a relatively lower share of widows (13.95%) compared to the 75-84 year olds, which could be explained these old-elderly already have lost a partner before 2015.

(Intensively) worsening health, in terms of obtaining a Wlz-indication, was used to create the dummy variable *Worsening_Health*. In this research sample, most respondents (94.3%, table 3.6) did not obtain a Wlz-indication

in the 2015-2020 period. If we zoom in on the distribution within age cohorts (Figure 3.5), especially the oldest respondents (75 years and over) experienced a worsening health in the 2015-2020 period. In line with the widowhood described above, it could be asserted the respondents themselves are after their 83rd year also subject to mechanisms of later-life (i.e. worsening health and death).

Figure 3.5 Worsening Health (in terms of obtaining a Wlz-indication in the 2015-2020 period)



Source: HRN 2015; SSD, 2022

Table 3.6 Descriptive Statistics Independent Variables Time and Space-Time Dimension

Variable name	Items	N	%
<i>Years_dwel</i> (Years in dwelling in 2015, in five classes)	< 5 years	2020	8.16
	5- 10 years	3860	15.60
	11- 15 years	3065	12.39
	16 - 20 years	3040	12.29
	>20 years	12760	51.57
	Total	24745	100.00
<i>Widowed</i> (Lost a partner between 2015-2020)	Yes	2280	9.21
	No	22465	90.79
	Total	24745	100.00
<i>Worsening_health</i> (Receiving a Wlz-indication in the 2015-2020 period)	Yes	1410	5.70
	No	23335	94.30
	Total	24745	100.00

Source: HRN, 2015; SSD, 2022

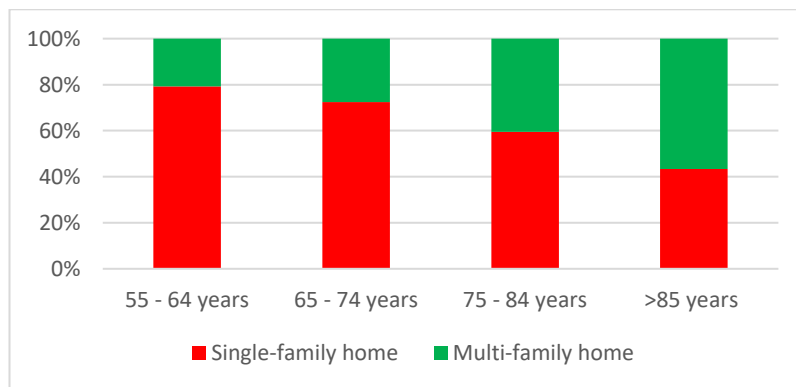


Built and Natural environment Dimension

To resemble the selected factors *dwelling size*, and *geographical location* from the Roy et al. (2018) framework, the independent variables *Type_dw*, *Kamers*, *Dwelling_Utility*, *Stedgem*, and *Spanning* have been created.

The independent variable *Type_dw* is a recode of the variable *SrtWn* in the HRN 2015. This variable contained information about respondents type of dwelling. A single-family home is generally smaller than a multi-family house, so this variable could decipher the size of respondents their dwelling. The recode into *Type_dw* consisted of recoding the value 'Flat, apartment, or story house' into the new value *Multi-family home*. The other values were different types of Single-family homes ('Eengezinswoningen'), and were thereby recoded into the new value *Single-family home*. As presented in table 3.7, most of the respondents (71.3%) were living in a single-family home in 2015. Divided by age cohorts (visualized in figure 3.6), the older the respondent, how relatively more they are living in a multi-family home instead of a single-family home. However, the share of old-elderly (85 years and over) living in a single-family home (43.4%) is quite substantial.

Figure 3.6 Type of dwelling in 2015, distribution within age cohort



Source: HRN, 2015

Furthermore, the number of rooms (*Kamers*) could indicate the size of the dwelling. In table 3.8 it is presented the average number of rooms a respondent has in their dwelling is 4.35. This relatively in line with the findings of Meskers (2020) which described an average number of rooms of 4.37. Similarly to Meskers (2020), the independent variable *Dwelling_Utility* ('Ruimtelijke passendheid') has been computed by dividing the number of rooms (*Kamers*) with the number of people within the respondent's household (*AantalPP*). This newly created variable in table 3.8 it can be seen the average dwelling utility among older adults in 2015 (mean = 2.60) is relatively lower compared to the average dwelling utility among older adults in 2018 (Meskers, 2020).

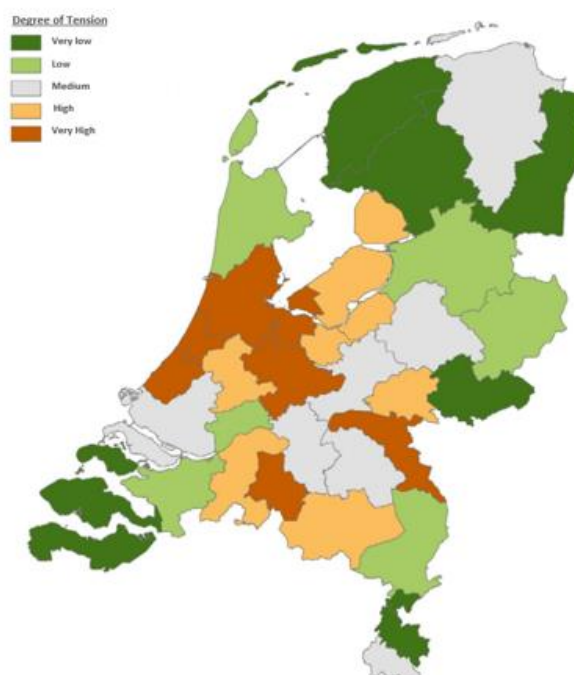
To capture the differences between living in a more rural or urban area, the variable *Stedgem* was created. Merged from HRN 2018, this variable was linked on the basis of similar municipality codes. Table 3.7 shows us most of the respondents live in urban areas (69.2% combining urban and less urban). Table A.9 (Appendix A) suggests this tendency to live in more urban areas is not age related, as the distribution urban/rural between age cohorts is relatively the same as the distribution in table 3.7.

Similarly to *Stedgem*, the independent variable *Spanning* has also been created through a merge with the HRN 2018. This variable *Spanning* contains information to what degree a regional housing market is under pressure. BZK (2019) calculates this pressure by dividing the residential supply (i.e. housing stock) with the residential demand for this region. This ratio is translated into degrees of tension ('*Spanning*') with (1) Very High tension, (2) High Tension, (3) Medium Tension, (4) Low Tension, and (5) Very Low Tension. The relatively highest share of older adults (31.4% in table 3.7) tend to live within a region with a very high tense housing market.

On the basis of figure 3.6.A, it thereby can be assumed. However, the disparities between the degrees of tension are relatively small, suggesting a relative equal distribution. Between age cohorts (Table A.10, Appendix A) the differences are also relatively small, and present a similar distribution as in table 3.7 .

Meskers (2020) categorized *Spanning* into a separate regional effect category, and Roy et al. (2018) did not really define this degree of tension in a specific dimension. *Spanning* could also be categorized into the Economic Dimension, linking it with the factor *Housing Market*. However, in this research it has been chosen to categorize *Spanning* into the Built and Natural Environment Dimension. This is by reason of a regional housing market tension is predominantly based on the scarcity of preferred housing in a specific region. Thereby the presence or absence of residential buildings relatively influences *Spanning* the most.

Figure 3.6.A Regional Housing Market Tension in the Netherlands in 2018



Source: ABF in BZK, 2019 (Translated by Bruins, 2022)

Table 3.7 Descriptive Statistics Independent Variables Built and Natural Environment Dimension

Variable name	Items	N	%
<i>Type_dw</i> (Single-family home or Multi-family home)	Single-family home	17650	71.33
	Multi-family home	7095	28.67
	Total	24745	100.00
<i>Stedgem</i> (Degree of urbanisation)	Urban	11675	47.18
	Less Urban	5440	21.98
	Rural	7630	30.83
	Total	24745	100.00

<i>Spanning</i> (Degree of tension in the housing market region)	Very low Tension	3335	13.48
	Low Tension	4500	18.19
	Medium Tension	5290	21.38
	High Tension	3860	15.60
	Very High Tension	7760	31.36
	Total	24745	100.00

Source: HRN, 2015; 2018

Table 3.8 Descriptive Statistics Independent Variables Number of Rooms and Dwelling Utility

Items	N	Mean	Standard Deviation (σ)	Min.	Max.
<i>Kamers</i> (Number of rooms in the current dwelling)	24745	4.35	1.437	1	20
<i>Dwelling_utility</i> (Recode of variable <i>Ruimte</i> . This variable is the outcome of dividing the number of rooms with the number of people within the household)	24745	2.60	0.497	1	3

Source: HRN, 2015



Economic Dimension

Within the economic dimension the independent variables *Bhvorm*, *huurkoop_n*, and *Nwq997* to quantify the Roy et al. (2018) economic dimension factors (preferred) tenure status, and housing costs.

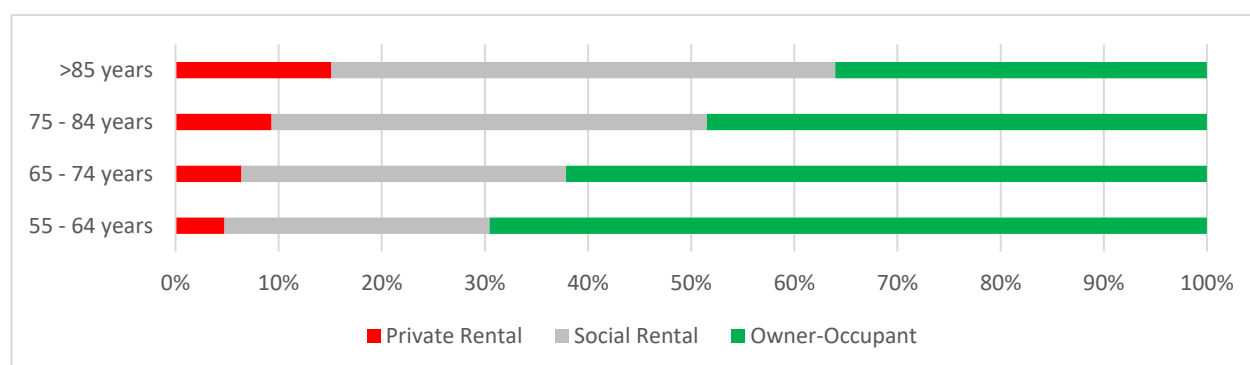
Firstly, the independent variable *Bhvorm*. This variable contains information about respondents their tenure status in 2015. The tenure distribution within this research sample (table 3.9) is relatively similar to the tenure distribution in the Netherlands as described in paragraph 2.5.5 (61.3 % owner-occupant, 32.0% social rental, and 6.7% private rental). Also in line with the literature in paragraph 2.5.5, generally speaking, the older the age cohort, the less their tenure status is owner-occupant and the greater the share of social rental (figure 3.7, table A.11).

Secondly, the independent variable *Huurkoop_n*. This variable reflects the question asked to respondents who stated to have a (possible) intention to relocate, whether they would like to move to an owner-occupant house or a rental house. Almost half of the intended relocators state they prefer to a rental dwelling (49.53% in table 3.9). Almost a quarter of this group (24.56%) was indifferent towards preferring to buy or to rent their next dwelling, and the other quarter preferred to move to a owner-occupant dwelling (25.91%).

Because of the earlier mention criteria of intending to relocate, respondents who stated to have ‘*Definitely no*’ intention to relocate were left out. This results into a smaller total number of observations (*N*) of *HuurKoop_n*. Thereby, *HuurKoop_n* is not taken into account in the regression analyses, because of its inability to be representative for all respondents in this research sample. Nevertheless, this variable is still taken into account to answer the hypothesis *H2F*: ‘*Preferring to move to a owner-occupied dwelling will reduce the probability to be relocated*’. Because only descriptive methods can be used, there cannot be stated these findings are significant.

Lastly within the economic dimension, the independent variable *Nwqw997* (Housing ratio) will be described. This variable is a result of calculating the share of income respondents are spending in relation to their housing costs (see table 3.10). Compared to the findings of Meskers (2020), the average percentage of the income spend on housing costs is almost the same (30.73 % vs 30.74% in Meskers, 2020). However, the standard deviation in this thesis is relatively higher ($\sigma = 16.38$, $\sigma = 15.87$ in Meskers, 2020). This suggests the observation in this thesis are more spread out, and the observed mean is less reliable.

Figure 3.7 Tenure status in 2015, distribution within age cohort



Source: HRN, 2015

Table 3.9 Descriptive Statistics Independent Variables Economic Dimension

Variable name	Items	N	%
<i>Bhvorm</i> (Type of tenure)	Social rental	7915	31.99
	Private rental	1660	6.71
	Owner-occupant	15170	61.31
	Total	24745	100.00
<i>HuurKoop_n</i> (Preferred type of tenure)	Rental	1845	49.53
	Owner-occupant	965	25.91
	Both/Doesn't matter	915	24.56
	Total	3725	100.00

Table 3.10 Descriptive Statistics Independent Variables Housing Costs

Items	N	Mean	Standard Deviation (σ)	Min.	Max.
<i>Nwqw997</i> (Housing ratio = Housing costs as a percentage of the income)	24745	30.73	16.383	1	99.7

Source: HRN, 2015



Socioeconomic and Health Dimension

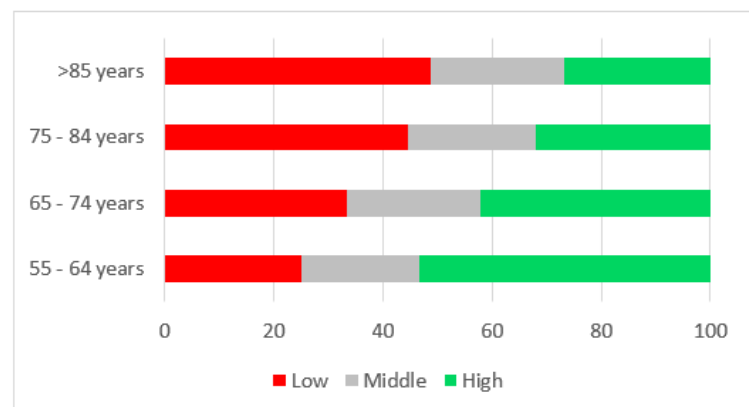
The last dimension of the Roy et al. (2018) framework is the socioeconomic and health dimension, with the selected independent variables *C_Lftop*, *C_Vltoplop*, *C_Inkht3k*, *Ugerncy*, *Gezond*, and *C_Belangrd*.

C_Lftop is a recode of the variable *Lftop* (age of respondents in 2015) into four classes (table 3.11). These classes have been chosen in order to capture more in detail the different stages of later-life. Previous research differentiated respondents either only until 65 years (De Groot et al., 2008), or until 75 years (Boumeester et al., 2015; Meskers, 2020), or they only selected respondents aged 75 years and over (Van der Pers et al., 2015; Roy et al., 2018). To incorporate both differentiations, the ten year classification from the age of 55 until 85 years has been used.

The age distribution of respondents (table 3.11) corresponds relatively with the distribution in figure 2.4. Older adults aged between 55-64 years take up the greatest share of the total research population with 41.2 percent (table 3.11).

The second independent variable, *C_Vltoplop*, provides information about the highest finished level of education respondents have obtained. The variable *Vltoplop* has been recoded to simplify the classification. A low education level indicates the respondent only finished primary school or did not have an education at all. Respondents with a middle education level only finished secondary education ('*Middelbaar onderwijs*'). Respondents with the high education level finished either a University study or a Applied Science study. The observed distribution of education is relatively equal, with a bit skewness towards more high educated respondents (44.0% in table 3.11). Differentiated by age cohort, the younger age cohorts tends to have fulfilled a higher degree of education compared to their predecessors (Figure 3.8).

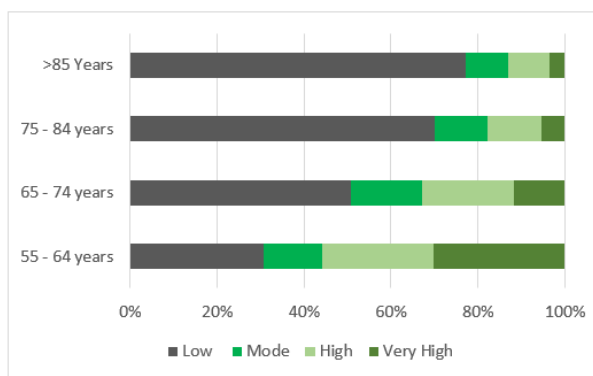
Figure 3.8 Education level in 2015, distribution within age cohort



Source: HRN, 2015

C_Inkht3k is the independent variable containing information about the income level of respondents. The CPB Netherlands Bureau for Economic Policy Analysis (CPB) defines the mode income level as the most frequent earned income (CPB, n.d). The annual mode income is calculated with the formula of multiplying 0.79 with the average income of the specific year. The gross mode income for 2015 was €35.500 (CPB, 2017). In this research incomes lower than €35.500 are classified as *Low Income*; the *Mode Income* is between €35.500 and €43.999; *High Income* is defined as the income between €44.000 and €70.999 (two times the mode income); and *Very High Income* is every income above €71.000.

Figure 3.9 Income level in 2015, distribution within age cohort



Source: HRN, 2015

Comparing figure 3.9 (Income level) with figure 3.8 (Education level), the younger age cohorts relatively tend to have a higher income level compared to their older predecessors. Thereby could be suggested this is caused by having a higher education, but it should also be noted that the youngest age cohort (55-64 years) has not reached the age of retirement yet, and probably still receives income from work (which is generally higher than income from benefits or pensions). Nevertheless, the second youngest age cohort (65-74 years old), who are generally retired, has relatively 20% more older adults having a mode income or higher compared to their 75-84 years old peers (Table A.13, Appendix A).

The fourth independent variable within the socioeconomic and health dimension is *Urgency* (figure 3.10). To capture to what extent respondents their stated relocation intention is urgent, the variables *Zoekhrj* and *Verhact* have been recoded into the new variable *Urgency*. If respondents stated in the past six months they have done anything to find a new dwelling (*Zoekhrj*), and they have actively tried to obtain a new dwelling within this timeframe (*Verhact*), their intention to relocate is categorized as *Urgent*. If they only searched for a dwelling (*Zoekhrj*), they are categorized as *Less Urgent*. If respondents did not search or actively tried to obtain a new dwelling, or did not have a relocation intention at all, they are categorized as *Low to no urgency*. The share of urgent intended relocators (5.9% in table 3.11) corresponds with the findings in table 3.1 with the share of definitely prone to relocate respondents (5.5%).

Lastly, the independent variable *Gezond*. This variable reflects the respondents' perception of their own health. Similar to Meskers (2020), the values *Really good* ('*Heel goed*') and *Good* ('*Goed*') have been merged to *Good*. However it has been chosen to only use the value *Okay* ('*gaat wel*') for the *Mediocre* health category. Meskers (2020) included *Sometimes good and sometimes bad* ('*Soms goed en soms slecht*') into *Mediocre* ('*Redelijke gezondheid*'), but in this thesis it has been chosen to categorize *Sometimes good and sometimes bad* into the *Not so good to bad* health category. This is by reason of *Sometimes good, sometimes bad* suggests respondents their health is relatively instable with outliers to bad.

Because of these different demarcations, respondents in this research sample have relatively much more a negative perception of their own health (15.8% in table 3.11) compared to the 4.8% of respondents with a negative health perception in Meskers (2020). Also relatively less respondents in this research have a good perception of their own health (63.0% in table 3.11) compared to 65.0% in Meskers (2020). Split up by age cohorts, respondents' personal health perception generally deteriorates as they are older (table A.15, Appendix A). However, the youngest age cohort (55-64 years) perceives their health relatively more negatively (14.9% in table A.15) compared to their older peers in the 65-74 years category (13.2%, in table A.15).

Table 3.11 Descriptive Statistics Independent Variables Socioeconomic and Health Dimension

Variable name	Items	N	%
<i>C_Lftop</i> (Age of respondents in	55 - 64 years	10200	41.22
	65 – 74 years	8690	35.12
	75 – 84 years	4560	18.44
	85 years and over	1290	5.22
	Total	24745	100.00
<i>C_Vltoplop</i> (Finished education level)	Low	8130	32.86
	Middle	5725	23.14
	High	10890	44.01
	Total	24745	100.00
<i>C_Inkht3k</i> (Income level)	Low Income	11735	47.32
	Mode Income ('Modaal')	3465	14.00
	High Income	5140	20.77
	Very High Income	4405	17.80
	Total	24745	100.00
<i>Urgency</i> (The level of urgency of the relocation intention)	Urgent	1465	5,92
	Less Urgent	1110	4.49
	Low to no urgency	22170	89.59
	Total	24745	100.00
<i>Gezond</i> (Respondents perception of their own health)	Good	15580	62.96
	Mediocre	5265	21.28
	Not so good to bad	3900	15.76
	Total	24745	100.00

Chapter 4: Results

This Chapter 4 (Results) is structured as follows: in order to formulate a answer for the sub-question 1 (factors influencing older adults' propensity to relocate in 2015), paragraph 4.1 will describe the results of the multinomial logistic regression. To answer subsequently sub-question 2 (factors influencing older adults' revealed relocation behaviour), paragraph 4.2 will start with the descriptive results of most important reasons to (not) relocate, and their coupled realization rates. This paragraph will be concluded with the binary logistic regression models B1 and B2.

§4.1: Propensity to relocate in 2015

As described earlier in Chapter 3 (Methods), in order to measure the influence of the selected variables on older adults' propensity to relocate in 2015, a multinomial logistic regression has been executed (table 5.1). This regression estimates the different influence the selected independent variables have on the different types of propensity to relocate ('Definitely No', 'Maybe, eventually', and 'Definitely Yes'). The reference category is 'Definitely No', so the observed effects are estimated with respect to the statement to have no intention to relocate at all (*Definitely No*). The Nagelkerke R Square of 0.520 (table 5.1) suggests more than half of the variance within the independent variables can be explained with Model A. Thereby it can be asserted the quality of Model A is relatively good.

§4.1.1 Psychological and Psychosocial Dimension

(Hypothesis 1a) Satisfaction Current Living Conditions

Among the prone relocators ('*Maybe, eventually*' and '*Definitely yes*' combined), older adults are significant more likely to be less satisfied with their dwelling situation in 2015. The effect of this dwelling (dis)satisfaction is the most influential among definite intended relocators (*Definitely yes*). Older adults who were dissatisfied with their current dwelling in 2015 are, relative to non-intended relocators¹⁹, expected to be 2.876 (= Exp(B) of *Unsatisfied*) times more likely to have a definite intention to relocate (*Definitely yes*).

Within the indecisive relocators (*Maybe, eventually*) category, only a significant difference ($p < 0.05$) is observed for the relationship with unsatisfaction with the residential environment. Older adults stating they had a neutral or negative (i.e. unsatisfied) perception about their immediate residential environment in 2015 were, relative to non-intended relocators, expected to be 1.909 (=Exp(B) of *Neutral*, $p < 0.01$) and 1.601 (=Exp(B) of *Unsatisfied*, $p < 0.01$) times more likely to be definite intended to relocate (*Definitely yes*).

Taken into account the other variables which represent older adults' feelings of comfort and safety, especially amidst the definite intended relocators (*Definitely yes*), older adults, with dissatisfaction and/or no attachment to their home and neighbourhood, are significant more likely to have a definite relocation intention. In particular, older adults who do not feel attached to their current dwelling are expected to be 3.935 (= Exp(B)) times more likely to feel not attached to their current dwelling. An explanation for this could be the absent feeling of attachment to the dwelling is an indicator variable. In other words, this variable is a result of negative scores within other variables (f.e., great geographical distance to children, bad social cohesion and few years living in the same dwelling).

¹⁹ From this part on, the expected probability refers to the premise if the predictor variable, in this case *Unsatisfied* (*C_Twoning*), of a respondent would increase with one unit, then it is expected they are 2.876 (=Exp(B)) times more likely to have a definite intention to relocate when the other variables in the model are held constant.

The observations in table 5.1 support the relationship described in hypothesis *H1a* ('*Low satisfaction of current living conditions (including neighbourhood satisfactory) positively influences the probability to be prone to relocate in 2015*'). Thereby, hypothesis *H1a* can be accepted with 99 percent certainty ($p < 0.01$).

Table 5.1: Multinomial Logistic Regression Propensity to relocate in 2015 (Model A)

Reference Category: Definitely No	Maybe, eventually			Definitely yes		
	B	S.E.	Exp(B)	B	S.E.	Exp(B)
Psychological and Psychosocial Dimension						
Satisfaction Dwelling						
(ref: Satisfied)						
Neutral	0.605	0.151 ***	1.831	1.606	0.190 ***	4.984
Unsatisfied	0.802	0.079 ***	2.229	1.056	0.120 ***	2.876
Satisfaction Residential environment						
(ref: Satisfied)						
Neutral	0.085	0.101	1.089	0.646	0.149 ***	1.909
Unsatisfied	0.204	0.065 **	1.227	0.471	0.112 ***	1.601
Feeling at Home in the neighbourhood						
(ref: Agree)						
Neutral	0.421	0.104 ***	1.524	0.617	0.162 ***	1.854
Disagree	0.745	0.067 ***	2.105	0.819	0.118 ***	2.268
Feeling Attached to current dwelling						
(ref: Attached)						
Neutral	0.399	0.157	1.490	1.699	0.206 ***	5.467
Not Attached	0.753	0.062 ***	2.123	1.370	0.103 ***	3.935
Feeling Attached to neighbourhood						
(ref: Attached)						
Neutral	0.564	0.074 ***	1.758	0.628	0.129 ***	1.874
Not Attached	0.701	0.056 ***	2.016	0.407	0.114 ***	1.503
Social Dimension						
Distance to closest Child						
(ref: No Children)						
<5 KM	-0.087	0.046	0.917	0.084	0.089	1.087
6 - 20 KM	0.041	0.066	1.042	0.302	0.123 **	1.352
> 20 KM	-0.150	0.145	0.861	-0.015	0.257	0.985
Partnership status						
(ref: No Partner)						
Registered Partnership	0.031	0.057	1.031	0.036	0.108	1.036
Interaction Nearest Neighbour						
(ref: Disagree)						
Agree	-0.144	0.079	0.866	-0.230	0.146	0.795

Neutral	0.143	0.056		1.154	0.011	0.108		1.011
Social Cohesion	0.223	0.045	***	1.249	0.321	0.084	***	1.378

Time and Space-Time Dimension

Years in dwelling in 2015

(ref: <5 years)

5-10 years	0.689	0.095	***	1.991	0.966	0.176	***	2.626
11-15 years	0.676	0.104	***	1.966	0.902	0.192	***	2.465
16-20 years	0.522	0.104	***	1.685	0.740	0.190	***	2.095
>20 years	0.374	0.101	***	1.454	0.533	0.182	**	1.705

Built and Natural Environment Dimension

Type of dwelling

(ref: Multi-family home)

Single-Family Home	0.231	0.062	***	1.260	0.208	0.112	*	1.231
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Urbanisation

(ref: rural)

Urban	0.094	0.055		1.099	0.087	0.109		1.091
Less Urban	0.041	0.062		1.042	0.040	0.122		1.040

Housing Market Intensity

(ref: Very Low Tension)

Very High Tension	0.091	0.074		1.096	0.179	0.143		1.196
High Tension	0.053	0.080		1.054	-0.110	0.156		0.895
Medium Tension	0.196	0.075		1.216	0.153	0.146		1.165
Low Tension	0.050	0.076		1.052	-0.028	0.148		0.972

Number of rooms

	0.088	0.020	***	1.092	0.135	0.037	***	1.145
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Dwelling Utility	0.065	0.056		1.067	0.138	0.106		1.148
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Economic Dimension

Type of tenure

(ref: Owner-occupant)

Social Rental	-0.315	0.058	***	0.730	-0.228	0.107	**	0.796
Private Rental	-0.039	0.092		0.962	0.057	0.159		1.059

Housing ratio	0.001	0.002		1.001	0.011	0.003	***	1.011
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Socioeconomic and Health Dimension

Age Respondents

(ref: 55-64 years)

> 85 years	-0.568	0.121	***	0.566	-0.954	0.265	***	0.385
75-84 years	-0.216	0.066	***	0.806	-0.132	0.127		0.877
65-74 years	0.034	0.048		1.035	0.072	0.092		1.074

Education Level

(ref: Low)

High	-0.060	0.054		0.942	-0.170	0.103		0.843
Middle	0.233	0.052	***	1.262	0.107	0.099		1.113
Income Level								
(ref: Very High Income)								
Low Income	-0.078	0.079		0.925	0.126	0.154		1.135
Mode Income	0.089	0.077		1.093	0.279	0.153	*	1.321
High Income	0.141	0.066		1.152	0.255	0.135	*	1.291
Urgency								
(ref: Urgent)								
Low to no Urgency	-5.204	0.211	***	0.005	-7.550	0.222	***	0.001
Less Urgency	1.137	0.413		3.118	0.378	0.418		1.459
Perceived Health								
(ref: Good)								
Not good to Bad	0.286	0.060	***	1.331	0.599	0.106	***	1.821
Mediocre	0.150	0.052	***	1.162	0.278	0.100	***	1.320
Intercept	0.754	0.287	*		-1.187	0.431	***	
<hr/>								
-2 Log likelihood	21129.702							
Chi-square	11955.548							
Nagelkerke R-square	0.520							
N	24745							

*** <0.01 **<0.05 *0.1

(Variables are colour marked on the basis of the significance level within Definite relocation intention ('Yes'))

Source: HRN, 2015

§4.1.2 Social Dimension

(Hypothesis 1b) Intergenerational Proximity

As can be seen in table 5.1, only having children living within the 6 – 20 KM range significantly ($p < 0.05$) affects older adults' propensity to relocate. Older adults who have children living within this range are expected to be 1.352 (= $\text{Exp}(B)$) times more likely to have a definite intention to relocate compared to having no relocation intention.

This suggests older adult parents within this distance range (6-20KM) could miss the presence and support of their children, as they live too far away (Van der Pers et al., 2015). Although not significant, having children living even further away (>20KM) makes it less likely to have a definite relocation intention ($B = -0.015$). This insinuates, despite children being most likely to be the primary caregiver, these older adults are satisfied and/or attached to their current geographical location.

Considering all the above, hypothesis *H1b* ('Having children living outside a 20 km range will positively influence the probability to be prone to relocate in 2015') cannot be accepted, and is rejected.

(Hypothesis 1b) Partner

On behalf of partnership status (*Partner*), in line with Meskers (2020), no significant effect has been observed for the propensity to relocate in 2015. According to table 5.1, presence or absence of a partner does not positively or negatively affect the propensity to relocate, despite partners are expected to be the primary informal caregiver (Bom, 2021). This points to the fact that that other factors (for example, intergenerational proximity, and health) could be significantly more influential in relation to the propensity to relocate compared to the presence or absence of a registered partner.

Thereby, hypothesis *H1c* (*'Having a partner will negatively influence the probability to be prone to relocate in 2015'*) is also rejected.

(Hypothesis 1c) Social Cohesion

Having regularly interaction with the nearest neighbour tends to have no significant effect in itself, but the social construct *Social Cohesion* is significant ($p < 0.01$) positive related with having a definite intention to relocate (*Definitely yes*). So, given a one unit increase of *Social_Cohesion*, the relative probability of having a definite intention to relocate is expected to be 1.378 ($\text{Exp}(B)$) times more likely.

Thus, hypothesis *H1d* (*'Worse social cohesion positively influences the probability to be prone to relocate in 2015'*) is still rejected, as the opposite is significantly true. A better social cohesion score is apparently positively related to have a definite intention to relocate.

A possible explanation could be, following the line of reasoning of Hillcoat-Nallétamby & Ogg (2014), despite having a good relationship with their neighbours, older adults' propensity to relocate is more effected by their dislikes (i.e., dissatisfaction residential living conditions).

§4.1.3 Time and Space-Time Dimension

(Hypothesis 1d) Years in Dwelling

All categories of *Years_dwelling* appear to have a positive significantly relationship with the prone relocater categories (*'Maybe, eventually'* and *'Definitely yes'*). Confirming the literature (Kramer & Pfaffenbach, 2016; Meskers, 2020), particularly older adults, who were living 5 to 10 years in the same dwelling in 2015, are expected to be 2.626 ($\text{Exp}(B)$, $p < 0.01$) times more likely to have a definite intention to relocate in 2015.

This could be explained, using the Time-geography framework of Hägerstrand (1970), in these years, older adults could question their living conditions. At this potential tipping point, older adults could be induced to move due to their deteriorating physical condition (i.e., capability constraint), and as a result of this are more in need of (medical) assistance (i.e., coupling constraint), and are less held back by financial (mortgage) liabilities (i.e., authority constraint), as presumably their previous move (5 to 10 years ago) did not involve buying their current dwelling.

As a result of all this, hypothesis *H1e* (*'Living for 5 to 10 years in the same dwelling will positively influence the probability to be prone to relocate in 2015'*) is accepted with 99 percent certainty.

The other significant categories (*11-15 years*, *16-20 years*, *>20 years*) demonstrate a relative parabolic relationship, as described earlier by Kramer & Pfaffenbach (2016). As the time in the current dwelling increases, the probability ($\text{Exp}(B)$) to be definite prone to relocate gradually decreases.

§4.1.4 Built and Natural Environment Dimension

(Hypothesis 1f) Type of Dwelling

Living in a single-family home most significantly influences ($p < 0.01$) the probability to be an indecisive relocater (*Maybe, eventually*), as older adults living in a single-family home are expected to be 1.260 ($\text{Exp}(B)$) times more likely to have an indecisive relocation intention compared to having no relocation intention at all (*Definitely no*). The observed effect for definite intended relocators is less significant ($p < 0.1$), and weaker with a lower $\text{Exp}(B)$ ($= 1.231$). Nevertheless, living in a larger dwelling (i.e., single-family home) in terms of size induces older adults to be more prone to relocate. On the other hand, this could also be caused by a significant number of older adults living in a multi-family home in 2015, who already made the move to a more smaller, suitable dwelling, and are thereby less prone to relocate again.

Altogether, Hypothesis *H1f* (*‘Living in a single-family home positively influences the probability to be prone to relocate in 2015’*) can be accepted with 90 percent certainty ($p < 0.1$) for decisive intended relocators, and 99 percent certainty for indecisive relocators ($p < 0.01$).

(Hypothesis 1g) Degree of Urbanisation & (Hypothesis 1h) Intensity Housing Market Region

Degree of urbanisation, and degree of tension within the regional housing market do not appear to have a significant influence on the probability to be prone to relocate in 2015. This contradicts previous research (De Groot et al., 2008; Meskers, 2020), which suggested that these factors did influence the propensity to relocate.

An explanation for this observation could be these independent geographical variables *Stedgem* and *Spanning* do not significantly effect older adults’ propensity to relocate, but maybe only significantly effect whether a intended relocater is able to realize their intention.

Nevertheless, hypotheses *H1g* (*‘Living in a urban area positively influences the probability to be prone to relocate in 2015’*) and *H1h* (*‘Living in a high intensity regional housing market region positively influences the probability to be prone to relocate in 2015’*) are rejected.

(Hypothesis 1i) Dwelling Utility

Lastly there is the number of rooms and dwelling utility. As the number of rooms within the older adult their house increases with one unit, they are expected to be 1.145 ($\text{Exp}(B)$, $p < 0.01$) times more likely to have a definite intention to relocate in 2015. However, if we divide the number of rooms with the number of residents at the same address, there is no significant difference observed for *Dwelling_utility*.

Thereby it can be concluded that the size of the dwelling matters (i.e., type of dwelling and number of rooms), but the efficiency of the size (i.e., dwelling utility) does not necessarily induce the probability to be prone to relocate. Becoming a ‘empty-nester’, and having less people within the same household, does not by definition influence older adults’ propensity to relocate.

Altogether, hypothesis *H1i* (*‘Having more rooms, and low dwelling utility positively influences the probability to be prone to relocate in 2015’*) only partly can be accepted, as only having more rooms significantly influences the probability to be prone to relocate in 2015.

§4.1.5 Economic Dimension

(Hypothesis 1j) Type of Tenure

Just as in Meskers (2020), living in a social rental dwelling significantly ($p < 0.01$) affects older adults' propensity to relocate in 2015. Older adults' living in a social rental dwelling are relatively less likely ($\text{Exp}(B) = 0.796$, $p < 0.01$) to have a definite relocation intention compared to having no relocation intention at all. Meskers (2020) asserts older adults in a social rent dwelling are beforehand less prone to relocate due to unavailability of suitable rental dwellings compared to the current dwelling. This could be due to financial reasons, as older adults living in social housing generally have less financial resources, and are less able and/or willing to pay the higher price of relocation (i.e., higher rent/housing costs).

Owner-occupants on the other hand have relatively more financial resources, as they can capitalize their equity (i.e., the value of their house), which (social) rental dwellers usually cannot. Thanks to this, owner-occupants have less (financial) limitations beforehand compared to their social rental peers.

Bearing all this in mind, hypothesis *H1j* (*'Living in a social rental dwelling negatively influences the propensity to relocate in 2015'*) is accepted with 99 percent certainty.

(Hypothesis 1k) Housing Cost

Related to tenure status, the effect of the *Housing (cost)* ratio is significant ($p < 0.01$), but relatively marginal. Older adults with relatively higher housing costs compared to their income are expected to be 1.011 (Model B2) times more likely to have a definite intention to relocate compared to having no relocation intention at all.

This financial skewness, probably induced by the loss of income due to retirement or living in a private rental dwelling, could trigger older adults to be more prone to relocate. As older adult owner-occupants have generally repaid most of their mortgage, they have low housing costs. Therefore, it is assumed the financial skewness is more prevalent among (private) rental dwellers.

In either case, hypothesis *H1k* (*'Having relatively low housing costs negatively influences the propensity to relocate in 2015'*) is accepted with 99 percent certainty, but with the limitation this effect is relatively marginal with a $\text{Exp}(B)$ of 1.011 .

§4.1.6 Socioeconomic and Health Dimension

(Hypothesis 1l) Age

Regarding disparities between age cohorts, only for the oldest age cohorts (*75-84 years* & *>85 years*) significant effects ($p < 0.01$) have been observed. Being aged 75 years and over significantly ($p < 0.01$) influences the probability to be an indecisive relocater (*Maybe, eventually*). These age cohorts are expected to be 0.566 ($=\text{Exp}(B)$ of *>85 years*) and 0.806 ($=\text{Exp}(B)$ of *75-84 years*) times less likely to be an indecisive relocater compared to having no relocation intention at all.

However, only respondents within the oldest age cohort (*>85 years*) are significantly ($p < 0.01$) less likely to have a definite intention to relocate. This either suggests these old-elderly (85 years and over) already made their 'last move', and/or wanting to 'age in place'.

In either case, hypothesis *H1l* ('Being 75 years or older negatively influences the probability to be prone to relocate in 2015') is only partially accepted, as only older adults aged 85 years and over are significantly less likely to be a definite intended relocater.

(Hypothesis 1m) Income & Education

Moreover, having a middle education level significantly ($p < 0.01$) influences the probability to be an indecisive relocater (*Maybe, eventually*). Older adults with a middle education level are expected to be 1.262 (=Exp(B) of *Middle*) times more likely to be an indecisive relocater. On behalf of having a definite relocation intention ('*Definitely Yes*'), education level has no effect on older adults' propensity to relocate.

On the other hand, income has a moderate effect ($p < 0.1$) on having a definite relocation intention. Older adults with a *Mode income* (Exp(B) = 1.321, $p < 0.1$) or *High Income* (Exp(B) = 1.291, $p < 0.1$) are expected to have a higher probability to be a definite intended relocater. However, this effect is less significant ($p < 0.1$) compared to the observations in for example the age class (*C_Lftop*). Similarly to tenure status, this higher probability for the higher income levels could be caused by the assumption that people beforehand evaluate whether they are able to realize a potential move. As the outcome of this evaluation is probably more negative for lower income household, this lower income group could be less prone to relocate.

As a consequence of this, hypothesis *H1m* ('High income and high education level positively influence the probability to be prone to relocate in 2015') only for the income part can be accepted with 90 percent certainty.

(Hypothesis 1n) Urgency & (Hypothesis 1o) Health

Lastly, the degree of urgency of the relocation intention (*Urgency*) and the personal health perception (*Gezond*). Compared to urgent intended relocaters, older adults with low to no urgency to relocate have a very low probability to have a definite relocation intention (Exp(B) = 0.001, $p < 0.01$) This finding is presumably caused by the fact these older adults with little to no intention to relocate also did not actively searched for a new dwelling.

Thereby as a logical deduction, it can be assumed that older adults with a urgent level of relocation intention have a higher probability to be prone to relocate (decisive, and indecisive) compared to having no relocation intention, and hypothesis *H1n* ('Older adults with a urgent intention to relocate have a higher probability to be prone to relocate in 2015') can be accepted with 99 percent certainty.

In line with the literature, older adults with a negative perception of their own health (*Not good to Bad*) are expected to be 1.821 (=Exp(B) of *No good to Bad*) times more likely to have a definite relocation intention ($p < 0.01$). Also the *Mediocre* health perception has a significant effect (1.320 = Exp(B) of *Mediocre*) on the probability to be prone to relocate, but this is relatively smaller compared to the negative perception.

Thereby, hypothesis *H1o* ('A negative health perception positively influences the probability to be prone to relocate in 2015') can be accepted with 99 percent certainty.

§4.2: Revealed Relocation 2015-2020 (Model B1 & Model B2)

As described earlier in paragraph 3.5, almost half of the intended relocaters (46.5%, table A.2.1 Appendix A) in this research sample did not realize their relocation intention in the 2015-2020 period. This paragraph will describe which factors influence this apparent discrepancy. Using the binary logistic regression models (B1 & B2, table 5.2), an estimation can be calculated to what extent the selected variables influence the probability to be relocated in the 2015-2020 compared to be not relocated in the same period.

§4.2.1 Propensity to Relocate

As can be observed in table 5.2, Model B1 and Model B2 (adding the independent variable *Spanning*) display being prone to relocate in 2015 (*Maybe, eventually* and *Definitely Yes* combined) significantly ($p < 0.01$) influences the probability to be relocated in the 2015-2020 period.

For every unit added²⁰ to *Definitely Yes* in Model B1, older adults with this definite relocation intention their probability to relocate decreases with 47.9 percent ($= 100\% * (0.521 - 1)$).

If we apply the same interpretation on the indecisive relocation intention (*Maybe, eventually*), it can be asserted that older adults with this indecisive relocation intention their probability to relocate decreases with 74.1 percent (Model B1).

When correcting for the regional housing market intensity (*Spanning*) in Model B2, the probability to be relocated is only marginal positively altered in both categories.

§4.2.2 Psychological and Psychosocial Dimension

(Hypothesis 2A) Satisfaction Current Living Conditions

Despite residential satisfactory used to be significant in the propensity model (§4.1), in both revealed relocation models (Model B1 & Model B2) most independent variables related to residential satisfactory and attachment are insignificant. Only feeling not attached to the current dwelling in 2015 appears to have an effect in both models. Taken into account the regional housing market intensity, the probability (Exp(B)) only slightly increases (1.244 to 1.259). As a result of this, it can be concluded older adults who did not felt attached to dwelling in 2015, their probability to be relocated increases with 24.4 percent (Model B1) and 25.9 percent (Model B2).

As most variables relating living conditions in 2015 did not significantly affect the probability to be relocated between 2015 and 2020, hypothesis H2A ('Low satisfaction of current living conditions (including neighbourhood satisfactory) positively influences the probability of being relocated in the 2015-2020 period') cannot be fully accepted, and is thereby rejected.

Table 5.2: Binary Logistic Regression Revealed Relocation 2015-2020 (Model B1 & B2)

Reference Category: Definitely No	Model B1				Model B2			
	B	S.E.		Exp(B)	B	S.E.		Exp(B)
<u>Propensity to Relocate in 2015</u>								
(ref: Definitely No)								
Maybe, eventually	-1.351	0.084	***	0.259	-1.347	0.084	***	0.260
Definitely Yes	-0.653	0.075	***	0.521	-0.655	0.075	***	0.520
<u>Psychological and Psychosocial Dimension</u>								
<u>Satisfaction Dwelling</u>								
(ref: Satisfied)								
Neutral	-0.092	0.120		0.912	-0.096	0.121		0.909
Unsatisfied	-0.049	0.071		0.952	-0.056	0.071		0.945

²⁰ And all the other variables remain constant

Satisfaction Residential environment

(ref: Satisfied)

Neutral	-0.079	0.087		0.924	-0.092	0.088		0.912
Unsatisfied	-0.049	0.060		0.952	-0.057	0.060		0.944

Feeling at Home in the neighbourhood

(ref: Agree)

Neutral	-0.164	0.096	*	0.849	-0.154	0.096		0.858
Disagree	-0.070	0.064		0.933	-0.065	0.065		0.937

Feeling Attached to current dwelling

(ref: Attached)

Neutral	0.069	0.128		1.071	0.078	0.128		1.081
Not Attached	0.218	0.055	***	1.244	0.231	0.055	***	1.259

Feeling Attached to neighbourhood

(ref: Attached)

Neutral	0.023	0.064		1.023	0.016	0.064		1.016
Not Attached	-0.064	0.050		0.938	-0.060	0.050		0.941

Social Dimension**Distance to closest Child**

(ref: No Children)

<5 KM	-0.037	0.038		0.964	-0.042	0.038		0.959
6 - 20 KM	0.149	0.053	***	1.161	0.131	0.053	**	1.140
> 20 KM	0.173	0.116		1.188	0.180	0.116		1.197

Partnership status

(ref: No Partner)

Registered Partnership	0.069	0.048		1.072	0.067	0.048		1.069
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Interaction Nearest Neighbour

(ref: Disagree)

Agree	0.111	0.064	*	1.117	0.112	0.064	*	1.119
Neutral	-0.014	0.047		0.987	-0.011	0.047		0.990

Social Cohesion

	-0.039	0.036		0.961	-0.040	0.036		0.961
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Time and Space-Time Dimension**Years in dwelling in 2015**

(ref: <5 years)

5-10 years	-0.434	0.067	***	0.648	-0.460	0.067	***	0.631
11-15 years	-0.270	0.075	***	0.764	-0.278	0.076	***	0.757
16-20 years	-0.242	0.074	***	0.785	-0.249	0.074	***	0.780
>20 years	-0.143	0.070	**	0.867	-0.147	0.070	*	0.863

Widowed

(ref: No)

Yes	-0.109	0.060	*	0.897	-0.112	0.060	*	0.894
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Worsening Health

(ref: No)

Yes	1.477	0.050	***	4.379	1.496	0.050	***	4.466
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Built and Natural Environment Dimension**Type of dwelling**

(ref: Multi-family home)

Single-Family Home	0.155	0.049	***	1.168	0.193	0.049	***	1.213
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Urbanisation

(ref: rural)

Urban	-0.414	0.041	***	0.661	-0.527	0.045	***	0.591
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Less Urban	-0.387	0.047	***	0.679	-0.458	0.050	***	0.632
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Housing Market Intensity

(ref: Very Low Tension)

Very High Tension					0.083	0.059		1.086
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High Tension					-0.075	0.064		0.928
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Medium Tension					0.338	0.058	***	1.402
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Low Tension					-0.326	0.061	***	0.721
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Number of rooms	0.038	0.017	**	1.039	0.040	0.017	**	1.041
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Dwelling Utility	0.030	0.046		1.031	0.030	0.046		1.031
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Economic Dimension**Type of tenure**

(ref: Owner-occupant)

Social Rental	-0.075	0.046		0.928	-0.082	0.046	*	0.922
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Private Rental	0.255	0.068	***	1.291	0.260	0.069	***	1.296
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Housing ratio	0.001	0.001	*	1.002	0.002	0.001	*	1.002
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Socioeconomic and Health Dimension**Age Respondents**

(ref: 55-64 years)

> 85 years	0.326	0.080	***	1.385	0.327	0.081	***	1.387
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75-84 years	0.079	0.052		1.082	0.079	0.052		1.082
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65-74 years	-0.060	0.041		0.942	-0.062	0.041		0.940
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Education Level

(ref: Low)

High	0.048	0.043		1.049	0.057	0.043		1.059
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Middle	-0.061	0.044		0.941	-0.060	0.044		0.942
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Income Level

(ref: Very High Income)

Low Income	0.086	0.065		1.090	0.117	0.065		1.124
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Mode Income	0.019	0.066		1.019	0.039	0.066		1.040
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High Income	0.093	0.057		1.097	0.106	0.057		1.112
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Urgency

(ref: Urgent)

Low to no Urgency	-0.717	0.074	***	0.488	-0.728	0.075	***	0.483
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Less Urgency	-0.020	0.085		0.981	-0.028	0.086		0.973
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Perceived Health

(ref: Good)

Not good to Bad	-0.103	0.049	**	0.902	-0.098	0.049	**	0.907
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Mediocre	-0.010	0.043		0.990	-0.009	0.043		0.991
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Constant	0.433	0.174	***	1.542	0.444	0.179	**	1.559
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-2 Log likelihood	22861.138	22707.401
Chi-square	2965.108	3118.845
Nagelkerke R-square	0.174	0.183
N	24745	24745

*** <0.01 **<0.05 *0.1

Source: HRN, 2015; SSD, 2022

§4.2.3 Social Dimension

(Hypothesis 2B) Intergenerational Proximity

Just as the propensity model (§4.1), having children has no effect on the actual relocations. The exception is when these children are out of the house and living within 6 to 20 kilometres from their parents. Then these parent older adults have 16.1 percent higher probability to be relocated. This could suggest older adults, with this intergenerational distance range, lived to far away, and moved maybe more into the direction of their children, as they could be increasingly in need for care and/or intimacy.

The other categories (<5KM and >20KM) appear to be not significant. Older adults who have children living nearby (<5KM) could be satisfied with their current intergenerational proximity, because, although not significant, the negative B-coefficients (-0.037 & -0.042) suggest they are less likely to be relocated. The same could be true for older adults within the >20KM category, but, although also not significant, the positive B-coefficients (0.173 & 0.180) suggest they are more likely to relocate, which could be caused by dissatisfaction of the intergenerational distance.

Furthermore, the level of significance (p-value), and Exp(B) for the 6-20 KM category decrease in Model B2. Seemingly, older adults, with children living in the 6-20 KM range in 2015, are relatively less likely to relocate due to their geographical location (i.e., the intensity level of the regional housing market they were living in 2015). It could be asserted their intention to relocate could be hampered by the unavailability of (affordable) housing stock nearby children, resulting in a lower probability to relocate.

Bearing all this in mind, hypothesis H2B (*'Having children living outside a 20 km range will positively influence the probability of being relocated in the 2015-2020 period'*) is rejected, with the addition of having children living within the 6-20 KM range positively influences the probability of being relocated in the 2015-2020 period.

(Hypothesis 2C) Partner

Just as in Model A (table 5.1), partnership status is not significantly influential in relation to the probability to be relocated in Model B1 and Model B2. Thereby, hypothesis H2C (*'Not having a partner will negatively influence the probability of being relocated in the 2015-2020 period'*) is rejected.

Possibly, already single²¹ older adults have already relocated to a smaller dwelling. Partnered older adults could similarly have less urgency to relocate, as at least one partner could take care of the other partner in need of assistance.

²¹ In terms of having no registered partner

(Hypothesis 2D) Social Cohesion

Similarly to the propensity model (§4.1), interaction with the nearest neighbour significantly ($p < 0.1$) influenced the probability to be relocated. Older adults who agreed they had regular interaction with their nearest neighbour their probability to be relocated increases with 11.7 percent (Model B1), and 11.9 percent (Model B2).

An explanation for this observation could be, in line with Crisp and colleagues (2013), older adults are particularly discouraged by the departure of their closest neighbour, and this could nudge them to also move themselves. In line with this reasoning, another explanation could be in the Dutch proverb: 'if there is one sheep over the dam, more will follow'. If one (older adult) neighbour leaves, the other neighbour could be tempted by the attractive facilities the relocated neighbour has in her/his new accommodation.

On behalf of social cohesion, no significant effect is observed in both models. Albeit not significant, the negative B-coefficient (-0.039) suggests older adults with a higher social cohesion score have a lower probability to be relocated in the 2015-2020 period. Nevertheless, hypothesis H2D (*'Worse social cohesion will positively influence the probability of being relocated in the 2015-2020 period'*) is rejected.

§4.2.4 Time and Space-Time Dimension

(Hypothesis 2E) Years in Dwelling

Correspondingly with the findings in §4.1.3, all categories in *Years_Dwel* significantly effect older adults' revealed relocation. As the $\text{Exp}(B)$ is smaller than 1 in all categories, the older adults in all the time-categories are expected to be more likely to not be relocated in the 2015-2020 period.

Older adults living for more than twenty years (*>20 years*) in the same dwelling their probability to be relocated decreases, given a one unit increase to *>20 years*, and other variables remain constant, with 13.3 percent (Model B1), and 13.7 percent (Model B2). Despite having relatively the least significant effect ($p < 0.05$ in Model B1, $p < 0.1$ in Model B2), this category has relatively the least negative effect on the revealed relocation of all *Years in dwelling in 2015* categories.

An explanation for this could be these older adults living more than twenty years in the same dwelling, whether they intended to relocate or not in 2015, their 'time' as come to move to a more suitable housing (i.e. care institution), as these older adults entered these dwellings at a younger age. It is assumed at that time the dwelling was suitable, but has become unsuitable due to (physical) health issues.

Living *5 to 10 years* appears to have to lowest probability, with a decrease of 35.3 percent (Model B1), and 36.9 percent (Model B2). Thereby, it could be assumed that, despite having relatively the highest propensity to relocate, older adults who life 5 to 10 years in the same dwelling, are the least likely to be relocated. An explanation could be these older adults lack the financial resources, and/or are already relocated to a life-cycle-friendly dwelling, which decreases the necessity to relocate.

As the timeframe *5 to 10 years* has a negative effect on the probability to relocate, hypothesis H2E (*'Living for 5 to 10 years in the same dwelling will positively influence the probability to be relocated in the 2015-2020 period'*) is rejected.

(Hypothesis 2F) Widowhood

Contradicting the findings of Van der Pers and colleagues (2015), widowed older adults their probability to be relocated in the 2015-2020 period decreases with 10.3 percent (Model B1), and 10.6 percent (Model B2). However it should be noted this is observed influence has a relatively low significance level ($p < 0.1$).

An explanation for widowed older adults to be more likely to not relocate could be the aftermath of the death of the partner. This event in itself is probably emotional impactful enough, notwithstanding the financial and legal issues coupled with this loss for the widowed partner. Thereby hypothesis H2F (*'Losing a partner within the 2015-2020 period will positively influence the probability of being relocated in the 2015-2020 period'*) is rejected.

(Hypothesis 2G) Worsening Health

Also related to the final stages of life, having a worsening health significantly ($p < 0.01$) affects the probability of being relocated in 2015-2020. Older adults with a worsening health (i.e. obtaining a Wlz-indication) their probability to be relocated increases with 337.9 percent (Model B1) and 346.6 percent (Model B2). This high increase in probability can be explained by the fact that people with a Wlz-indication almost always make a move to a (semi-) care facility. The higher percentage in Model B2 suggests that the effect of obtaining a Wlz-indication is stronger when the intensity of the regional housing market has been taken into consideration.

Considering all the above, hypothesis H2G (*'Having a worsening health status will positively influence the probability of being relocated in the 2015-2020 period'*) can be accepted with 99 percent certainty.

§4.2.5 Built and Natural Environment Dimension

(Hypothesis 2H) Type of Dwelling

Contradicting the findings of De Groot and colleagues (2008), living in a single-family home is significantly ($p < 0.01$) related to being relocated in the 2015-2020 period. Especially when the regional housing market intensity is taken into account, older adults living in a single-family home their probability to be relocated increases with 16.8 percent (Model B1), and 21.3 percent (Model B2). Thereby, single-family home dwellers are not only more likely to be prone to relocate (§4.1.4), but also have a higher probability to be relocated in the 2015-2020 period.

This higher probability could be due to the fact multi-family home dwellers are either satisfied, or are beforehand less prone due to insufficient financial capacity and/or the availability of (suitable) relocation options. This results into the fact multi-family home dwellers are less able to realize their relocation intention.

Nonetheless, hypothesis H2H (*'Living in a single-family home will negatively influence the probability of being relocated in the 2015-2020 period'*) is rejected, as with 99 percent certainty the opposite can be asserted: living in a single-family home significantly ($p < 0.01$) positively influences the probability to be relocated in the 2015-2020 period.

(Hypothesis 2I) Degree of Urbanisation

On the other hand, older adults living in a urban area are significant ($p < 0.01$) more likely to be not relocated compared to older adults living in a rural area. In *Less Urban* areas, older adults their probability decreases with 32.1 percent (Model B1), and 36.8 percent (Model B2).

This effect is stronger for older adults in *Urban* areas, as their probability decreases with 33.9 percent (Model B1), and 40.9 percent (Model B2).

The intensity of the regional market tends to induce this lower probability, as the both for *Urban* and *Less Urban* the probability in Model B1 is lower compared to Model B2. Confirming the previous literature, as people tend to relocate usually little geographic distances, realizing a relocation intention when living in a urban area is relatively less likely compared to (more) rural areas.

Thus, hypothesis H2I (*'Living in a urban area negatively influences the probability to be relocated in the 2015-2020 period'*) can be accepted with 99 percent certainty.

(Hypothesis 2J) Regional Housing Market Tension

Regarding to what extent a regional housing market is tense (*Spanning*), being located in a medium tense or low tense housing market area tend to be significantly ($p < 0.01$) influential in relation to the probability to relocate in the 2015-2020 period.

Older adults living in a medium tense housing market region their probability increases with 40.2 percent (Model B2). This higher probability could be induced by the fact these type of regions have relatively favourable market conditions, with (almost) residential demand meeting residential supply, and thereby these regions are able to facilitate higher levels of residential mobility (as people are more able to sell their current dwelling, and buy more easily their preferred type of dwelling).

Having too little residential demand to meet the available residential supply in the region negatively influences residential mobility, as older adults living in a low tense region their probability decreases with 37.9 percent (Model B2).

Living in a high intensity housing market region appears to have no significant influence on the probability to be relocated, but the negative B-coefficient suggests older adults located in *High Tension* areas are less likely to be relocated.

Figure 4.1 Relocation rates per housing market region in the 2015-2020 period

Housing Market Region	Relocation rate (in %)	Housing Market Region	Relocation rate (in %)
8. Oost-Nederland	29%	18. Metropoolregio Eindhoven	37%
3. Noord-Holland Noord	31%	17. Zeeland	38%
11. Haaglanden/Midden-Holland/Rotterdam	33%	7. Holland Rijnland	39%
5. Metropoolregio Amsterdam	34%	15. Noordoost Brabant	39%
6. Amersfoort/Noord-Veluwe/Zeewolde	34%	16. West-Brabant & Hart van Brabant	39%
9. U16	34%	14. Drechtsteden/Hoeksche Waard/Goeree Overflakkee	40%
19. Limburg	35%	10. Food Valley	41%
4. Zwolle/Stedendriehoek	36%	2. Groningen Drenthe	51%
12. Arnhem Nijmegen	36%	1. Friesland	54%
		13. Woongaad	57%



Source: Platform 31, n.d.; HRN, 2015; SSD, 2022

Because of this, hypothesis H2J ('Living in a high intensity regional housing market region negatively influences the probability to be relocated in the 2015-2020 period') is rejected. Figure 4.1 confirms this notion, as the regional disparities in terms of relocation rates relatively between high intensity regions and very low intensity regions differ only marginally (f.e., the difference between Metropoolregio Amsterdam and Limburg is only 1%).

(Hypothesis 2K) Dwelling Utility

Lastly within the Built and Natural Environment dimension, just as in the propensity model (§4.1), having more rooms positively influences the probability to be relocated in the 2015-2020 period. Older adults with a higher number of rooms in their current dwelling their probability to be relocated increases with 3.9 percent (Model B1, $p < 0.05$), and 4.1 percent (Model B2, $p < 0.05$).

Also in line with the propensity model (§4.1), dwelling utility appears to have no significant effect on this relocation probability. Lower dwelling utility does thereby not necessarily influence the probability to be relocated in the 2015-2020 period.

Despite the dwelling could be unsuitable due to its size, it is probable these older adults their households were already relatively small in size in 2015, as generally most children had moved out before.

Thus, hypothesis *H2J* (*'Having more rooms, and low dwelling utility negatively influences the probability to be relocated in the 2015-2020 period'*) cannot be accepted, as the higher number of rooms induces the probability to be relocated, and no significant effect has been observed in terms of dwelling utility.

§4.2.6 Economic Dimension

(Hypothesis 2L) Type of Tenure

On behalf of the type of tenure, in Model B1 only living in a private rental dwelling appears to have a significant effect ($p < 0.01$) on the probability to be relocated in the 2015-2020 period. Older adults in these private rental dwellings their probability to be relocated increases with 29.1 percent (Model B1). In Model B2 the probability of *Private rental*, given a one unit increase, increases with 29.6 percent (Model B2). Therefore, it could be suggested these older adults are relatively more able to realize a relocation. Compared to their peers in owner-occupant structures, these *private rental* older adults probably can leave with a two months' notice, and do not have the financial constraints coupled with owning a house.

In Model B2, *Social rental* becomes significant ($p < 0.1$), but this is a weaker significance level compared to the effect of *Private rental*. Nevertheless, older adults in social rental dwellings their probability to be relocated decreases with 7.8 percent (Model B2). This lower probability could be due to the fact these older adults are more satisfied with their current tenure situation, and/or they cannot find easily a similar new dwelling in size and price.

Thus, hypothesis *H2L* (*'Living in a rental dwelling (social or private) will reduce the probability of being relocated in the 2015-2020 period'*) is rejected, as the more significant rental category (*Private rental*) has an positive effect on the probability to be relocated in the 2015-2020 period.

(Hypothesis 2M) Housing Cost

Furthermore, as in both Model B1 and Model B2 the older adults with a higher housing ratio their probability to be relocated increases with 2 percent ($p < 0.1$, Model B2). This financial incentive appears to be influencing the urgency, as it increases the probability to be relocated. It also confirms the notion that private rental dwellers generally locate more, because their housing costs are generally higher compared to their owner-occupant- and social rental peers.

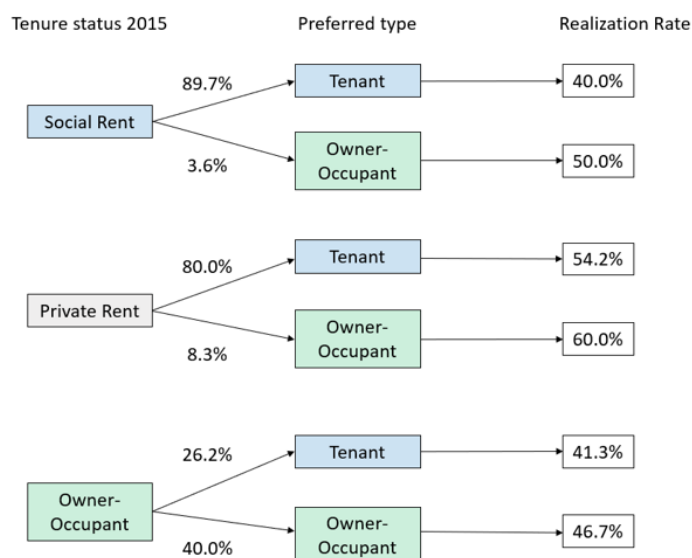
Thereby, hypothesis *H2M* (*'Having relatively low housing costs negatively influences the probability of being relocated in the 2015-2020 period'*) can be accepted.

(Hypothesis 2N) Preferred type of Tenure

To conclude the economic dimension, figure 4.2 has been created in order to visualize the test of hypothesis *H2M* (*'Preferring to move to a owner-occupied dwelling will reduce the probability of being relocated in the 2015-2020 period'*). In this figure 4.2, respondents are separated on firstly their type of tenure in 2015 (*bhvorm*),

secondly they are split out by type of preferred tenure (*huurkoop_n*) in the HRN 2015, and in the third box on the right the realization rate (*Verhuisd_ouder*) of the specific combination is displayed.

Figure 4.2: Tenure status 2015 x Preferred type of tenure 2015 x Realization rate 2015-2020



*Preferred type category 'Do not know' has not been included in this figure, which results in not having 100% for tenant + owner-occupant in terms of preferred type of tenure

Source: HRN, 2015; SSD, 2022

Most tenants (Social and private rental dwellings) are preferring to be a tenant again in the hypothetical relocated situation. Owner-occupants prefer mostly to be a private home owner again in this situation (40.0%, figure 4.2).

The social tenants preferring to rent again are relatively the least successful in realizing their intended relocation (40.0% in figure 4.2). Second worst in terms of realizing their relocation intention are owner-occupants, whether they prefer to buy (46.7%) or change their tenure status (41.3%).

When analysing the realization rates of older adults with a preference for owner-occupancy, it can be concluded that these realization rates are higher compared to their peers preferring to rent. These lower realization rate when preferring to rent could be caused by the fact the available rental housing supply is insufficient to meet the relatively high rental housing demand.

Thereby, although not significant and with no precise percentage of certainty, hypothesis *H2M* is rejected.

§4.2.7 Socioeconomic and Health Dimension

(Hypothesis 20) Age

In line with the literature, respondents within the oldest age cohort (>85 years) their probability to be relocated increases with 38.5 percent ($p < 0.01$, Model B1) and 38.7 percent ($p < 0.01$, Model B2). It can be suggested these old-elderly have the highest probability to be relocated, as they are relatively the most volatile to disruptive trigger events that could force them to move.

Bearing this in mind, hypothesis *H2O* ('Being 85 years and over positively influences the probability to be relocated in the 2015-2020 period') can be accepted with 99 percent certainty.

Hypothesis 2P) Education and Income

Education level and income on the other hand have not been significantly influential in this research sample. This is in line with the findings of De Groot and colleagues (2008), as they also did not observe a significant difference between the different levels of education and income. Although not significant, having a high education level, and/or high income level, tends to have relatively the highest probability to be relocated in the 2015-2020 period.

Nevertheless, this difference is not significant, and hypothesis *H2P 'Income and Education do not have a significant effect on the probability to be relocated in the 2015-2020 period'* must be rejected.

(Hypothesis 2Q) Urgency

In regard to the level of urgency of the relocation intention in 2015, older adults with a low or no urgent intention to relocate their probability to relocate decreases with 51.2 percent (Model B1), and 51.7 percent (Model B2).

Comparison with the De Groot and colleagues study (2008) is difficult due to the different used reference categories (in De Groot et al. (2008) ref. category is *Less urgent* relocation intention instead of *Urgent* relocation intention in this thesis). Furthermore, this thesis has differentiated more between the levels of less urgency to relocate compared to De Groot and colleagues (2008).

Nevertheless, as a result of logical deduction, it can be assumed that older adults with a urgent relocation intention have a higher probability to be relocated in the 2015-2020 period. Actively searching, and take action in finding a new residence helps in realizing the relocation intention in 2015-2020. Thus, hypothesis *H2Q ('Older adults with an urgent intention to relocate have a higher probability to be relocated in the 2015-2020 period')* can be accepted, but what the precise size of this probability is cannot be determined.

(Hypothesis 2R) Health

In contrast to the findings of De Groot et al. (2008)²², older adults in the Netherlands with a negative health perception in 2015 their probability to be relocated decreases with 9.8 percent ($p < 0.01$, Model B1), and 9.3 percent ($p < 0.05$, Model B2).

An explanation for this outcome could be, due to the reforms/changes in the Dutch Health Care System between 2002 and 2020. Older adults, despite having a negative perception of their own health, are less likely to be relocated. However, it should be noted it cannot be excluded this relationship is caused by other (unknown) factors.

Nevertheless, hypothesis *H2R ('A negative health perception positively influences the probability to be relocated in the 2015-2020 period')* cannot be accepted, as having a negative health perception significantly ($p < 0.05$) is related with a lower probability to be relocated.

²² It should be noted De Groot et al. (2008) included all ages, and not only older adults. Therefore, their significant observed (positive) effect in regard to health perception cannot be fully compared to the findings in this thesis, and it cannot be excluded the behaviour of the older adult population in their research sample shows similarities to this research.

Chapter 5: Conclusion & Discussion

The aim of this Master's thesis was to fill the quantitative gap in the academic literature. By means of logistic regression analyses, an attempt has been made to provide more insights into the factors influencing older adults' propensity to relocate, and which factors enable/limit them to realize their relocation intention. In the first paragraph (§5.1), the sub questions (formulated in chapter 1) will be answered by using the hypothetical *Prototype A*, a 'prone-to-relocate older adult in 2015', and to what extent *Prototype A* has been able to realize its relocation intention in the 2015-2020 period. On the basis of these answers, the answer for the central research question will be formulated:

*'To what extent is there a **discrepancy** between **stated preference** and **revealed preference** in terms of relocation of older adults in the Netherlands during 2015-2020, and what is the influence of triggering factors (especially **intergenerational proximity**, **widowhood**, and **health**) on the **propensity** of older adults to relocate, and **probability** to realize their relocation intention?*

In the second paragraph (§5.2), this Master's thesis its limitations will be discussed, combined with the recommendations for further (scientific) research.

§5.1 Conclusion

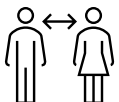
Sub question 1: Which factors influence older adults' stated relocation preference in 2015?

To answer this question, the multinomial logistic regression Model A has been constructed (see §3.3, and §4.1.1 to §4.1.6). In figure S.1 (see Summary), the most influential, and significant variables of Model A are summarized. Using this figure, and the other findings in chapter 4, we could construct a hypothetical *Prototype A*, the prototype of a 'definite prone-to-relocate older adult' in the Netherlands during the 2015-2020 period.



Psychological and Psychosocial Dimension

Firstly, the psychological and psychosocial characteristics of this prototype. *Prototype A*, is expected to be dissatisfied with its residential living conditions in 2015. This is in line with the findings of Hillcoat-Nallétamby & Ogg (2014), which suggests dissatisfaction with residential living conditions (especially the immediate residential environment) positively influences the propensity to relocate. However, in this Master's thesis, the expected effect of dissatisfaction of the current dwelling (i.e., dwelling characteristics) is relatively stronger compared to dissatisfaction of the immediate residential environment. This suggest *Prototype A* is expected to be, especially, dissatisfied with the characteristics of its dwelling in 2015.



Social Dimension

Additionally, *Prototype A* is expected to have children living within a 6 to 20 kilometre range in 2015. Confirming partially the findings of Van der Pers and colleagues (2015), the distance between parents and their children has been proven to be influential in relation to older adults' propensity to relocate. Contrary to the other findings of Van der Pers and colleagues (2015), for the other distance categories no significant effect has been observed.

In line with Meskers (2020), having a partner did not significantly influence older adults' propensity to relocate. Despite being expected to be the primary informal caregiver, the presence or absence of a registered partner did not lower the probability of having a definite intention to relocate.

At the same time, contradicting the findings of Meskers (2020), older adults with a relatively higher social cohesion score appear to have a higher probability to have a definite intention to relocate. This also strengthens the assertion that, despite having a good relationship with neighbours, *Prototype A* its propensity to relocate is probably more influenced by their dislikes in their residential living conditions (Hillcoat-Nallétamby & Ogg, 2014).



Time and Space-Time Dimension

On top of that, *Prototype A* is expected to be living between 5 to 10 years in the same dwelling in 2015. Even though all *Years in dwelling* categories were significantly influential, older adults living between 5 to 10 years were estimated to have the highest probability to have a definite relocation intention, which corresponds with Kramer & Pfaffenbach (2016), and Meskers (2020).



Built & Natural Environment Dimension

Besides these years, *Prototype A* is expected to live in a single-family home, conforming the literature (Hansen & Gottschalk, 2006; Meskers, 2020). Additionally, *Prototype A* probably has relatively a high number of rooms in its house, as the probability of having a definite intention to relocate increases for a higher number of rooms.

However, the geographical location (i.e., degree of urbanisation and Regional Housing Market intensity) did not significantly affect older adults' propensity to relocate. Whether *Prototype A* would have lived in a more urban area, and/or high intensity housing market, did not significantly affect its propensity to relocate in 2015.



Economic Dimension

In terms of ownership, *Prototype A* is expected to be most likely an owner-occupant, as social rent tenants tend to have a negative probability to have a definite relocation intention. Because higher housing costs significantly increase the probability of having a definite relocation intention, it can be concluded the financial aspect²³ of the tenure status is influential to be prone to relocate. Despite being not significant in itself, it is expected that private rental dwellers, with relatively the highest housing costs, are the most prone to relocate.



Socioeconomic & Health Dimension

Lastly, the socioeconomic-, and health characteristics of *Prototype A*. It is expected that *Prototype A* probably is between 55 and 64 years old, as the other significant age cohorts (75-84 years, and >85 years) are less likely to have a definite intention to relocate compared to the 55- 64 years age cohort.

Moreover, in line with De Groot and colleagues (2008) and Meskers (2020), higher income categories (*Mode-*, and *High Income*) are more expected to have a definite intention to relocate. Yet, education level appears to have no significant effect on the propensity to relocate.

²³ Assuming owner-occupants have (gradually) lower housing costs (i.e., mortgage costs) compared to rental dwellers, and private rental dwellers have the highest housing costs.

On the contrary, the level of urgency and personal health perception have been proven to be significantly influential. In accord with the previous literature (De Groot et al., 2008; Meskers, 2020), *Prototype A* is expected to have a urgent relocation intention, and a *Not good to bad* perception of its health.

Sub question 2: Which factors influence older adults, who stated to be prone to relocate in 2015, to realize their stated preference in the 2015-2020 period?

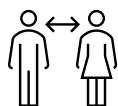
To answer this question, the binary logistic regression Model B1 and B2 have been constructed (see §3.3, and §4.2.1 to §4.2.7). In figure S.2 (see Summary), the most influential, and significant variables of Model B2 are summarized.

First of all, by means of these binary logistic regression models, *Prototype A* has in overall a 52 percent (Model B2, table 5.2) chance of realizing its relocation intention. Compared to the intended-filterers in De Groot et al. (2008, figure 3.1.B) and Boumeester et al. (2015, figure 3.1.C), the success rate is relatively higher (52% > 31% > 29%). However, it should be noted that these studies included all age groups, and not only older adults like this Master's thesis.



Psychological and Psychosocial Dimension

Within the Psychological and Psychosocial Dimension, *Prototype A* its absence of feeling attached to its dwelling in 2015 has induced its urgency to be relocated in the 2015-2020 period. It could be suggested that *Prototype A* had nothing to lose in 2015, which results into less limitations to realize the intended relocation. These limitations are even weaker in Model B2, which takes into account the whims of the regional housing markets, and the probability to be relocated is higher for older adults who felt not attached to their dwelling in 2015.



Social Dimension

This absent feeling of (emotional) attachment to the dwelling in 2015 is probably influenced by *Prototype A* its social network. As partners, children and friends (i.e., neighbours) tend to be the potential care givers in this social network, their role in the revealed relocation has been quite influential.

On behalf of (registered) partners independently, no significant influence has been observed. Single older adults could have already relocated prior to 2015, or did not feel the necessity to relocate as they were able to live independently. On the other hand, partnered adults, in increasingly need of assistance, could possibly still lean on the support of their partner.

In the case of children, *Prototype A* was already expected to have children living within a 6 to 20 kilometre, and this has also appeared to be inducing its probability to be relocated. This geographical distance range tends to create more urgency to relocate among these parented older adults, as it could limit/complicate social contact with their family, and/or possibility to receive informal care.

In terms of contact with friends (i.e., neighbours), *Prototype A* had relatively good contact with its neighbours in 2015, but still was relocated. This suggests that these friendly neighbours have relocated in the 2015-2020 period, leaving *Prototype A* behind, and deteriorating *Prototype A*'s social network. This negative situation could thereby increase the urgency to relocate.



Time and Space-Time Dimension

Another important dimension is the Time and Space-Time dimension. *Prototype A* was expected to be living between 5 to 10 years in the same dwelling in 2015, but this has negative effect on realizing the intended relocation. Contrasting the findings of older adults' propensity to relocate, the longest years group (>20 years) has been proven to have the least negative probability. This results into the conclusion that older adults living less than 5 years in the same dwelling have the highest probability to be relocated. These older adults are either relocated or have deceased.

Related to partnership in the Social Dimension, *Prototype A* is expected to be not widowed in the 2015-2020 period, as being widowed significantly lowers the probability to be relocated. The disruptive event of losing a partner turns out to be relatively keeping the widowed older adults were they were in 2015.

On the other hand, worsening health, in terms of obtaining a Wlz-indication, has been proven to be increasing the probability to relocate immensely. Yet, this is rather logical, as the Wlz-indication is almost always coupled with a relocation to a (semi-)institutional care facility.



Built & Natural Environment Dimension

Living in a single-family home in 2015 has also proven to aid *Prototype A* to realize its relocation intention. This could be due to the fact that these single-family home owners are (more) able to capitalize on the value of their property in 2015 compared to Multi-family home owners/dwellers. Furthermore, due to generally less resources, these Multi-family home owners/dwellers were beforehand less prone to relocate, resulting in a logical consequence of lower probability to be relocated.

Meanwhile, the geographical location of the dwelling of *Prototype A* (i.e., in a urban area), limits its realization of its relocation. When the effect of the intensity of the regional housing market is taken into account, the probability to be relocated in a urban area even decreases.

Moreover, *Prototype A* lives in a mediocre tense housing market region, as these regions tend to have the highest significant realization rates. Living in a too (little) tense housing market region tends to not independently influence the realization of older adults' relocation intention, despite these regions are generally perceived to do so.

Lastly, in terms of dwelling utility, *Prototype A* was expected to have plenty of rooms in its dwelling. Just as with the propensity to relocate, the efficiency of every room did not matter in itself.



Economic Dimension

Compared to private rental dwellers, *Prototype A*, who is expected to be an owner-occupant in 2015, has a lower probability to realize its relocation intention. Only in Model B2, the difference between owner-occupants and social rental dwellers has become significant. Regardless of owner-occupants tend to have more equity (i.e., the value of their dwelling), private rental dwellers are more mobile thanks to the fact that they can quickly terminate their lease agreement, and do not have the financial and/or time constraints coupled with owning a house.

In line with these findings, higher housing costs are inducing older adults to be relocated in the 2015-2020 period. This financial incentive, generally more prevalent among private rental dwellers, could trigger older adults to realize their relocation intention.

As *Prototype A* is an owner-occupant, the preferred type of tenure in its new dwelling is most likely to be a owner-occupant again, but is also likely to not realize this preference. The realization rate among owner-occupants preferring to buy again is relatively higher than to become a tenant, but is relatively lower compared to the rental dwellers.



Socioeconomic & Health Dimension

Prototype A was expected to be relatively young (between 55 and 64 years old). However, being part of this age cohort limits *Prototype A* its realization, as this age cohort has the second lowest probability of all older adult age cohorts. This suggests that this younger age cohort is limited by other factors, which significantly did not limit the oldest age cohort (85 years and over).

Income and education level did not significantly affected the revealed relocation in the 2015-2020 period, as other factors like for example urgency and health were more important. Actively searching for a new dwelling, and taking action to acquire this potential property helped *Prototype A* to realize its relocation intention.

Despite having a negative worse health perception is related to a higher relocation urgency, this negative health perception of *Prototype A* did not assisted its realization, as it even worsened *Prototype A*'s probability to be relocated in the 2015-2020 period. This apparent discrepancy in terms of stated and revealed relocation preference could be caused by institutional constraints. For example, the lower eligibility for institutional care facilities, thanks to the Wlz-indication system, could have resulted in the situation *Prototype A* perceives it has a bad health, but the *CIZ* determines this is not worse enough to be eligible for a relocation to a institutional care facility.

Central Research Question: The discrepancy between stated and revealed relocation preference of older adults in the Netherlands during 2015-2020, and the influence of triggering factors

If we would simplify the research question, it could be rephrased into: 'Why did older adults in the Netherlands wanted to move in 2015, and what has been keeping them to do so between 2015 and 2020?'.

The answer to this question is unfortunately not so straightforward. Older adults' residential behaviour has been proven to be quite a complex matter, as the interplay between factors influencing older adults' propensity to relocate, and their ability to realize this relocation intention, still remain to an certain extent unclear, and unpredictable.

This is probably caused by the great diversity in terms of what (older) people prefer to do, notwithstanding what they actually do in reality. Thereby generalizations, such as *Prototype A*, do not completely correspond with reality.

However, this Master's thesis has tried to approximate reality as close as possible using 25 independent variables, and estimating their influence on older adults' stated and revealed residential preference. As a result of these estimations, it can be asserted with quite some certainty there is a discrepancy between what Dutch older adults claimed to prefer in 2015, and what their actual residential behaviour five years after these statements appears to be.

The most evident discrepancies have been observed within the independent variables of *Age*, and *Health perception*.

In the likes of young older adults (55 to 64 years old) this suggests that they potentially are willing to make a move to a more life-cycle friendly dwelling, but are hampered by other factors in realizing this relocation intention. Oppositely, the least prone to relocate age group (>85 years) has relocated relatively the most, suggesting that some event or something has triggered them to relocate.

A worsening health, determined by medical professionals, has been proven to trigger this relocation. On the other hand, a negative health perception has been proven to hamper the realization of a move. Especially when these findings are compared to the De Groot et al. study (2008), it can be concluded that something has changed for this aspect since 2015.

The assumption of this thesis is this negative change has been probably arisen in the contextual breeding ground of the Rutte II Health Care Reforms in 2015 (i.e., lower eligibility for institutional care facilities) in combination with deficient regional housing markets (i.e., limiting housing supply for citizens in general).

Next to health, this thesis has particularly delved into triggers of distance to nearest child (intergenerational proximity), and the trigger event of widowhood. As the LTC costs rise, in combination with low supply of medical personnel, policy makers try to transition most of the elderly care from institutions to informal care givers. As older adults become more dependent on these informal care givers, especially the distance to their potential primary care giver in terms of support and social contact (i.e., their child(ren)) becomes essential. If this distance is too far (6 to 20 kilometres), this has been proven to trigger these parented older adults to relocate.

Furthermore, losing a partner (i.e., becoming widowed) appeared to be a negative trigger. Widowhood in the 2015-2020 period hampered the probability to be relocated, contradicting the findings of Van der Pers et al. (2015).

Altogether, one overarching constant can help to answer the question: 'What is keeping prone to relocate older adults from realizing a move?'. This constant is the feeling of attachment to the dwelling, which represents the sum of outcomes of all Roy et al. (2018) dimensions. This feeling of attachment is not only based on the physical, geographical characteristics of the dwelling, but it is also based on the build-up emotional attachment over the years. This block of bricks, we usually call home, is the place you return to after a trip, the place you make memories such as seeing your children grow up, and potentially see you (and your partner) grow old. However, the absence of emotional attachment to the dwelling could therefore result into the situation little is holding these older adults back from relocating.

Of course, the institutional context, in terms of lower eligibility for institutional care facilities and the issues of the Dutch housing market supply, has an important role in the realization of relocation intentions. As stated in the introduction, understanding older adults' residential preferences and behaviour could guide policymakers in improving the filtration within the (Dutch) housing market.

Yet, the most important aspect of (later-life) residential mobility can be forgotten: **agency**. People, and so older adults, in democratic societies have agency to decide for themselves what they consider best for themselves to do, even if it is irrational. As a result of this, the mathematical societal optimum (i.e., older adults move to more suitable, smaller dwellings to create vacancy for other, bigger households) will probably never be reality. Nonetheless, further research into later-life residential mobility can help to create a better understanding of the whole process, and possibly help those who are willing to relocate, to realize their definite relocation intention.

§5.2 Discussion & Recommendations

This paragraph will discuss the main limitations of this research in terms of chosen research methods and results. Firstly, Life in itself is unpredictable. Regression analyses models can approximate behaviour to a certain degree, but is still cannot completely predict every variance in the (residential)life of human beings. Albeit this thesis has included 25 variables, there are potentially still undiscovered factors which further research should explore.

Secondly, preliminary evaluations of respondents have not been captured fully. For example, Respondent X could prefer to relocate in 2015, but stated to not intend to relocate in 2015, because beforehand Respondent X evaluated this possible move is impossible due to limited resources.

Furthermore, to check if the observed variables (f.e., distance to child) have been influential to the respondents' personal relocation evaluation, the same respondents from HRN 2015 should have been interviewed again in 2020.

Thirdly, obtaining a Wlz-indication in the 2015-2020 period has been used to observe a worsening health. As only people with severe injuries and/or medical issues are eligible for this indication, this variable does not represent in detail the historical worsening health. Other variables, for example longitudinal variables about receiving care from the Wmo, could describe more in detail to what extent older adults are increasingly in need of assistance.

Moreover, the reference category for the *Urgency* variable was *Urgent* relocation intention. Due to this, comparison with the De Groot et al. study (2008) is not possible. To make more certain conclusions about the effect of the degree of urgency to relocate, further research should have *Low to no urgency* as the reference category.

Lastly, just as in Meskers (2020), this Master's thesis has not included the (psychological) hassle ('Verhuisgedoe') older adults could experience when considering a potential move. This is by reason of older adults in general have acquired a life-time quantity of items, which usually (barely) fits in their current home. A move to a smaller dwelling would force them to dispose the excessive items. Further research should investigate if this process of potential disposal of personal items is hampering older adults' intended relocation.

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Appendix A

Table A.1 Propensity to Relocate in 2015 distributed by age

Propensity to relocate (C_Verhwens)							
Age (C_lftop)	No		Maybe. Eventually		Yes		Total
	N	%	N	%	N	%	N
55-64 jaar	7420	72.71	2100	20.58	685	6.71	10205
65-74 jaar	6625	76.19	1595	18.34	475	5.46	8695
75-84 jaar	3810	83.64	575	12.62	170	3.73	4555
> 85 jaar	1140	88.37	125	9.69	25	1.94	1290

Tabel A.2 Revealed relocation in the 2015-2020 period categorized by age

Revealed relocation in the 2015-2020 period (Verhuisd_ouder)					
	Not relocated		Relocated		Total
Age (C_lftop)	N	%	N	%	N
55 - 64 years	8130	79.67	2075	20.33	10205
65 - 74 years	7010	80.62	1685	19.38	8695
75-84 years	3440	75.52	1115	24.48	4555
> 85 years	815	63.18	475	36.82	1290

Tabel A.2.1 Revealed relocation in the 2015-2020 period

	Not Relocated		Relocated		Total
Propensity to relocate	N	%	N	%	N
No	15750	82.92	3245	17.08	18995
Maybe, eventually	3015	68.60	1380	31.40	4395
Yes	630	46.49	725	53.51	1355

Tabel A.3 Distance to nearest child in 2015

Distance closest child (Dist_Child)									
	Within 5 KM		Within 20 KM		Outside 20 KM		No Children		Total
Age (C_lftop)	N	%	N	%	N	%	N	%	N
55 - 64 years	4920	48.21	1180	11.56	435	4.26	3670	35.96	10205
65 - 74 years	4260	48.99	1130	13.00	70	0.81	3235	37.21	8695
75 - 84 years	2210	48.52	590	12.95	25	0.55	1735	38.09	4555
> 85 years	610	47.29	190	14.73	10	0.78	485	37.60	1290

Table A.4 Partnership status in 2015

Partnership status (Partner)					
	Partner		Single		Total
Age (C_lftop)	N	%	N	%	N
55 - 64 years	6650	65.16	3550	34.79	10205
65 - 74 years	5400	62.10	3295	37.90	8695
75 - 84 years	1920	42.15	2640	57.96	4555
> 85 years	230	17.83	1060	82.17	1290

Table A.5 Years in dwelling in 2015

Years in dwelling in 2015 (Years_dwel)											
Age (C_lftop)	< 5 years		5 - 10 years		11 - 15 years		16 - 20 years		> 20 years		Total
	N	%	N	%	N	%	N	%	N	%	N
55 - 64 years	885	8.67	1685	16.51	1320	12.93	1425	13.96	4890	47.92	10205
65 - 74 years	665	7.65	1280	14.72	1040	11.96	945	10.87	4765	54.80	8695
75 - 84 years	370	8.12	670	14.71	545	11.96	515	11.31	2455	53.90	4555
>85 years	100	7.75	225	17.44	160	12.40	145	11.24	660	51.16	1290

Table A.6 Lost a partner in the 2015-2020 period

Lost a partner in the 2015-2020 period (Widowed)					
	Not Widowed		Widowed		Total
Age (C_lftop)	N	%	N	%	N
55 - 64 years	9715	95.20	490	4.80	10205
65 - 74 years	7865	90.45	830	9.55	8695
75 - 84 years	3780	82.99	780	17.12	4555
> 85 years	1110	86.05	180	13.95	1290

Table A.7 Worsening Health in terms of obtaining a Wlz-indication in the 2015-2020 period

Worsening Health (C_Worsening_health)					
	Not Worsened		Worsened		Total
Age (C_lftop)	N	%	N	%	N
55 - 64 years	10110	99.07	95	0.93	10205
65 - 74 years	8445	97.12	250	2.88	8695
75 - 84 years	3890	85.40	670	14.71	4555
>85 years	900	69.77	390	30.23	1290

Table A.8 Type of dwelling in 2015

Type of Dwelling in 2015 (Type_dw)					
	Single-family home		Multi-family home		Total
Age (C_lftop)	N	%	N	%	N
55 - 64 years	8090	79.27	2115	20.73	10205
65 - 74 years	6290	72.34	2405	27.66	8695
75 - 84 years	2710	59.50	1845	40.50	4555
>85 years	560	43.41	730	56.59	1290

Table A.9 Degree of urbanisation

Degree of urbanisation (Stedgem)							
	Urban		Less Urban		Rural		Total
Age (C_lftop)	N	%	N	%	N	%	N
55 - 64 years	4875	47.77	2265	22.20	3065	30.03	10205
65 - 74 years	3970	45.66	1920	22.08	2805	32.26	8695
75 - 84 years	2185	47.97	985	21.62	1385	30.41	4555
>85 years	640	49.61	270	20.93	380	29.46	1290

Table A.10 Degree of Tension Regional Housing Market

Degree of Tension Regional Housing Market (Spanning)											
	Very High Tension		High tension		Medium Tension		Low Tension		Very Low Tension		Total
Age (C_lftop)	N	%	N	%	N	%	N	%	N	%	N
55 - 64 years	3215	31.50	1630	15.97	2195	21.51	1840	18.03	1325	12.98	10205
65 - 74 years	2635	30.30	1330	15.30	1870	21.51	1625	18.69	1235	14.20	8695
75 - 84 years	1485	32.60	720	15.81	945	20.75	815	17.89	590	12.95	4555
>85 years	415	32.17	180	13.95	280	21.71	230	17.83	185	14.34	1290

Table A.11 Tenure Status

Tenure status (Bhvorm)								
	Social Rental		Private Rental		Owner-Occupant		Total	
Age (C_lftop)	N	%	N	%	N	%	N	N
55 - 64 years	2620	25.67	485	4.75	7095	69.52		10205
65 - 74 years	2735	31.45	555	6.38	5405	62.16		8695
75 - 84 years	1925	42.26	425	9.33	2205	48.41		4555
>85 years	630	48.84	195	15.12	465	36.05		1290

Table A.12 Finished level of Education

Finished Level of Education (C_Vltoplop)							
	Low		Middle		High		Total
Age (C_lftop)	N	%	N	%	N	%	N
55 - 64 years	2555	25.04	2215	21.71	5435	53.26	10205
65 - 74 years	2910	33.47	2125	24.44	3660	42.09	8695
75 - 84 years	2030	44.57	1070	23.49	1455	31.94	4555
>85 years	630	48.84	315	24.42	345	26.74	1290

Table A.13 Income level

Income level (C_Inkht3k)									
	Low Income		Mode Income		High Income		Very High Income		Total
Age (C_lftop)	N	%	N	%	N	%	N	%	N
55 - 64 years	3135	30.72	1360	13.33	2615	25.62	3095	30.33	10205
65 - 74 years	4410	50.75	1420	16.34	1835	21.12	1025	11.80	8690
75 - 84 years	3190	70.03	560	12.29	560	12.29	245	5.38	4555
>85 Years	995	77.13	125	9.69	125	9.69	45	3.49	1290

Table A.14 Urgency to relocate

Degree of Urgency (Urgency)							
	Low to no urgency		Less urgent		Urgent		Total
Age (C_lftop)	N	%	N	%	N	%	N
55 - 64 years	8885	87.11	555	5.44	760	7.45	10200
65 - 74 years	7800	89.76	400	4.60	490	5.64	8690
75 - 84 years	4250	93.30	135	2.96	170	3.73	4555
>85 years	1230	95.35	15	1.16	45	3.49	1290

Table A.15 Personal health perception

Personal health perception (C_Gezond)							
	Not good to bad		Mediocre		Good		Total
Age (C_lftop)	N	%	N	%	N	%	N
55 - 64 years	1520	14.89	1620	15.87	7065	69.23	10205
65 - 74 years	1150	13.23	1935	22.25	5610	64.52	8695
75 - 84 years	910	19.98	1250	27.44	2395	52.58	4555
>85 years	320	24.81	460	35.66	510	39.53	1290

Appendix B

Table B1 Realization rates categorized by preferred type of tenure and current tenure

	Social Rent					Private Rent					Owner-Occupant				
	Relocated		Not Relocated		Total	Relocated		Not Relocated		Total	Relocated		Not Relocated		Total
Preference	N	%	N	%	N	N	%	N	%	N	N	%	N	%	N
Rent	400	40.0	600	60.0	1000	130	54.2	110	45.8	240	250	41.3	355	58.7	605
Private Ownership	20	50.0	20	50.0	40	15	60.0	10	40.0	25	420	46.7	480	53.3	900
No Preference	20	26.7	55	73.3	75	20	57.1	15	42.9	35	285	35.4	520	64.6	805
Total	440	39.5	675	60.5	1115	165	55.0	135	45.0	300	955	41.3	1355	58.7	2310