Residential Mobility of Older Adults in the Netherlands

Investigating the ability to relocate in expensive housing markets

Abstract

This paper analyses how age relates to the ability to relocate in expensive housing markets and to what extent this ability has changed over time in the Netherlands, focusing on older adults (65+). The analysis aimed at better understanding the relation between these concepts and providing insights to improve housing policies. WoON datasets from 2009 and 2021 were combined to run regressions and create an overview of relocation motives. This paper predicts a negative relationship between the current housing market conditions (i.e., higher prices) in the Netherlands and the ability of older adults to relocate, and that the ability to relocate has decreased over time. However, the results indicate that few older adults wish to relocate at all and prefer to age in place, which is in line with existing literature. Those older adults that wish to move but are unable to find something do seem to be affected by housing market conditions and could therefore be considered 'stuck in place'. Compared to other age groups, older adults are less restricted by housing market conditions when looking to relocate which could be due to home equity. Overall, the probability of wanting to move, but being unable to find a new residence has increased over time, which could be due to the increase of housing prices. Further research can investigate whether the preference for 'ageing in place' is optimal for older adults and a sustainable way of moving forward as societies, while the demographic pressure increases.

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Content

Introduction

Background

Rapid population ageing is a problem facing many countries globally (United Nations, 2019). The worldwide population aged 60 and older is expected to increase with 56% between 2015 and 2030, with an expected 2.1 billion elderly in 2050. One of the main challenges arising from this is the provision of sufficient housing. The topic of housing is already one of the major concerns facing the Netherlands any many other Western-European countries, with increasing housing prices and insufficient supply of housing (CBS, 2022). The disfunctioning of the housing market can lead to social inequality and societal instability (Boelhouwer, 2020). Older adults can be considered being even more vulnerable to housing crisis and the lack of affordable and suitable housing, because of financial and physical disabilities (Granbom et al., 2021). With an increase of older adults in the next decades, providing proper housing for elderly becomes an even larger challenge (Li et al., 2022). Current literature shows a preference for 'ageing in place' (Lebrusán and Gómez, 2022), but this does not always mean 'ageing well' (Means, 2007). Home equity plays an important role in elderly residential relocation and can positively or negatively influence the ability to relocate (French et al., 2018). Furthermore, housing has direct links to health, both mental and physical, which plays an increasingly important role in people's lives as they age (Arundel et al., 2022; Mawhorter et al., 2021; van der Pers et al., 2018). This research aims to add to existing literature a deeper understanding of elderly residential relocation behavior and whether older adults are 'able to relocate' when desired. Understanding the implications of expensive housing markets on the ability of older adults to relocate is of great importance to ensure sufficient housing for elderly in the present and future.

Research Problem

The goal of this paper is to identify how age relates to the ability to relocate, focusing on older adults. The research aims to answer the following question: What is the relation between expensive housing markets and older adults' ability to relocate at an older age in the Netherlands? To answer this question, sub-questions have been formulated:

- How does age relate to the ability to relocate?
- To what extent has older adults' ability to relocate changed over time?

The analysis incorporates the element of time to see whether the ability to relocate has changed between 2009 and 2021. Furthermore, the motives of older adults to stay, move, or not having found a new residence are considered to provide further insight into residential behavior and preferences of older adults.

Theoretical Framework

Older adult residential mobility

First, it is important to better understand the residential mobility behavior and preferences of older adults. In general, people are often inclined to move when they experience a mismatch of actual living conditions and desired living conditions (Smetcoren et al., 2017). This theory, a refined model of the classic 'push-and-pull' model by Wiseman (1980) and Lee (1966), identifies which push-and-pull factors are most important for older adults: environmental characteristics, housing problems, and health complications. It therefore seems that older adults experience a variety of reasons that either push them out of their current dwelling or pull them towards relocating. This model works both ways, as an older adult who needs more care may be 'pushed out' because this care cannot be offered at the current dwelling, and is 'pulled' towards a place where it can.

Next to this model, two other theories stand out when discussing residential mobility: the life cycle and life course models (Atkins, 2018). The former proposes a model where relocation is largely based and predicted on major life events. These include marriage, forming a family, and retirement. Following this model, residential relocation occurs at certain stages in life and follows more rigid patterns. In contrast, the life course model focusses on unpredictable and dynamic transitions (Bailey, 2009; Mulder & Hooijmeijer, 1999). When considering both models, older adults are regarded as being in (one of) the last stages in their residential relocation career. Furthermore, retirement often acts as a reason for older adults to relocate in search of amenities and comfort, while at later stages in older life, healthcare becomes more important (Litwak and Longino, 1987).

As mentioned earlier, relocation can occur because of disequilibrium between current and desired living conditions. Relocating is then a way of resolving the imbalance (Clark, 2013). Common reasons that result in a disequilibrium are retirement, widowhood, children leaving the parental home, and perhaps most importantly health (De Jong, 2022). When making the decision to relocate, several characteristics of housing and the environment are considered important for older adults (Mulliner et al., 2020). Overall, elderly seem to prefer living at home, or to 'age in place', and value home adaptations, housing conditions, thermal comfort, safe neighborhood, and accessible amenities through public transport. Every older adult has specific needs, however, most needs are related to health (van der Pers et al., 2018), and other aspect such as proximity to family, housing characteristics, and financial and mobility constrains (Li et al., 2022). Additionally, factors such as the housing market, tenure status, housing value, and satisfaction seem to influence the decision to relocate (Roy et al., 2018).

The relocation models mentioned previously discuss when and why older adults might want to relocate. However, having the wish to relocate does not mean one is able to relocate and find suitable housing. It may be that low-income elderly lack the financial means to relocate, and combined with other disabilities are sometimes 'stuck in place', instead of the popular policy 'ageing in place' (Granbom et al., 2021). This raises the question whether the decision to age in place is always voluntary, or whether older adults are restricted in their ability to relocate and therefore aim to remain living in their current residence as long as possible. Ageing in place then becomes a necessity instead of a preference.

Ageing in place

There is a strong preference for older adults to age in place, and thus to age independently in their own homes (Lebrusán and Gómez, 2022). Understanding the motives behind this preference is necessary to guide policy and program development to help older adults remain at home (Granbom et al., 2019). The preference to age in place depends on many factors, including housing characteristics, financial reasons, social support, and inclusion, but most importantly place attachment (Lebrusán and Gómez, 2022). Place attachment consists of the private home and the neighborhood. It is found that place attachment increases as older adults live in the same residence, and specifically the sense of continuity that is enabled by place attachment. Adding to this, the home as a concept of meaning and experience holds various dimensions, such as psychological, social, material, and temporal (Després and Lord, 2005). The home can also be viewed as a 'symbol of self', indicating security, freedom, and self-sufficiency (Appelbaum and Campbell, 2007).

Overall, a sense of home and ageing in place is central to well-being for older adults (Almevall et al., 2022). Staying at home provides older adults autonomy and a social network. Nonetheless, autonomy can also result in a sense of loneliness, and certain aspects of home can have negative impacts on wellbeing, especially for very old people (Almevall et al., 2022). This ties in with the conclusion of Means (2007), who states that ageing in place does not immediately result in 'ageing well'. Unless the current residence is modified to better suit older adults' needs, remaining at home can create suboptimal and even dangerous living conditions. It is therefore crucial to on the one hand facilitate ageing in place through policy, but to also carefully consider adverse results of remaining at home for elderly.

Housing affordability and home equity

Housing affordability determines whether people have access to suitable housing, where higher prices limit this ability (Arundel et al., 2022). Even though there is a preference for ageing in place, relocating at an older age is sometimes unavoidable. Since older adults are mostly retired and therefore have a fixed income, home equity or housing wealth forms the most important financial asset of older adults, at least for homeowners (Jefferson et al., 2017). Homeowners may have an advantage over renters when looking to relocate due to their home equity. Selling their property and therefore increasing their financial means to find a new home is something renters, and specifically elderly renters, are perhaps not able to. Especially considering the increase of housing prices in the Netherlands over the last decades (CBS, 2022), elderly homeowners can be considered being more able to relocate when desired, because of the 'profit' made on their home. This research focusses on older adults in relation to expensive housing markets, because this is an age group with mostly fixed incomes and financial assets. Older adults could therefore have more difficulty with finding a suitable residence when moving is desired, as described in the hypothesis later.

The costs of living such as heating and being able to make required modifications also play an important financial role (Sims and Cornell, 2020). Especially elderly renters may face housing affordability problems, which in turn can lead to precarity and stress (Bates et al., 2020). Even so, elderly homeowners facing debt can also experience negative effects on their mental health, including depression (Hiilamo and Grundy, 2020).

Elderly homeowners have the ability to sell their current residence, often with profit, and downsize (French et al., 2018). However, only few opt for this decision (Huggenberger et al., 2023), and choose to remain in their current residence. Elsinga et al. (2010) used the term 'loss aversion' for the feeling older adults have when in fear of losing or selling their home, which they feel puts their autonomy and quality of life at risk. It seems that in general people choose

to withdrawal their home equity, thus sell their home, when in financial difficulties, or when the result of a cost-benefit analysis is positive (French et al., 2018). It may be that older adults who are not facing financial difficulties are therefore rather unlikely to move unless other factors such as health become more stressing on the quality of life. Lastly, Smetcoren et al. (2017) found that low-income movers relocated mostly because of push factors related to housing and financial problems. These problems may be increasingly related to expensive housing markets.

Conceptual Model

The conceptual model (figure 1) below displays the relations between the concepts of this research. To answer the main research question, the two sub questions are operationalized into the variables 'age' and 'time', where 'time' also relates to the connection between 'age' and the outcome variable. On the right side of the model is a list of control variables used in the logistic regression. The conceptual model applies mostly to the logistic regression, but the elements of age and time are also applied in the later analysis on motives.

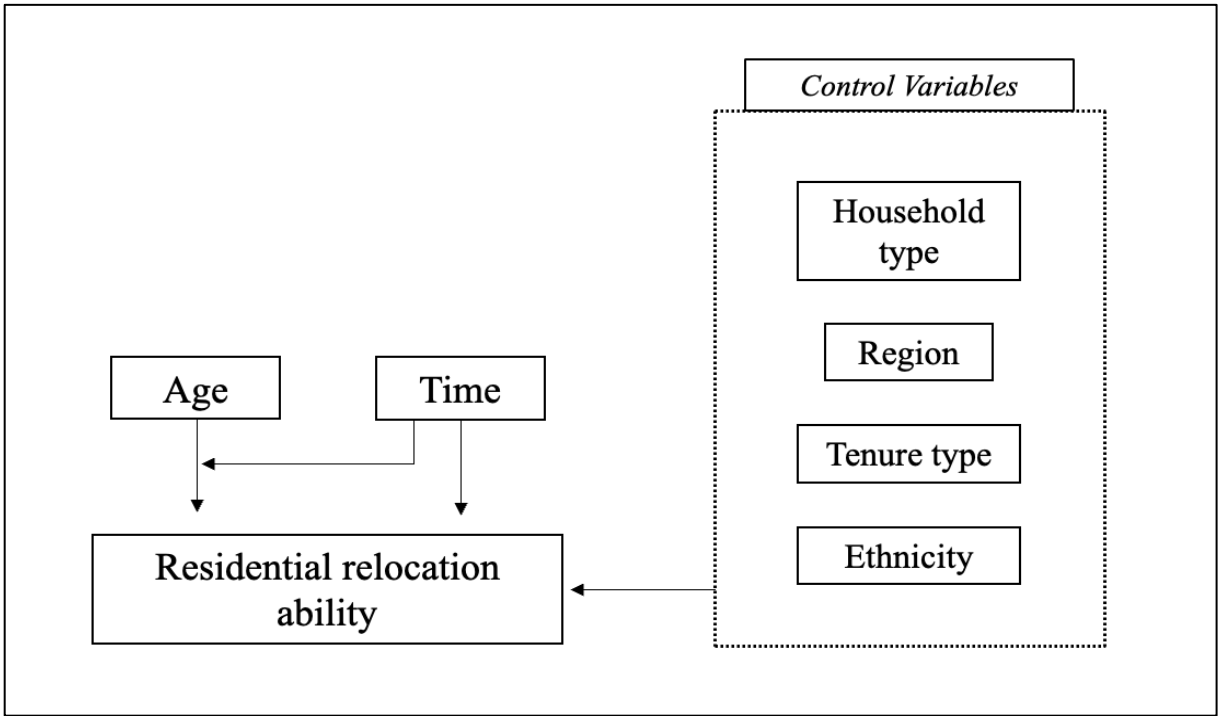

Figure 1: conceptual model

Hypotheses

This paper predicts a negative relationship between the current housing market conditions (i.e., higher prices) in the Netherlands and the ability of older adults to relocate. It is therefore expected that age negatively relates to the ability to relocate, thus older adults being less able to relocate as they age compared to other age groups. Furthermore, it is expected that the ability to relocate for older adults has decreased over time, because of the increase in housing prices in recent years.

Methodology

The research questions will be answered by means of a quantitative analysis of secondary data. Data is collected from the Dutch 'WoON' database, which is a large-scale survey conducted every few years. These datasets are accessed through applying at the institution where one must provide the goals of the research and how the data is used. A statistical regression analysis investigates whether elderly renters have difficulties finding suitable housing. WoON datasets from two different years, 2009 and 2021, will be analyzed to compare the ability to relocate over time.

Analysis scheme

First, older adults are categorized as being 65 years or older. The variable 'Age' has seven categories, which were recoded into four categories: 17-34, 35-44 (reference category), 45-64, and 65+. The reason for recoding is to increase clarity and statistical power, as well as having a clear reference category, being middle-aged adults. Second, a distinction is made between elderly who want to move within the next two years and those who do not by means of either the variable 'Relocation preference'. This nominal variable is also recoded, resulting in four categories; 'definitely not', 'maybe eventually / unsure', 'would like to, cannot find anything', and 'definitely yes / already found a new residence'. A Multinomial Logistic Regression is used to see how age and time relates to the outcome variable.

To control for space, the variable 'regions' is used. The other control variables consider ethnicity, household type, and renting vs. owning. The multinomial logistic regression is run three times. Each time, variables are, alongside the control variables, added to the regression to see if this adds explanatory power: 'age', 'time', and interaction between the two.

Adding to the logistic regression, it is important to analyze the motives for the variable 'Relocation preference'. Descriptive statistics are used on the responses to the questions why someone does or does not want to move, indicated by variables 'Reasons not moving' and 'Reasons moving'. These variables are individually coded in multiple response sets. Respondents can select one or more of the reasons for moving or not moving. Three answers to the question of the 'not moving' variable are of most relevance: 'I can probably not find a suitable residence', 'the housing market is currently unfavorable', and 'moving is too expensive'. The answers to these questions are individual variables in the dataset and therefore binary. Another nominal variable called 'Have not found' allows respondents to answer why they have been unable to find a new residence, of which certain answers are 'prices are too high', 'no available housing' or 'waiting time is too long'.

The highlighted answers mentioned above can be considered being directly related to expensive housing markets. Therefore, some of these reasons will be combined into one outcome to better analyze to what extent housing market related answers are mentioned as reasons for not moving. For the descriptive statistics, small multiple graphs showing age, year of dataset, and motives for moving are created. Per reason, whether this is market related or not, a graph is made with the beforementioned variables. The aim is to create insight into older adults' motives, compared to other age groups and over time. Lastly, the distributions are tested with a Mann-Whitney test.

Sample selection

The logistic regression uses a sample of N = 109621. After combining the two datasets the total amount of cases is N = 124729. The variable 'rent/own' which differentiates renters from homeowners has N = 15108 missing cases, which are therefore removed from the logistic regression. All other variables in the logistic regression have no missing values. Since all cases are relevant for the analysis, no further cases are excluded.

The descriptive statistics in the later part of the analysis use a different sample from the logistic regression. Again, both datasets with a total of N = 124729 cases are used, but the final samples are smaller due to missing data. To analyze the motives for those respondents who do not want to move, and those that do want to move, multiple response sets were created. In the WoON survey, respondents were able to select one or more reasons. Only the respondents that selected 'definitely not' in the variable 'Relocation preference' are able to select reasons for not moving. This results in a sample of N = 79169 for the analysis on the motives for not moving, with N = 45560 missing cases. These missing cases are excluded from the sample.

The descriptive statistics on the reasons for moving uses a total sample of N = 22367 (excluding N = 102362). The last part of the descriptive analysis focusses on the respondents who have not been able to find a new residence and the corresponding motives, which are single response sets. This sample uses N = 38269 cases and excludes N = 86460 missing cases.

Ethical considerations and research method rationale

The WoON database collects its data from Dutch inhabitants who are approached by CBS and voluntarily participate in the survey. The institute issuing the WoON datasets, DANS, is a national centrum for research data, ensuring high quality datasets for researchers. Personal data and identifiers are excluded from the survey and datasets, thus protecting the privacy of participants. This research uses the WoON data solely for academic purposes for which permission was granted by DANS. Since this research uses quantitative data and statistical analysis, other relevant factors such as the experience of older adults navigating expensive housing markets might be overlooked. Here lies an opportunity for qualitative and mixed-methods research to incorporate these factors into the discussion. The aim of this research is to find patterns and relations, which might not apply to all older adults. It is therefore important to consider relevant nuances and the heterogeneity within this group of people.

Lastly, this method of research was chosen in consideration with other methods. Analyzing quantitative data in relatively large numbers allows this research to aim at finding patterns and relations between variables. The combination of a logistic regression to analyze relevant variables with descriptive statistics that look to provide further insight into motives, will expectantly help better understand the ability of older adults to relocate in expensive housing markets. Qualitative research could perhaps better analyze the specifics of why older adults feel they are unable to relocate, what the specific limiting factors are, and how high housing prices steers their residential mobility and preferences. Especially interviews with older adults who are looking to move but are unable to find a suitable residence could provide an insightful addition to the existing body of literature.

Results

Descriptive Statistics

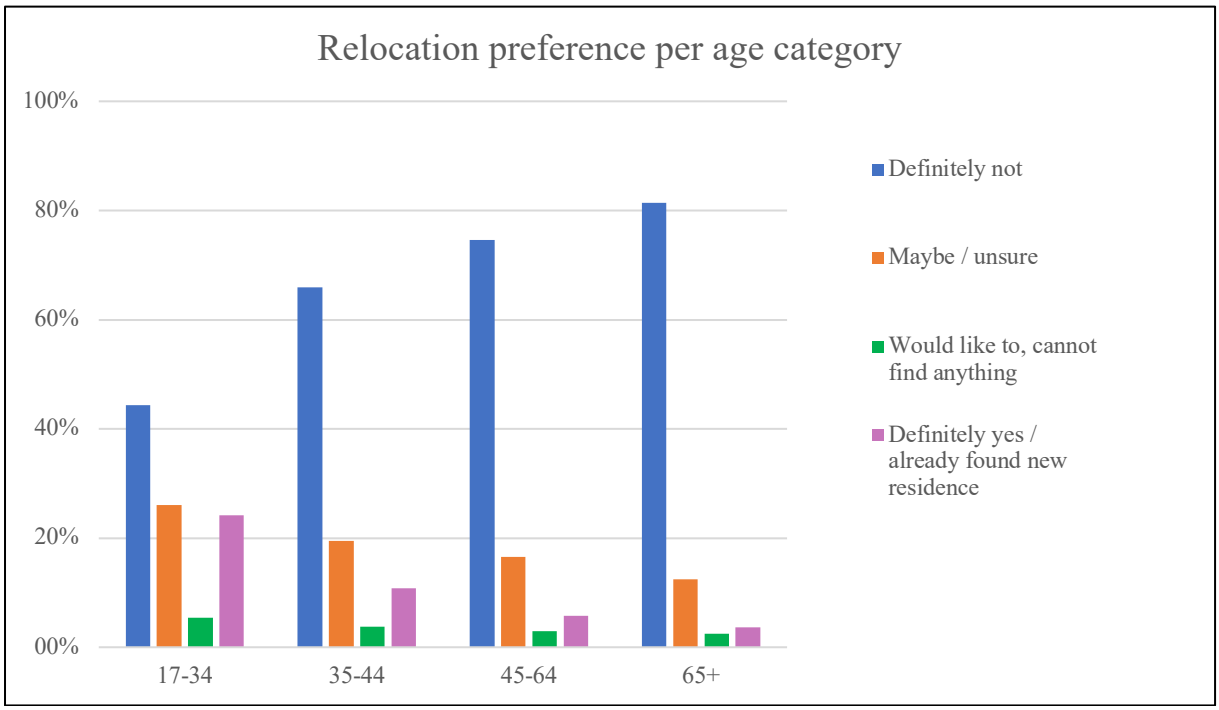

Figure 2: descriptive statistics 'Relocation preference' per age category

Figure 2 above shows the distribution of the outcome variable 'Relocation preference' per age category. The decision to 'definitely not' move within two years is chosen most frequently across all age categories. When looking at older adults the distribution leans heavily towards 'definitely not' and 'unsure'. Only a small proportion of elderly would like to move, but cannot find anything. This gives an indication whether older adults feel the desire to move but are unable too. From these descriptive statistics it does not seem like this is a significant issue for older adults. However, the logistic regressions aim to provide further insight.

Multinomial Logistic Regression

The multinomial logistic regressions are used to analyze the relations between the outcome variable 'Relocation preference', and the independent variables age and time (year dataset). The sample size for these regressions is N = 109621, due to missing cases in the control variable 'own/rent'. Age, time, and an interaction between the two are analyzed in three regressions.

Before discussing the results of the logistic regressions, it is important to consider the data-fit of the models. The 'goodness-of-fit' results indicate whether the models fits the data well. A large value for the Chi-square Pearson statistic indicates a poor fit, which is the case for all three tests. The outcome for these values is also highly significant (P = .000), further indicating a poor data fit. This is a rather large limitation of this analysis and must be considered when interpreting the results.

However, the variables added to the models significantly improve the model compared to the intercept values alone (see tables in appendix). This is indicated by significant (P = .000) values

for the models. Thus, the models significantly result in a better prediction of the outcome variable 'Relocation preference' than the intercept-only models.

Table 1 below shows the overview of variables, control variables and cases used in the logistic regression. 'Definitely not' for the variable 'Relocation preference' being the largest makes it most suitable as a reference category. The age category '35-44' is chosen as the reference category as it helps comparing elderly and younger people to a category placed in the middle of the distribution. For the space variable 'region', the West of the Netherlands acts as the reference category. Across the Netherlands, housing prices are highest in the Western municipalities (CBS, 2022), making this region useful to compare against. 2009 acts as the base year for comparison.

		N	Marginal Percentage
Relocation preference	Definitely not	75888	69,2%
	Maybe / unsure	19492	17,8%
	Would like to, cannot find anything	3815	3,5%
	Definitely yes / already found new residence	10426	9,5%
Age	17-34	20388	18,6%
	45-64	41224	37,6%
	65+	28812	26,3%
	35-44	19197	17,5%
Year	2021	40472	36,9%
	2009	69149	63,1%
Rent/own	Own	65279	59,5%
	Rent	44342	40,5%
Ethnicity	Native	90230	82,3%
	Non-Western	9416	8,6%
	Western	9975	9,1%
Household type	Single-person	34754	31,7%
	Multi-person, with children	27836	25,4%
	Multi-person, no children	47031	42,9%
Region	North	7907	7,2%
	East	24423	22,3%
	South	16187	14,8%
	West	61104	55,7%
Valid		109621	100,0%
Missing		0	
Total		109621	
Subpopulation		546[a]	

Table 1: overview of variables and cases Multinomial Logistic Regression and descriptive statistics

The first model adds ‘age’ as an independent variable. Overall, the model is significant (P < 0,000) and thus results in a better prediction of the outcome variable ‘Relocation preference’ than the intercept-only model. Each (control) variable in the regression is tested significant (P < 0,05), see tables in appendix. This means that the null hypothesis for the logistic regression, namely that the regression coefficients in the model are zero, is rejected. The variables used thus influence the outcome variable and therefore the desire to move within two years.

Relocation preference[a]		RRR	Sig.	*SE*
Maybe / unsure	Intercept		0,000	*0,038*
	17-34	1,703	0,000***	*0,027*
	45-64	0,666	0,000***	*0,025*
	65+	0,401	0,000***	*0,029*
	35-44			
	Own	0,733	0,000***	*0,018*
	Rent			
	Native	0,973	0,341	*0,029*
	Non-Western	0,904	0,011*	*0,039*
	Western			
	Single-person	1,116	0,000***	*0,020*
	Multi-person, with children	0,803	0,000***	*0,023*
	Multi-person, no children			
	North	0,940	0,061	*0,033*
	East	0,981	0,351	*0,020*
	South	0,893	0,000***	*0,024*
	West			
Would like to, cannot find anything	Intercept		0,000	*0,076*
	17-34	1,631	0,000***	*0,052*
	45-64	0,656	0,000***	*0,052*
	65+	0,407	0,000***	*0,060*
	35-44			
	Own	0,294	0,000***	*0,038*
	Rent			
	Native	0,956	0,438	*0,058*
	Non-Western	1,321	0,000***	*0,071*
	Western			
	Single-person	1,069	0,096	*0,040*
	Multi-person, with children	0,958	0,377	*0,048*
	Multi-person, no children			
	North	0,680	0,000***	*0,079*
	East	0,926	0,072	*0,042*
	South	0,802	0,000***	*0,053*
	West			
Definitely yes / already found new residence	Intercept		0,000	*0,049*
	17-34	2,475	0,000***	*0,032*
	45-64	0,409	0,000***	*0,035*
	65+	0,191	0,000***	*0,043*
	35-44			
	Own	0,301	0,000***	*0,025*
	Rent			
	Native	0,944	0,132	*0,038*
	Non-Western	1,109	0,030*	*0,048*
	Western			
	Single-person	1,004	0,879	*0,027*
	Multi-person, with children	0,815	0,000***	*0,031*
	Multi-person, no children			

	North	0,889	0,010**	*0,046*
	East	0,859	0,000***	*0,028*
	South	0,772	0,000***	*0,035*
	West			

Table 2: regression with independent variable 'age' (P < .05, ** P < .01, *** P < .001)*

Focusing on older adults, a few things stand out when looking at table 2. First, older adults are less likely to end up in one of the comparisons groups and are thus more likely to 'definitely not' want to move. It therefore seems that homeowners are more likely to desire staying in place, or for older adults 'age in place'. This is indicated by the relative-risk-ratio's (RRR) values which are lower than 1 and lower than the other age groups. Older adults are specifically unlikely to 'definitely want to move' or 'having already found a new residence' (RRR = 0,191).

The second model in table 3 adds time as an independent variable, next to age. This model is again significant (P < 0,000) and thus better predicts the outcome variable compared to the intercept-only model. The independent variable time is also significant (P < 0,000), indicating that the regression coefficient is not equal to zero, rejecting the null hypothesis.

It is important to note that the variable time applies to the entire sample and thus all age categories. When looking at the RRR values for the variable time, a pattern can be observed. All values are higher than 1, meaning that the probability of being in one of the comparison groups is higher for the year 2021 compared to 2009. Moreover, the likelihood of being in the category 'would like to, cannot find anything' is noticeably higher in 2021 (RRR = 3,787). The variable household type does not significantly affect the probability of being in this category (P > 0,05).

Relocation preference[a]		RRR	Sig.	*SE*
Maybe / unsure	Intercept		0,000	*0,039*
	17-34	1,662	0,000***	*0,027*
	45-64	0,639	0,000***	*0,025*
	65+	0,360	0,000***	*0,030*
	35-44			
	2021	1,989	0,000***	*0,017*
	2009			
	Own	0,688	0,000***	*0,018*
	Rent			
	Native	0,988	0,675	*0,029*
	Non-Western	0,906	0,013*	*0,040*
	Western			
	Single-person	1,096	0,000***	*0,020*
	Multi-person, with children	0,808	0,000***	*0,023*
	Multi-person, no children			
	North	0,845	0,000***	*0,033*
	East	0,915	0,000***	*0,021*
	South	0,771	0,000***	*0,025*
	West			
Would like to, cannot find anything	Intercept		0,000	*0,078*
	17-34	1,542	0,000***	*0,053*
	45-64	0,625	0,000***	*0,052*
	65+	0,349	0,000***	*0,061*
	35-44			
	2021	3,787	0,000***	*0,035*
	2009			
	Own	0,260	0,000***	*0,039*

	Rent			
	Native	1,003	0,955	*0,059*
	Non-Western	1,370	0,000***	*0,071*
	Western			
	Single-person	1,027	0,507	*0,041*
	Multi-person, with children	1,001	0,990	*0,049*
	Multi-person, no children			
	North	0,553	0,000***	*0,079*
	East	0,809	0,000***	*0,043*
	South	0,608	0,000***	*0,054*
	West			
Definitely yes / already found new residence	Intercept		0,000	*0,050*
	17-34	2,463	0,000***	*0,032*
	45-64	0,402	0,000***	*0,035*
	65+	0,184	0,000***	*0,043*
	35-44			
	2021	1,233	0,000***	*0,024*
	2009			
	Own	0,293	0,000***	*0,025*
	Rent			
	Native	0,945	0,138	*0,038*
	Non-Western	1,097	0,052	*0,048*
	Western			
	Single-person	0,996	0,871	*0,027*
	Multi-person, with children	0,810	0,000***	*0,031*
	Multi-person, no children			
	North	0,857	0,001***	*0,046*
	East	0,839	0,000***	*0,029*
	South	0,737	0,000***	*0,035*
	West			

Table 3: regression with independent variables 'age' and 'time' (P < .05, ** P < .01, *** P < .001)*

The third and final regression in table 4 introduces an interaction between age and time. 'Time' as an independent variable was excluded as it resulted in errors when running the regression. The results are shown in table 4 below. For this, dummy variables for the variable age were constructed. A new interaction variable between these dummies and time was created. A respondent is counted as being part of that category when they are in the age group and in the year 2021 (resulting in value '1'). The RRR values reflect the probability of being in that specific group compared to the rest of the sample. As with the previous models, all variables are listed as significant (P < 0,05).

Relocation preference[a]		RRR	Sig.	*SE*
Maybe / unsure	Intercept		0,000	*0,077*
	17-34	1,632	0,000***	*0,033*
	45-64	0,617	0,000***	*0,031*
	65+	0,312	0,000***	*0,039*
	35-44			
	[Interaction_Age_17_34_Year=,00]	0,525	0,000***	*0,037*
	[Interaction_Age_17_34_Year=1,00]			
	[Interaction_Age_35_44_Year=,00]	0,554	0,000***	*0,040*
	[Interaction_Age_35_44_Year=1,00]			
	[Interaction_Age_45_64_Year=,00]	0,506	0,000***	*0,027*
	[Interaction_Age_45_64_Year=1,00]			
	[Interaction_Age_65_Year=,00]	0,420	0,000***	*0,037*
	[Interaction_Age_65_Year=1,00]			
	Own	0,683	0,000***	*0,018*

	Rent			
	Native	0,988	0,666	*0,029*
	Non-Western	0,902	0,010**	*0,040*
	Western			
	Single-person	1,097	0,000***	*0,020*
	Multi-person, with children	0,809	0,000***	*0,023*
	Multi-person, no children			
	North	0,843	0,000***	*0,033*
	East	0,913	0,000***	*0,021*
	South	0,769	0,000***	*0,025*
	West			
Would like to, cannot find anything	Intercept		0,000	*0,149*
	17-34	1,483	0,000***	*0,078*
	45-64	0,696	0,000***	*0,075*
	65+	0,436	0,000***	*0,088*
	35-44			
	[Interaction_Age_17_34_Year=,00]	0,222	0,000***	*0,068*
	[Interaction_Age_17_34_Year=1,00]			
	[Interaction_Age_35_44_Year=,00]	0,238	0,000***	*0,078*
	[Interaction_Age_35_44_Year=1,00]			
	[Interaction_Age_45_64_Year=,00]	0,286	0,000***	*0,060*
	[Interaction_Age_45_64_Year=1,00]			
	[Interaction_Age_65_Year=,00]	0,337	0,000***	*0,078*
	[Interaction_Age_65_Year=1,00]			
	Own	0,263	0,000***	*0,039*
	Rent			
	Native	1,004	0,945	*0,059*
	Non-Western	1,387	0,000***	*0,072*
	Western			
	Single-person	1,030	0,475	*0,041*
	Multi-person, with children	1,007	0,878	*0,049*
	Multi-person, no children			
	North	0,556	0,000***	*0,079*
	East	0,813	0,000***	*0,043*
	South	0,612	0,000***	*0,054*
	West			
Definitely yes / already found new residence	Intercept		0,083	*0,112*
	17-34	2,486	0,000***	*0,038*
	45-64	0,413	0,000***	*0,041*
	65+	0,205	0,000***	*0,052*
	35-44			
	[Interaction_Age_17_34_Year=,00]	0,781	0,000***	*0,040*
	[Interaction_Age_17_34_Year=1,00]			
	[Interaction_Age_35_44_Year=,00]	0,756	0,000***	*0,053*
	[Interaction_Age_35_44_Year=1,00]			
	[Interaction_Age_45_64_Year=,00]	0,825	0,000***	*0,047*
	[Interaction_Age_45_64_Year=1,00]			
	[Interaction_Age_65_Year=,00]	1,356	0,000***	*0,067*

	[Interaction_Age_65_Year=1,00]			
	Own	0,294	0,000***	*0,025*
	Rent			
	Native	0,945	0,142	*0,038*
	Non-Western	1,101	0,043*	*0,048*
	Western			
	Single-person	0,996	0,878	*0,027*
	Multi-person, with children	0,811	0,000***	*0,031*
	Multi-person, no children			
	North	0,859	0,001***	*0,046*
	East	0,840	0,000***	*0,029*
	South	0,738	0,000***	*0,035*
	West			

Table 4: regression with interaction 'age' and 'time' (P < .05, ** P < .01, *** P < .001)*

Focusing on older adults, the results indicate a lower probability of older adults (in 2021) 'definitely wanting to move' or 'already having found a new residence', compared to the group younger than 65 years old and in the year 2009 (RRR = 1,356). However, older adults in 2021 are more likely to end up in the category 'would like to, cannot find anything' compared to the other group mentioned earlier (RRR = 0,337). The beforementioned RRR values relate to the comparison group, not older adults.

Across all regressions and for the entire sample, owners are less likely to end up in one of the comparison groups and are thus less likely to move (RRR < 1) compared to renters. Furthermore, the variable ethnicity often resulted in insignificant results (P > 0,05), thus no clear relation between this variable and the outcome variable can be observed. There seems to be a slight inclination of respondents in the West being more likely of ending up in a category besides 'definitely not moving', but the difference is small; often less than RRR = 0,1. Non-Western respondents are overall more likely to be in one of the comparisons groups, compared to Western respondents (thus not native). The results for native respondents were often insignificant (P > 0,05). The results for the control variable household type provide little explanatory power, as the results were either insignificant or the difference between household types negligible.

Small Multiple Graphs

To better understand older adults' motives for not wanting to move, small multiple graphs have been created (figure 3). The data on which the first and second graphs are based on comes from multiple response questions in the dataset, which means the cases are not the respondents but the number of times the answer has been selected by a certain age group in this case. The final graphs are based on single responses. The percentages discussed are the averages between the two years, unless mentioned otherwise.

For the entire sample of older adults (N = 23162), 78,2% answered they are not moving because they are content with their current living conditions. Only an average of 8,3% of older adults selected not wanting to move because they consider themselves too old. Older adults are also relatively attached to their environment; 19,6% of older adults select not wanting to move

because they do not want to leave their current living environment and neighborhood (2nd graph).

Moving to the response that is of most importance for this analysis, namely housing market related reasons, it becomes clear when looking at the table that older adults in the sample hardly consider the housing market as a reason not to move; 6,7% in 2009 and only 1% in 2021. Comparing this to the other age groups where at least more than 7% on average select this reason, it seems that older adults are not particularly held back by perceived market constraints. The data seems to indicate that older adults in general do not want to move because they are content with their current living situation and environment and would rather 'age in place'.

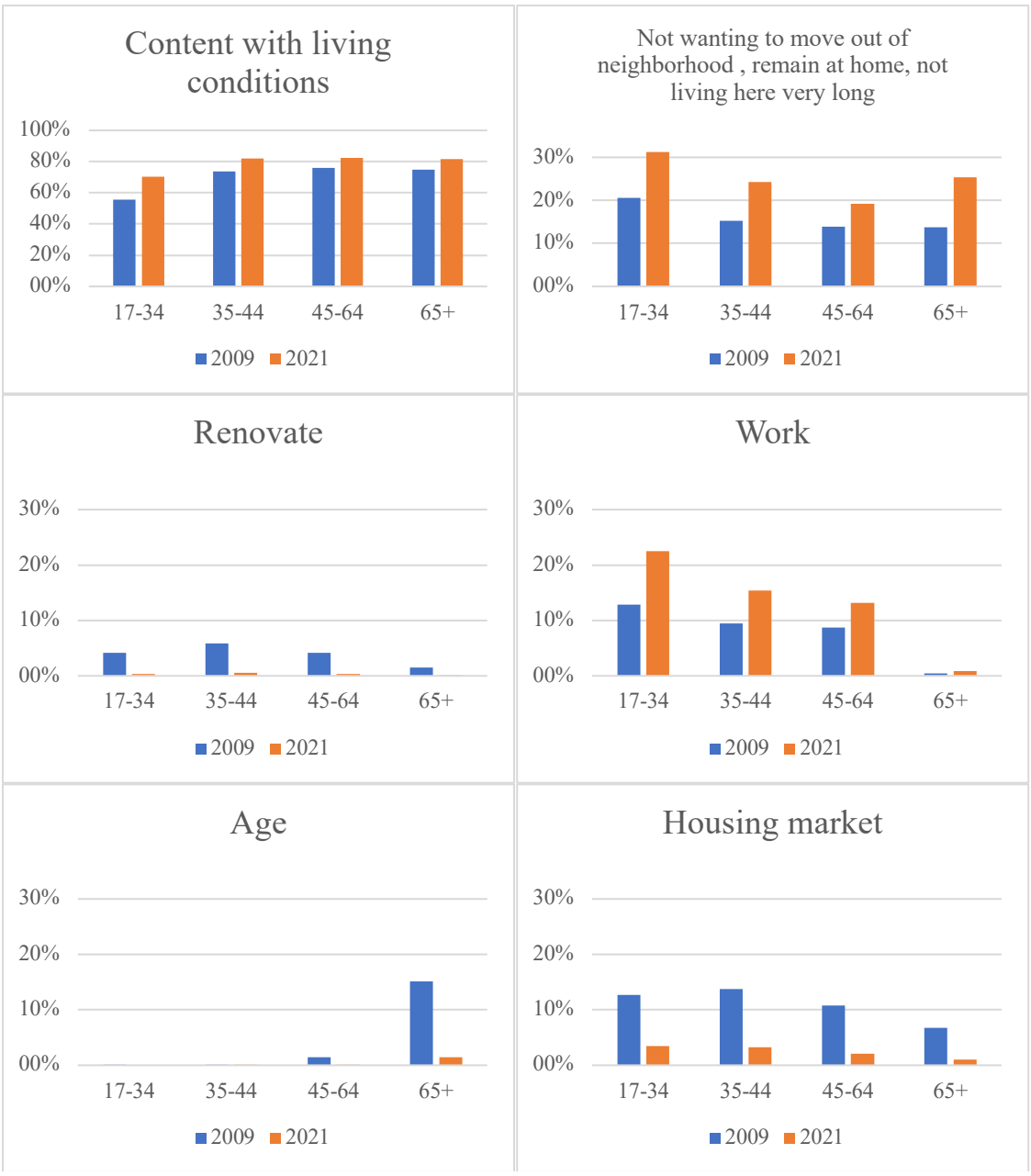

Figure 3: percentages reasons for not moving per age category and year, multiple response

Next are the motives for moving, shown in figure 4. Not surprisingly, 39,2% of older adults in the sample select health and the need for care as a reason to move. The living conditions make the second most important for elderly to move; 18,9% select this reason. The third most important reason for moving is relocating closer to family and friends (15%). The downside of this survey questioning is the large percentage of older adults selecting 'other' as a reason to move (28%). What these other reasons are cannot be known from this dataset.

Figure 4: percentages reasons for moving per age category and year, multiple response

Another interesting aspect to analyze is the reasons respondents select for not having found a new residence, while having the desire the move (figure 5). In total, 44% of older adults in the sample select at least one reason concerning housing market conditions for not having found a suitable residence; residences are too expensive (9,7%), no suitable offerings (26%), waiting for residence to sell (3,35%) and waiting lists being too long (5%). The latter most likely being for social housing. However, older adults in the sample less often select market related reasons compared to other age groups. For example: in all other age groups 17,7% on average select 'residences are too expensive' compared to only 9,7% for older adults. This reason is selected more in 2021 compared to 2009, which could relate to the increased housing prices during this period. Respondents in all age categories seem to have reasons for not having found a residence that is not listed in the survey. Hence 38% of the sample selected 'other' (different reason, not listed) as a reason.

To see whether the distributions of certain important motives are equal between the two years, the Mann-Whitney test was used as a non-parametrical alternative T-test due to the small sample size ($N = 8$). The percentages of reasons selected per age group are compared between 2009 and 2021. Significant results apply to 'housing prices' and 'waiting time' for reasons not having found, and 'housing market' as a reason for not moving ($P < 0.05$). Thus, there is a significant difference in the distribution between the two years. 'Waiting time' and 'no offerings' were tested insignificant, therefore being distributed equally ($P > 0.05$).

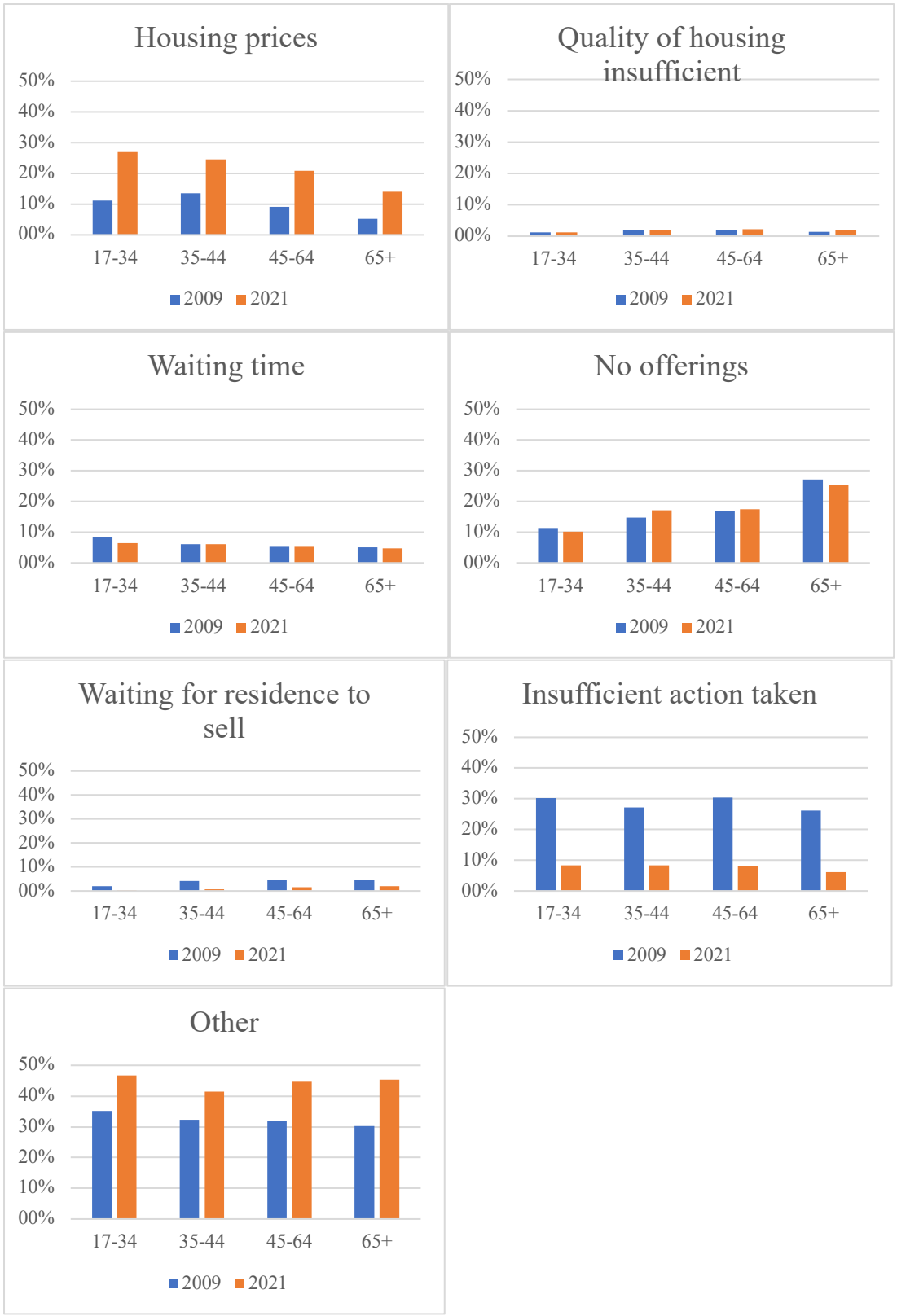

Figure 5: percentages reasons for not having found new residence per age category and year, single response

Discussion

The descriptive statistics of the main variables show that a large percentage of elderly in the sample does not want to move within two years. This could indicate that elderly largely feel the desire to 'age in place' (Lebrusán and Gómez, 2022). However, ageing in place does not always result in 'ageing well' (Means, 2007). Also, the descriptive statistics show a low percentage of older adults that have the desire to move but are unable to find suitable housing. Both these factors already gave an estimation of the extent of the research problem; older adults in the sample mostly do not want to move and therefore the number of older adults being unable to relocate is limited. Applying the push and push model of Smetcoren et al. (2017), it could be argued that older adults do not often experience a mismatch between actual and desired living conditions that pushes them out of their residence. However, this cannot be directly drawn from the data.

Moving to the regressions, which resulted in models that significantly better predict the outcome variable than the base model (P = .000). As noted earlier, the results of these regressions must be seen in the light of a poor data fit. The results indicate that older adults in the sample are least likely of all age groups to be in the category 'would like to, cannot find anything'. This again builds on the tendency found in the descriptive results, showing that older adults are unlikely compared to other age groups to have the desire to move, but being unable to. Additionally, the probability of older adults to be outside the reference category 'definitely not moving' is lower compared to all age groups. This indicates that older adults, compared to other ages, are most likely to wish remaining in their current residence and therefore age in place (Lebrusán and Gómez, 2022).

The second regression indicates, for the entire sample, a higher probability of being in one of the comparison groups in 2021, especially for those looking to move but being unable to find anything. This last part may indicate a larger share of people who are unable to relocate in 2021, which for elderly might result in being 'stuck in place' (Granbom et al., 2021). Owners, compared to renters, are overall less likely to have a desire other than 'definitely not' wanting to move. For elderly, this is in line with findings of Huggenberger et al. (2023), who concluded that only few older adults decide to sell their residence to potentially downsize.
The interaction shows that elderly in 2021 are more likely to have the desire to move, but being unable to, compared to the other age groups in 2009.

The results of the logistic regression can be further explained using the descriptive analysis on motives for moving, not moving, and not having found a suitable residence. Looking at reasons for not moving selected by elderly, a large percentage selects being content with their current housing situation. Drawing from the push and pull model of Smetcoren et al. (2017),
Wiseman (1980), and Lee (1966), a mismatch between desired and actual living conditions may not be a situation many older adults find themselves in. At least not to the extent that push factors and pull factors outweigh the benefits of staying in place. Older adults are also relatively more attached to their environment and indicate this as a reason for not moving. This may be a result of various psychological and social aspects of older adults' 'meaning of home' and 'symbol of self', as described by Després and Lord, 2005, and more importantly the aspect of place attachment (Lebrusán and Gómez, 2022). Furthermore, being 'too old to move' is a, although not as frequent, reason for older adults to not move. This is in line with findings of Granbom et al. (2021), where older adults feel restricted in their ability to move as a result of not only financial, but also physical disabilities. However, financial and market related reasons are not frequently selected by older adults when asked about their reasons for not moving. Compared to other age groups, older adults seem to be the least constrained by financial and

market related factors when deciding to relocate. This overall is against the stated hypothesis of this research.

Health is the main reason for older adults to move. This outcome is similar to the findings of Van der Pers et al. (2018) and Litwak and Longino (1987). Older adults often feel the need for extra care at a later age, which sometimes cannot or hardly be facilitated at their current residence. Current housing and living environment is another frequent reason for moving. In this case there is an actual mismatch between actual and desired living conditions (Smetcoren et al, 2017). Lastly, moving closer towards friends and family seems to push older adults out of their current residence (Li et al, 2022). An important limitation of the descriptive analysis is the large percentage of older adults selecting 'other' as a motive, which cannot be further analyzed.

Lastly, housing market related issues seem to be a substantial problem for those older adults that feel the desire to move but have been unable to find suitable housing. 44% of older adults in the sample select at least one housing market related reason for being unable to relocate. This again is in line with findings of Granbom et al. (2021), indicating the potential situation of being 'stuck in place'. However, older adults still select market related reasons less often compared to other age groups. This then indicates that older adults as an age group may be less affected by high housing prices than other ages.

Conclusions

This paper analyzed how age relates to the ability to relocate in expensive housing markets, focusing on older adults, and to what extent this ability has changed over time. Multinomial logistic regressions were used alongside descriptive statistics to answer these questions.

To conclude, expensive housing markets in the Netherlands seem to hardly affect older adults' ability to relocate at an older age. The results from the analysis indicate that only a small percentage of older adults in the sample feel the desire to move, while most want to remain living at home and age in place (Lebrusán and Gómez, 2022). For those older adults that feel the desire to move, but have been unable to find a new residence, housing market related issues do seem to play a role as 44% selects at least one reason relating to those issues. This could mean these older adults are 'stuck in place' (Granbom et al., 2021), and are limited in their ability to relocate due to market related issues (Arundel et al., 2022). However, compared to other age groups, older adults are less restricted by financial and market related aspects when looking to relocate. This may be because of older adults' ability to sell their current residence, often with substantial profit over the original buying price, which increases their ability to find suitable housing at a later point in life (Huggenberger et al., 2023).

The probability of wanting to move, but being unable to find a new residence has increased over time and is true for older adults when comparing to other age groups, which could be due to the increase of housing prices (CBS, 2022). Lastly, renters seem to have a higher probability of being unable to relocate as compared to homeowners. These findings are true for the entire sample and do not focus specifically on elderly.

This research is limited by the ability to measure the outcome variable, namely 'being able to relocate'. It was attempted to best capture this 'ability to relocate' through the analysis scheme, but this outcome remains difficult to measure. Adding to that, the results only discuss the self-perceived 'ability to relocate', since respondents can experience certain aspects in different ways. Here lays an opportunity for qualitative analysis, specifically interviews, to gain further insight in how older adults experience and navigate expensive housing markets. Also, the results of the regression are based on a poor 'data fit', which limits the strength of the analysis. The analysis scheme was carried out as planned and no major problems presented itself during the research. Managing two large datasets took more time and resources than expected but did not hinder the progress.

The results of this research can guide policy makers and actors in the housing market to better plan for the needs and desires of older adults on the housing market. Even though most older adults tend to prefer 'ageing in place', there is a proportion who wants to move but is unable to, largely due to housing market related reasons. Future, perhaps more qualitative, research can further investigate the perceived experience of being unable to relocate and how housing market conditions affect this notion.

Appendix

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	5755.522[a]	0,000	0	
Age	14743,919	8988,398	9	0,000
Rent/own	9034,525	3279,003	3	0,000
Ethnicity	5831,657	76,135	6	0,000
Household type	5961,523	206,002	6	0,000
Region	5869,311	113,789	9	0,000

Table 6: 1st multinomial logistic regression likelihood ratio tests

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	8322.759[a]	0,000	0	
Age	17670,828	9348,069	9	0,000
Year	11048,335	2725,576	3	0,000
Rent/own	11891,669	3568,910	3	0,000
Ethnicity	8397,588	74,829	6	0,000
Household type	8507,240	184,481	6	0,000
Region	8608,255	285,496	9	0,000

Table 7: 2nd multinomial logistic regression likelihood ratio tests

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	8247.123[a]	0,000	0	
Age	14230,106	5982,983	9	0,000
Interaction_Age_17_34_Year	8936,846	689,723	3	0,000
Interaction_Age_35_44_Year	8737,060	489,937	3	0,000
Interaction_Age_45_64_Year	9203,636	956,513	3	0,000
Interaction_Age_65_Year	8972,489	725,366	3	0,000
Rent/own	11751,650	3504,527	3	0,000
Ethnicity	8326,887	79,765	6	0,000
Household type	8431,501	184,379	6	0,000
Region	8529,993	282,871	9	0,000

Table 8: multinomial logistic regression with interaction likelihood ratio tests

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