Eindhoven University of Technology

MASTER

The demand for housing cooperatives in the Netherlands

An explorative study of the demand for housing cooperatives, based on the underlying preferences for housing tenure by use of a stated choice experiment

Kooijman, Ewoud P.G.

Award date:
2023

Link to publication

Disclaimer
This document contains a student thesis (bachelor's or master's), as authored by a student at Eindhoven University of Technology. Student theses are made available in the TU/e repository upon obtaining the required degree. The grade received is not published on the document as presented in the repository. The required complexity or quality of research of student theses may vary by program, and the required minimum study period may vary in duration.

General rights
Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain

Take down policy
If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Download date: 14. Sep. 2026

THE DEMAND FOR HOUSING COOPERATIVES IN THE NETHERLANDS

An explorative study of the demand for housing cooperatives, based on the underlying preferences for housing tenure by use of a stated choice experiment

Written by Ewoud Kooijman

30 August 2023

TITLE PAGE

THE DEMAND FOR HOUSING COOPERATIVES IN THE NETHERLANDS

An explorative study of the demand for housing cooperatives, based on the underlying preferences for housing tenure by use of a stated choice experiment

University
Eindhoven University of Technology
Groene Loper 3
5612 AE Eindhoven

Course
Master Architecture, Building and Planning: Urban Systems & Real Estate
Graduation project USRE (7Z45M0)
45 ECTS

Student
E.P.G. (Ewoud) Kooijman
Student number: 1635646
e.p.g.kooijman@student.tue.nl

Graduation committee USRE
Dr. ir. R.P. (Robert) van Dongen (1st supervisor)
r.p.v.dongen@tue.nl

Drs. ir. M.I.K. (Marieke) Leussink (2nd supervisor)
m.i.k.leussink@tue.nl

Prof. dr. T.A. (Theo) Arentze (Chairman)
t.a.arentze@tue.nl

Graduation date
30 August 2023

This graduation thesis is publicly available and has been carried out in accordance with the rules of the TU/e Code of Scientific Integrity.

PREFACE

In front of you lies my master's thesis "The demand for housing cooperatives in The Netherlands" to graduate from the Urban Systems & Real Estate programme at Eindhoven University of Technology. This thesis is the result of a year of hard work and intensive research. Writing this thesis was not always straightforward, but I experienced the overall graduation process as enjoyable and very rewarding. In the past year, I learned a lot about the Dutch housing market, both from a systematic and governmental point of view. I also really learned to understand what it means to conduct scientific research.

I would like to take the opportunity to thank several people who enabled me to write this thesis. I would like to thank my supervisors Robert van Dongen, Marieke Leussink and Theo Arentze for critically reading all my documents and providing me with valuable feedback. Furthermore, I derived a lot of energy and motivation from the educational and inspiring discussions I had with you. I would like to thank all respondents who have let themselves be interviewed for this study. Your perceptions, opinions and experiences about your living situation were of great value. I also thank all respondents who participated in the survey for this study. As a result of your participation, it was possible to gain new insights into the preferences of people for housing tenure.

I would like to thank my parents for their unconditional love and support during the past year and all my previous years of studying. It is thanks to you that I was able to obtain this master's degree. I would like to thank my girlfriend, brother and sister who are always there for me and give me positive support. I thank my friends and fellow students for the encouraging talks, support and all the advice I have received.

Finally, I hope that this thesis has brought new insights and provides new arguments in discussions on the formulation of policies for a more fair and sustainable Dutch housing market.

I wish you much reading pleasure while reading this thesis.

Ewoud Kooijman
Amsterdam, 21 August 2023

SUMMARY

A total of 900,000 dwellings needs to be added in the Netherlands until 2030, of which 300,000 must be affordable. Systematic change is needed to ensure that dwellings remain affordable in the long-term. One of these changes concerns the introduction of housing cooperatives in the Dutch housing market. The main feature of a housing cooperative is that affordable housing can be guaranteed in the long-term by excluding the possibility to sell dwellings. Housing cooperatives are a significant part of the housing market in countries as Germany, Denmark and Sweden. There is also growing interest both politically and socially in the Netherlands, but a major take-off has yet not taken place. In the Dutch context, relatively little research has been done on housing cooperatives and has mainly focused on removing barriers in the establishment process. Empirical evidence that there is a market-driven demand for housing cooperatives based on the preferences that people have for this form of housing tenure is lacking. In addition, it is relatively unknown for which target group a housing cooperative is suitable. This study aimed at this gap and for this purpose, the following main question was formulated:

"What is the demand for housing cooperatives in the Netherlands, based on the underlying preferences for housing tenure?"

To answer this question, an explorative study was conducted to better understand people's preferences for forms of housing tenure. The four most common forms of housing tenure in the Netherlands are individual owner-occupied, apartment right, social rent and private rent. The distinctive differences between these forms and the housing cooperative were identified through a literature review and twelve semi-structured interviews. A different bundling of rights and obligations characterises each form and makes them unique. Preferences for the forms of tenure were examined according to the eight main differences (attributes) by means of a stated choice experiment. In an online survey, each respondent was asked eight times to choose between two dwellings. Respondents were also asked about their socio-demographic characteristics to test whether preferences were similar among groups.

Eventually, 1,404 respondents participated in the stated choice experiment of whom 1,073 respondents completed the whole survey. After the data was cleaned, a usable dataset for analyses remained with a sample size of 945 respondents. The results of this study should be interpreted with care as none of the socio-demographic variables of the sample were found to be representative for the Dutch population. However, the results of this study are still of value because new insights were gained.

The data from the stated choice experiment was analysed by use of a multinomial logit model to find generic preferences of people. A latent class model was then used to find out whether people's preferences differ between groups. The results of both analyses show that the monthly cost aspect of a dwelling has the most influence on the choice behaviour for a form of tenure. The latent class model made it possible to identify two classes with relatively similar preferences. However, class one indicated a strong preference for the opt-out in the stated choice experiment, while class two indicated that they do actually want to live in the presented alternatives. Furthermore, differences in the relative importance of the attributes were found. Class one finds it important that they have individual control over the adaptability of their dwelling and that there is no presence of a residential community. The respondents from class two find it more important that there are no annual cost increases. Subsequently, both classes value the possibility of asset accumulation through the dwelling. A difference between the classes in is that class one prefers to be individually responsible for management and maintenance, while class two prefers to have no responsibility in this (external responsibility). The attribute responsibility and control over shared elements, spaces and facilities and the attribute control over neighbours are of less importance for both classes. Based on the preferences for the attributes, class two might prefer to live in a housing cooperative as a form of housing tenure, followed by a preference for an owner-occupied

(individual or apartment) or a social rental dwelling. Respondents in class one indicated that they would rather not live in the alternatives presented but seem to prefer to live in an owner-occupied dwelling. In addition, both classes strongly indicated that they do not want to live in a private rental dwelling.

Based on the attributes in this study, class two indicates a preference to live in a housing cooperative as a form of housing tenure. This class is characterised by people of a relatively young age up to 35 years old, are mostly full-time employed or are students. Most of them rent a dwelling or are living with their parents. The average gross income of these respondents is between 40,000 euro and 100,000 euro on an annual basis, followed by a significant group earning between 20,000 euro and 40,000 euro. On average, respondents in class two are more concerned about their housing costs than the respondents in class one.

The results of this study show that it can be concluded that there is a high demand for affordable housing and that people are willing to look at alternative forms of housing if this results in lower housing costs. Low monthly costs and annual cost increases are typical features of a housing cooperative and, as a result, there is a group of people (48% of participating respondents) who may prefer the housing cooperative as a form of tenure. However, not all aspects of a housing cooperative are preferred, making it difficult to say that the housing cooperative is by definition a more suitable alternative than owner-occupied or social rental dwellings. However, it can be concluded that the housing cooperative is a preferable alternative over private rental dwellings since both classes yield a strong negative utility of private rental dwellings as form of tenure. Considering the socio-demographic characteristics of class two, it was possible to infer that there could be demand for housing cooperatives somewhere between 1.2 and 1.32 million dwellings. However, this estimate may differ from reality as the sample of this study was not found to be representative of the Dutch population.

The housing market in the Netherlands would benefit from more diversity of forms of housing tenure, and therefore it should become easier to set up housing cooperatives. Governments can create more standardisation and guidelines in their policies. They can also draw up strategies in spatial plans and reserve land for housing cooperative projects. Banking institutions should make it easier for housing cooperatives to take out mortgages. Other calculation methods could be considered, like the German GLS bank does. This bank has already financed some projects in the Netherlands, which can serve as an example. Starting housing cooperatives should focus mainly on the ownership structure and less on pursuing idealistic goals that require a residential community. Also, it is recommended to keep decisions and control as much as possible at the individual level as possible. Introducing an aspect of asset accumulation is desirable, but it should be approached with caution as it may threaten the livelihood of a housing cooperative. Governments should also review whether housing associations should be given more space to serve a wider target group. People express a preference to live in an affordable dwelling, which can be achieved through social rental housing.

Future research could focus on repeating this study with a representative sample of the Dutch population. It is also recommended to conduct quantitative research to further identify what people consider important when considering the concept of housing tenure. It also emerged during the interviews that people consider other aspects such as location, floor space of the dwelling more important than aspects of housing tenure. Therefore, it would be interesting to do follow-up research into this and see how these aspects influence people's choice behaviour. For this, a stated choice experiment could be used again, but the recommendation is to include fewer attributes. This study used an unlabelled experiment. It would provide interesting insights to see what form of housing tenure people prefer if they were asked directly whether they prefer to live in an owner-occupied dwelling, rental dwelling or housing cooperative. Also, this study was conducted in a period when housing prices and rental prices are relatively high due to a shortage of houses on the housing market, and also general necessities were high by high inflation. It would be interesting to repeat the study in a period when housing is more affordable, and life is less expensive to see how this affects people's choice behaviour.

ABSTRACT

The Dutch housing market has a shortage of long-term affordable dwellings. The ownership structure of a housing cooperatives ensures that dwellings are guaranteed to be affordable in the long term by excluding the sale of dwellings. This form of housing tenure is almost unknown in the Netherlands but is gaining political and social interest. Empirical evidence that the housing cooperative is a preferred form of housing tenure based on it is attributes is lacking. This study sought to provide evidence that there is a demand for housing cooperatives as a new form of housing tenure. The study used a stated choice experiment to examine underlying preferences for attributes of various forms of housing tenure. Subsequently, it was possible to deduce which form of housing tenure is preferred and to what extent the housing cooperative is a viable alternative. Homogeneous preferences were derived by use of a multinomial logit model which showed that the monthly cost of a dwelling is the most important aspect in choosing a form of tenure. The use of a latent class model made it possible to identify differences in the relative importance of preferences between two classes of respondents (N = 945). The main difference is that class one (52.3%) indicated that they would not choose one of the alternatives presented in the stated choice experiment, however, they seem to prefer an owner-occupied dwelling. The second class (47.7%) might show a preference for the housing cooperative, and it can therefore be concluded that the housing cooperative is a preferred form of tenure. Both groups indicate that at all times the private rental form is not a preferred form of housing tenure.

Keywords: Housing cooperatives; housing tenure; stated choice experiment (SCE); The Netherlands

TABLE OF CONTENTS

LIST OF TABLES **12**
LIST OF FIGURES **13**
ABBREVIATIONS **14**

CHAPTER 1 INTRODUCTION **15**
1.1 Problem Analysis 15
1.2 Aim of this study and research questions 17
1.3 Scope of this research 18
1.4 Scientific relevance 18
1.5 Social relevance 19

CHAPTER 2 LITERATURE REVIEW **20**
2.1 Development and composition of the Dutch housing market 20
2.2 Housing cooperatives 25
2.3 Understanding housing tenure among cooperative housing 29
2.4 Theory on housing and measurement methods 35
2.5 Conclusion 37

CHAPTER 3 METHODOLOGY **39**
3.1 Research model 39
3.2 Comprehensive conceptual model 40
3.3 Interviews and outcomes 40
3.4 Refinement of attributes and conceptual model 42
3.5 Operationalisation of all characteristics 45
3.6 Experimental design 50
3.7 Sample size 51
3.8 Survey design and pilot tests 51
3.9 Data collection 52
3.10 Data preparation 53
3.11 Analysis methods 53
3.12 Conclusion 57

CHAPTER 4 RESULTS & ANALYSES **58**
4.1 Survey participation 58
4.2 Data reliability and preparation 58
4.3 Representativeness of the sample and descriptive statistics 59
4.4 Multinomial Logit model 66
4.5 Latent Class model 70
4.6 Conclusion 77

CHAPTER 5 DISCUSSION & CONCLUSION **78**
5.1 Discussion 78
5.2 Conclusion 79
5.3 Policy and practical implications 82
5.4 Limitations of this study 83
5.5 Recommendations for future research 83

REFERENCES **84**

APPENDIX I **APPROVAL OF ETHICAL REVIEW BOARD 93**
APPENDIX II **INVITATION FOR INTERVIEW 95**
APPENDIX III **INFORMATION SHEET FOR INTERVIEW 96**
APPENDIX IV **CONSENT FORM FOR INTERVIEW 99**
APPENDIX V **INTERVIEW FORMAT 100**
APPENDIX VI **SUMMARIES OF INTERVIEWS 103**
APPENDIX VII **MONTHLY USER COST CALCULATIONS 132**
APPENDIX VIII **FRACTIONAL FACTORIAL DESIGN 134**
APPENDIX IX **BLOCKS OF CHOICE SETS USED IN SCE 135**
APPENDIX X **EFFECT CODING OF SCE VARIABLES 136**
APPENDIX XI **INFORMATION SHEET FOR SURVEY 137**
APPENDIX XII **SURVEY DESIGN 140**
APPENDIX XIII **DATA STRUCTURE WIDE FORMAT 148**
APPENDIX XIV **ADJUSTMENT OF VARIABLES 149**
APPENDIX XV **NLOGIT CODE MNL MODEL 1 ..... 152**
APPENDIX XVI **NLOGIT CODE MNL MODEL 2 ..... 153**
APPENDIX XVII **NLOGIT CODE LC MODEL 2 CLASSES 154**
APPENDIX XVIII **NLOGIT CODE LC MODEL 3 CLASSES 157**
APPENDIX XIX **NLOGIT CODE LC MODEL 4 CLASSES 160**

LIST OF TABLES

Table 1 Overview of dwellings within a housing cooperative in European countries 16
Table 2 Differences between the types of housing tenure from a consumer perspective 30
Table 3 Bundle of rights 32
Table 4 Long list of forms of housing tenure and attributes from a consumer perspective 34
Table 5 Characteristics of respondent of the interviews 41
Table 6 Refined list of attributes 42
Table 7 List of attributes and levels included in the stated choice experiment 45
Table 8 Forms of tenure with corresponding attributes and levels 46
Table 9 Socio-demographic characteristics included in the survey 48
Table 10 Household characteristics included in the survey 49
Table 11 Statements residential situation 49
Table 12 Effect coding structure 53
Table 13 Sociodemographic variables of the sample compared with CBS statistics 60
Table 14 Outcomes of both MNL models 66
Table 15 Goodness of fit parameters of estimated MNL models 67
Table 16 Utility calculations for all forms of tenure 69
Table 17 Model fit and diagnostic criteria of LC models 71
Table 18 Outcomes LC model 71
Table 19 Utility calculations for all forms of tenure in class one 73
Table 20 Utility calculations for all forms of tenure in class two 74
Table 21 Differences in socio-demographic characteristics of latent classes 75
Table 22 Differences in experiences current residential situation of latent classes 76
Table 23 Average user costs for owner-occupied forms of tenure 132
Table 24 Distribution of the households living in a single-family dwelling by rent segment 133
Table 25 Average user costs for private rent and social rent as form of tenure 133

LIST OF FIGURES

Figure 1 Housing cooperatives as part of housing associations in the Netherlands 21
Figure 2 Development of the Dutch housing stock since 1947 21
Figure 3 Composition of the Dutch Housing Stock in 2021 24
Figure 4 Timeline with main events regarding the housing cooperative in the Netherlands 24
Figure 5 Dispersed ownership structure of a housing cooperative 26
Figure 6 Organisational structure of workgroups in a housing cooperative 27
Figure 7 Measurement methods for preference and choice 37
Figure 8 Research model of this study 39
Figure 9 Comprehensive conceptual model 40
Figure 10 Conceptual model 44
Figure 11 Overview of respondents that quit on a specific page during the survey 58
Figure 12 Distribution of respondents over the blocks of choice sets 59
Figure 13 Sample distribution of age 61
Figure 14 Sample distribution of gender 61
Figure 15 Sample distribution of education level 62
Figure 16 Sample distribution of ethnicity 62
Figure 17 Sample distribution of employment status 63
Figure 18 Sample distribution of current tenure 63
Figure 19 Sample distribution of household composition 64
Figure 20 Sample distribution of household income 64
Figure 21 Sample distribution of concerns about housing costs 65
Figure 22 Sample distribution of nuisance from neighbours 65
Figure 23 Sample distribution of satisfaction about current dwelling 65
Figure 24 Sample distribution of satisfaction about current living environment 65
Figure 25 Visualised part-worth utilities MNL 2 model 68
Figure 26 Relative importance of attributes in MNL 2 model 69
Figure 27 Visualised total utility per form of housing tenure 69
Figure 28 Visualised part-worth utilities latent classes 72
Figure 29 Relative importance latent classes 73
Figure 30 Visualised total utility per form of housing tenure for each latent class 74

ABBREVIATIONS

AIC	Akaike information criterion
BIC	Bayesian information criterion
LC	Latent Class
LL	Log-Likelihood
MNL	Multinomial Logit model
SCE	Stated Choice Experiment

CHAPTER 1
INTRODUCTION

The introduction provides a problem analysis of the Dutch housing market in terms of affordability and availability of dwellings. It then describes the objective of this study followed by the research questions. The relevance of this study from both scientific and social perspective is elucidated as well.

1.1 Problem Analysis

In recent decades, the central government of the Netherlands has relied a lot on the problem-solving capacity of the market and decentralised policy (Boelhouwer & van der Heijden, 2022). The central government acknowledges that for too long it has been thought that the market would solve problems in terms of availability and affordability by meeting the high demand for dwellings (Ministry of the Interior and Kingdom Relations, 2022a). With the appointment of a minister and the newly presented policy plans, the government has taken more central control than it has had in recent years (Boelhouwer & van der Heijden, 2022; Verheul & Hobma, 2022). However, in its new policy plans, the central government still insists on the ability of market parties to solve problems. Up to and including 2030, the central government wants to build 900,000 additional dwellings to reduce the problems on the housing market. Of those, 600,000 dwellings should be added by market parties, of which over 300,000 should be affordable dwellings (Ministry of the Interior and Kingdom Relations, 2022a). About market parties, it is known that they operate in a market to make a profit. They will seek to maximise profits and benefit from scarcity which drives up prices (Van Staveren, 2022; Wolff, 2016). Scarcity keeps the need for dwellings and prices high which makes it more profitable to develop more expensive alternatives.

Verheul and Hobma (2022) state that the past has shown over and over again that construction always lags behind set targets, making scarcity a structural problem. In the past, other policy instruments, such as filling deficits in municipal land holdings, have had a price-driving effect and have not resulted in improvements in terms of housing market availability and affordability (Hochstenbach, 2022; Verheul & Hobma, 2022). If systematic changes in the housing market are not considered, large-scale breakthroughs should not be expected (Verheul & Hobma, 2022). It is difficult for outsiders to find housing but especially the people who are earning too much for social housing but not enough to buy a house for themselves. This group falls between two stools, so to speak (Czischke, 2014; Hoekstra & Boelhouwer, 2014). Jonkman (2021) also says that if market reaction remains low, few additional dwellings will be built, which will not improve the position of outsiders on the housing market. He therefore calls for a focus on securing affordable housing opportunities for diverse groups instead of a focus on market dynamics and responsiveness.

Large public (government) and private parties (developers) have the upper hand in the Dutch housing market. The user who needs a dwelling to live experiences all the adverse effects of this imperfect market. Verheul en Hobma (2022) suggest that in order to have enough affordable dwellings in the long-term, it is important to look at transitions at system level. One of these transitions is the development of housing cooperatives which add a third type of housing tenure besides owner-occupied and rental dwellings to the housing market. The cooperative form of organisation guarantees long-term affordability and is available to a broad target group. Ahedo et al. (2021) also indicates that the private property sector (home ownership and private rental) is becoming increasingly dominant and a critical source of social inequality and instability. He also states that the cooperative form of housing is a viable alternative with a socio-spatial cohesion effect.

A housing cooperative is defined in this study as an autonomous organisation of individuals who voluntarily unite to look after their common housing needs and aspirations through a non-profit enterprise, which they jointly own and democratically manage and control together (Lengkeek & Kuenzli, 2022). A housing cooperative is not completely new in the Netherlands but is currently in a niche market. There are about 1,000 to 2,000 dwellings in the Netherlands which are under a form of a housing cooperative (Briene et al., 2021). Abroad, the number of dwellings within a housing cooperative is larger, making them a significant part of the housing stock (see **Table 1**).

Table 1
Overview of dwellings within a housing cooperative in European countries

Country	Total housing stock	Number of dwellings within a housing cooperative as part of the total housing stock
Denmark	2.600.000	201.000 (7,5%)
Sweden	4.900.000	1.200.000 (24%)
Austria	4.000.000	655.500 (16%)
Germany	41.400.000	2.100.000 (5%)
Switzerland	4.600.000	193.000 (4%)
The Netherlands	8.000.000	2.000 (0,025%)

Source. Derived from Briene et al. (2021).

However, housing cooperatives have attracted increasing interest and attention in recent years. Little by little, there are more news articles about new developments and initiators (Savini & Jepma, 2021; Van Geuns, 2022; Weel, 2022). According to knowledge platform CoopLink (n.d.-a), it is estimated that there are currently about 165 initiatives that fall under a certain form of a housing cooperative in the Netherlands. A large breakthrough of housing cooperatives is lacking. This is partly explained by contextual factors standing in the way of housing cooperatives being able to scale up (CoopLink, 2022; Czischke, 2018; Duivesteijn, 2018; Zonneveld & Lupi, 2018). In addition, Czischke (2018) points out that Dutch people are not used to arranging their housing needs themselves since they are generally well looked after. This is partly rooted from the welfare state, where traditionally social housing was accessible to a very broad target group and owner-occupied houses were made accessible to citizens through financial incentives (Beekers, 2012).

The current Minister of Housing and Spatial Planning (H. de Jonge) indicated that he believes it is important for initiatives such as housing cooperatives to be embraced and made to a success. Housing cooperatives have the ability to create communities, which contributes highly to the liveability of areas (De Jonge, 2023). In general, there is a political trend in which politicians are charmed by self-organisation and self-management since participation and involvement play a major part in this (Bossuyt, 2020). The municipality of Amsterdam and the municipality of Rotterdam are currently the two leading municipalities in the Netherlands that have published specific policies about housing cooperatives (CoopLink, n.d.-b). The municipality of Amsterdam has even set a target that by 2045 at least ten percent of the Amsterdam housing stock should be part of some form of cooperative housing (Gemeente Amsterdam, 2020).

Research data from Wassenberg et al. (2022) show that 17 percent to 25 percent of the total housing seekers would like to see "something" of a shared housing desire. International experience shows that housing cooperatives account for at least 5 percent of the total housing stock (Briene et al., 2021;

Wassenberg et al., 2022). Wassenberg et al. (2022) also states that this could potentially mean that there is a demand for 400,000 dwellings under a form of cooperative housing in the Netherlands. However, empirical evidence showing that there is an actual demand for housing cooperatives is not available in the literature. In addition, research by Ahedo et al. (2021) mentions that the target group served by housing cooperatives has not yet been sufficiently researched.

Most research has looked at the barriers in establishing a housing cooperative. Overcoming these barriers is partly on the political agenda but is currently not part of targeted policies. Actual empirical evidence that investigated the demand based on the needs and preferences that people have when it comes to housing tenure has not been examined. The question for whom and how many people a housing cooperative is a suitable form of housing tenure remains underexplored as well.

1.2 Aim of this study and research questions

This study aims to explore the demand for housing cooperatives in The Netherlands. Specifically, it will investigate what preferences people have when choosing a form of housing tenure. As a result, it will be examined whether the housing cooperative is a preferred alternative. Furthermore, this study will also explore for which target groups the housing cooperative can be a suitable form of housing.

The result of this research provides information that is relevant to design strategic policies on housing. By identifying the quantitative demand, targeted policies can be developed to encourage this new form of housing. These outcomes can contribute to a more inclusive and sustainable housing policy.

To this end, the following main question is formulated:

> *"What is the demand for housing cooperatives in the Netherlands, based on the underlying preferences for housing tenure?"*

To answer the main question and provide more structure to the study, six sub-questions have been formulated.

To find out what position the housing cooperative can have in the Dutch housing market, it is important to study its context. Therefore, the current forms of housing tenure in the Netherlands will be identified. The research also looks at how the housing market has developed over the past to understand how the current forms have been established.

Sub-question 1: "*What forms of housing tenure does the current housing market in the Netherlands have and how have these developed over the past?"*

To determine if the housing cooperative can be a suitable alternative, it is important to identify all the characteristics that different forms of housing tenure have. Therefore, it is first necessary to examine what the process of a housing cooperative looks like and how it can successfully be exploited. The literature also mentions that it is good to look at examples from abroad. In other European countries, housing cooperatives are already a significant part of the housing market (Czischke, 2018). Examining successful practices abroad can lead to new insights into characteristics that people might have as need or preference. After that, the comparison can be drawn up between the characteristics of different housing types. An overview follows of which strengths and weaknesses belong to which form of housing.

Sub-question 2: *"What does the process of establishing a housing cooperative look like, and what are the critical success factors and limitations for developing and managing a housing cooperative?"*

Sub-question 3: *"What are the main lessons that can be learned from housing cooperatives from other countries?"*

Sub-question 4: *"What are the characteristics of different forms of housing tenure (including housing cooperatives) in the Netherlands, and what are the differences?*

Since housing cooperatives are largely unknown to Dutch citizens and do not really know what they entail, it is difficult to investigate whether people are willing to start a housing cooperative (Bossuyt, 2020). However, it is possible to investigate which characteristics citizens consider to be important when it comes to housing tenure. Based on the needs and preferences that people have, it can be investigated whether the housing cooperative could in potential be a viable alternative form of housing for citizens in the Netherlands.

Sub-question 5: *"What do people consider important when it comes to housing tenure, and based on these characteristics, could the housing cooperative be a good alternative?"*

Currently, it is somewhat unknown for what type of citizens it is possible to set up a housing cooperative. The issue is whether housing cooperatives can also be an attractive form of housing for more vulnerable people (Ahedo et al., 2021). Also, it is not immediately clear from the literature for which target groups the housing cooperative can be a suitable alternative form of housing.

Sub-question 6: *"For which people can a housing cooperative be an attractive alternative form of housing in the Netherlands looking at differences in preferences among groups?"*

1.3 Scope of this research

The scope of this research focuses on gaining insight into the demand for housing cooperatives as an alternative form of housing tenure in the Netherlands, compared to existing forms. Therefore, the research focuses on the differences between forms and understanding these differences in relation to the preferences of people. The scope is therefore mainly on the organisational aspect of housing cooperatives and not on people's desire to live together in a collective manner.

This study focuses on identifying the demand for housing cooperatives by looking at whether people have a preference to live in a housing cooperative compared to other traditional forms of tenure. Therefore, it does not further examine the barriers and limitations that exist as contextual factors, but more on the essential characteristics that are necessary for a housing cooperative to sustain in the long-term once established. Individual cases will therefore not be considered, and the focus will be more on a broader view.

1.4 Scientific relevance

There is still a limited amount of research in the Netherlands on housing cooperatives in general and their potential as an alternative form of living in the Dutch housing market. However, research is being done on the subject of collaborative housing. Often the principles and basics of these studies are in line with studies on housing cooperatives. Collaborative housing is also referred to by Czischke et al. (2020)

as the umbrella designation for various forms of housing. The housing cooperative is currently mentioned here as a form of it.

Although most research has been done internationally, it is still important to investigate the specific Dutch context to get a realistic view on the potential demand of housing cooperatives in the Netherlands. This research will therefore contribute to the existing knowledge on housing cooperatives and can serve as a basis for further scientific studies and policy development in this field.

From an international perspective, there is currently a lack of research on the preferences and decisions underlying in the choice for housing tenure, especially with the housing cooperative as one of the options. An analysis of the Dutch housing market can provide valuable insights that contribute to scientific knowledge on the subject.

1.5 Social relevance

The social relevance of this research is high, as it contributes to exploring an alternative form of housing that may offer long-term affordability for households in the Netherlands. By investigating the preferences of people regarding housing cooperatives, it is possible to understand the potential demand for this form. This can help reduce problems such as a shortage of affordable housing, housing uncertainty and lack of tenant participation. Moreover, this research can help develop policies and strategies to increase and improve the availability and accessibility of housing cooperatives, which can have a positive impact on the society as a whole.

CHAPTER 2
LITERATURE REVIEW

The literature review answers sub-questions 1, 2, 3 and 4. It first identifies which forms of tenure are mainly present in the Netherlands and how governance influences have played a role in this. It then answers how forms of housing tenure differ. Furthermore, it discusses what is required to investigate preferences for housing tenure and what determinants influence the forming of these preferences.

2.1 Development and composition of the Dutch housing market

This section provides an introduction on how the Dutch housing market evolved over time. This is followed by an overview of the main influences from a governmental perspective that influenced the composition in terms of tenure of the Dutch housing market. The understanding of housing development provides valuable background information on the functioning of the Dutch housing market.

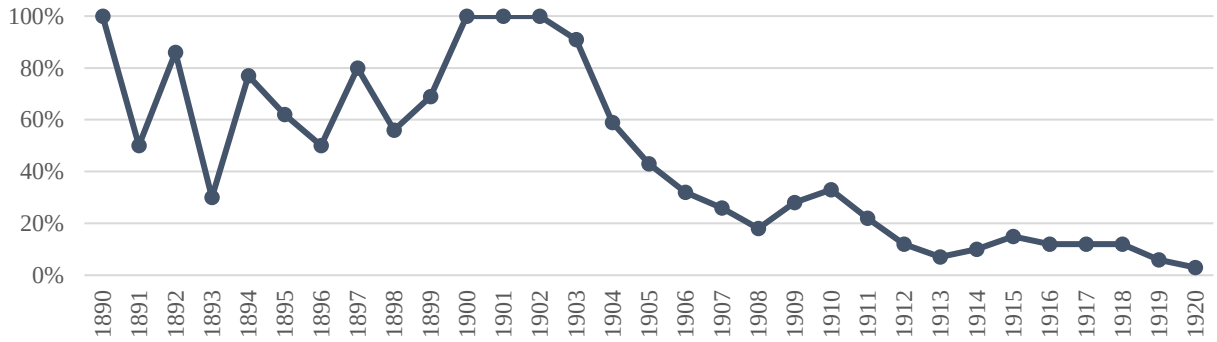
2.1.1. The rise and fall of housing cooperatives in the Netherlands

Most of the larger cities in the Netherlands faced poor housing conditions in the 19th century. Many workers were living in small one-room dwellings without sewers and access to fresh and clean water (Lengkeek & Kuenzli, 2022). These living conditions resulted in four major cholera outbreaks causing over 50,000 deaths as result (Lengkeek & Kuenzli, 2022). There was plenty of work to be found in the cities due to the industrial revolution, causing more people to move from rural areas to cities. The growing mass of people in need of good-quality housing led to philanthropic ideas among some employers to provide housing. They feared that dissatisfaction over housing conditions would lead to labour unrest, robberies, riots or other forms of violence (Ahedo et al., 2021; Beekers, 2012; Bossuyt, 2020; Elsinga & Wassenberg, 2014; Goedhart, 2023). They observed that a worker whose living conditions are improved is also a more loyal and productive employee (Elsinga & Wassenberg, 2014; Lengkeek & Kuenzli, 2022). As a result, the first housing association was founded in 1852: the Vereeniging ten behoeve der Arbeidersklasse te Amsterdam. This association raised capital by issuing shares for which their shareholders received moderate interest. The capital raised was used to build affordable good-quality housing for the working class. Housing cooperatives emerged among workers around the same time, which were self-organising organisations with the aim of building affordable dwellings for themselves and other workers. They often used similar structures as the housing associations of that time (Beekers, 2012; Bossuyt, 2020; Lengkeek & Kuenzli, 2022).

The government understood that good-quality housing improved people's living conditions with less riots and violence as a result. They intended to regulate the housing market through private initiatives and introduced the first Housing Act of the Netherlands in 1901. This law established the foundations that still dictate the main structure of the Dutch housing market of today (Lengkeek & Kuenzli, 2022). Housing associations and housing cooperatives could henceforth rely on subsidies, guarantees and (state) loans from the central government (Beekers, 2012; Elsinga & Wassenberg, 2014). To do so, the organisations had to be registered as 'ad Institutions' (Elsinga & Wassenberg, 2014; Lengkeek & Kuenzli, 2022). Politicians no longer saw housing as a private project of citizens, but as a public task and therefore started to strive for efficiency and decisiveness. They feared that government support would be abused by permitted institutions and demanded that they would only act in the interest of public housing (Beekers, 2012).

There was a lot of confusion about the conditions that permitted institutions had to meet in order to receive the status of a permitted institution. Clarification was provided in 1905. Permitted institutions were placed under the direct supervision of the central government, they were not allowed to interfere with market forces, financial support had to be invested exclusively in public housing and they had to charge market rents. Housing cooperatives and associations were dependent on the financial willingness and resources of their members. Therefore, they worked with cost-covering rents and a minimum return for their shareholders which often made it impossible to charge market rents (Bossuyt, 2020; Lengkeek & Kuenzli, 2022). An example is the Amsterdam association Rochdale which had its statutes changed in 1906 to ensure that market rents could be charged (Lengkeek & Kuenzli, 2022). Other cooperatives also had their statutes changed and turned into corporate foundations. They abandoned their democratic self-governing characteristics and shaped themselves into executive instruments of the central government (Beekers, 2012). **Figure 1** shows that shortly after 1920, all housing cooperatives in the Netherlands were disappeared (Beekers, 2012; Bossuyt, 2020).

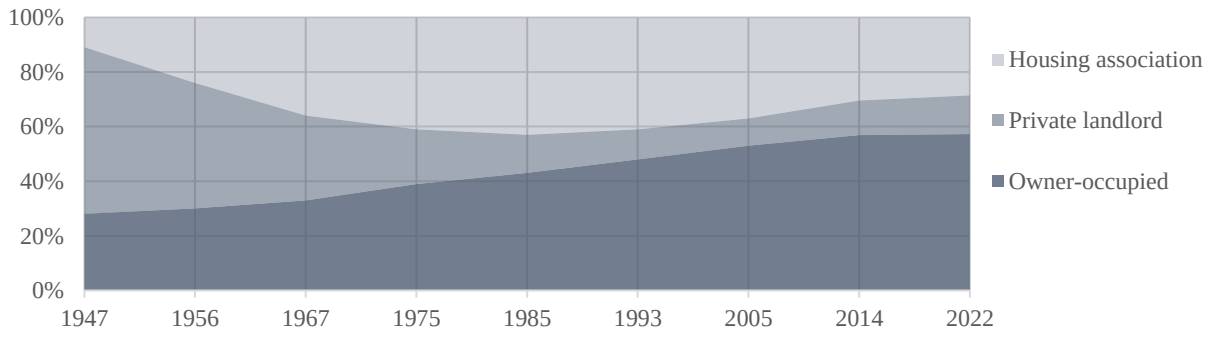
Figure 1
Housing cooperatives as part of housing associations in the Netherlands



Source: Bossuyt (2020)

After World War II, there was a big challenge at national level to quickly build dwellings of good quality. The housing associations were given an important task in this. Gradually, many hundreds of thousands of dwellings were added in the following years (Hoekstra, 2017; Musterd, 2014). The share of rental segment managed by housing associations grew from 11 percent to 24 percent in ten years as can be seen in **Figure 2**.

Figure 2
Development of the Dutch housing stock since 1947



Note. Numbers of previous years are not available.
Sources: CBS *(2023h)* and Elsinga & Wassenberg (2014).

There was a small revival for the cooperative ideology between the 1960s and 1970s. Housing associations were criticised by Politicians for their lack of democracy. A cooperative model was proposed to ensure that the democratic aspect would be realised at the core of the corporations (Beekers, 2012). This development was eventually blocked by the umbrella organisations that represented the housing associations. They believed that more control by tenants would lead to negative consequences in terms of effectiveness and efficiency (Bossuyt, 2020). During the same period, owning a dwelling was made increasingly attractive by financial benefits such as the mortgage interest deduction and therefore resulted in more people becoming owner-occupiers, which can be seen in **Figure 2** (Ahedo et al., 2021).

2.1.2. Public housing in the nineties (‘The memo of Heerma')

In 1988, it was revealed that control over the provision of construction subsidies was seriously lacking and resulted in fraud (Beekers, 2012). Politicians used this as a motive to introduce more market mechanisms and efficiency thinking into housing policy (Lengkeek & Kuenzli, 2022). The policy document 'public housing in the 1990s' facilitated that more commercial parties could operate in the social rented sector (Elsinga & Wassenberg, 2014). Also, the responsibility to ensure sufficient social housing was decentralised to municipal level, and were instructed by the central government to reduce public spending on social housing (Hochstenbach, 2022; Koffijberg, 1997). Henceforth, housing associations had to meet specific performance fields in order to be eligible for government subsidies. It was also seen that they increasingly adopted a governance model inspired by the corporate sector whereby volunteers had to make way for professionals (Beekers, 2012; Dieleman, 1999).

Until then, housing associations were allowed to house all population groups which guaranteed decent housing for everyone. Politicians believed that many high-income people benefited from low rents by living in social housing (Elsinga & Wassenberg, 2014; Hochstenbach, 2022). From then on, lower-income households were given priority to be considered for social housing (Elsinga & Wassenberg, 2014). The liberalisation threshold was introduced to determine whether a rental property falls in the social or free rental segment. If a dwelling has a quality score above this limit, the dwelling falls in the free rental segment without maximum rents. Before that, all rental properties in the Netherlands were regulated by this point system (Hochstenbach, 2022). The final change by this memo was the founding of the Central Fund for Public Housing (CFV) and the Guarantee Fund for Social Housing (WSW) to make the social housing sector less dependent on the central government (Elsinga & Wassenberg, 2014).

2.1.3. Grossing and balancing operation

Expenditures on social housing amounted to almost 10 percent of the national budget. European monetary policy required budget deficits and sovereign debt to be reduced in view of the introduction of the common Euro currency. The result was a grossing and balancing operation which is considered to be the most fundamental reform in the history of social housing (Beekers, 2012). Housing associations had loans outstanding with the state amounting to a total of about 30 billion guilders. Part of these loans had been used to co-finance the post-war housing stock. The subsidies housing associations would still receive from the state were about the same size as the debt. From that perspective, these two posts were cancelled out against each other with the result that housing associations were no longer financially dependent of the central government (Beekers, 2012; Dieleman, 1999). Housing associations became independent companies with a social mission and from now on they had to behave more as a market party in order to sustain their existence (Priemus, 2013).

2.1.4. Abuses in the social rental sector and new regulations

Many housing associations moved away from the association model and adopted the form of a foundation. This was followed by an enormous wave of mergers among housing associations. The commercialisation and scaling-up of the social rental sector eventually led to several scandals resulting in losses running into hundreds of millions of euros (Beekers, 2012). A parliamentary inquiry was

organised based on these major scandals which concluded that the moral compass of directors of large housing associations was inadequate and led to fraud and corruption. Directors were able to operate so freely because there was little to no supervision (Elsinga & Wassenberg, 2014; Hoekstra, 2017). The recommendations of this inquiry created new laws and regulations which were presented in the revised Housing Act of 2015 (Aalbers et al., 2017). The objective of reducing the social rented sector and increasing its focus on the lower income group was continued. The so-called skewed tenants had to be incentivised to move on to the free rental market, and to achieve this, people with higher incomes in social rented housing could from then on receive a higher annual rent increase (Hoekstra, 2017).

2.1.5. Revised Housing Act of 2015

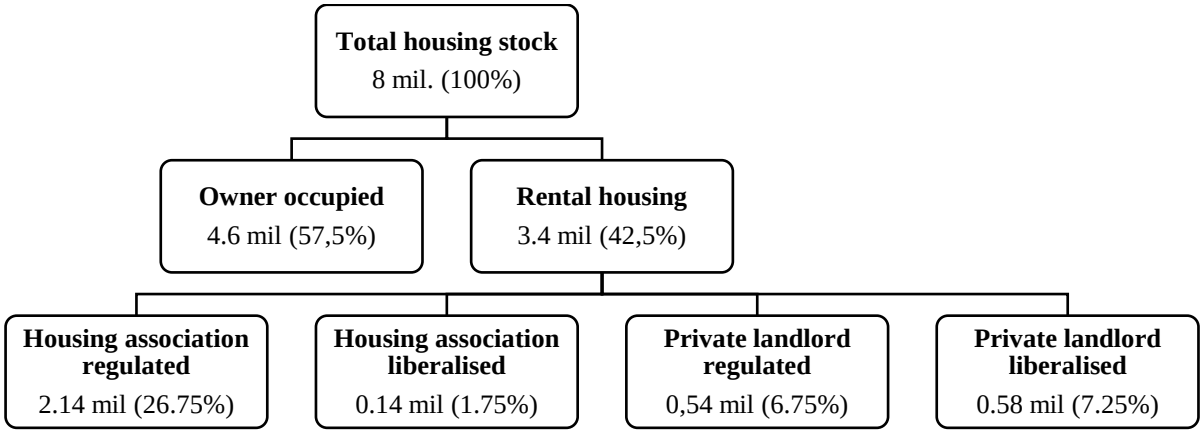
A new authority (AW) became the regulator of the housing association sector which replaced the CFV. And from then on, 90% of all upcoming vacant social housing units that are owned by housing associations had be allocated to households with an lower income (Elsinga & Wassenberg, 2014; Hoekstra & Boelhouwer, 2014; Priemus, 2013). This resulted in a problem for middle-income households and made the Netherlands look more like a dualistic rental sector in which social housing is only accessible to the less wealthy (Elsinga et al., 2008; Hoekstra, 2017; Hoekstra & Boelhouwer, 2014; Priemus, 2013; Van Duijne & Ronald, 2018).

The revised Housing Act also includes an article on housing cooperatives. Despite the fact that the article leaves much open to interpretation, it legally embedded the concept of a housing cooperative (Ahedo et al., 2021). After the amended Housing Act the housing cooperative found more societal interest and more initiatives were started, but a large-scale take-off of the housing cooperative remains absent so far.

2.1.6. Current composition of the Dutch housing market

The Dutch housing market can be divided into owner-occupied dwellings and rental dwellings in which higher-income households are more likely to house themselves in owner-occupied dwellings and lower-income households mainly in social housing (Hoekstra & Boelhouwer, 2014). The rental market is characterised by mainly two different landlords: housing associations and private landlords. In addition, the rental sector is divided into the social sector and the liberalised sector, also known as the free market (Janssen-Jansen & Schilder, 2015). The maximum rental price of dwellings is determined by use of a point system (woningwaarderingsstelsel, WWS). This system counts the number of qualitative points based on the characteristics of the dwelling. If the number of points and corresponding maximum rent exceeds the liberalisation threshold, the dwelling is considered to be in the free rental sector (liberalised). Landlords are then allowed to decide the rent they charge. If the maximum rent falls below the liberalisation limit, then the dwelling is considered to be in the social rented sector and subject to regulation. In 2023, the liberalisation limit is set at a number of points with a rent of 808.06 euro per month (Ministry of the Interior and Kingdom Relations, 2022b). Also, the central government determines annually the maximum indexation of rents for the social rental sector (Aedes, n.d.; Van Duijne & Ronald, 2018). The complete composition of the Dutch housing market is shown in **Figure 3**.

Figure 3
Composition of the Dutch Housing Stock in 2021

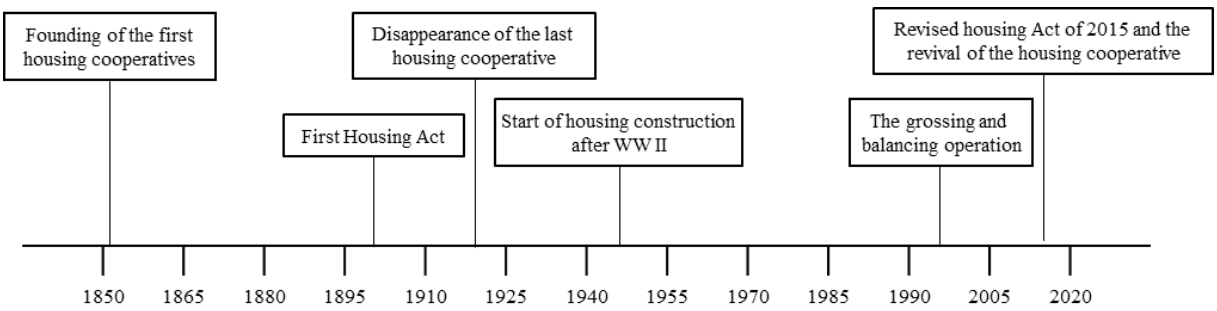


Note. Derived from Briene et al. (2021).
Sources: CBS *(2023h)* and Stuart-Fox et al. (2022).

Concluding remarks

The housing cooperative had its origins in the Netherlands around 1850, but the consequences from governmental considerations meant that the concept had no chance to sustain. Politicians were committed to a strong social housing sector, which was very important for the reconstruction of the Netherlands after the second world war. From the 1960s, financial benefits made it attractive to possess an owner-occupied dwelling. The number of rental dwellings declined, and the number of owner-occupied dwellings continued to increase. More and more restrictive measures were simultaneously imposed over time for the social housing sector, resulting in more market mechanisms and serving a smaller target group. The scandals in the social housing sector resulted in the revised Housing Act of 2015, which also included a new legal basis for the concept of the housing cooperative. Since then, the housing cooperative has been finding more social interest and has been on the political agenda. It has not yet become part of housing policies and a major revival of the concept remains outstanding up to now.

Figure 4
Timeline with main events regarding the housing cooperative in the Netherlands



2.2 Housing cooperatives

This section discusses what a housing cooperative is and what the necessary characteristics are to function in the long term. It draws on experiences from other countries in particular Sweden, Denmark and Germany as housing cooperatives here have a long established history and make a significant part of the total housing stock (Bossuyt, 2020; Reynolds, 2018). Many different types of housing cooperatives can be found these days which differ cross-nationally (Fahrner et al., 2019). Therefore, it was first defined what a housing cooperative really is and examined what organisational characteristics this form of housing has. Despite the fact that housing cooperatives differ in each country due to differences in laws and regulations, they almost always arise from the same common principles (Balmer & Gerber, 2018).

What are housing cooperatives?

The International Co-operative Alliance (ICA) has provided a definition of what a co-operative is and has often been used by housing literature to describe the core values of a housing cooperative, which are collective ownership, democratic self-governance, cost-based rent, and autonomy (Aernouts & Ryckewaert, 2019; Balmer & Gerber, 2018; Barenstein et al., 2022; Birchall, 2003; Bossuyt, 2020; Fahrner et al., 2019). Also Lengkeek & Kuenzli (2022) used the definition of the ICA and applied it to the case of a housing cooperative. Their definition is the most comprehensive and has therefore been used in this study.

"A housing cooperative is an autonomous organisation of individuals who voluntarily unite to look after their common housing needs and aspirations through a non-profit enterprise which they jointly own and democratically manage and control together" (Lengkeek & Kuenzli, 2022, p. 213).

Cooperative housing is referred to in the literature as a form of collaborative housing. All these forms rely on a certain collaboration among residents and therefore, housing cooperatives show many similarities with other forms of collaborative housing, such as cohousing, self-help and self-build initiatives, community land trusts and collective living (Czischke et al., 2020; Guity Zapata & Stone, 2022; Lang et al., 2020). Housing cooperatives distinguish themselves from all other forms through collective ownership as form of tenure instead of individual ownership (owner-occupied) or external ownership (rent) (Bossuyt, 2020; Fahrner et al., 2019; Larsen, 2019). This makes the housing cooperative owner of the building and indirectly her members which makes self-governance an important attribute (Bossuyt, 2020).

2.2.1. The functioning of a housing cooperative

Ruonavaara (2012) indicates that housing cooperatives arise due to that people are being indirectly forced to unite and jointly deal with the problems they face such as housing shortage and high housing costs. Turner & Canning (2015) also mention that housing cooperatives emerge as an answer to housing issues but that they also try to address more fundamental issues, such as social isolation, marginalisation community building and identity creation.

The main strength of a housing cooperative is that it provides long-term affordable housing which is guaranteed since the sale of dwellings is statutorily excluded. As result, individual profits cannot be made and incentives to speculate with dwellings will therefore no longer be attractive (Archer, 2022; Balmer & Gerber, 2018; Barenstein et al., 2022; Bossuyt, 2020; Brandsen & Helderman, 2011). The effect is that members of the housing cooperative place the user value of housing above the economic value and will strive for a cost-covering price (Balmer & Gerber, 2018; Bossuyt, 2022; Fahrner et al., 2019). Members of a housing cooperative pay a monthly cost-based rent to cover all the necessary costs, including their collective mortgage, maintenance and management (Bruun, 2018; Fahrner et al., 2019). This holds as well that annual indexation of rent only applies when it is considered to be necessary in

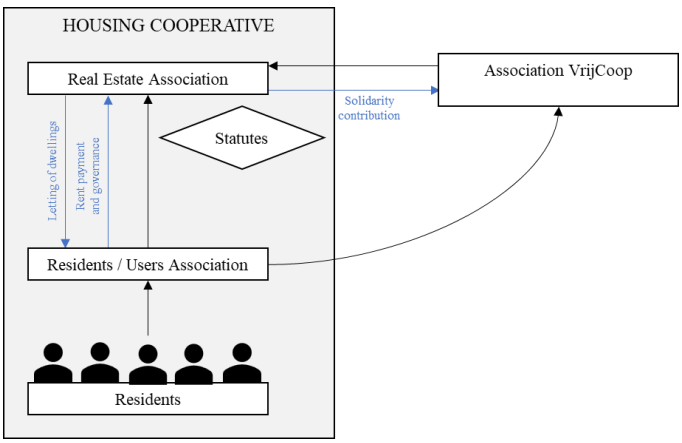
order to ensure costs remain covered. A lower till no indexation of rent ensures long-term affordability (Balmer & Gerber, 2018).

Examples from Germany, Sweden and Denmark show that they can thrive well once established if there are no incentives to make risky investments (Brandsen & Helderman, 2011). However, experiences show that when laws and regulations enable people to make risky investments, they will take advantage of that opportunity. In Denmark it is common that people buy themself into a housing cooperative through equity shares. Since 2001, members of a housing cooperative also have the possibility to hold an individual mortgage against the share that they hold, next to the collective mortgage they have in the cooperative (Bruun, 2018). The value of shares of housing cooperatives rose rapidly, making the housing cooperative no longer an illiquid instrument for pursuing collective housing needs but also an investment asset for individual members. As a result, the long-term affordability characteristic was lost as the purchase value for new members had increased a lot (Bruun, 2018).

A similar trend can be seen in Sweden, where housing cooperatives (bostadsrätt) have long functioned successfully as alternative that guaranteed affordable housing since it was not allowed to trade with these dwellings on the housing market. In recent years, laws and regulations have been changed and enabled the trading of dwellings. The fundamental characteristic is lost and the housing cooperatives in Sweden function more as an investment security (Bossuyt, 2020; Ruonavaara, 2005).

It can be concluded that excluding financial incentives through sales should be ruled out at all times. In the Netherlands it is legally not possible to ensure this aspect since an association has the legal possibility to change statutes (Conijn, 2022). This barrier can be overcome when ownership rights are partly dispersed with an overarching party (Griffith et al., 2022). For example, in Germany there is the Mietshäuser Syndikat and in the Netherlands there is VrijCoop. These are umbrella associations that exist out of members of other housing cooperatives and hold a certain share of the ownership rights. The sole purpose of these organisations is to prevent the sale of dwellings (VrijCoop, 2019). **Figure 5** shows how the organisational structure works. Two associations have been established within the housing cooperative, the real estate association and the residents' association. The real estate association owns the dwellings and has two members. The residents' association and the external association VrijCoop. If the real estate association would want to sell its dwellings, the statutes need to be changed. VrijCoop has a veto right on statute changes regarding the sale of dwellings. As a result, the housing cooperative can never decide to sell the dwellings (VrijCoop, 2019).

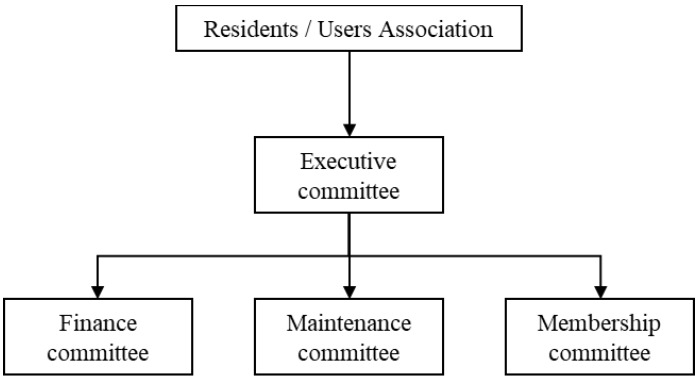
Figure 5
Dispersed ownership structure of a housing cooperative



Note. Adapted from VrijCoop (2019)

Guity Zapata & Stone (2022) make a distinction for successfully managing housing cooperatives in the requirements from human participation (such as authorities and direct users) and non-human factors (such as laws and regulations and technical resources). In the exploitation phase of a housing cooperative, it is required that the members of the cooperative ensure that their own housing needs are met. This involves residents themselves taking control over coordinating or carrying out management and maintenance work and other decision-making processes regarding their housing needs, which is often done in workgroups (Bruun, 2018; Guity Zapata & Stone, 2022). **Figure 6** shows how a resident's association is further divided into an executive committee with underlying working groups.

Figure 6
Organisational structure of workgroups in a housing cooperative



Note. Adjusted from Turner & Canning (2015)

Housing cooperatives do not only provide affordability but can also add new-build dwellings to the housing stock, but this requires help from external institutions who provide space for the development of housing cooperatives (Brandsen & Helderman, 2011). The development process of establishing a housing cooperative depends on market conditions and on how institutions and regulations are organised (Brandsen & Helderman, 2011; Savini & Bossuyt, 2022). If housing cooperatives are given the space to establish themselves, they could form a new significant commissioning party in the housing market. However, the real estate development process is a slow and long-term process involving many different development phases (Reed & Sims, 2015). Therefore, it is not likely that housing cooperatives can meet the housing shortage in the short term.

The dependency on other parties conflicts with the aspect of a housing cooperative being as much autonomous as possible (Bossuyt, 2020). The German housing cooperatives (Genossenschaften) are doing well since the housing market assumes less competition between forms of tenure (Brandsen & Helderman, 2011). It is difficult to build dwellings at cost price when strong competition is present with a free housing market, which comes at the expense of affordability (Bossuyt, 2020). However, housing cooperatives cannot function without support from external stakeholders. The housing market is a difficult and complex market which requires knowledge and skills to operate (Brandsen & Helderman, 2011; Reed & Sims, 2015).

The autonomous feature also allows members to decide who can be admitted to the housing cooperative (Turner & Canning, 2015). This helps to create a community more quickly as the residents only tend to accept people who have shared standards and values that the cooperative may pursues (Fahrner et al., 2019; Savini & Bossuyt, 2022). The aspect of a community is mentioned as an important motive for living in a cooperative, which is more common for countries with an liberal economic system (Guity Zapata & Stone, 2022). A community is created and works best when starting from a relative small-

scale community since the shared interests are more obvious to all members when the cooperative is not too large. This results in the effect that members are more likely to recognise that there is a personal interest in the shared interest which makes residents develop a sense of responsibility to deal with the shared problems (Brandsen & Helderman, 2011; Turner & Canning, 2015).

The experience in Germany is that the sense of community varies greatly among housing cooperatives (Brandsen & Helderman, 2011). Cooperatives that tend to have a strong community presence often focus on the pursuit of ideals such as sustainability or social inclusion (Fahrner et al., 2019). As a result of pursuing ideals and creating a strong community, housing cooperatives often focus on buildings with communal spaces (Savini & Bossuyt, 2022). However, the housing cooperative 'De Volharding' in the Netherlands serves as an example that housing cooperatives can also consist of ground-level dwellings instead of apartment complexes. They took over the dwellings in 1993 from a housing association and have met their housing needs themselves as an association since then. The cooperative owns the rental dwellings and has an executive board consisting of five volunteers who oversees management and maintenance (Woonwijkvereniging 'De Volharding', n.d.).

People who especially wish to have a greater say in the decision-making processes about their housing and immediate living environment will be well served by the housing cooperative (Bossuyt, 2020; Fahrner et al., 2019). Decisions in Swiss and some Danish housing cooperatives are for example made through a democratic voting system, often the 'one person one vote' principle (Balmer & Gerber, 2018; Bruun, 2018). As a result of the affordability aspect, housing cooperatives seem to focus on people who are facing financial challenges. But a housing cooperative is explicitly accessible to everyone, regardless of income (Savini & Bossuyt, 2022). Brandsen and Helderman (2011) indicate that there will also be groups that find it less attractive to live in a housing cooperative due to the lack of aspects like service provision, freedom of choice and profitability.

2.2.2. Differences in collaborative forms of housing tenure

In practice, diverse types of housing cooperatives occur both abroad and, in the Netherlands, which makes it sometimes confusing to make an unambiguous conclusion and examine what characteristics comprise a housing cooperative. Three main types of housing cooperatives can be distinguished in the Netherlands. The buyers cooperative, the management cooperative and the independent housing cooperative (Bossuyt, 2020). The independent housing cooperative comes closest to the characteristics of a housing cooperative as described in this section. The main factors characterising the differences are the profit motive, internal organisational structure, investment management and the degree of individual ownership (Fahrner et al., 2019).

The management cooperative and the buying cooperative are not seen as true housing cooperatives. This is because there is no collective ownership in a management cooperative but external ownership. The guarantee to aim for cost-covering rents cannot be pursued because rent is paid to an external party (Bossuyt, 2020). Cost reductions are often offset by the fact that tenants in this form of housing must take more responsibility over management and maintenance (Conijn, 2022; Van Poelgeest & Lupi, 2018). In a buyer's cooperative people often join with the desire to have more control over the design and use of a dwelling. An example are collective-self-build groups (CPO) where people build and live together as neighbours and jointly determine how maintenance is conducted (Bossuyt et al., 2018; Van Den Berg et al., 2021). However, each resident still has the possibility to sell his dwelling as an individual (Bossuyt, 2020). As a result, this form still allows dwelling speculation and does not guarantee long-term affordability. The characteristics of the buyer cooperative therefore shows many similarities with the Dutch apartment right, practiced as homeowner associations (VVE) (Bossuyt, 2022).

The apartment right in the Netherlands is a very well-known example of shared ownership. In total, about 1.2 million dwellings fall under a homeowner association (CBS, 2016). At the time of purchase, the notarial act is split into two parts by which, on the one hand, a person buys the right to possess and use the apartment. On the other hand, he buys himself into the owners' association that has been established to provide for the management and maintenance of the common areas (Rijksoverheid, n.d.). Within a VVE, it is possible that, due to the trading and equity ratio, one party may have more control than other individual residents. It is also the case that residents are brought together by coincidence through the purchase. A resident generally does not consciously choose to join the VVE, it is an obligation that comes with the apartment. For that reason, it can be that Residents are part of a VVE that do not want to put energy into maintaining the shared areas or the complex. The result of this can be a sleeping VVE, with the likelihood of an under-maintained building (Vergara, 2018). The difference with cooperative housing is that residents have a say in who is admitted to the cooperative. This includes the obligation as well for a new member to participate in working groups that provide for the coordination of maintenance work and daily management.

2.2.3. Advantages for external institutions

The political attraction of housing cooperatives is found in the aspects of affordability and participation of residents (Bossuyt, 2020). Housing cooperatives can ensure long-term affordability of dwelling units and availability to a broad target group. Because it requires people to cooperate with each other, people's involvement and the degree of control they get is higher than with other housing forms such as renting. The municipality of Amsterdam is ambitious in the Netherlands in realising housing cooperatives. They argue that collective ownership combined with the necessary participation is a counterweight to the privatisation and marketisation of urban space (Bossuyt, 2020). As used to be the driving force in Denmark as well (Bruun, 2018). In Munich, the municipality makes 20 to 40 per cent of the land it owns available to housing cooperatives at reduced land prices. They argue that housing cooperatives guarantee permanently affordable housing (Reynolds, 2018).

2.3 Understanding housing tenure among cooperative housing

This section focuses on explaining the concept of housing tenure. This is done through an outline of rights and obligations that an individual has depending on a form of tenure. By doing so, it became possible to identify the main differences between forms of tenure.

2.3.1. The concept of housing tenure

Housing tenure is the institutional arrangement and legal status of a persons right to occupy a dwelling and is therefore generally considered as an important component in housing research and in people's housing choice process (Andersen, 2011; Angel & Gregory, 2021; Zhang, 2021). Many studies classify housing tenure as a dichotomous variable between owner-occupied and rent. Doing so neglects other forms of tenure which will always result in incorrect comparisons (Barlow & Duncan, 1988; Zhang, 2021). Research by Siksio (1990) identified already about 42 different forms of housing tenure within nine European countries. Ruonavaara (1993) explains that there are two overall theories to look at the entities of housing tenure. The essentialist approach assumes that a type of tenure possesses fixed entities that can be seen as characteristics. This theory also assumes that property rights belong entirely to the direct owner (Blandy & Goodchild, 1999). The constructivist approach challenges this by naming that housing tenure is not a fixed entity but is shaped by changing historical, political and social constructs (Hulse, 2008; Ruonavaara, 2005). It is therefore argued that the dichotomous division in housing tenure should be questioned (Blandy & Goodchild, 1999; Hulse, 2008).

As a result, cross-country comparison and empirical analysis of tenure in relation to social impacts is often cited as challenging in literature (Angel & Gregory, 2021; Barlow & Duncan, 1988; Hulse, 2008; Ruonavaara, 1993; Zhang, 2021). Larsen (2019) and Bossuyt (2022) state that housing tenure should be

seen as a concept to denote certain property relations between a dwelling and the consumer, and that more profound questions need to be addressed when trying to find out what tenure relations imply for housing. There is ample evidence available showing that a type of tenure is characterised through the relational rights a person has with an object and therefore many studies refer to a bundle of rights that a consumer has (Angel & Gregory, 2021; Bossuyt, 2022; Elsinga, 2012; Ruonavaara, 2005; Zhang, 2021). This is not an exact theory but the bundle of rights works well to understand the differences between forms of tenure from a constructivist perspective (Blandy & Goodchild, 1999; Elsinga, 2005; Johnson, 2007).

2.3.2. Types and forms of housing tenure

Many studies refer to the work of Ruonavaara (1993) in which a division is made between types of tenure and forms of tenure (Bossuyt, 2022; Hulse, 2008; Larsen, 2019; Sørvoll & Bengtsson, 2018). It is also argued that types of tenure consist of necessary relations and forms of tenure consist of contingent relations (Hulse, 2008). Types of tenure are usually distinguished between owner-occupation and rent (Elsinga, 2005; Griffith et al., 2022). The ownership rights lie in both with an individual legal entity either the direct user or the landlord (Barlow & Duncan, 1988; Elsinga, 2012; Ruonavaara, 1993). However, this does not argue that ownership includes the same in both situations. A division can be made from the consumers perspective since external ownership exists when a dwelling is rented. For example, a consumer has the right to dispose the dwelling and a high degree of right of control when it is an owner-occupied dwelling. But when the consumer rents the dwelling, he has no right of disposal and only limited degree of right of control (Ruonavaara, 1993; Zhang, 2021). This shows that ownership is not a unitary packaged entity, but instead reflects as a bundle of rights how ownership is distributed (Blandy & Goodchild, 1999; Johnson, 2007). Cooperative housing is mentioned as a third type of tenure in which ownership rights are held in common by the members of the cooperative (Brandsen & Helderman, 2011; Bruun, 2018; Ruonavaara, 2005). As a result, no individual has the right to dispose of the dwelling or the full control of the dwellings, but decisions are made by the members in a democratic collective manner (Balmer & Gerber, 2018). Ruonavaara (1993) indicates that the collective can still decide to dispose the dwellings and is therefore still a kind of owner-occupation. For a well-functioning housing cooperative, it is necessary to exclude the possibility to sell or transfer the dwellings. As mentioned earlier in section 2.2, this can be done by dispersing ownership rights with an umbrella organisation. This dispersed ownership structure ensures that the temptation for risky investments and thus the right of disposal is excluded (Griffith et al., 2022). On these points, a housing cooperative differs fundamentally from owner-occupied and rent (**Table 2**). However, consumers will see cooperative housing as a form somewhere between rent and owner-occupation. It includes characteristics with higher control like owner-occupation but consumers will see it also as renting a dwelling from yourself (Fahrner et al., 2019).

Table 2
Differences between the types of housing tenure from a consumer perspective

Necessary rights	Owner-occupation	Cooperative housing	Rent
Form of ownership	Individual or shared ownership	Common ownership	External ownership
Right of disposal	Yes	No	No
Right of control	High	Democratically shared	Limited

Subsequently, divisions can be made with contingent relations that differ for each form of tenure and emerge from the necessary rights (Hulse, 2008). These are the advantages and disadvantages that the consumer experiences from the bundle of rights and duties belonging to a specific form of tenure

(Johnson, 2007; Ruonavaara, 1993). It is possible to divide the forms under owner-occupied into individual owner-occupied and shared owner-occupied. (Elsinga, 2005). Shared ownership assumes that part of the object is held individually (usually the dwelling), and some part is shared (such as joint or shared spaces or structural parts of the building). Forms of shared ownership are characterised by a mandatory participation in an organisation such as an home-owners association (Ruonavaara, 1993).

The form of shared owner-occupation should rather be seen as a generic term than a separate form of housing tenure. In fact, it is possible to use a bundle of rights to create a form of tenure that in some way assumes shared ownership (Elsinga, 2012). Variations of shared owner-occupied housing usually arise with the objective of creating more affordable alternatives with a lower risk profile than individual owner-occupied houses (Elsinga, 2005). A common division among rent is made between social and private renting where social renting is usually associated with a permanent rental contract and private renting with a temporary contract (Ruonavaara, 1993). In the Netherlands both temporary and permanent rental contracts can occur in both segments, but laws and regulations determine which target group has access to social renting (Czischke & van Bortel, 2018; Hoekstra, 2017).

Another attribute of rent is that tenant control is assumed to be low and variations in forms of rent arise to increase tenant control (Elsinga, 2005). For example, in a management cooperative tenants collectively take charge of management and maintenance which gives them more control over the dwellings (Griffith et al., 2022). At that point, there is still social renting, but the characteristics are different from with an individual social rented dwelling. So, a form of rent can also be shaped in different ways through the use of a bundle of rights.

The division between social and private rent might be better seen as a feature that in essence says something about the affordability of the dwelling (price setting), for which target group the dwelling is accessible (distribution & access) and what kind of relationship there is with the landlord (Ruonavaara, 1993). The differences in the bundling of rights make it possible to create many different forms of housing tenure. Therefore, the focus should be on identifying the key differences among them rather than focusing on correctly classifying and sub labelling forms of tenure when making comparisons (Blandy & Goodchild, 1999). The rights and obligations relevant to identifying these differences are outlined below (see **Table 3**).

Table 3
Bundle of rights

Rights	Definition
The right to possess	The right to exclude others from the use or benefits arising from the use of the object.
The right to use	The right to use the object yourself.
The right to manage	The right to decide how the object may be used.
The right on income	The right to the benefits derived from the use of the object.
The right to modify	The right to decide how and to what extent the object can be modified.
The right to alter	The right to decide how and to what extent the object can be altered.
The right to sell	The right to sell the object.
Security of tenure	Immunity from dispossession. The object cannot be taken away from the right to possess holder.
The power of transmissibility	The right to transfer or bequeath the object to someone else.
The absence of term	Ownership is for an unlimited period of time.
The prohibition of harmful use	The duty for someone to use the object without harming others.
Liability to execution	The liability for having "the thing taken away for repayment of a debt.
Residuary character	Who is entitled to the object if (collateral) obligations are not fulfilled.
The right and obligation for maintenance	The right and obligation to perform management and maintenance duties.
The right to fiscal arrangements	The right to certain tax benefits or subsidies.
The right to exclude	The right to determine who can obtain access and use rights and to whom these rights can be transferred.
The price setting	The means of how the purchase price or rent is determined.
Distribution and access	The means of objects are made available and for which target group.
Landlord-Tenant relation	The motivations of a landlord to rent out a dwelling.
Commissioning	The right to decide and control the spatial characteristics of the building, units and joint facilities during conception and development stages.

Note. Adapted from Bossuyt (2022), Elsinga (2012), Johnson (2007) and Ruonavaara (1993)

2.3.3. The interworking of rights and obligations

Rights do not stand on their own and are not tied to a selection of fixed values (Blandy & Goodchild, 1999; Johnson, 2007). However, a bundle of rights can be static and descriptive in form, which makes it possible to identify differences (Hulse, 2008). Johnson (2007) indicated that the obligations that arise from a bundle of rights are inextricably linked but that the focus in literature is mainly on the aspect of rights and not obligations. Rights often hold an inherent connection to each other. For example, a person may have the right to dispose by which he has a form of right to sell an object or determine to whom the object is bequeathed or transmitted (Johnson, 2007). Rights can also limit each other. An example in this takes the form of a buying cooperative in which members do have the right to sell their dwelling but are limited by the power of transmissibility (Johnson, 2007). In a buying cooperative, agreements are usually made on criteria based on which people are admitted to the cooperative. This gives the cooperative control over who a dwelling can be sold or transmitted to. For example, cooperatives can

give priority to younger people or strive for inclusiveness (Larsen, 2019). Bossuyt (2022) describes this as the exclusion right and mentions that consumers can hold rights in different ways. For instance, a right can be held private which indicates that the user as an individual has the full right. On the other hand, a right can be held external which means that the direct user does not hold the right. A right can also be held in common where a group of users hold the right in which each user has an equally weighted vote. Finally, a right can also be held partly in common and partly private or external. Examples include an owner association in which the right to manage is partly controlled by the user and the control is in common for the shared spaces (Bossuyt, 2022; Elsinga, 2005).

External influences such as laws and regulations or a landlord can have a limiting or an expanding effect on someone's rights. For example, an owner has full rights to control and use an object (Elsinga, 2012). This does not mean that the owner may use an object as he infinitely wishes. For example, he has a duty to use the object in such a way that it does not harm others (Johnson, 2007). At the time he rents out the object, he transfers the full right of use and possession to the tenant (Blandy & Goodchild, 1999; Johnson, 2007). However, a landlord does retain a say in how the object may be used by a tenant through the right to manage. As a result, the right to modify or alter an object is also limited in a certain sense from the perspective of the consumer (Bossuyt, 2022). Ownership and possession are therefore two different concepts where a landlord does retain ownership of an object but the tenant has the right to decide who can and cannot use the object (Johnson, 2007; Ruonavaara, 1993). An enlarging effect comes, for example, from the right to fiscal arrangements which can result in a certain form of housing tenure being made more attractive. These kinds of arrangements tend to be political and time-related like, for instance, the mortgage interest deduction or rent subsidy in the Netherlands (Elsinga, 2005). It is generally considered that an owner-occupier has more rights associated with control than a tenant such as the right to modify or right to alter (Ruonavaara, 1993).

It can also happen that a particular right affects the owner but not necessarily the user. If a property is purchased through a mortgage, the object often serves as collateral for an external funder. At the moment that ownership obligations, such as repayments, are not met, the liability to execution determines that the property can be transferred to the residuary character (Johnson, 2007). But the residuary character can also represent who is entitled to the property in the case of a bequest (Johnson, 2007). In the Netherlands, rent protection legislation ensures that the right to possess and the right to use cannot simply be taken away from a tenant, and thereby offers a certain security of tenure (Ministry of the Interior and Kingdom Relations, n.d.). In temporary tenancies, the landlord regains the right to possess and use after the agreed term expires. Because in owner-occupied housing there is no tenant-landlord relationship, this type of tenure is generally considered to offer a higher degree of security of tenure (Hulse, 2008; Ruonavaara, 1993). In a housing cooperative, a person is entitled to rent protection just like a tenant but with the condition that the member fulfils his obligations as a member of the cooperative (Savini & Bossuyt, 2022).

The characteristics of the different forms of tenure were identified by use of a bundle of rights and associated obligations. Additional features belonging to the different forms have also been considered. Rights can be held in diverse ways. A right may simply be present or absent (dichotomous), or rights can be held in private, external or common. It is also possible that rights can occur combined under specific conditions or limitations. The main differences of the five dominant forms of housing tenure are shown in **Table 4**.

Table 4
Long list of forms of housing tenure and attributes from a consumer perspective

	Forms of housing tenure				
Attributes	**Individual owner-occupied**	**Apartment right**	**Private rent**	**Social rent**	**Housing cooperative**
Housing attributes					
User costs of the dwelling	Conform market	Conform market	Conform market	Affordable (social based)	Affordable (cost base rent)
Bundle of right attributes					
Form of ownership	Individual ownership	Individual ownership and shared ownership	External ownership	External ownership	Common ownership
The right to possess	Yes	Yes	Yes	Yes	Yes
The right to use	Yes	Yes	Yes	Yes	Yes
The right to manage	Private	Private and common	External	External	Common
The right on income	Private	Private	External	External	Common
The right to modify	Private	Private	Private, but within set dimensions of the landlord	Private, but within set dimensions of the landlord	Private, but within the set dimensions of the cooperative
The right to alter	Private	Private	External	External	Common
The right to sell	Private	Private	External	External	No
Security of tenure	Complete	Complete	Complete unless temporary contract	Complete unless temporary contract	Complete unless the consumer does not meet its obligations as a member of the cooperative
The power of transmissibility	Yes	Yes	No	No	No
The absence of term	Yes	Yes	Yes	Yes	Yes
The prohibition of harmful use	Yes	Yes	Yes	Yes	Yes
Liability to execution	Private	Private	External	External	Collective
Residuary character	Yes	Yes	Yes	Yes	Yes
The right and obligation for maintenance and repairs	Private	Private and common	External	External	Common
The right to fiscal arrangements	Mortgage interest deduction	Mortgage interest deduction	No	Rent allowance	Rent allowance
The right to exclude	No	No	No	No	Yes
The price setting	Market oriented	Market oriented	Market oriented	Regulations and housing associations determine rent level	Common (by the cooperative)

(continued)

Attributes	Forms of housing tenure				
	Individual owner-occupied	**Apartment right**	**Private rent**	**Social rent**	**Housing cooperative**
Distribution and Access	Open market	Open market	Open market	Regulations and waiting lists	Determined by the members of the cooperative
Landlord-Tenant relation	No landlord	No landlord	Landlord (often a private landlord)	Landlord (often a housing association)	Cooperative is the landlord (members are their own landlord)
Commissioning	External or Private	External or Private	External	External	External or Common
Additional attributes					
Mandatory participation in a workgroup	No	No	No	No	Yes
Autonomy and governance	Private	Private and common	External	External	Common (democratic self-governance)
Residential community	No	No	No	No	Yes

2.4 Theory on housing and measurement methods

Jansen et al. (2011) describes that housing is never an objective by itself, but rather a tool for households to achieve certain goals or values in life. Therefore, a dwelling should be seen as a bundle of characteristics that amounts to the realisation of specific goals or values, such as physical or mental well-being, comfort, or aesthetics. Housing cooperatives are relatively unknown in the Netherlands which may explain why people do not know the benefits of living in a cooperative. In addition, the contextual factors are currently not designed to establish cooperative housing in a convenient way. These factors prevent people from seeing how housing cooperatives contribute to achieving their goals and values for living. As a result, traditional forms of housing remain more attractive. Therefore, to investigate the demand for housing cooperatives in the Netherlands, the underlying preferences of people for housing tenure in a broader sense need to be examined.

This section examines the theory and literature known about these topics. Various questions will be answered such as: What is housing and why do people want to move? How do housing preferences emerge? And how is the actual choice of a specific dwelling influenced? The answers to these questions form the basis to find out to what extent there is an interest of specific groups of people for housing cooperatives.

2.4.1. Housing and residential movements

Everyone dreams differently about their ideal dwelling. To some, that means a detached dwelling surrounded by lots of greenery and few social contacts with other people. For others, the ideal dwelling is the penthouse on the 24th floor in the middle of a big city. Housing ideals vary from person to person but for most people, their ideal dream dwelling is not achievable to own. This is because access to a dwelling is constrained by various variables such as availability, price and location (Boumeester, 2011; Jansen et al., 2011). Therefore, people look for a dwelling that best provide them with the highest living satisfaction within all the present constraints. In literature, this is also known as utility maximisation (Oppewal & Timmermans, 1993). People seek a dwelling with specific characteristics that can meet their specific needs and wishes.

Primarily, a dwelling serves as a shelter where people can sleep and eat, but it also provides protection and allows a person to retreat (privacy). In addition, various daily activities take place in and around a dwelling making it serve as a home and become interwoven with the family life, social life (contact with friends and neighbours), and the career life (work and education) of people. Each person gives their own weight to different values, making preferences for housing unique. In addition, housing is a special kind of consumption good which is characterised by their high costliness, location-dependency, very long usability and multi-dimensional heterogeneity. These characteristics make each dwelling unique as well and makes it a complex decision process for people to choose a dwelling that reflects their preferences well and achieves a high level of utility (Jansen et al., 2011).

The values and goals of individuals vary throughout peoples' lives. As a result, at a certain point in time, dwelling characteristics may not contribute sufficiently to achieving their goals. Several literatures refer to the life-cycle model and the life-course model since these models explain, based on various life and career stages, how individuals or families preferences for housing change (De Groot et al., 2013; Jansen et al., 2011). The life-cycle model of Rossi looks at incentives to move following life changes such as marriage, birth of children or children who are moving out. Other phases can be divorce or the passing away of a partner. The changes cause a mismatch between dwelling characteristics and their life stage resulting in an incentive to move (Jansen et al., 2011). The life-course model is based on four different careers that individuals go through in life: education, work, family and the residential career. Individuals try to combine their goals from different careers to achieve them. But each career can in itself result in an intention to move (Jansen et al., 2011). The residential career as the sequence of different housing situations. These are distinguished from each other by type of tenure and the quality-to-price ratio of the dwellings. Both models are based on corresponding events, but the life-course model can be seen as the comprehensive version of the life-cycle model. Since all the events a person experiences during their life are interwoven into one of the four listed careers (Jansen et al., 2011).

2.4.2. The measurement of housing preferences and the demand for housing

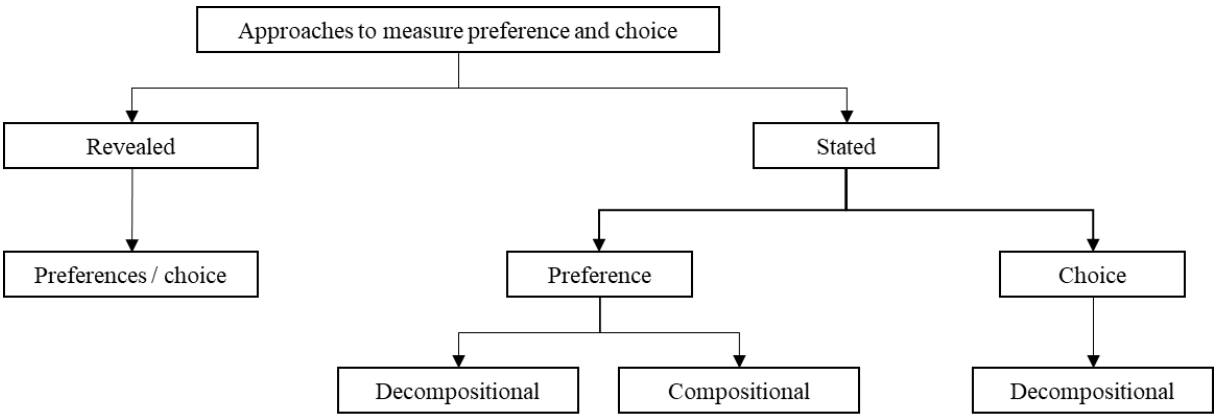
The housing literature often assumes that actual choices are a good reflection of someone's preferences. This is measured by using revealed preference techniques in often longitudinal studies (Boumeester, 2011; Kemperman, 2000). However, a choice refers to the behaviour of a person which is influenced by more factors than just a preference and therefore an actual choice for an object may not be strongly related to a person's preference (Boumeester, 2011; De Groot et al., 2013; Jansen et al., 2011). The Netherlands currently has a very tight housing market and in addition, housing cooperatives do not yet have a significant presence in the Netherlands. This makes it difficult to determine the future housing demand for housing cooperatives using revealed preference models. In such situations, it is better to investigate preferences by using stated preference techniques (Boumeester, 2011).

A disadvantage of this technique is that the accuracy of the prediction does not fully reflect reality because households do not include contextual factors in their consideration in part (Boumeester, 2011). Yet that does not suggest that stated preferences of people are not an accurate reflection. It reveals how people assess their chances if they had to move now and which housing preference they expect to gain the most utility. When offered a hypothetical context, people tend to adjust their preferences according to their personal circumstances (De Groot, 2011). That is why the outcomes of stated preference techniques can be interpreted as realistic. However, outcomes should always be approached with care as there is always a chance that unexplained factors have been of influence for the trade-off that people have made. Therefore, an attempt should be made to simulate a realistic as possible hypothetical situation in the experiment (Boumeester, 2011).

As this study looks for the demand for housing cooperatives, it can also be rephrased into what extent this form is preferred over other forms of housing tenure. There are different measurement techniques of which the results can answer this question. A division is made between stated preference and stated

choice techniques (Kemperman, 2000). In stated preference techniques, respondents are asked to rank or rate alternatives. This makes it possible to determine which alternative is preferred over other alternatives. The expectation is, as stated earlier, that people do not know the form of a housing cooperative very well and do not really understand how this alternative contributes to achieving their goals and values. Also, using these two techniques, it is only possible to find out why an alternative is preferred based on a total bundle of properties, simply because respondents were asked to do this. Since a dwelling exists of several unique characteristics, it can be assumed that each characteristic of a dwelling has a unique contribution to the maximisation of utility, which are called part-worth utilities (Timmermans et al., 1994). Stated preference techniques do not make it possible to find out how much a person values a particular characteristic of an alternative. In a stated choice experiment, respondents are asked to choose between two or more alternatives, each with distinctive characteristics, in a hypothetical situation. It is assumed that an individual will choose the alternative that gives the highest random utility for that person (Oppewal & Timmermans, 1993). By repeating this task several times with different combinations of characteristics, it is possible to calculate part-worth utilities. Therefore it is allowed to assume that the combination of part-worth utilities reflect the total utility or preference for an alternative (Timmermans et al., 1994). This assumption makes it possible to calculate and compare the five dominant forms of housing tenure. The form with the highest utility can be interpreted as most preferred. In this way, it is possible to deduce to what extent the housing cooperatives is preferred over other forms of housing tenure and to find out what the demand for housing cooperatives is. An overview of possible measurement methods to investigate preferences in relation to the demand of housing cooperatives is shown in **Figure 7**.

Figure 7
Measurement methods for preference and choice



Source: Kemperman (2000)

2.5 Conclusion

Housing cooperatives are distinguished from other housing forms by their form of tenure and organisational structure. Whereas the housing cooperative assumes common ownership and management. The main strength of a housing cooperative is found in the provision of long-term affordable housing. Therefore, it must be ensured that the sale of dwellings can never be possible. The result is that members of a housing cooperative will strive to a cost- based rent with the aim of no rent increases. Long-term affordability is in this way guaranteed. A condition of collective ownership is that residents must meet their own housing needs themselves with corresponding obligations so that the housing cooperative can exist in a sustainable manner. This requires management and maintenance to be coordinated or conducted collectively. Because the housing cooperative is autonomous, the members

can decide who can become a new member and thus a resident. People who want more control over the interpretation of their immediate living environment are expected to be well served in a housing cooperative. Control should be designed according to the democratic voting principle of one-person, one-vote system. The existence of a housing cooperative could be based on the pursuit of ideals such as sustainability or social inclusion. In this regard, the presence of a residential community is an important attribute. However, examples from abroad show that the degrees to which a residential community is present vary widely. It is expected that there are also people who find it less attractive to live in a housing cooperative due to lack in aspects such as service provision, freedom of choice and the non-profitability character.

Housing tenure can mainly be divided into owner-occupied, rent and cooperative housing as types of tenure. The three types differ from each other as they assume a different form of ownership. Ownership is not a uniform character but reflects the distribution and relationship of underlying rights and obligations. A division among types can be made using forms of tenure where the focus should be mainly on identifying the differences between them rather than correctly classifying the forms. The most comprehensive approach is to make use of a bundle of rights. This analogy makes it possible to distinguish the exact differences between forms of tenure. Rights and obligations can be described in specific situations allowing people to imagine what the differences are.

The demand for housing cooperatives can be investigated by using different techniques. Revealed preference techniques are unsuitable to answer the main question because housing cooperatives are not yet significantly present in the housing market. The use of stated preference or stated choice techniques is therefore more suitable since it also allows to investigate to what extent the housing cooperative is preferred over other forms of housing tenure. By using rights and obligations, it is possible to relate them to actual situations. People can therefore relate to hypothetical situations and express a preference for certain situations.

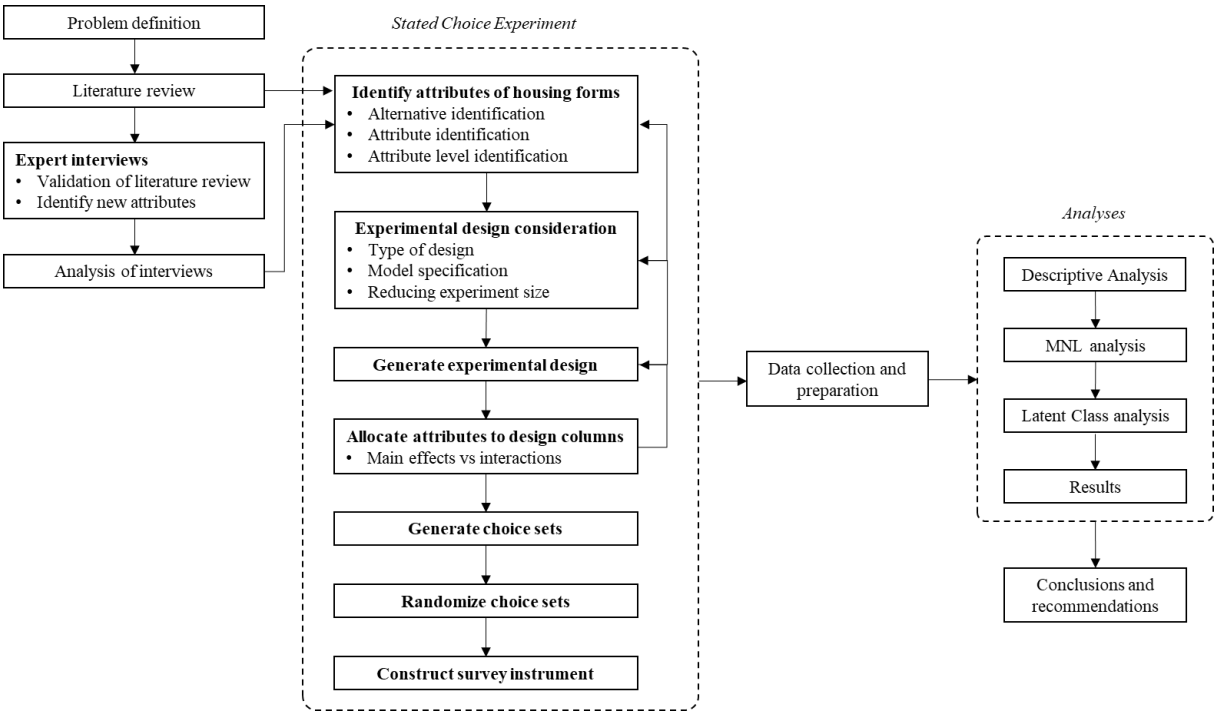
CHAPTER 3
METHODOLOGY

This chapter explains the methodology of this study in which was made use of a stated choice experiment as it allowed to calculate the utility that an individual or group derives from the housing cooperative as a new form of housing tenure. With the help of this method, it was possible to derive and quantify the demand for housing cooperatives in the Netherlands. All research methods used are explained and schematically represented in the research model (section 3.1) and the conceptual model that was established from the literature review is shown (section 3.2). The outcomes of the interviews (section 3.3) and the refinement of the list with attributes resulted in a simplified conceptual model (section 3.4). The variables were then operationalised into attributes and levels for the stated choice experiment (section 3.5). Next, the design of the experiment used is explained (section 3.6) and the minimum required sample size is calculated (section 3.7). The design of the survey is presented (section 3.8) and the way in which data has been collected is described (section 3.9). Finally, the preparation of the data is explained (section 3.10) and all analysis methods used to interpret results are described (section 3.11).

3.1 Research model

The literature review was validated by conducting 12 interviews. The outcomes were used as input for the design of the SCE which was designed by using the framework of Hensher et al. (2015). In order to analyse the data, use was made of a descriptive analysis, multinomial logit model (MNL) and latent class model (LC). An overview of the complete research structure is given in **Figure 8**.

Figure 8
Research model of this study

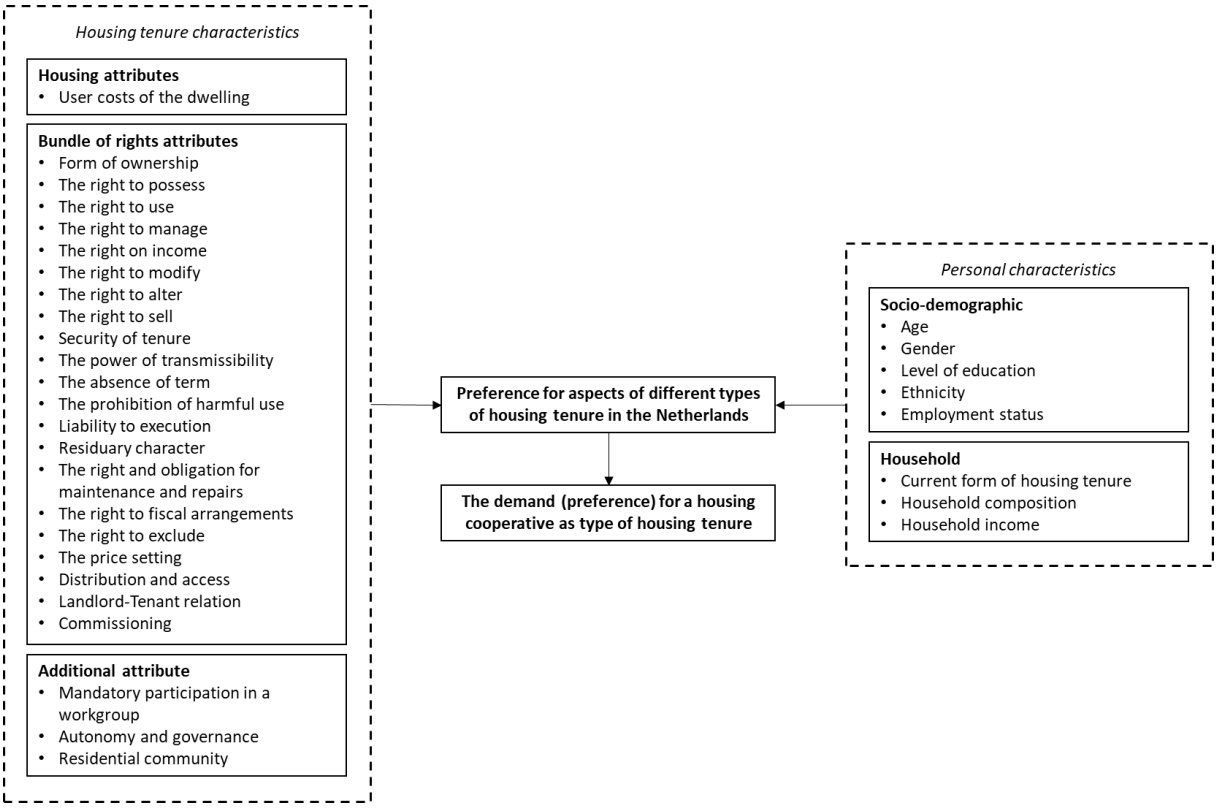


Note. The steps of the Stated Choice Experiment are derived from Hensher et al. (2015)

3.2 Comprehensive conceptual model

The outcomes of the literature review resulted in a longlist of 25 attributes (see **Table 4** in section 2.3) which are all included in the conceptual model as housing tenure characteristics (see **Figure 9**). In addition, it was important to include personal characteristics as the literature review found that preferences of individuals differ and there may be groups of people with similar preferences.

Figure 9
Comprehensive conceptual model



3.3 Interviews and outcomes

Relatively little literature is available on housing cooperatives in the Dutch context. It was therefore chosen to validate the literature review through twelve semi-structured interviews with respondents living in one of the forms of tenure from the long list. The invitation that respondents received to participate in an interview is included in Appendix II . The first respondents living in an owner-occupied or rental dwelling were approached from within network of the researcher. New respondents were suggested by the interviewed respondents, also known as snowball sampling (Bryman, 2016).

Both respondents living in an owner-occupied dwelling with and without a homeowner association (VVE) were selected. Also, respondents living in a rental dwelling with a different landlord (housing association or a private landlord) have participated. A selection criterion for respondents living in a housing cooperative was that the housing cooperative is based on common ownership of the dwellings. The website of knowledge institute housing cooperatives Netherlands (CoopLink) made it possible to identify six projects that have already been realised and comply with this criteria (CoopLink, n.d.-a). The organisation itself was also contacted by e-mail for verification. They did not name any other projects than the selection made by the researcher. All six projects were approached, of which four did not respond or expressed to have no interest. The two cooperatives that did want to participate in the

interviews were ‘Ekodorp Boekel’ and the ‘Leef en Groei Hoeve’. In addition, two yet to be realised housing cooperatives were invited as well, of which housing cooperative ‘De Nieuwe Meent’ was willing to participate. An overview of the tenure characteristics of the respondents is shown in **Table 5**.

Table 5
Characteristics of respondents of the interviews

Nr.	Place of interview	Date	Type of tenure	Type of landlord	Comment
1	Rotterdam	26-04-2023	Social rental	Housing association	-
2	Amsterdam	28-04-2023	Private rental	Housing association	-
3	Nieuwegein	03-05-2023	Owner-occupied	-	-
4	Nijmegen	03-05-2023	Owner-occupied	-	Part of VVE
5	Amsterdam	10-05-2023	Social rental	Housing association	-
6	Boekel	15-05-2023	Housing cooperative	-	Ekodorp Boekel
7	Maasbree	16-05-2023	Housing cooperative	-	De Leef en Groei Hoeve
8	Amsterdam	17-05-2023	Social rental	Private landlord	-
9	Amsterdam	22-05-2023	Private rental	Private landlord	-
10	Hilversum	23-05-2023	Owner-occupied	-	Part of VVE
11	Hilversum	26-05-2023	Private rental	Private landlord	-
12	Amsterdam	05-06-2023	Housing cooperative	-	De Nieuwe Meent

The interview questions were prepared by use of a topic list derived from the literature review and are included in Appendix V . The questions aimed at finding out respondents' perceptions, opinions and experiences. The interviews were recorded, transcribed and summarised. All summaries are attached to this report in Appendix VI . Attention was paid to similarities and differences between respondents. It was also checked whether respondents mentioned attributes that did not emerge from the literature review. The most important outcomes of the interviews are listed below and were used together with the literature review to refine the longlist of the attributes to construct a simplified conceptual model.

Important general outcomes of the interviews:

- No new attributes or levels were named during the interviews that had not yet been identified during the literature review. Almost all identified attributes and levels were named during the interviews, so the analysis from the literature review can be seen as valid and reliable.
- Respondents from owner-occupied and rented dwellings initially look at the location where they want to live and what kind of housing is required in terms of floor space, quality, etc. Then they look to see if affordable owner-occupied houses are available. If that is not possible, they enter the rental market. Respondents living in a housing cooperative consciously choose the housing cooperative and therefore accept to have less freedom of choice regarding the location.
- The ability to accumulate financial wealth is the main driver for respondents to look at the possibility of living in an owner-occupied house first. It is an aspect that is missed in rental dwellings but people in a housing cooperative consciously choose not to have this aspect. They seem aware that there will be lower housing costs in return.
- The desire for a certain degree of control in decision-making processes depends on personal experience of the residential situation. At the moment when a landlord performs poor to low maintenance, more control is desirable. The desire to have control over new neighbours is expected to increase when there is a lot of nuisances from neighbours.

3.4 Refinement of attributes and conceptual model

The inclusion of 25 attributes results in an extreme complex design of the experiment. Because not all attributes are important to include, this section describes and argues which attributes were kept, merged or excluded (**Table 6)** which made it possible to derive a simplified conceptual model (Pérez-Troncoso, 2020). The results of the literature review and the twelve interviews were used for this purpose.

Table 6
Refined list of attributes

Long list of attributes	Action	Final attributes
User costs of the dwelling	Split	• Monthly user costs. • Annual cost increase.
Form of ownership	Excluded	
The right to possess	Excluded	
The right to use	Excluded	
The right to manage	Split	• Maintenance and management of the dwelling. • Responsibility and control over shared elements, spaces and facilities.
The right on income	Merged	• Asset accumulation and investment.
The right to modify	Split	• Control over adaptability of the dwelling. • Responsibility and control over shared elements, spaces and facilities.
The right to alter	Split	• Control over adaptability of the dwelling. • Responsibility and control over shared elements, spaces and facilities.
The right to sell	Merged	• Asset accumulation and investment.
Security of tenure	Excluded	
The power of transmissibility	Merged	• Asset accumulation and investment.
The absence of term	Excluded	
The prohibition of harmful use	Excluded	
Liability to execution	Merged	• Asset accumulation and investment.
Residuary character	Excluded	
The right and obligation for maintenance and repairs	Split	• Maintenance and management of the dwelling. • Responsibility and control over shared elements, spaces and facilities.
The right to fiscal arrangements	Excluded	
The right to exclude	Kept	• Control over neighbours.
The price setting	Excluded	
Distribution and Access	Excluded	
Landlord-Tenant relation	Excluded	
Commissioning	Excluded	
Mandatory participation in a workgroup	Merged	• Maintenance and management of the dwelling.
Autonomy and governance	Excluded	
Residential community	Kept	• Residential community.

3.4.1. Exclusion of attributes

The literature review found that rights between forms of tenure do not necessarily differ (Johnson, 2007). From that perspectives the list was simplified by excluding the right to possess, right to use, security of tenure, the absence of term and the prohibition of harmful use, because the values of these attributes do not differ between forms of tenure. Subsequently, it was examined for which attributes it is not logical to express a preference. The residuary character indicates who is the rightful person to receive an object through a bequest for example. At most, someone expresses the desire to have the ability to transfer a dwelling, but that is reflected under the right of transmissibility. Therefore, the residuary character is excluded from the list with attributes. The form of ownership is characterised by other rights and is therefore, so to speak, a generic term of all kinds of other rights and obligations. It is therefore better to use other rights that define this right to find out what people's preferences are. Therefore, this right is excluded as well. Commissioning refers to the right to have a say during the design phase of a building. This aspect has been excluded since this study seeks for preferences that assume an existing and established situation of the housing cooperative. Autonomy and governance are most concretely expressed in situations that involve control, which is represented in other rights.

The right to fiscal arrangements, the price setting and availability (distribution & access) are contextual attributes that the literature study identified as applicable when measuring people's actual choices (revealed preference). Contextual variables are highly dependent on the created context (laws and regulations) and can therefore be adjusted to make an alternative more attractive for people (Boumeester, 2011). This does not reveal whether people choose for a form of tenure because of their inherent characteristics. Also, people's preference for a particular form of housing tenure does not depend on the type of landlord (landlord-tenant relationship) but is more a characteristic that comes along with a dwelling. In addition, this attribute is mostly represented by the aspect in the affordability of the dwelling which is represented in the attribute user costs. For these reasons, right on fiscal arrangements, price setting, distribution & access and landlord-tenant relation were excluded of the refined list of attributes.

3.4.2. Housing attributes

Housing attributes are mostly physical characteristics of a dwelling such as floor area, the location, the energy label, etc. This study looks at preferences of people for characteristics of housing tenure. The bundle of rights was used for this purpose. However, it is noted that the affordability of a housing cooperative is a main characteristic. Therefore, the monthly user costs are very important to include as attribute but should be split into two attributes since a housing cooperative is characterised by its immediate affordability and its long-term affordability by not applying rent indexation (Balmer & Gerber, 2018; Turner & Canning, 2015).

3.4.3. Bundle of right attributes

The literature study showed that many rights are not independent but often have an inherent connection with each other. In addition, the literature study showed that differences between types of tenure are mainly characterised by the right of disposal and right of control. From that starting point, it was examined whether remaining rights could be merged. The right on income, right to sell, power of transmissibility and liability to execution stem from the right of disposal, which is the right and ability to dispose the ownership of a dwelling in a certain way (Ruonavaara, 1993). According to Blandy & Goodchild (1999) the strength, scope and distribution of rights are best understood when reflected in concrete situations. The aggregation of rights is inevitable when using the bundle of rights analogy which assumes that rights do not stand alone and have an inherent relationship with each other (Johnson, 2007). As the values of the rights are the same for each form, it is possible to combine attributes. The differences in these attributes will probably mostly be associated by people as the difference between an owner-occupied dwelling and a rented dwelling. According to Elsinga (2005), consumers associate owner-occupied with, among other things, the right to self-determination, accumulation of capital, some degree of risk and a high initial expenditure. Therefore, the right on income, right to sell, power of

transmissibility and liability to execution are better represented in one attribute of asset accumulation and investment which is found in owner-occupied but not in rent and a housing cooperative.

The right to modify, right to alter, right to manage, the right and obligation for maintenance and the right to exclude all stem from the right of control (Ruonavaara, 1993). All these rights are reflected to a certain extent in a particular responsibility or control associated with the form of housing tenure. However, a division must be made between the control and responsibilities with corresponding rights over the dwelling and the control and responsibilities of the shared elements, spaces and facilities. This is because the apartment right as form of tenure assumes that at the level of the dwelling the rights are held individually and at the level of the shared spaces and facilities the rights are held in common. It is also plausible to consider that someone has a different preference for the responsibility and control of the dwelling than about the responsibility and control of the shared elements, spaces and facilities. Additionally, it is also plausible to consider that someone has a different preference for the responsibility of management and maintenance of the dwelling than about control of the dwelling. Therefore, the right to modify, right to alter, right to manage, and the right and obligation for maintenance and management are best represented in the attributes management and maintenance of the dwelling, control over adaptability of the dwelling, and responsibility and control over the shared elements, spaces and facilities. The right to exclude cannot be summarised under any of the aforementioned rights because the levels of the attribute are only present in a housing cooperative and is therefore a unique attribute.

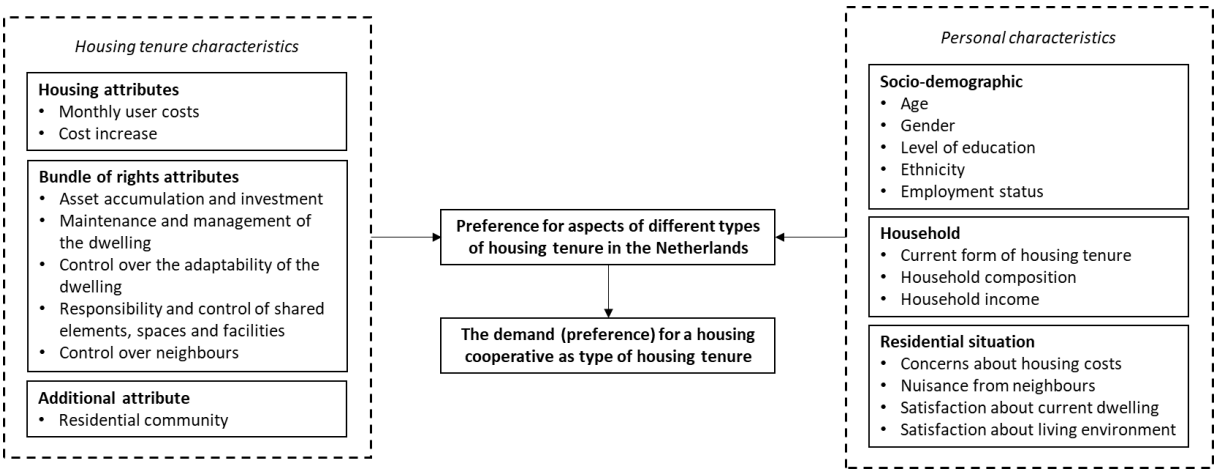
3.4.4. Additional attributes

A housing cooperative requires mandatory cooperation between residents to take care of management and maintenance. Therefore, the attribute mandatory participation in a workgroup is merged with the attribute maintenance and management of the dwelling. Also, housing cooperatives (especially in the Netherlands) are characterised by the frequent presence of a strong residential community. Both the literature and interviews confirm that the presence of a housing community contributes to the better functioning of a housing cooperative. Therefore, the attribute of a residential community has been kept.

3.4.5. Conceptual model

After it was known what the final housing tenure characteristics would be, it was possible to construct a final conceptual model. It also became clear from the interviews that people let their preferences be influenced by their residential situation. Therefore, variables concerning the concerns about housing costs, nuisance from neighbours and satisfactory level about their current dwelling and living environment were added to the model. The final conceptual model is shown in **Figure 10**.

Figure 10
Conceptual model



3.5 Operationalisation of all characteristics

The final housing tenure characteristics were operationalised by assigning levels to each attribute and form of tenure. A complete overview of all included attributes and levels in the stated choice experiment is given in **Table 7**, followed by an explanation of all levels on each attribute. After that, all forms of tenure with corresponding levels are listed. Finally, all personal characteristics were operationalised.

Bliemer & Rose (2014) argue that it is logical to rank levels from most preferred to less preferred. In this study, this was only applicable for the monthly user costs which resulted in the first with the lowest costs (700 euro). For the other attributes, a uniform ranking was maintained to avoid confusion as it was not always clear which level was expected to be most preferred.

Table 7
List of attributes and levels included in the stated choice experiment

Attributes		**Levels**	
X_1	Monthly costs	L1.	700 euro
		L2.	1150 euro
		L3.	1600 euro
X_2	Maintenance and management of the dwelling	L1.	Individual
		L2.	External (e.g., landlord)
		L3.	Common (e.g., with neighbours)
X_3	Control over adaptability of the dwelling	L1.	Individual
		L2.	External (e.g., landlord)
		L3.	Common (e.g., with neighbours)
X_4	Cost increase	L1.	Yes
		L2.	No
X_5	Asset accumulation and investment	L1.	Yes
		L2.	No
X_6	Responsibility and control over shared elements, spaces and facilities	L1.	External (e.g., landlord)
		L2.	Common (e.g., with neighbours)
X_7	Control over neighbours	L1.	Yes
		L2.	No
X_8	Residential community	L1.	Yes
		L2.	No

Since there are eight attributes in the model, it can be assumed that running the experiment is complex (Mariel et al., 2021). It has been tried to reduce the amount of forms of tenure and levels since this would dramatically limit the size of the experimental design (Hensher et al., 2015). The main forms of tenure are owner-occupied, rent and the housing cooperative. The experiment does not provide good answers to the main question of this study if any of these forms were excluded. The difference between social rent and private rent concerns the monthly user costs. However, the cost level for social rent is the same as for a housing cooperative and therefore does not result in a difference in the number of levels. The monthly user cost level for private rent is also present in the other forms of individual owner-occupied and apartment right. So, excluding this form of tenure would also not result in a size reduction.

The difference between apartment right and individual owner-occupied is the attribute responsibility and control over shared elements, spaces and facilities, which is held in common within the apartment right. However, the same level is represented within a housing cooperative and does therefore not result in a reduction of levels and would make no difference to the complexity of the experiment. An overview of all forms of tenure, attributes and levels is shown in **Table 8**.

Table 8
Forms of tenure with corresponding attributes and levels

		Forms of tenure with corresponding levels				
	Attributes	**A1: Individual owner-occupied**	**A2: Apartment right (VVE)**	**A3: Private rent**	**A4: Social rent**	**A5: Housing cooperative**
X_1	Monthly user costs	1150 euro	1150 euro	1150 euro	700 euro	700 euro
X_2	Maintenance and management of the dwelling	Individual	Individual	External (e.g., a landlord)	External (e.g., a landlord)	Common (e.g., with neighbours)
X_3	Control over adaptability of the dwelling	Individual	Individual	External (e.g., a landlord)	External (e.g., a landlord)	Common (e.g., with neighbours)
X_4	Annual cost increase	Yes	Yes	Yes	Yes	No
X_5	Asset accumulation and investment	Yes	Yes	No	No	No
X_6	Responsibility and control over shared elements, spaces and facilities.	External	Common (e.g., with neighbours)	External (e.g., a landlord)	External (e.g., a landlord)	Common (e.g., with neighbours)
X_7	Control over neighbours	No	No	No	No	Yes
X_8	Residential community	No	No	No	No	Yes

Attribute X_1 Monthly user costs

To compare housing costs between owner-occupiers and renters, the use of the user costs concept is preferred over the housing expenditures concept. This is because the user costs concept is more comprehensive and shows a better reflection of the total costs a household monthly spends on housing (Elsinga, 2005; Haffner, 2000). Every three years, the Dutch national government publishes the most recent data used to calculate user costs in its national housing survey (WoON, 2022). The most recent data is from 2021 and was taken as reference point to calculate the user costs, which can be found in Appendix VII . The results of the calculation roughly arrive at an average price of 1150 euros for the forms individual owner-occupied, apartment right and private rent. The price level for social rent and a housing cooperative comes out at 650 euros per month.

However, the monthly user costs in every segment has risen in the past two years due to very high inflation, approximately 10% in 2022 and 6.3% until May 2023 (CBS, 2023d). Next, an owner-occupied dwelling cost about 19% more in October 2022 than in 2021 (CBS & TU Delft/OTB, 2020). Other sources state that an average mortgage expense is around 1,200 euro per month and a starter spends on average 1,550 euro on monthly mortgage expenses (Bani, 2023). Also, the average monthly housing

costs were on average for both a private rented house and a new owner-occupied dwelling around 1,500 euro in October 2022 (Van de Reep & Van Rein, 2022). This made it necessary to include a third price level that represented the current high prices in the housing market. The price level of 650 euro has also been increased to 700 euro. According to Bliemer & Rose (2014) quantitative levels in a stated choice experiment should be rounded values to avoid cognitive burden for respondents. Also, an equally divided range between quantitative values must be sought even if it is a less realistic representation of an attribute (Bliemer & Rose, 2014). Hensher et al. (2015) mentions that it is important to have a slightly wider range for the purpose of modelling applications. For these reasons, it was decided to set the third price level at 1,600 euro.

Attribute X_2 Maintenance and management of the dwelling
In a housing cooperative, the members have the responsibility to take care of the management and maintenance by themselves. In an owner-occupied dwelling, the responsibility lies with the individual and in the rental segment, this responsibility lies with the landlord. The difference is best defined by using levels with the same differentials that Bossuyt (2022) used, which are individual (owner occupied), external (rent) and common with neighbours (housing cooperative).

Attribute X_3 Control over adaptability of the dwelling
In a housing cooperative, people have common control over any alterations and modifications to be made to the dwelling. Therefore, an individual cannot decide on his own to have a renovation taken place which is possible in an individual owner-occupied house or apartment. In rental properties, the control lies with the landlord. The difference is again best defined by using levels with the same differentials that Bossuyt (2022) used, which are individual (owner occupied), external (rent) and common with neighbours (housing cooperative).

Attribute X_4 Annual cost increase
An important aspect of a housing cooperative is its long-term affordability. This is done through the objective of no rent indexation. The rental forms are characterised by annual rent indexation. User costs for owner-occupied are not necessarily increased annually. However, these forms are subject to cost increases in maintenance, mortgage interest rates and taxes. However, it is difficult to quantify this aspect for owner-occupiers because these are generally hidden costs. As a result, it is likely that a housing cooperative as only form tenure is characterised by no annual cost increases. Hence, this attribute is designed as dichotomous consisting of the levels yes or no, which is also convenient for keeping the experimental design as minimal as possible.

Attribute X_5 Asset accumulation and investment
A housing cooperative guarantees housing affordability by ruling out the possibility of selling the dwellings. A distinctive feature of owner-occupied dwellings is that they can be sold, and that value can be accumulated. A feature that is not possible under forms of rent. Therefore, this attribute is designed as dichotomous consisting of the levels yes or no.

Attribute X_6 Responsibility and control of shared elements, spaces and facilities
As a result of common ownership, people in a housing cooperative also have common control over the use and any modifications of shared elements, spaces and facilities. In an individual owner-occupied dwelling, there are no shared elements, and a respondent will therefore be likely to think of outdoor spaces. In that case, responsibility and control usually lies with an external party such as a caretaker or a municipality. In the case of an apartment, an individual has common responsibilities and control over the shared elements in the form of a VVE. For the rental forms, the control lies with the landlord. The difference is again best defined by using levels with the same differentials that Bossuyt (2022) used, but this time only external (individual owner occupied and rent) and common with neighbours (apartment right and housing cooperative) are applicable.

Attribute X_7 Control over neighbours
A housing cooperative is autonomous and can operate by balloting. This gives residents a say in who can become a member and live as a neighbour. A characteristic that is not possible within the other forms. Therefore, this attribute is designed as dichotomous consisting of the levels yes or no.

Attribute X_8 Residential community
Housing cooperatives in the Netherlands are mostly characterised by the strong presence of a residential community. It therefore also seems to be an intentional choice to live in a residential community which is not necessarily a characteristic of the other forms. Therefore, this attribute is designed as dichotomous consisting of the levels yes or no.

3.5.1. Operationalisation of personal characteristics
In order to find out the personal characteristics of the respondents, a distinction was made between socio-demographic characteristics, household characteristics and the housing situation. The survey contained different levels for some variables than what was eventually used for analyses. The variables were therefore recoded to make a uniform comparison with CBS statistics (see Appendix XIV). Also, levels that were represented in the sample smaller than 5 percent were merged with another level. A complete summary of the sociodemographic variables and levels used for analyses is shown in **Table 9**.

Table 9
Socio-demographic characteristics included in the survey

Variables	Levels
Age	0. Prefer not to say
	1. 18 – 25 years
	2. 26 – 35 years
	3. 36 – 45 years
	4. 46 – 55 years
	5. 56 or older
Gender	0. Other / Prefer not to say
	1. Male
	2. Female
Level of education	0. Prefer not to say
	1. Low & Secondary
	2. High
Ethnical background	0. Other / Prefer not to say
	1. Native Dutch background
	2. Foreign background
Employment status	0. Employed Full-Time
	1. Employed Part-Time
	2. Unemployed
	3. Student
	4. Retired

The levels of some household characteristics were recoded as well in order to allow a uniform comparison with CBS statistics, and levels that occurred for less than 5 percent in the sample were again merged with another level. **Table 10** gives a complete overview of household variables and levels included in the survey. Appendix XIV contains the recoded variables.

Table 10
Household characteristics included in the survey

Variables	Levels
Current form of housing tenure	0. Other / I don't know / Prefer not to say
	1. Living at parents
	2. Owner-occupied dwelling
	3. Rental dwelling
	4. Housing cooperative based on collective ownership
Household composition	0. Other / Prefer not to say
	1. Single-person household
	2. Multi-person household without children
	3. Multi-person household with children
Household income	0. I don't know / Prefer not to say
	1. Less than € 20.000, -
	2. € 20.000 - € 40.000
	3. € 40.000 - € 100.000
	4. More than € 100.000

The interviews revealed that people develop different preferences at the time when they are worried about their monthly expenses, experience nuisance or are unsatisfied with their current housing situation or living environment. Therefore, the survey included four questions regarding these topics by using a five-point likert scale, which are shown in **Table 11**.

Table 11
Statements residential situation

To what extent …
…are you worried about your housing costs?
... are you experiencing nuisance from local residents?
... are you satisfied with your current dwelling (thinking of comfort, quality, your landlord, etc.)?
... are you satisfied with your living environment (think of facilities such as retail and restaurants, environment, green spaces, safety, etc.)?

3.6 Experimental design

According to Bliemer and Rose (2014), it is common to label alternatives when investigating the absolute demand of a new alternative. However, labelling acts as a kind of an additional attribute. Respondents may have an association with the label that is not explained by any of the attributes from the experiment, which could result in a large error term. Because housing cooperatives are an unknown alternative, it can be assumed that individuals will not choose this alternative, regardless of the presented attributes. It was therefore chosen to unlabel the alternatives in the experimental. Also, the IIA assumption is more likely to be valid in unlabelled than in labelled experiments (Hensher et al., 2015).

A full factorial design would result in 864 different profiles and when pairing the profiles, this would result in 372,816 different choice sets (Hensher et al., 2015; Oppewal & Timmermans, 1993; Pérez-Troncoso, 2020). A large number of respondents is required to complete all the possible choice sets in order to perform a correct statistical analysis. If a respondent is presented with too many choice sets, this can result in cognitive burden and response rates and reliability are likely to decrease (Hensher et al., 2015). The assumption was that it would be difficult to reach many respondents and partly due to the fact that the number of levels could not be further reduced, it was chosen to use a fractional factorial design for the experiment. The advantage is that far fewer profiles are needed to measure all main effects of the independent variables on the dependent variable. A disadvantage is that not all interactions between the independent variables can be measured (Hensher et al., 2015).

Hence, all assumptions have been taken from the position of testing for main effects only. Although it is desirable to test for interactions as well, this does come at a cost. For every interaction between two attributes, it requires more minimum degrees of freedom. For example, for one attribute with 2 levels and one with 3 levels results in 2 extra degrees of freedom. Also, Hensher et al. (2015) explains that most of the variance of the data is explained by the main effects. Also, no previous preference research on the underlying properties of housing tenure has been conducted in the found literature. Also, it did not emerge from the interviews that people perceived a strong additional utility in the presence of two specific levels of attributes. Therefore, it was considered already valuable to examine only the main effects in this study. Also, the consequence of testing on interactions is well reflected in determining the minimum data sample size. As it was estimated quite difficult to reach the number of respondents needed (see section 3.7), it was not preferred to test on interactions as well.

According to Bliemer & Rose (2014) and Hensher et al. (2015), it is recommended to look for a design matrix that is attribute level balanced (orthogonal), meaning that each attribute level can occur equally often across all choice sets. Therefore, it was chosen to use an existing fractional factorial design of the Eindhoven University of Technology. This design consists of 16 profiles which is orthogonal and only allowed testing for main effects. The levels as shown in **Table 7** have been incorporated into the design which is attached in Appendix VIII .

Since the experimental design consisted of 16 profiles, it was decided to have each respondent complete eight choice sets in which each profile was presented once. This way, there was no need to work with a blocking variable. To minimise order effects, blocks of choice sets were used to which respondents were randomly assigned. Each block consisted of 8 choice sets which were placed in random order to again minimise the chance of order effects. A maximum of 120 unique choice sets could be created. The design of this is attribute balanced since the total number of choice sets is divisible by the integers of the attributes (Bliemer & Rose, 2014). This resulted in 15 unique blocks of choice sets which can be found in Appendix IX .

The stated choice experiment mainly used qualitative attributes and levels. This often requires a respondent to think longer than when a stated choice experiment consists entirely of quantitative attributes and levels. Therefore, it was chosen to present two choice profiles in a choice set each time to

a respondent. Each respondent was presented with 8 choice sets resulting in a total of 16 profiles. The aim of this experiment was to derive the market demand for the alternative of a housing cooperative. Therefore, it was needed to create a situation that was as realistic as possible to investigate the choice decisions of respondents, which made it necessary to add an opt out since respondents can choose not to make a choice in real life situations (Bliemer & Rose, 2014; Campbell & Erdem, 2019; Kløjgaard et al., 2012). Also, respondents are more stimulated to finish the complete survey in this way (Campbell & Erdem, 2019). However, it was decided to ask the opt-out as a separate question after respondents had made a forced choice between the two profiles. This way, it was possible to analyse the dataset in its completeness and to correct if respondents would often indicate that they did not recognise themselves in one of the two profiles (Hensher et al., 2015).

3.7 Sample size

To make a good statistical analysis, a minimum sample size is required. To calculate the minimum sample size in stated choice experiments, there are many influencing factors that make an accurate calculation difficult. However, based on static theory, a rule of thumb exist that can be used to calculate the minimum sample size. Various literature refer to a formula of Orme & Johnson (2010) where the number of respondents (n) has to perform a number of choice sets (t), existing of a number of alternatives per choice set (a) which does not include the opt-out alternative (De Bekker-Grob et al., 2015; Rose & Bliemer, 2013). Since this study only tests for main effects, 'c' is equal to the number of levels of the attribute with the most levels (Orme & Johnson, 2010).

$$\frac{nta}{c} \geq 500 \quad (1)$$

In this study, the number of choice sets a respondent has to perform is equal to 8. The number of alternatives per task is two to avoid cognitive burden. The number of analysis cells is equal to 3 and thus the minimum number of respondents required is 125. However, because this study also looks at differences between groups, Orme & Johnson (2010) recommend to collect data from at least 200 respondents for each group. If at least two groups are used, a total of 400 respondents are required. This minimum was broadly met as two groups were identified, which both had a size of 400+ respondents.

3.8 Survey design and pilot tests

The online programme LimeSurvey (2023) was used to design and distribute the survey. The main language of the survey was Dutch as it was assumed that this would be their native language of most respondents. The second language of the survey was in English since it could happen that people live in the Netherlands but cannot (yet) speak Dutch well. Effort was made to keep the survey as short and clear as possible in order to motivate the respondents to actually complete the whole survey. Therefore, the introduction page was kept short with a brief introduction followed by a consent form. The introduction and consent page included a referral link to the full information page with detailed explanations of how data of respondents would be processed, and privacy was guaranteed.

The explanation of the stated choice experiment and the choice sets included the hypothetical situation in which a respondent would be in. Also, an additional explanation was also given for each attribute if the respondent clicked on it. Every respondent went through eight choice sets in which they could choose between alternative one or alternative two. Then they were given the option to select whether they would also want to live in their chosen dwelling in reality, which was alternative three. Partly because a respondent can quickly become congested, overwhelmed or distracted, it was important to start with the difficult questions. Therefore, part one included the stated choice experiment and part two contained the

socio-demographic questions. Respondents had the possibility for all socio-demographic questions to answer with 'prefer not to say' in order to motivate them to still complete the survey if a question was not preferred to answer. The survey design can be found in Appendix XII . Furthermore, it was important that the survey was easy to complete on a mobile phone since it was expected that most respondents would be reached through social media channels on their mobile phones. Therefore, extensive time was put into the online design of the survey to ensure that it was easy to go through the survey on all possible devices.

This study sought to find the market demand for housing cooperatives in the Netherlands which resulted in only allowing people to participate in the survey who are a resident in the Netherlands. It had also been decided to exclude people under the age of 18 from participation because it could reasonably be expected that they would have little or no experience in choosing a form of housing tenure. A selection question was therefore included at the beginning of the survey that filtered out respondents who did not possess these characteristics.

Before the survey was distributed, several pilot tests were conducted. Respondents were asked to go through the experiment and then discuss it with the researcher. In doing so, the researcher paid attention to the following points:

- Was the respondent able to complete the survey without assistance from the researcher?
- Were all questions fully understandable to the respondent?
- Was it doable for the respondent to complete eight choice sets?
- Were all attributes and levels understandable to the respondent and correctly interpreted?
- For all questions in the choice experiment, was the respondent able to carefully consider the attributes and levels present?
- Did the respondent have any remarks or comments on the survey design?

Any comments given by the respondent were processed in the survey. After the adjustments, the testing process was repeated with the same respondent. This process was repeated until no new comments were given. After that, the pre-test was repeated with another respondent. In the end, the process was repeated 13 times with a total of seven different people. After that, no further comments emerged, and it was assumed that the experiment worked properly. The respondents for the pilot tests consisted of family and friends of the researcher and his supervisors at Eindhoven University of Technology.
Finally, the survey was drafted according to GDPR guidelines, and the design was approved by the Ethical Review Board of Eindhoven University of Technology (see Appendix I).

3.9 Data collection

To achieve the required minimum sample size, the survey was distributed online across different webpages. Use was made of the researcher's personal network and his social media channels (Instagram, Facebook, LinkedIn). Distributing it online significantly increased its reach. In addition, online surveys are preferred by respondents as they can complete the survey in a setting that is comfortable and familiar to them without any time pressure. These advantages increase the likelihood of a higher response rate (Ball, 2019; Van Selm & Jankowski, 2006).

The personal networks and social media channels of several family members and friends were also used for distribution. It was also chosen to distribute the survey through various channels on the web forum Reddit (2023). To minimise selection bias, the survey was posted only on channels with a geographical location in the Netherlands as subject. Examples include the channel of Arnhem, Groningen, Limburg, Zeeland, Utrecht, etc. It is not possible to trace where all respondents exactly come from since no zip code data was asked for in the survey to guarantee anonymity. However, more than 250 respondents

messaged the researcher via Reddit or left a comment at the end of a survey in which some people said that they live in diverse locations in the Netherlands (Arnhem, Valkenswaard, Twente, Amsterdam). This number of messages also indicates that it is highly plausible that the survey was completed by different people and that therefore the data is reliable.

3.10 Data preparation

Before the collected data could be used for analyses, it had to be cleaned up. This was done by removing all responses that were incomplete or completed faster than four minutes from the dataset. Coding was then used in this study in order to allow attributes and levels to be tested for non-linear effects, and part-worth utilities to be calculated (Hensher et al., 2015).

In effect coding, the levels belonging to the chosen alternative are marked by assigning a 1. If a level of an attribute is not present, it is assigned a 0 or a -1 if the level was considered as base level. The structure used to code the attributes and levels is shown in **Table 12**. The coding of the constant (no choice) was reversed as it represented a negative utility if chosen. This made it possible to show in the analyses how strong the negative utility was of this 'attribute'.

Table 12
Effect coding structure

		Var. 1	Var. 2
Attribute with 2 levels	Level 1	1	
	Level 2	-1	
Attribute with 3 levels	Level 1	1	0
	Level 2	0	1
	Level 3	-1	-1

Source: Hensher et al. (2015).

In this study, the statistical programme NLLOGIT 6 was used to perform the desired analyses. The use of NLOGIT requires a long data format, meaning that every alternative that could be chosen had to be represented on a row. The data from LimeSurvey was exported in a wide data format, which means that all of the data of a respondent was displayed sequentially on a single data line. This resulted in the dataset having to be converted in which a total of 16 profiles for each respondent were listed under each in the dataset without the no choice (2 alternatives for each choice set). In the data set with the no choice option, a total of 24 profiles had to be listen under each other (3 alternatives for each choice set). In this study, the data was converted from wide format to long format by use of Microsoft Excel (2023). The coding structure of the dataset with constant of a fictional respondent is included in Appendix XIII .

The static program IBM SPSS 29 (IBM, 2023)was used to analyse the socio-demographic variables. The variables were dummy coded. During the use of NLOGIT 6, extensive use was made of the software guidebook by (Greene, 2016) to find out all the necessary commands needed for the analyses.

3.11 Analysis methods

This section explains the analysis methods used in this study. Starting with a brief explanation of descriptive statistics. Followed by an elaboration of the used multinomial logit (MNL) and latent class

(LC) model. It is then explained how the suitability of the models were determined and how the relative importance of attributes was identified. It concludes with the use of bivariate analysis to find out socio-demographic characteristics of latent classes.

3.11.1. Descriptive statistics

The representativeness of the sample was measured by comparing the socio-demographic variables with CBS data and use of a Chi-square goodness-of-fit test. The distributions of the socio-demographic variables and the results of the Chi-square tests were then explained with the help of bar charts.

3.11.2. Multinomial Logit model (MNL)

The roots of stated choice models stem from random utility theory (RUT) which is based on the assumption that an individual will choose the alternative that provides the highest utility (Oppewal & Timmermans, 1993). The amount of utility that an individual (*n*) derives from an alternative (*j*) in a specific choice situation (*s*) is denoted as U_{nsj}. The total utility consists of two components as shown in equation 2.1. The observed component is the information obtained by performing the experiment. This is also called the structural utility and is denoted as V_{nsj}. The residual unobserved component is the information that contributes to the respondent's total utility, but which is not obtained in the experiment. This is also called the random utility or error term and is denoted as ε_{nsj} (Hensher et al., 2015; Kemperman, 2000; Pérez-Troncoso, 2020). The formula for calculating total utility is shown in (2).

$$U_{nsj} = V_{nsj} + \varepsilon_{nsj} \tag{2}$$

Measuring the structural utility is done by use of (3). By taking the sum of all equations in which the coefficient, also known as the utility, of an attribute (β_k) is multiplied by the encoded attribute level (X_{nsjk}) for all attributes (*k*) (Hensher et al., 2015; Kemperman, 2000; Oppewal & Timmermans, 1993).

$$V_{nsj} = \sum_{k=1}^{K} \beta_k X_{nsjk} \tag{3}$$

By using the MNL model, it was possible to estimate the probability that an individual (*n*) will choose alternative (*j*) from a given choice set (*A*) as shown in (4).

$$P(j|A) = \frac{exp(V_{nsj})}{\sum_{j=1}^{J} exp(V_{nsj})} \tag{4}$$

3.11.3. Latent Class model (LC)

Preferences of individuals differ, and it is therefore plausible to consider that there are groups of people who may or may not prefer a housing cooperative. With a MNL model it is not possible to recognize differences between groups as this model assumes homogeneity in the dataset. A Latent Class model is an advanced version of the MNL model and assumes heterogeneity, making it possible to identify groups (classes) with similar preferences (Hensher et al., 2015). The probability that an individual (*n*) belongs to a specific class (*c*) is calculated with (5) where P_{nc} stands for the structural utility component (Hensher et al., 2015).

$$P_{nc} = \frac{exp(V_{nc})}{\sum_{c \in C} exp(V_{nC})} \tag{5}$$

The probability that an individual (*n*) chooses an alternative (*j*) in a choice situation (*s*) under the condition that he belongs to a certain class (*c*) is calculated with (6) (Hensher et al., 2015).

$$P_{nsj|c} = \frac{exp(V_{nsj|c})}{\sum_j exp(V_{nsj|c})} \tag{6}$$

The utility function of an alternative can then be written out so that it can be used to calculate the utility that an alternative provides (Hensher et al., 2015). The utility function is written out in (7). By doing this for all alternatives, it is possible to compare the outcomes of the alternatives and deduce which alternative is most preferred by a group of people. The utility function is the same for each alternative since there are eight attributes included in this experiment that hold for each alternative. The coefficients (β) will have a unique value depending on the characteristic level of an attribute for a specific alternative.

$$U_j = \beta_{0i} + \beta_{1j} f(X_{1j}) + \beta_{2j} f(X_{2j}) + \beta_{3j} f(X_{3j}) + \cdots + \beta_{8j} f(X_{8j}) + \varepsilon_{nsj} \tag{7}$$

3.11.4. Determining the goodness-of-fit of the estimated models

Various statistical tests are used to measure and compare the performance of models. The most common way to estimate parameters of models that assume non-linear relationships is by using the maximum likelihood estimation (MLE). Starting from this principle, the log-likelihood of the estimated model is calculated by means of equation (8). If an alternative (*j*) is chosen by an individual (*i*) then the value of d_{ij} equals one and if not chosen the value equals zero. The value $P(j|A)$ is equal to the probability factor of the MNL model of the chosen alternative (*j*) (Hensher et al., 2015).

$$LL_{estimated} = \sum_{i=1}^{N} \sum_{j=1}^{J} d_{ij} \ln P(j|A) \tag{8}$$

Because it is based on the MLE technique, it is not possible to use statistical tests associated with standard OLS regression. To estimate the goodness-of-fit of the estimated model, the log-likelihood must be compared with the log-likelihood of the null model. The log-likelihood of the null model is found by (9) where *N* is the number of data rows in the model (Hensher et al., 2015).

$$LL_{null} = \ln\left(\frac{1}{amount\ of\ alternatives\ in\ choice\ task}\right) * N \tag{9}$$

To determine whether a model performs better than the null model, the log-likelihood ratio test (LRT) is used in (10). The difference between the log-likelihood of the estimated model ($LL_{estimated}$) and the log-likelihood of the null model (LL_{null}) is compared to the Chi-square critical value (X^2). The number of degrees of freedom (*df*) associated with the chi-square value is equal to the difference in the number of coefficients estimated between the two models. Because the number of coefficients to be estimated in the null model is always equal to zero, the number of degrees of freedom is equal to the number of coefficients to be estimated in the estimated model. If the outcome of the LRT is greater than the Chi-square critical value with at least a 95 percent confidence level ($p < 0.05$), then the estimated model is significant and outperforms the null model. The Chi-square critical values has been looked up in Chi-square tables (Hensher et al., 2015; Oppewal & Timmermans, 1993).

$$-2(LL_{estimated} - LL_{null}) \sim \chi^2_{(df)} \tag{10}$$

By using McFadden's *pseudo-R^2* test it is possible to compare the goodness-of-fit of different estimated models. The goodness-of-fit is calculated by means of (11). The outcome of this comparison indicates

to what extent the estimated model explains the observed collected choices better than the null model. The estimated model with the highest value is considered the model that best explains the choices (Hensher et al., 2015; Mariel et al., 2021; Oppewal & Timmermans, 1993). The model is considered to have an excellent fit if the value of this test is between 0.2 and 0.4 (McFadden, 1979).

$$Pseudo\ R^2\ = 1 - \frac{LL_{estimated}}{LL_{null}} \tag{11}$$

The McFadden's *pseudo-R^2* test is only suitable for comparing the goodness-of-fit of models when the dataset is exactly the same. The goodness-of-fit of a model almost always improves when parameters are added. Therefore, it is important to look at the McFadden's *pseudo-R^2 adjusted* when comparing models with a different number of coefficients (*K*) to be estimated. This test indicates whether the improvement in goodness-of-fit outweighs the number of added parameters (Oppewal & Timmermans, 1993). The *pseudo-R^2 adjusted* is determined with (12) where *N* is the total number of data rows and *K* is the number of coefficients of the estimated model (Spiess & Neumeyer, 2010).

$$Pseudo\ R^2_{adj} = 1 - \frac{N-1}{N-K} * (1 - pseudo\ R^2) \tag{12}$$

Various fit criteria can be used to determine with how many classes the latent class model performs best. According to Weller et al. (2020), at least two fit criteria should be used. The most common criteria to use are the Akaike information criterion (*AIC*) and the Bayesian information criterion (*BIC*). The model with the lowest AIC and BIC values is considered the model that best represents the information. If the AIC and BIC give different outcomes, according to some researchers, the BIC value is the most reliable indicator (Weller et al., 2020). The AIC and BIC values are found by (13) and (14), where the $LL_{estimated}$ is the log-likelihood of the estimated model, *N* is the sample size, and *K* is the number of coefficients estimated in the model (Hensher et al., 2015; Mariel et al., 2021).

$$AIC = -2LL_{estimated} + 2K \tag{13}$$

$$BIC = -2LL_{estimated} + K \ln N \tag{14}$$

In addition to the statistical results of the classes, diagnostic criteria should also be considered. If a class contains less than 50 cases (respondents) or a size smaller than 5 percent, the added value of these classes can be questioned (Weller et al., 2020). The presence of insignificant parameters or extreme values does also indicate that a model does not properly explain the variance in the data (Hensher et al., 2015).

3.11.5. Relative importance

The part-worth utilities were used to calculate the relative importance of an attribute. This indicates to what extent an attribute influences the choice behaviour of respondents. Relative importance is calculated by dividing the range of an attribute (difference highest and lowest part-worth utility) by the sum of the ranges for all attributes (Hensher et al., 2015).

3.11.6. Bivariate analysis

A bivariate analysis was used to find out the socio-demographic characteristics for a specific latent class. Chi-square tests were only used because only categorical variables were measured.

3.12 Conclusion

This study investigated the demand for housing cooperatives based on the underlying preferences for forms of housing tenure. A stated choice experiment was chosen because this method made it possible to quantify the maximum utility of the new form of housing tenure. From this it was possible to deduce to what extent the housing cooperative is a preferred compared to other forms of housing tenure. The design of the stated choice experiment is based on characteristic attributes and levels of the investigated forms of tenure. It was decided to include the four most common forms of housing tenure in the experiment, together with the housing cooperative as new form to be investigated. The attributes and associated levels have been identified through a literature review which resulted in a longlist and was validated by twelve interviews with respondents residing in different forms of tenure. The results of the interviews did not result in new attributes or levels.

Subsequently, a refinement was made of all identified attributes and levels that characterized the main differences between the forms of tenure. A total of eight attributes varying out of two or three levels were included in the design of the experiment. Subsequently, the levels were operationalized, with particular attention paid to making the attributes interpretable for respondents as easily as possible. This study also looked for groups with similar preferences. For this reason, socio-demographic variables were included to identify differences between groups. The results of the interviews made it clear that a choice for housing tenure can also be influenced by the individual experiences of someone's residential situation. For that reason, four statements have been included based on a five-point likert scale in which people are asked about their individual experiences with regard to their residential situation.

It was decided not to label the alternatives in the experiment because it was expected that respondents would structurally not choose the alternative of the housing cooperative since it is an unknown alternative. It was also expected that choices would be made on missing attributes or alternatives which would lead to a violation of the IIA assumption, which is an important assumption in analysing the collected data. A fractional factorial design has been used and resulted in 16 unique profiles in which it was decided to only test for main effects. The expectation was that respondents would be difficult to recruit, and no direct reason was identified from the literature that testing for interaction effects was necessary. To minimize the chance of order effects, 120 unique choice sets have been designed. In the online survey, each respondent was asked to complete 8 choice sets, which resulted in 15 unique blocks of choice sets. The addition of an opt-out in the choice sets was necessary as was tried to investigate the absolute demand for housing cooperatives, in which the creation of a scenario that is as realistic as possible is essential.

At least 400 respondents were required to perform the desired analyses. A multinomial logit model was used to analyse preferences of the complete sample and a latent class model to find groups with similar preferences. By use of a bivariate analysis, it was possible to measure the representativeness of the sample and identify characteristic differences between these groups.

CHAPTER 4
RESULTS & ANALYSES

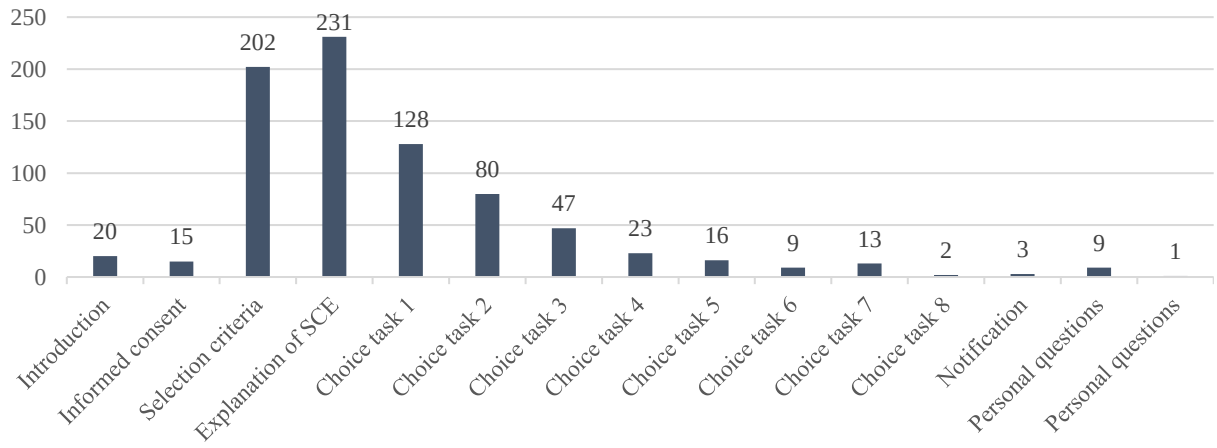
This chapter discusses the results and analyses of this study. A brief explanation on the survey participation of respondents is given first. This is followed by a description of how the dataset was checked on reliability, cleaned and prepared for use in the analyses. The representativeness of the sample was measured and then discussed with use of descriptive statistics. This is followed by interpretation and visualisation of the results obtained from the MNL and LC models. This chapter ends with a conclusion containing the most important results of all analyses.

4.1 Survey participation

The survey was published on 21 June 2023 and data collection ended on 5 July 2023. Only a minimal number of new responses were received just before the survey closed. A total of 2,062 respondents have visited the website of the survey. There have been 20 respondents who left the survey after seeing the introduction page and 15 respondents did not agree with the consent form. There were 202 respondents who did not recognize themselves in the selection criteria and 231 respondents quit the survey as they read the SCE explanation. It is unknown for 190 respondents when they exactly quit the survey. They probably deleted their data before quitting.

There were 1,404 respondents who actually started the SCE (start choice task 1). Of these, 1,073 respondents (76.4%) fully completed the SCE. A possible explanation for why respondents quit the survey is that it might was considered too much reading or that some perceived the choice tasks as too complicated. An overview of on which page the most respondents stopped is shown in **Figure 11**.

Figure 11
Overview of respondents that quit on a specific page during the survey



Note. It is unknown for 190 respondents when they exactly quit the survey.

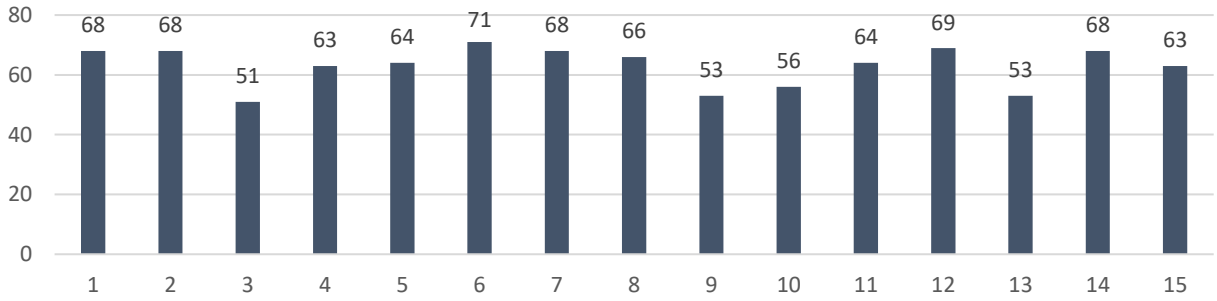
4.2 Data reliability and preparation

All the responses in which the survey was not fully completed were removed. Responses completed faster than 4 minutes were considered unreliable because the respondent probably did not take sufficient

time to read and consider the questions. This resulted in a reduction of 110 responses. It was then checked whether there were respondents who gave the same answer in each choice set. A total of 18 suspicious responses were found that had the same answer each time to both the forced question and the opt-out question. The suspicious responses were evenly distributed across the blocks of choice sets indicating that it was not a typical event for a specific block of choice sets. These answers were removed from the model after it was found that the reduced model performed better (higher McFadden's pseudo-R^2). These adjustments brought the final dataset to a number of N = 945. Participants in this dataset needed on average 11 minutes to complete the survey, which was in line with the expectations.

Consideration was given during the design of the experiment to minimise order effects in answering the choice sets. Respondents were randomly assigned to a block of choice sets in the survey. In **Figure 12** is shown that the distribution of respondents over the blocks of choice sets is more or less evenly. This indicates that no order effects have occurred.

Figure 12
Distribution of respondents over the blocks of choice sets



Because this study examines the demand for housing cooperatives in the Netherlands, it was important to measure the representativeness of the sample to data of the central bureau of statistics (CBS). Some socio-demographic variables had to be reformed as otherwise they could not be compared. This was the case for the variables, level of education, household composition and household income. The survey included four separate questions to find out respondents' current form of tenure. This was spread across multiple questions to avoid cognitive burden. Compared to the CBS data, the measurement of the representativeness showed that the variable was better explained if there was no large breakdown in many levels. For these reasons, the variables, owner-occupied as part of a homeowner association, type of landlord, and type of rental segment were left out of any further analysis.

Some levels of the socio-demographic variables were merged with other levels if a level was present for less than five percent in the dataset. This applied to the variables, age, level of education and ethnical background. Respondents also had the option to answer some socio-demographic questions with "other, namely ...". Appendix XIV shows which adjustments were made in reforming the socio-demographic variables. The following analyses and conclusions are based on these adjusted variables.

4.3 Representativeness of the sample and descriptive statistics

Comparing the sample with CBS statistics on the population of the Netherlands, a Chi-square test was used to test for representativeness to see if there were significant correlations between the observed values (sample) and the expected values (CBS). Respondents had the possibility for each question to answer with 'prefer not to say'. It was therefore decided to measure the representativeness for each variable separately by using a smaller sample size in which the 'Prefer not to say' answers were removed. For the variable 'current form of tenure', it was also possible to respond with 'living with parents' of

which are no recent numbers available in the Netherlands to make a comparison. It was therefore decided to remove this level for the representativeness as well. The assumption was made for all removed responses that they are evenly distributed over the other levels, which made a representativeness measurement possible. **Table 13** shows the comparison for each variable between the sample and data available from the CBS and the representativity values. Afterwards, the distribution of each variable in the full sample (N = 945) and the representativeness is discussed.

Table 13
Sociodemographic variables of the sample compared with CBS statistics

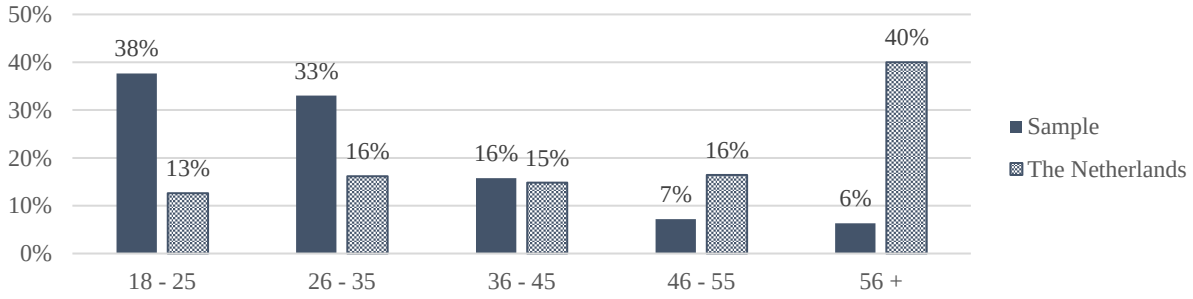
		Sample		CBS						
Variables	**Levels**	**Observed values**	**%**	**Count (x1000)**	**%**	**Expected values**	**Residual**	***df***	χ^2	***p***
Age (N = 945)	18 - 25	356	38%	1,832	13%	119	237	4	952.8	0.000
	26 - 35	312	33%	2,339	16%	152	160			
	36 - 45	149	16%	2,148	15%	140	9			
	46 - 55	68	7%	2,382	16%	155	-87			
	56 or older	60	6%	5,798	40%	378	-318			
Gender (N = 924)	Male	539	58%	8,850	50%	459	80	1	27.6	0.000
	Female	385	42%	8,961	50%	465	-80			
Education level (N = 934)	Low & Secondary	298	32%	9,575	65%	610	-312	1	459.7	0.000
	High	636	68%	5,088	35%	324	312			
Ethnicity (N = 934)	Native Dutch	867	93%	13,152	75%	698	169	1	161.5	0.000
	Foreign background	67	7%	4,439	25%	236	-169			
Employment status (N = 911)	Full-Time	454	50%	5,048	34%	308	146	4	650.9	0.000
	Part-Time	183	20%	4,655	31%	284	-101			
	Unemployed	18	2%	357	2%	22	-4			
	Student	246	27%	1,305	9%	80	166			
	Retired	10	1%	3,560	24%	217	-207			
Current tenure (N = 705)	Owner-occupied	375	53%	4,598	57%	404	-29	2	546.8	0.000
	Rental	330	47%	3,434	43%	301	29			
	Housing cooperative	10	1%	2	0%	0	10			
Household composition (N = 907)	Single person household	208	23%	3,266	39%	358	-150	2	190.0	0.000
	Multi-person household without children	438	48%	2,359	29%	259	179			
	Multi-person household with children	261	29%	2,645	32%	290	-29			
Household income (N = 804)	Less than €20,000	112	14%	639	8%	65	47	3	107.2	0.000
	€20,000 - €40,000	158	20%	2,023	25%	205	-47			
	€40,000 - €100,000	416	52%	3,242	41%	328	88			
	More than €100,000	118	15%	2,045	26%	207	-89			

Note. $*p < 0.05$. All the 'prefer not to say' values and the value 'living with parents' of the variable 'current tenure' have been excluded from this table. The assumption was made that these values are evenly distributed across the other levels.
Sources. CBS and (Briene et al., 2021)

Based on **Table 13**, it can be concluded that none of socio-demographic variables in this sample are representative for the Dutch population. As a result, all outcomes should be interpreted with care. However, the results remain of value since this is an explorative study and can therefore provide new insights. In addition, it is still possible to draw conclusions about relationships between the variables within this sample.

It can be seen in **Figure 13** that the sample of this study is over-represented by people with an age between 18 to 35 years. The number of people with an age between 36 and 45 are quite well represented but people with an age above 46 are highly underrepresented. The variable age is therefore not representative for the Dutch population (p = 0.000). As a result, the outcomes of further analyses and thus the preferences of people aged 46 or older should be interpreted with care and makes it not possible to draw generalizable conclusions for this target group. Younger people have an overrepresentation in this sample and people aged between 36 and 45 years old are quite well represented so it can be assumed that conclusions on the preferences of these target groups are more reliable to use for policy making.

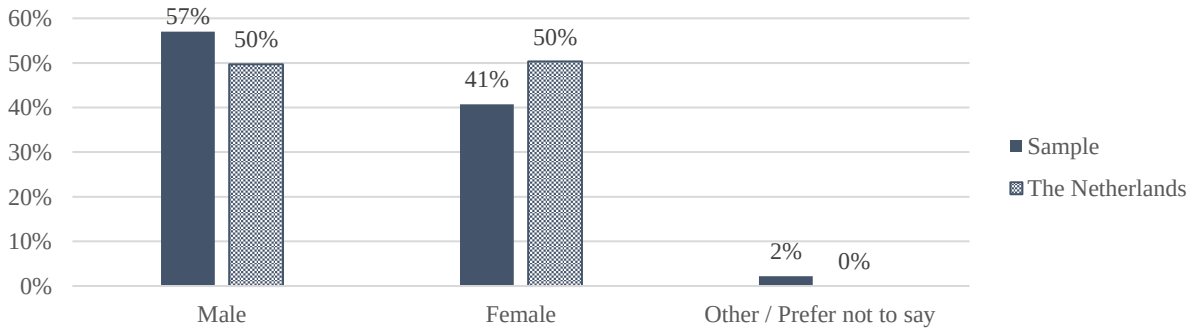
Figure 13
Sample distribution of age



Note. Sample N = 945. Statistics of the Netherlands are adopted from CBS (2023c)

The variable gender is neither representative (p = 0.000). More man (57%) than women (41%) participated in this study (see also **Figure 14**). A small proportion (2%) said they had a different gender or preferred not to say. Since men are over-represented and women are underrepresented, it is important to interpret further outcomes of analyses related to gender with care. However, the distribution is not extremely unbalanced, which makes outcomes still relevant.

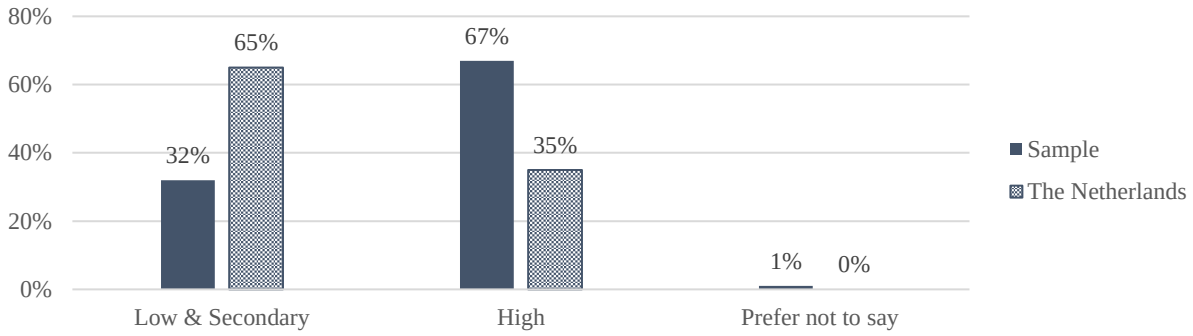
Figure 14
Sample distribution of gender



Note. Sample N = 945. Statistics of the Netherlands are adopted from CBS (2023c)

It is observed that people with a higher education level participated more often in this study (67%) than those with low or secondary education (32%). The variable education level is not representative of Dutch population (p = 0.000). As a result of the over-representation of the highly educated and under-representation of the less educated, further outcomes regarding education level cannot be generalised. It can be argued that the preferences of people with lower levels of education are underemphasised in this study. The distribution of the variable 'education level' can be seen in **Figure 15**.

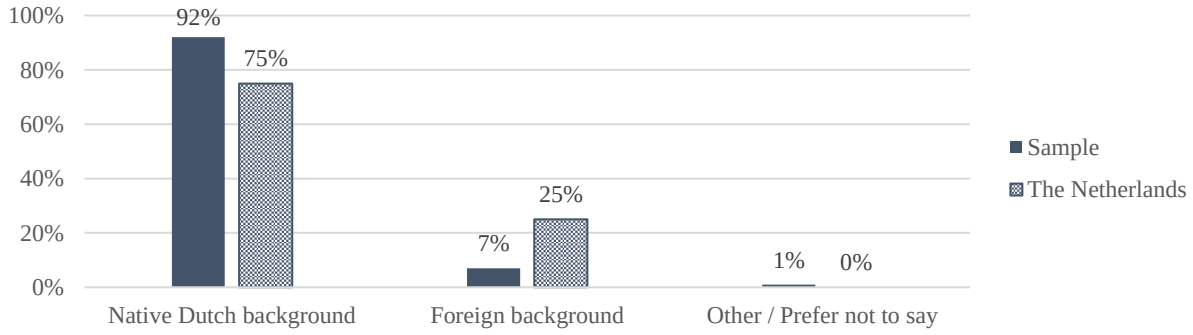
Figure 15
Sample distribution of education level



Note. Sample N = 945. Statistics of the Netherlands are adopted from CBS (2023b)

The variable ethnicity is not representative for the Dutch population (p = 0.000) and the distribution is shown in **Figure 16**. The over-representation of people with a native Dutch background in this sample (92%) makes further outcomes for this target group reliable and usable for policymaking. However, it should be considered that people with a foreign background are underrepresented in this sample (7%), which means that the preferences of this target group are underexposed and should be further investigated in order to create more targeted policies.

Figure 16
Sample distribution of ethnicity

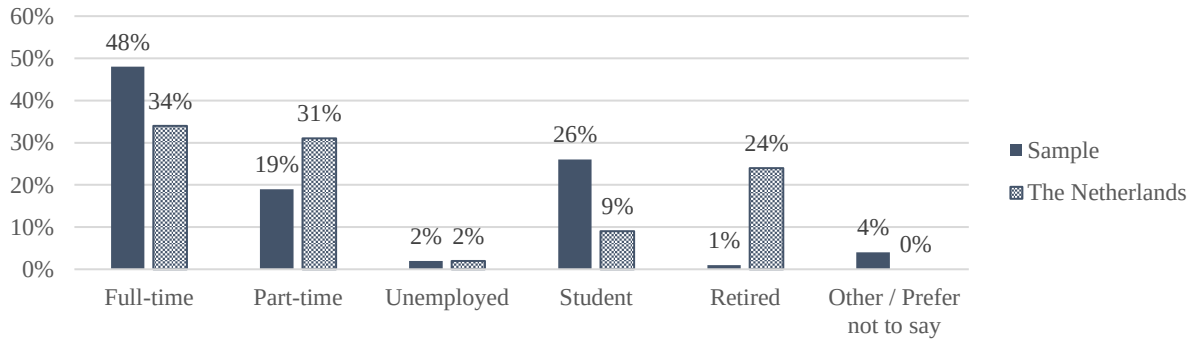


Note. Sample N = 945. Statistics of the Netherlands are adopted from CBS (2022a)

More people participated in this study who work full-time (48%) than people who work part-time (19%). The number of unemployed individuals (2%) is represented the same as in numbers of the CBS. Students are over-represented in this study (26%) and the amount of retired people is under-represented A small group hold a different employment status or preferred not to mention it (4%). The variable employment

status is not representative for the Dutch population (p = 0.000). Because part-time workers and retired people are underrepresented, the preferences of these target groups have not been sufficiently investigated and conclusions from further outcomes should be interpreted with care. Outcomes cannot be generalised in designing policies. The distribution is visualised in **Figure 17**.

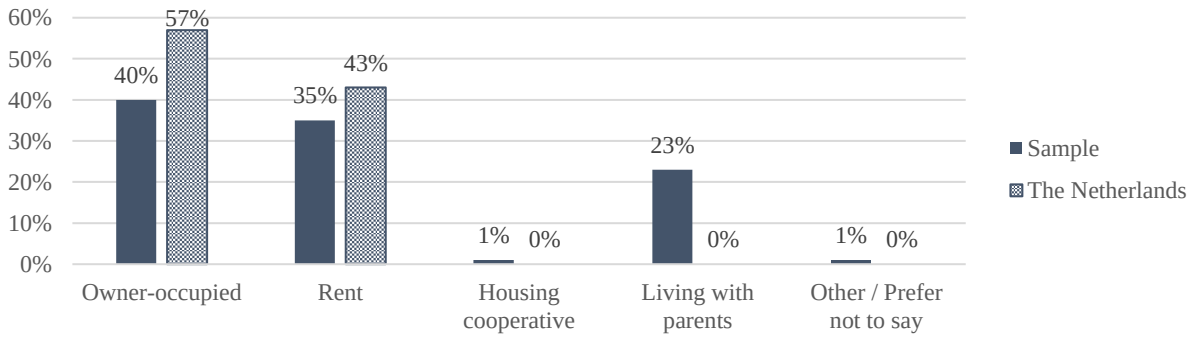
Figure 17
Sample distribution of employment status



Note. Sample N = 945. Statistics of the Netherlands are adopted from CBS (2023a, 2023g, 2023f)

Relatively many persons in this study are living with their parents (23%). This is probably explained by the number of students that participated. It is assumed that this number of individuals is evenly distributed across the other levels. However, the current form of tenure variable is still considered not to be representative for the Dutch population. The preferences of people living with their parents should be interpreted with care, as most of this population possibly not have experienced the process of choosing between an owner-occupied or rental dwelling before. However, respondents in this group may also still be living with their parents for other reasons, such as not being able to find a suitable dwelling at all. The preferences of this group are therefore still of value, but it should be considered that they might change as they gain more experience in the Dutch housing market. The distribution of the variable 'current tenure' is shown in **Figure 18**.

Figure 18
Sample distribution of current tenure

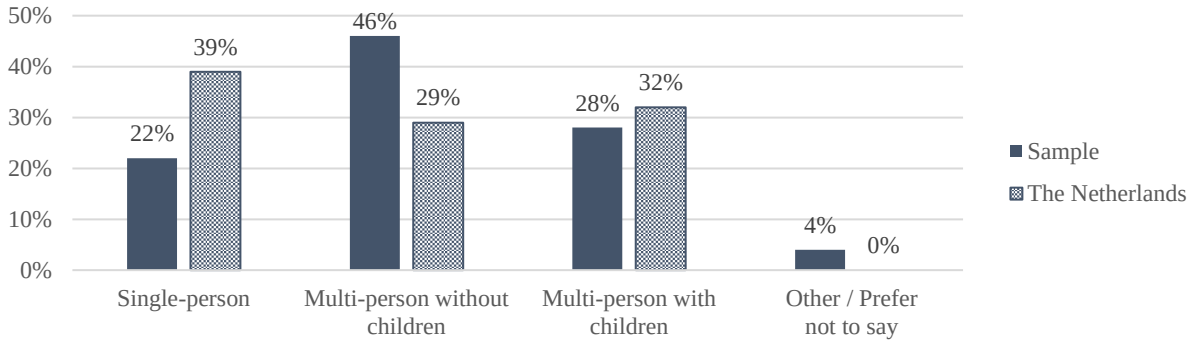


Note. Sample N = 945. Statistics of the Netherlands are adopted from Briene et al. (2021) & CBS (2023h)

The sample of this study contains an over-representation of households without children (46%) and an under-representation of single person households (22%). Also, there is a slight under-representation of

multi-person households with children (28%). As a result, further outcomes for single-person households and multi-person households with children should be interpreted with care. Preferences of this target group may not have been sufficiently investigated. Preferences of multi-person households without children are more reliable and can be used for policy design. The distribution of the variable 'household composition' is shown in **Figure 19** and is considered not to be representative for the Dutch population (p = 0.000).

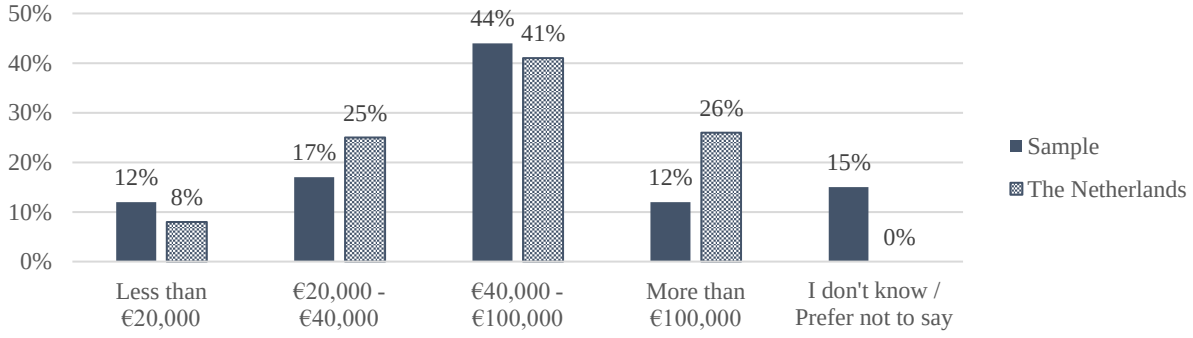
Figure 19
Sample distribution of household composition



Note. Sample N = 945. Statistics of the Netherlands are adopted from CBS (2023e)

Most respondents have an annual gross household income of between 40,000 euro and 100,000 euro and is quite equally represented as in figures from the CBS. There is a slight over-representation of households earning less than 20,000 euro on an annual basis. The outcomes from subsequent analyses for these target groups can be seen as reliable. Households with an annual household income between 20,000 and 40,000 euro are under-represented in this sample, as well as households that earn more than 100,000 euro on an annual basis. Preferences for these target groups may not have been sufficiently explored in this study and therefore cannot be generalised for the purpose of policy design. The complete distribution of the variable 'household income' is shown in **Figure 20** and is not representative for the Dutch population (p = 0.000).

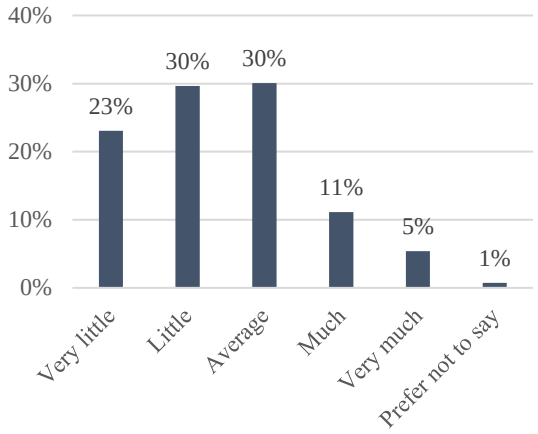
Figure 20
Sample distribution of household income



Note. Sample N = 945. Statistics of the Netherlands are adopted from CBS (2022b)

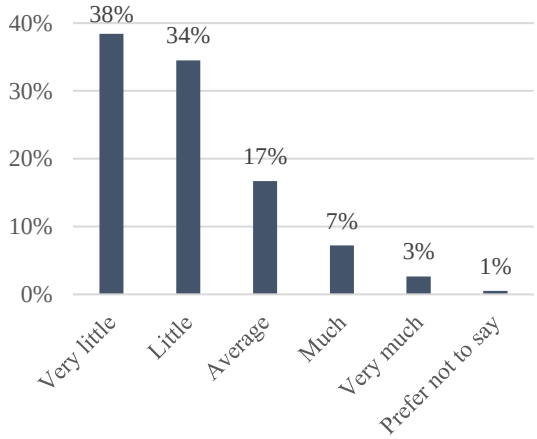
Respondents were asked to what extent they have concerns about their housing costs (see **Figure 21**). The majority indicated that they have very little (23%) or little (30%) concerns. A relatively small proportions indicated to have many concerns (11%) or very many concerns (5%). Also, the respondents were asked to what extent they experience nuisance from neighbours (see **Figure 22**). The majority answered to experience little (34%) or very little (38%) nuisance. A relatively small proportion (7%) experiences much nuisance, and a smaller number of experiences very much nuisance (3%).

Figure 21
Sample distribution of concerns about housing costs



Note. N = 945

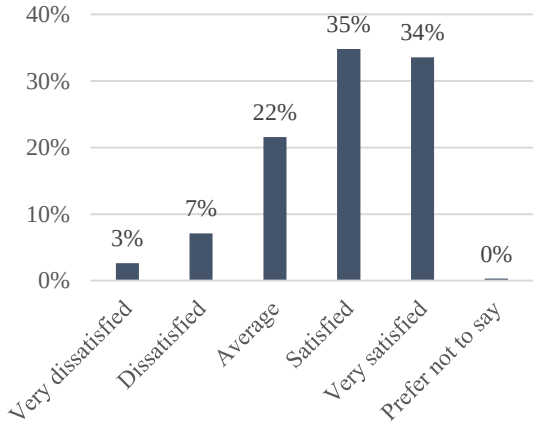
Figure 22
Sample distribution of nuisance from neighbours



Note. N = 945

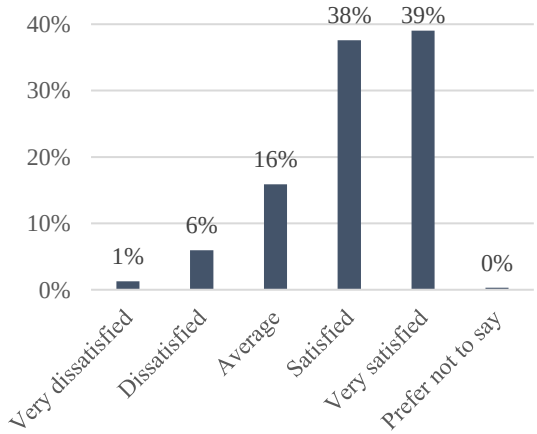
The majority of the sample indicated to be satisfied (35%) or very satisfied (34%) with their current dwelling. A small group is dissatisfied (7%) or very dissatisfied (3%). The distribution of the variable 'satisfaction about current dwelling' is visualised in **Figure 23**. Respondents were also asked about their satisfaction with their current living environment. A large group is satisfied (38%) and a similar group is very satisfied (39%). The complete distribution of the variable 'satisfaction about current living environment' is shown in **Figure 24**.

Figure 23
Sample distribution of satisfaction about current dwelling



Note. N = 945

Figure 24
Sample distribution of satisfaction about current living environment



Note. N = 945

4.4 Multinomial Logit model

The coefficients, which indicate the amount of utility, of the attribute levels were estimated by use of a multinomial logit model. To do this, the data collected from the stated choice experiment was analysed with the help of the software programme NLOGIT 6 (Econometric Software, Inc., 2016). By using this model, it was possible to infer general preferences of respondents. It also revealed whether people prefer the housing cooperative as form of housing tenure on the basis of these attributes. The results are elaborated in this section.

During the choice sets, respondents were first asked to make a forced choice between two dwellings with differing characteristics regarding forms of tenure (alternative 1 and alternative 2) and then indicate whether they would also like to live in their chosen dwelling in reality (alternative 3). This approach was used to create one dataset that does not contain information about the opt out (referred to as MNL 1) and a second dataset that does contain this information (referred to as MNL 2). Both MNL models were estimated and the results are shown in **Table 14** and the NLOGIT results are attached in Appendix XV and Appendix XVI .

Table 14
Outcomes of both MNL models

				Coefficients (β)	
Attributes		**Levels**		**MNL 1**	**MNL 2**
	Constant			-	- 0.971***
X_1	Monthly costs	L1. 700 euro		1.032***	1.061***
		L2. 1,150 euro		0.046*	0.030
		L3. 1,600 euro	*Base level*	- 1.079	- 1.091
X_2	Maintenance and management of the dwelling	L1. Individual		0.037	0.027
		L2. External		0.131***	0.121***
		L3. Common	*Base level*	- 0.168	- 0.147
X_3	Control over adaptability	L1. Individual		0.393***	0.325***
		L2. External		- 0.327***	- 0.240***
		L3. Common	*Base level*	- 0.066	- 0.085
X_4	Annual cost increase	L1. Yes		- 0.362***	- 0.291***
		L2. No	*Base level*	0.362	0.291
X_5	Asset accumulation and investment	L1. Yes		0.410***	0.324***
		L2. No	*Base level*	- 0.410	- 0.324
X_6	Responsibility and control over shared elements, spaces and facilities	L1. External		- 0.024	- 0.045**
		L2. Common	*Base level*	0.024	0.045
X_7	Control over neighbours	L1. Yes		0.182***	0.145***
		L2. No	*Base level*	- 0.182	- 0.145
X_8	Residential community	L1. Yes		- 0.251***	- 0.206***
		L2. No	*Base level*	0.251	0.206

Note. N = 945. ***$p < 0.01$. **$p < 0.05$. *$p < 0.1$. The base levels do not have an estimated significance level.

Both models were compared on the basis of the goodness of fit tests mentioned in section 3.11 to determine which model best explains the choices. The outcomes of these tests are shown in **Table 15**. Both models were found to be significant based on the log-likelihood ratio test at a significance level of $p < 0.05$. According to McFadden (1979), it can be noticed that MNL 1 has an excellent model fit since the pseudo R^2 is between 0.2 and 0.4 (pseudo $R^2 = 0.2338$) and the MNL 2 has a lower model fit since pseudo $R^2 < 0.2$. The values of the pseudo R^2_{adj} should be considered since the number of coefficients differ between the models. On this basis, it can be concluded that MNL 1 explains the choices better than MNL 2. However, it must be noted that the MNL 1 contains no information regarding the opt out, which was modelled through an additional variable called the constant. The constant contains very valuable information since in this experiment was searched for the most realistic reflection of reality. A total of 7,560 observations were made in the stated choice experiment of which 3,934 times the opt out was selected.

Table 15
Goodness of fit parameters of estimated MNL models

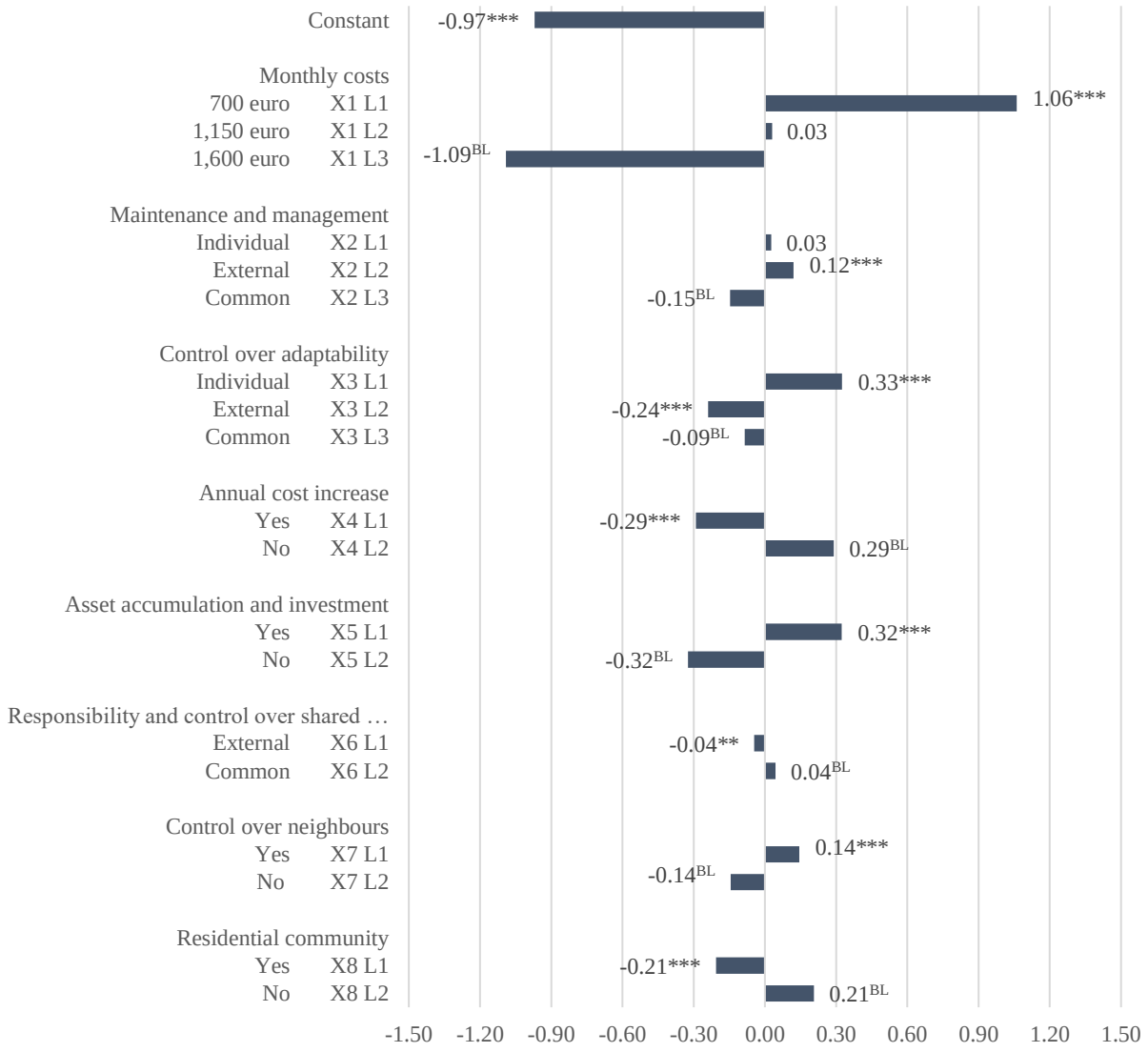
		MNL1	**MNL2**
Number of observations (N)		7,560	7,560
LL null		-5,240.2	-8,305.5
LL estimated		-3,934.5	-6,635.9
Pseudo R^2		0.234	0.125
Pseudo R^2_{adj}		0.233	0.124
Log-likelihood ratio test	χ^2	2,611.4*	3,339.3*
	df	11	12
	Critical χ^2 value*	19.675	21.026

Note. N = 945. *$p < 0.05$.

In addition, the results in **Table 14** show that the coefficient of the constant is relatively large ($\beta = -0.97$) and highly significant ($p < 0.01$). It can also be seen that all attributes have a significant value in MNL 2 and that attribute X_6 is not significant within MNL 1. Furthermore, a LC model was estimated after the MNL models where the expectation was that the pseudo Rho^2 would be higher since it searched for heterogeneous explanations in the data. It was therefore considered that the MNL 2 model explained more information and it was decided to further describe the results based on this model.

The results of the MNL 2 model show that the constant has a strong negative coefficient ($p < 0.01$). This means that respondents prefer not to make a choice for one of the presented alternatives. In addition, the results show that all attributes have a significant ($p < 0.01$) influence on the choice of a form of housing tenure. The significance level of the attribute 'responsibility and control over shared elements, spaces and facilities' was slightly lower ($p < 0.05$). All part-worth utilities are visualised in **Figure 25**.

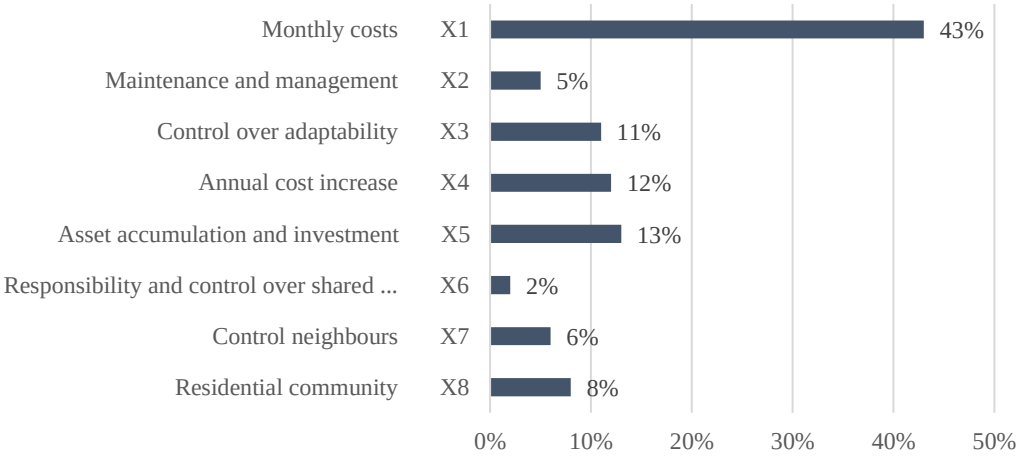
Figure 25
Visualised part-worth utilities MNL 2 model



Note. N = 945. ****p* < 0.01. ***p* < 0.05. **p* < 0.1. BL = Base level, which does not have an estimated significance level.

The attribute monthly costs obtain a very high utility at the moment the dwelling costs 700 euro per month. On the other hand, it provides a high negative utility if a dwelling costs 1,600 euro per month. Consequently, the attribute monthly costs is considered the most important component compared to other attributes when making a choice between forms of housing tenure (see **Figure 26**). After the attribute monthly costs, the presence of asset accumulation and investment is of significant influence. Simultaneously, a similar importance is given to the absence of annual cost increases and is individual control over the adaptability of the dwelling preferred over common or external control. A higher utility is achieved when the aspect of a residential community is not present, and limited utility is achieved when there is control over the acceptance of new neighbours. Maintenance and management are not important but most utility is achieved when responsibility is external. Responsibility and control over shared elements, spaces and facilities is almost not important.

Figure 26
Relative importance of attributes in MNL 2 model

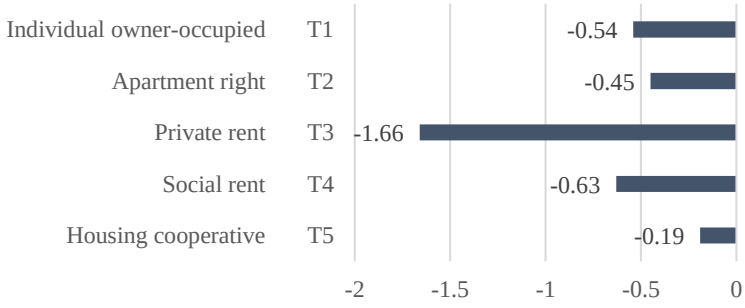


Calculating the utility of the forms of tenure was done by use of the utility function (7) from section 3.11. Each form of tenure has a unique structure of coefficients in relation to the levels of the attributes belonging to that form. The composition of the levels of each attribute belonging to the forms are the same as shown in **Table 8** in section 3.5. The utility equations with coefficients are shown in **Table 16** for each form. The error term has been excluded from these calculations since it is an unobserved component. **Figure 27** visualises the outcomes of these equations.

Table 16
Utility calculations for all forms of tenure

Forms of tenure	β_0	$\beta(X_1)$	$\beta(X_2)$	$\beta(X_3)$	$\beta(X_4)$	$\beta(X_5)$	$\beta(X_6)$	$\beta(X_7)$	$\beta(X_8)$	
$U_{T1:\text{ Ind. owner-occupied}}$	= (-0.97) +	0.03 +	0.03 +	0.33 +	(-0.29) +	0.32 +	(-0.04) +	(-0.14) +	0.21	= -0.54
$U_{T2:\text{ Apartment right}}$	= (-0.97) +	0.03 +	0.03 +	0.33 +	(-0.29) +	0.32 +	0.04 +	(-0.14) +	0.21	= -0.45
$U_{T3:\text{ Private rent}}$	= (-0.97) +	0.03 +	0.12 +	(-0.24) +	(-0.29) +	(-0.32) +	(-0.04) +	(-0.14) +	0.21	= -1.66
$U_{T4:\text{ Social rent}}$	= (-0.97) +	1.06 +	0.12 +	(-0.24) +	(-0.29) +	(-0.32) +	(-0.04) +	(-0.14) +	0.21	= -0.63
$U_{T5:\text{ Housing cooperative}}$	= (-0.97) +	1.06 +	(-0.14) +	(-0.09) +	0.29 +	(-0.32) +	0.04 +	0.14 +	(-0.21)	= -0.19

Figure 27
Visualised total utility per form of housing tenure



It can be concluded that none of the forms are preferred as all maximised utility values are negative. This reflects that respondents prefer not to live in reality in any of the alternatives presented. There are several possible explanations as to why people generally chose the opt-out. For instance, respondents may have interpreted the alternatives presented as unrealistic, complex or unclear. However, the results of the latent class analysis in the next section show that there was a relatively large group of respondents who did not opt-out, reflecting that they in reality would like to live in the presented alternatives.

However, according to the outcomes of the MNL model, the housing cooperative is the form that produces the least amount of negative utility (U_{A5} = -0.19). This can be explained by the attribute of monthly costs which is low compared to the other forms and has the greatest influence in terms of making a choice. The levels which characterise a housing cooperative such as common responsibility for management and maintenance and common control over adaptability yield a negative utility. The presence of a housing community does not produce positive utility either. The unique aspect of having control over the admission of new neighbours does deliver a positive utility compared to all other forms.

The tenure form private rent has a negative utility. The attributes with the highest importance after price all contribute to this in a negative way. These are the absence of asset accumulation and investment, the presence of the annual cost increase attribute and external control over the adaptability of the dwelling. The social rental form has the same coefficients but has a less negative utility because of its price level. Renting a dwelling is seen as the form that provide the least utility.

Between the housing cooperative and the rental forms tenure are the forms of owner-occupied and apartment right. These forms do not provide positive utility due to the presence of annual cost increases and lack of control over the admission of new neighbours. The form of the apartment right provides slightly less negative utility than the owner-occupied form due to common responsibility and control over shared elements, spaces and facilities.

4.5 Latent Class model

It was possible to identify groups of respondents with similar preferences by use of a latent class model. A total of three latent class models were estimated for this purpose each consisting of a different number of classes. The statistical software programme NLOGIT 6 was used (Econometric Software, Inc., 2016). It was also possible to derive the membership probabilities for each respondent of a certain class. A bivariate analysis was used to test the association between the socio-demographic variables and the estimated classes. The results of these analyses are elaborated in this section.

All three estimated latent class models are found to be significant ($p < 0.05$) and compared on the test outcomes as described in section 3.11. According to the model fit criteria, the model with the lowest AIC or BIC value should be chosen, which would mean that the model with 4 classes should be chosen (see **Table 17**). However, this model contains a large number of insignificant parameters ($p < 0.01$) and extreme values. The same observation is made for the three-class model. For that reason, both models are considered to be unusable. In the two-class model, all parameters are significant, and the model has an excellent fit (pseudo R^2 = 0.2718), so it is assumed that this model best explains the variance in the data. As explained earlier with the MNL model, the objective of this experiment was to create an outcome that is as realistic as possible. Since the latent class model with two classes has an excellent fit and all parameters are significant, the dataset without information about the opt-out could be omitted. However, these models were still estimated as a check. Results emerged with many insignificant parameters. The NLOGIT outcomes of the latent class models are included in Appendix XVII , Appendix XVIII and Appendix XIX . The outcomes of the used LC model with 2 classes are shown in **Table 18**.

Table 17
Model fit and diagnostic criteria of LC models

	2 classes	3 classes	4 classes
Number of observations (N)	7,560	7,560	7,560
Number of parameters (K)	25	38	51
LL null	-8,305.5	-8,305.5	-8,305.5
LL estimated	-6,048.1	-5,920.0	-5,860.9
AIC	12,146.1	11,916.0	11,823.7
BIC	12,319.4	12,179.4	12,177.2
Smallest class size (%)	47.7	18.2	6.8
Smallest class count (N)	451	172	64
Insignificant classes or extreme parameters	No	Yes	Yes

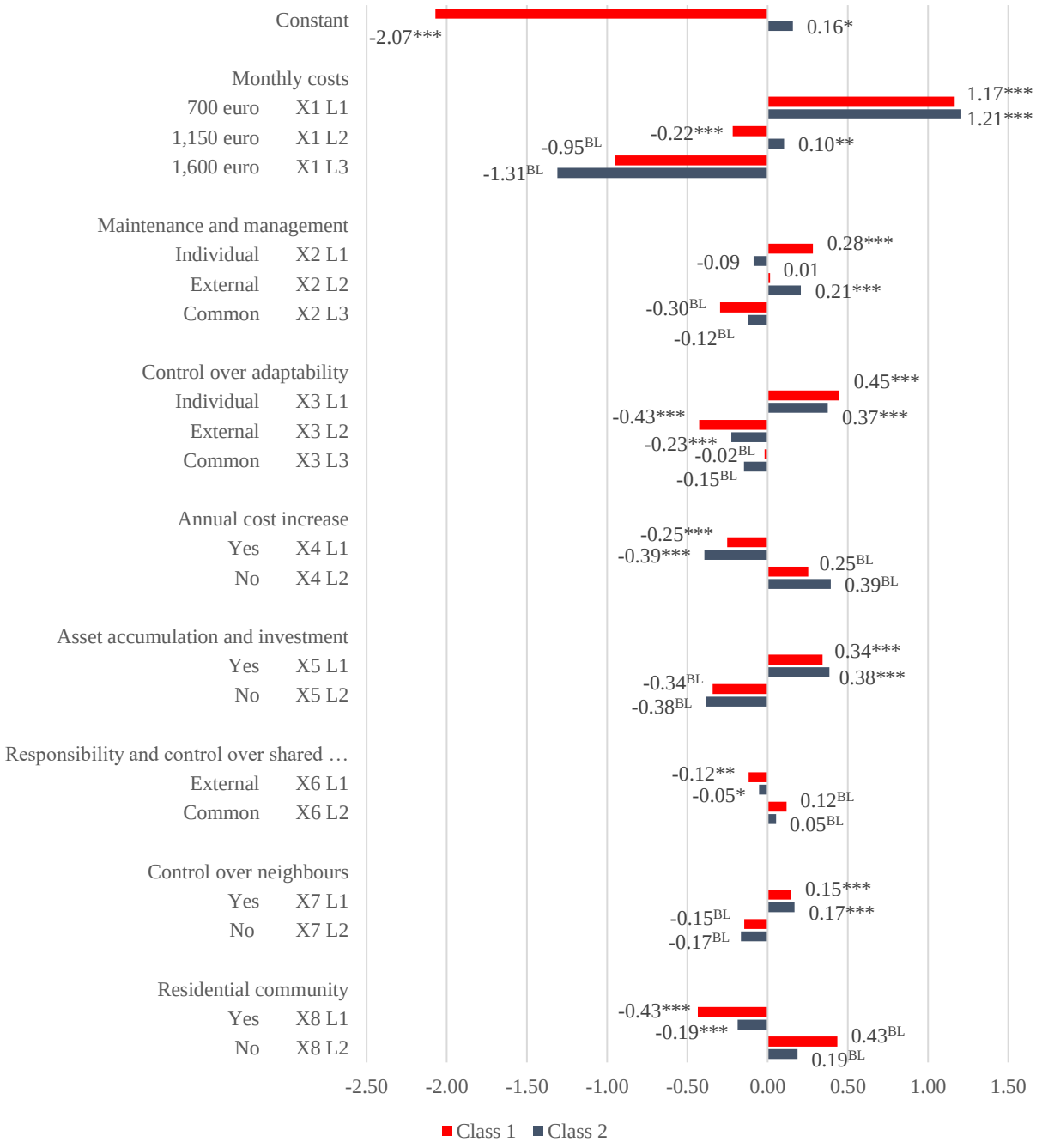
Table 18
Outcomes LC model

				Coefficients (β)	
Attributes		**Levels**		**Class 1**	**Class 2**
	Constant			- 2.071***	0.157*
X_1	Monthly costs	L1. 700 euro		1.167***	1.208***
		L2. 1,150 euro		- 0.218***	0.103**
		L3. 1,600 euro	*Base level*	- 0.949	- 1.311
X_2	Maintenance and management of the dwelling	L1. Individual		0.285***	- 0.087
		L2. External		0.014	0.207***
		L3. Common	*Base level*	- 0.296	- 0.120
X_3	Control over adaptability	L1. Individual		0.447***	0.375***
		L2. External		- 0.428***	- 0.227***
		L3. Common	*Base level*	- 0.020	- 0.148
X_4	Annual cost increase	L1. Yes		- 0.253***	- 0.394***
		L2. No	*Base level*	0.253	0.394
X_5	Asset accumulation and investment	L1. Yes		0.343***	0.385***
		L2. No	*Base level*	- 0.343	- 0.385
X_6	Responsibility and control shared elements, spaces and facilities	L1. External		- 0.119**	- 0.053*
		L2. Common	*Base level*	0.119	0.053
X_7	Control over neighbours	L1. Yes		0.145***	0.167***
		L2. No	*Base level*	- 0.145	- 0.167
X_8	Residential community	L1. Yes		- 0.435***	- 0.187***
		L2. No	*Base level*	0.435	0.187
	Class probabilities			0.523***	0.477***

Note. N = 945. ***$p < 0.01$. **$p < 0.05$. *$p < 0.1$. The base levels do not have an estimated significance level.

The results show that class one has a strong negative coefficient for the constant ($p < 0.01$) meaning that respondents belonging to this class prefer not to make a choice between the presented forms. The second class has a positive coefficient for the constant. While the coefficient is not extremely high and not strongly significant ($p < 0.1$), it does indicate that respondents belonging to this class prefer to make a choice between the forms of tenure. It can be inferred from the class probabilities that both classes have approximately an equal size and are highly significant ($p < 0.01$). The part-worth utilities for both classes are visualised in **Figure 28**.

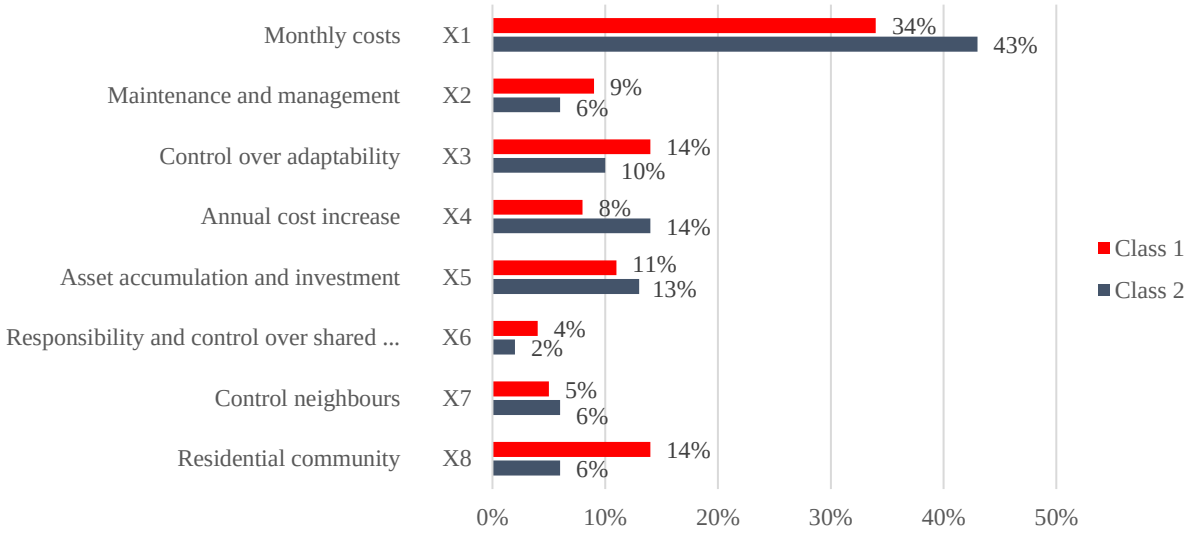
Figure 28
Visualised part-worth utilities latent classes



Note. N = 945. ***$p < 0.01$. **$p < 0.05$. *$p < 0.1$. BL = Base level, which do not have an estimated significance level.

Both classes have an equally high positive coefficient for the price level of 700 euros per month. For class two monthly costs factor is even more important than for class one when making a choice (see also **Figure 29**). However, class one has no positive utility values at a price level of 1,150 euros or 1,600 euros. Class one then attaches more value to the absence of a residential community, while class two considers the absence of annual cost increases to be more important. Both classes have approximately equal positive utility in controlling the adaptability of the home. However, class one derives no positive or negative benefit from assuming joint control but has a stronger preference not to keep control with an external party. After that, both classes find the ability to build financial asset accumulation important. Class one prefers to do the maintenance and management of the dwelling themselves, while class two prefers to make an external party responsible. Both classes have roughly a similar preference for having a say in admitting new neighbours. Both classes prefer to keep the responsibility and control over shared elements, spaces and facilities jointly rather than external. For class two, this aspect is almost irrelevant.

Figure 29
Relative importance latent classes



Again, utility function (7) from section 3.11 was used to calculate the maximum utility for both classes. The calculations for class one are shown in **Table 19** and the calculations for class two are shown in **Table 20**. In both tables the standard error term is not considered.

Table 19
Utility calculations for all forms of tenure in class one

Forms of tenure	β_0	$\beta(X_1)$	$\beta(X_2)$	$\beta(X_3)$	$\beta(X_4)$	$\beta(X_5)$	$\beta(X_6)$	$\beta(X_7)$	$\beta(X_8)$	
$U_{T1:\text{ Ind. owner-occupied}}$	= (-2.07)	+ (-0.22)	+ 0.28	+ 0.45	+ (-0.25)	+ 0.34	+ (-0.12)	+ (-0.15)	+ 0.43	= -1.30
$U_{T2:\text{ Apartment right}}$	= (-2.07)	+ (-0.22)	+ 0.28	+ 0.45	+ (-0.25)	+ 0.34	+ 0.12	+ (-0.15)	+ 0.43	= -1.06
$U_{T3:\text{ Private rent}}$	= (-2.07)	+ (-0.22)	+ 0.01	+ (-0.43)	+ (-0.25)	+ (-0.34)	+ (-0.12)	+ (-0.15)	+ 0.43	= -3.13
$U_{T4:\text{ Social rent}}$	= (-2.07)	+ 1.17	+ 0.01	+ (-0.43)	+ (-0.25)	+ (-0.34)	+ (-0.12)	+ (-0.15)	+ 0.43	= -1.74
$U_{T5:\text{ Housing cooperative}}$	= (-2.07)	+ 1.17	+ (-0.30)	+ (-0.02)	+ 0.25	+ (-0.34)	+ 0.12	+ 0.15	+ (-0.43)	= -1.48

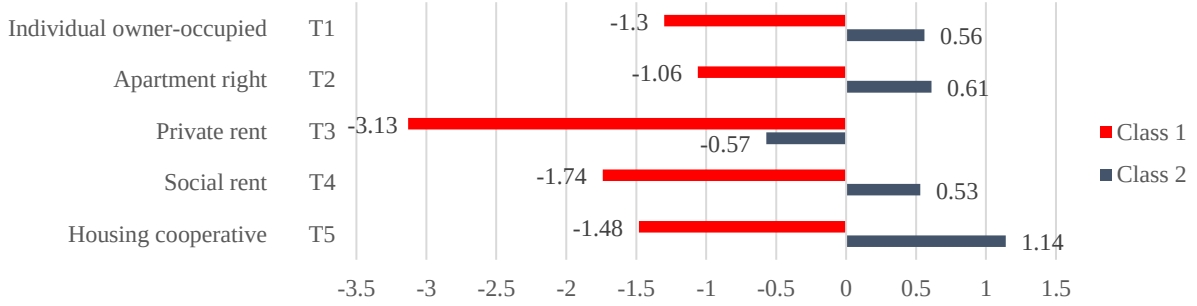
Table 20
Utility calculations for all forms of tenure in class two

Forms of tenure	β_0	$\beta(X_1)$	$\beta(X_2)$	$\beta(X_3)$	$\beta(X_4)$	$\beta(X_5)$	$\beta(X_6)$	$\beta(X_7)$	$\beta(X_8)$	
$U_{T1:\text{ Ind. owner-occupied}}$	= 0.16	+ 0.10	+ -0.09	+ 0.37	+ -0.39	+ 0.38	+ -0.05	+ -0.17	+ 0.19	= 0.56
$U_{T2:\text{ Apartment right}}$	= 0.16	+ 0.10	+ -0.09	+ 0.37	+ -0.39	+ 0.38	+ 0.05	+ -0.17	+ 0.19	= 0.61
$U_{T3:\text{ Private rent}}$	= 0.16	+ 0.10	+ 0.21	+ -0.23	+ -0.39	+ -0.38	+ -0.05	+ -0.17	+ 0.19	= -0.57
$U_{T4:\text{ Social rent}}$	= 0.16	+ 1.21	+ 0.21	+ -0.23	+ -0.39	+ -0.38	+ -0.05	+ -0.17	+ 0.19	= 0.53
$U_{T5:\text{ Housing cooperative}}$	= 0.16	+ 1.21	+ -0.12	+ -0.15	+ 0.39	+ -0.38	+ 0.05	+ 0.17	+ -0.19	= 1.14

The utilities of the forms are visualized in **Figure 30**. For class one it can be concluded that none of the forms provide a positive utility. The least amount of negative utility is achieved with the form "apartment right" or an "individual owner-occupied" dwelling. This is mainly because class one wants to have individual control over the management and maintenance of the dwelling. In addition, this class derives a relatively high utility from the absence of a residential community. It is therefore preferable not to choose for the form of a housing cooperative, although they do like to have a say in the admission of new neighbours. In addition, the aspect of no annual cost increases provides a positive utility, and they would prefer to keep responsibility and control over shared elements, spaces and facilities in common. Class one has the most negative utility for the private rent form. The social rent form is also not preferred. For both classes, this is mainly because control over the adaptability of the dwelling is not held individually, but by an external party. The aspect of asset accumulation and investment is also missing, which also gives a negative utility factor. The form social rent experiences a lesser negative utility because the monthly costs are lower.

Respondents from class two derive the most utility from the levels that characterise the housing cooperative as a form, despite the fact that this class derives no positive utility from a residential community. The most important aspect concerns the price and the absence of annual cost increases. There is also a positive outcome from the control over the admission of new neighbours. Class two then has no strong clear preference for another form. The characteristics of an individual owner-occupied home and the apartment right are valued since those assume individual control and the ability to accumulate financial wealth. A strong negative aspect are the annual cost increases. Class two derives about the same utility from choosing a social rental dwelling, despite the fact that there is no possibility to build up capital and there are annual cost increases. Because the price of a social rental home is lower, this form can still yield a relatively high utility. On the other hand, a negative utility is achieved when a private rental home is chosen.

Figure 30
Visualised total utility per form of housing tenure for each latent class



The latent class model estimates the membership probabilities for each respondent of both classes. Each respondent is assigned to one of the two classes based on their preferences. A Chi-square test was used to determine whether there are socio-demographic differences between the classes. **Table 21 s**hows the results of this, using a significance level of $p < 0.05$. The variables gender, education level, ethnicity and household composition were not found to be significant, which means that there are no significant differences between these two classes. It can be seen that age is a significant difference between the classes. Class one is characterised by somewhat older people (age 36+) and class two is characterised by more young people (18 to 25 years). Class two is significantly characterised by the presence of more students and class one has more people in the class who are employed full-time or part-time. A large proportion of the respondents from class two live with their parents or rent a dwelling, while class one is characterised by people living in owner-occupied dwellings. In addition, there are significantly more respondents in class one with a higher household income than in class two.

Table 21
Differences in socio-demographic characteristics of latent classes

		Class 1		Class 2			
Variables	**Levels**	**(N)**	**%**	**(N)**	**%**	χ^2	***p***
Age	18 - 25	158	32.1	198	43.7	26.420	< 0.001*
	26 - 35	158	32.1	154	34.0		
	36 - 45	102	20.7	47	10.4		
	46 - 55	39	7.9	29	6.4		
	56 or older	35	7.1	25	5.5		
Gender	Male	273	55.5	266	58.7	5.398	0.067
	Female	203	41.3	182	40.2		
	Other / prefer not to say	16	3.3	5	1.1		
Education level	Low & Secondary	147	29.9	151	33.3	1.582	0.453
	High	340	69.1	296	65.3		
	Prefer not to say	5	1.0	6	1.3		
Ethnicity	Native Dutch background	453	92.1	414	91.4	1.099	0.577
	Foreign background	32	6.5	35	7.7		
	Other / prefer not to say	7	1.4	4	0.9		
Employment status	Full-Time employed	245	49.8	209	46.1	15.195	0.010*
	Part-Time employed	105	21.3	78	17.2		
	Unemployed	12	2.4	6	1.3		
	Student	104	21.1	142	31.3		
	Retired	7	1.4	3	0.7		
	Other / prefer not to say	19	3.9	15	3.3		
Current tenure	Living with parents	90	18.3	127	28.0	63.364	< 0.001*
	Owner-occupied dwelling	254	51.6	121	26.7		
	Rental dwelling	135	27.4	195	43.0		
	Housing cooperative	6	1.2	4	0.9		
	Other / prefer not to say	7	1.4	6	1.3		
Household composition	Single person household	107	21.7	101	22.3	3.694	0.297
	Multi-person household without children	220	44.7	218	48.1		
	Multi-person household with children	148	30.1	113	24.9		
	Other / prefer not to say	17	3.5	21	4.6		

(continued)

Variables	Levels	Class 1 (N)	Class 1 %	Class 2 (N)	Class 2 %	χ^2	*p*
Household income	Less than €20,000	52	10.6	60	13.2	14.087	0.007*
	€20,000 - €40,000	66	13.4	92	20.3		
	€40,000 - €100,000	231	47.0	185	40.8		
	More than €100,000	72	14.6	46	10.2		
	I don't know / Prefer not to say	71	14.4	70	15.5		

Note. N = 945. *$p < 0.05$.

After the identification of the differences between the classes on socio-demographic characteristics, the differences between the classes based on the residential situation statements were analysed. This was again done by using Chi-square tests. The results are shown in **Table 22**. The variables nuisance from neighbours, satisfaction about current dwelling and satisfaction about living environment were not found to be significant. The variable 'concerns about housing costs' was found to be significant in which class two is characterised by respondents being on average more concerned than class one.

Table 22
Differences in experiences current residential situation of latent classes

Variables	Levels	Class 1 (N)	Class 1 %	Class 2 (N)	Class 2 %	χ^2	*p*
Concerns about housing costs	Very little	132	26.8	86	19.0	13.459	0.019*
	Little	151	30.7	129	28.5		
	Average	138	28.0	146	32.2		
	Much	44	8.9	61	13.5		
	Very much	23	4.7	28	6.2		
	Prefer not to say	4	0.8	3	0.7		
Nuisance from neighbours	Very little	184	37.4	179	39.5	5.345	0.375
	Little	182	37.0	144	31.8		
	Average	76	15.4	82	18.1		
	Much	35	7.1	33	7.3		
	Very much	14	2.8	11	2.4		
	Prefer not to say	1	0.2	4	0.9		
Satisfaction about current dwelling	Very dissatisfied	8	1.6	17	3.8	5.430	0.366
	Dissatisfied	33	6.7	34	7.5		
	Average	105	21.3	99	21.9		
	Much	179	36.4	150	33.1		
	Very much	166	33.7	151	33.3		
	Prefer not to say	1	0.2	2	0.4		
Satisfaction about living environment	Very dissatisfied	6	1.2	6	1.3	4.480	0.483
	Dissatisfied	34	6.9	22	4.9		
	Average	73	14.8	77	17.0		
	Much	194	39.4	161	35.5		
	Very much	184	37.4	185	40.8		
	Prefer not to say	1	0.2	2	0.4		

Note. N = 945. *$p < 0.05$.

4.6 Conclusion

In this chapter, the results of the stated choice experiment and analyses were elaborated. There were 1,404 respondents who started the SCE and eventually 1,073 respondents (76.4%) fully completed the survey. After cleaning the dataset, a sample of 945 respondents remained. A possible explanation of why that respondents quit the survey might have been that they found the survey too long or too difficult. The risk of order effects had been minimised in the design of the experiment by using blocks of choice sets and randomly assigning respondents to one of these blocks. The distribution of respondents across the blocks of choice sets showed that no order effects have occurred.

None of the socio-demographic variables of the sample in this study (N = 945) was found to be representative of Dutch society. This means that the results cannot be generalised, and conclusions can only be drawn about the group of respondents that participated. However, the results are still considered valuable because this study is one of the first exploratory studies on housing cooperatives in the Netherlands and people's underlying preferences for housing tenure.

The results of the MNL model showed that for the whole sample, choosing the no choice (opt-out) option is strongly preferred and thus a choice between the presented forms yields a negative utility. That indicates that respondents choose to prefer not to live in reality in any of the presented alternatives. Several explanations are possible as to why people generally decided to choose the opt-out. For instance, respondents may have interpreted the alternatives presented as unrealistic, complex or unclear. However, the LC model showed that the sample also contains a group of respondents who do prefer to choose one of the presented alternatives (class two). This indicates that they do would like to live in one of the presented alternatives in reality. For both classes, the attribute monthly costs matter most. After that, both classes value individual control over the adaptability of the dwelling and the possibility of asset accumulation through the dwelling. Respondents in class one considers it more important to not be part of a residential community than respondents in class two. Respondents in class two consider it more important not to have annual cost increases. The relative importance of the other attributes is lower for both classes. A notable difference, however, is that class one prefers to be responsible for managing and maintaining the dwelling itself, while class two prefers to keep this responsibility external. When utilities are calculated, class one prefers not to choose any of the alternatives. Class two prefers the housing cooperative over the other forms based on the presented characteristics. The distinguishing difference is mainly the lower monthly cost level and the absence of annual cost increases. By both classes, the form of private renting is seen as the least preferred form.

Subsequently, it was possible to find out distinctive socio-demographic characteristics for both classes as well. Class one mainly contains respondents who are on average older, work full-time or part-time, live in an owner-occupied dwelling and are more likely to have a higher household income. Class two is characterised by the presence of younger respondents, are more often students, and they rent a dwelling or live with their parents. In addition, class two is characterised by respondents being more concerned about their housing costs than respondents in class one.

CHAPTER 5
DISCUSSION & CONCLUSION

In this chapter, the results of this study are compared and discussed with results from previous studies. The given conclusion provides an answer to the main and sub-questions and some policy and practical implications are also given. Finally, some observations have been made that have limited this study and advice for follow-up research is given as well.

5.1 Discussion

The results of this study cannot be generalised to the Dutch population since the sample was not found to be representative. It should also be kept in mind that this study was conducted in a period characterised by expensive general living conditions caused by high inflation. The housing market is experiencing high scarcity of dwellings, making both rental and owner-occupied housing relatively expensive, while the high inflation has caused interest rates to rise and made it more costly to take out a mortgage. Therefore, respondents may have focused more on the monthly cost aspect in the stated choice experiment as this may be a current priority. It is therefore emphasised that this study is a moment in time and that outcomes should be interpreted and adopted with care. However, the outcomes still remain important as it this was an exploratory study and provided new insights. Despite the fact that mostly younger, higher educated people with a higher average income participated, the sample size was relatively large (N = 945), making the results valid for this group of individuals.

Brandsen & Helderman (2011) argued that preferences differ for aspects of a housing cooperative. They also argued that these preferences differ between groups. This study shows that certain aspects of a housing cooperative, are preferred (monthly costs, control over neighbours and no annual cost increase). This study also shows that there are aspects that are not preferred (lack of ability to accumulate equity, the presence of a residential community, coordinating or performing management and maintenance in common, and common control over the adaptability of the dwellings). This study was unable to show that there are groups that have conflicting preferences regarding the aspects of a housing cooperative.

People tend to adjust their housing tenure preferences according to their socio-economic opportunities. Higher income, a higher education level and full-time employment status increase the likelihood of developing a preference for owner-occupied housing (Andersen, 2011; De Groot et al., 2013). This research shows that people with higher income levels are more likely to develop a preference for owner-occupied housing than those with lower incomes. The latter are more likely to look at the price factor and adjust their choice of housing tenure. Elsinga (2005) and Hoekstra & Boelhouwer (2014) mention that people with lower incomes are more likely to live in a (social) rental dwelling. This study shows that this might be a consequence of a forced choice since people do not prefer to live in a rental dwelling based on the attributes included in this study. This study also found that younger people are more likely to worry about their housing costs than older people, which is in line with the study of Arundel et al., (2022) that concluded that younger people are more likely to face housing affordability issues.

The observation that the number of private rental properties in recent years has increased a lot is at odds with the preferences that respondents from this study have (WoON, 2022). However, as was heard in the interviews, people seem to consider other characteristics more important than housing tenure attributes which means that the choice for a rental dwelling is mainly not based on the attributes included in this study, except the attribute monthly costs.

5.2 Conclusion

The housing market in the Netherlands is facing a shortage of available affordable dwelling. Therefore, more than 300,000 affordable dwellings need to be built between now and 2030. Measures from the past show that if systematic changes are not considered, no major breakthroughs should be expected. The housing cooperative is such a change which can guarantee affordable housing in the long-term. Currently, political and social interest for this form of housing is growing, but no major breakthrough is yet forthcoming. This study investigated the market demand for housing cooperatives based on the underlying preferences people have for forms of housing tenure. Several sub-questions were formulated, and various methods applied to answer the following main question: *"What is the demand for housing cooperatives in the Netherlands, based on the underlying preferences for housing tenure?"*

Sub-question 1:
What forms of housing tenure does the current housing market in the Netherlands have and how have these developed over the past?

A literature review was conducted to answer sub-question 1. Until the introduction of the Housing Act in 1901, the Netherlands had housing cooperatives, which were founded out of the need to provide good affordable working-class dwellings. Political policy resulted in the disappearance of housing cooperatives and their transformation into housing associations under the supervision of the central government. The social rental market became important for the reconstruction of the housing stock after the Second World War, and from the 1960s owner-occupied dwellings were made attractive through financial advantages such as mortgage interest deduction. The Dutch housing market today is characterised by the strong presence of owner-occupied dwellings, which can be divided into individual owner-occupied dwellings and apartment dwellings. On the other hand, there is a significant amount of social rental dwellings and private rental dwellings as forms of housing tenure. The housing cooperative has never returned as a significant form of tenure on the housing market.

Sub-question 2:
What does the process of establishing a housing cooperative look like, and what are the critical success factors and limitations for developing and managing a housing cooperative?

Sub-question 3:
What are the main lessons that can be learned from housing cooperatives from other countries?

Sub-question 4:
What are the characteristics of different forms of housing tenure (including housing cooperatives) in the Netherlands, and what are the differences?

The answers to sub-question 2, sub-question 3 and sub-question 4 are strongly related to each other and are therefore best answered as a whole. The literature review and the semi-structured interviews in this study were used to answer these sub-questions. A housing cooperative is characterised through collective ownership, which distinguishes itself from owner-occupied characterised through individual ownership and rent characterised through external ownership. Ownership is a characteristic that reflects the distribution and relations of underlying rights and obligations. To operationalise these differences between forms of housing tenure, this study used the bundle of rights analogy.

A housing cooperative is able to guarantee long-term affordable housing by excluding the sale of dwellings by statute. Experience from abroad shows that if this is not done, a housing cooperative has little chance of survival. As a result, speculation with dwellings is not possible within a housing cooperative, and individual profits cannot be made. As a result, members of the housing cooperative will aim for cost-covering rents and not raise rents. This is an important difference from owner-occupied

housing, where individual ownership is assumed where the sale of and accumulation of financial equity through the dwelling is possible. Rental housing differs in this respect because the rights do not lie with the occupant but with the owner. These characteristics result in lower financial monthly costs in a housing cooperative than other forms of housing tenure. A social rental dwelling is also characterised by a lower rent, but this comes from the maximisation of rents due to laws and regulations.

By assuming collective ownership, the main condition is that the members of the housing cooperative must jointly meet their housing needs by themselves. They must manage and maintain the dwellings as a collective. As a result of collective ownership, decisions on the use or adaptability of dwellings are also taken in a collective manner. These characteristics differ from an owner-occupied dwelling, where an individual is responsible and has absolute control. In rental dwellings, these features are usually in the hands of the landlord.

This study also made the division between individual owner-occupied dwellings and the apartment right (VVE) dwellings due to the difference in responsibility and control over shared spaces, elements and facilities. The housing cooperative is based on autonomy, resulting in the ability to decide who is admitted to the housing cooperative, and therefore influencing who becomes a neighbour. An aspect which is not found in other forms of housing tenure. In the Netherlands, current housing cooperatives stem mainly from the pursuit of idealistic perspectives such as sustainability or social cohesion. The pursuit of such objectives requires the strong presence of a residential community, which is also a characteristic of currently realised housing cooperatives.

Sub-question 5:
"What do people consider important when it comes to housing tenure, and based on these characteristics, could the housing cooperative be a good alternative?"

A stated choice experiment was conducted to answer sub-question 5. With the help of a latent class analysis, it was possible to identify two classes of almost equal size that have respectively similar preferences. The major difference is that the first class mostly indicated that they did not actually want to live in any of the presented alternatives and the second class indicated that they would. Other differences between the classes are found in the relative importance for certain attributes.

Both classes consider the attribute monthly cost the most important with a relative importance of 34% for class one and 43% for class two. Next, the respondents in class one considers it important that they have individual control over the adaptability of the dwelling and that there is no residential community. Respondents in class two consider it most important, after monthly costs, that there are no annual cost increases. Both classes consider it about equally important (relative importance of 11 percent and 13 percent) that it is possible to accumulate assets through the dwelling. A notable difference between the classes is that class one prefers to be individually responsible for the management and maintenance of the dwelling, and class two prefers to have this responsibility in the hands of an external party. The relative importance of the attributes control over neighbours and responsibility and control over shared elements, spaces and facilities are of lesser importance for both classes.

Based on people's preferences for the attributes included, Class 2 prefers to live in a housing cooperative and also indicates that they actually want to live in this form of tenure. After that, this class prefers an owner-occupied dwelling (individual or apartment right) or a social rental dwelling. Despite the fact that respondents in class 1 have indicated that they do not want to live in any of the alternatives presented in the SCE, it seems that they prefer to live in an owner-occupied dwelling. After that, they prefer a more affordable dwelling (housing cooperative or social rent).

Sub-question 6:
"For which people can a housing cooperative be an attractive alternative form of housing in the Netherlands looking at differences in preferences among groups?"

The results of the latent class analysis showed that class two most prefer the housing cooperative as form of tenure, based on the characteristics included in this study. This group of respondents is mostly characterised by a relatively young age of between 18 and 25 years followed by an age cohort of between 26 and 35 years old. In addition, most of them currently rent a dwelling, are full-time employed, followed by a relatively large group of students. Most respondents in this class earn a gross income between 40,000 and 100,000 euros annually, but a considerable amount also earns a lower income of 20,000 to 40,000 euros annually. On average, the respondents from class two are more concerned about their financial housing costs than the respondents in class one.

Main question
"What is the demand of housing cooperatives in the Netherlands, based on the underlying preferences for housing tenure?"

As answer to the main question, it can be concluded that there is a clear demand for affordable dwellings as the attribute of monthly costs is considered to be the most important factor. As a result, people are willing to live in different forms of housing tenure if this results in lower monthly costs. As a result, the respondents of class two favour the form of a housing cooperative over the other forms. This implies that there is demand for this new form and that there is a need in the market for diversification. However, not all characteristics of a housing cooperative are preferred which means that probably other forms will be chosen if the housing cooperative loses its affordability aspects. For a properly functioning housing cooperative, people have to be willing to meet their housing needs themselves. That means they have to take management and maintenance into their own hands. The results of this study show that there is no clear preference among respondents to manage or conduct management and maintenance in a joint way. People prefer to be individually responsible or have no responsibility in this matter at all. Also, this study found that a housing cooperative is more likely to succeed when there is no emphatic presence of a strong residential community as people do not prefer this aspect.

In this study, about 52% of respondents indicated that they do not want to live in an alternative as presented in the SCE (opt-out). About 48% have indicated that they do want to live in a presented alternative and have a strong preference for the housing cooperative as a form of tenure compared to other forms. Translating this to the Dutch context would result in that, out of the approximately 8 million households, around 3.84 million households would prefer the housing cooperative as form of tenure. The respondents from class 2 in this study consist for 77% of a relatively young group of people (age up to 35 years) so little can be concluded about older age cohorts. About 2.5 million households in the Netherlands are occupied by people younger than 35 years of age. This would imply that about 1.2 million households would prefer the housing cooperative as a form of tenure. Considering a 10% confidence interval and rounded figures, this would mean that there is demand between 1.08 million and 1.32 million dwellings within a housing cooperative among people aged up to 35. However, it should be kept in mind that the sample of this study is not found representative for the Dutch population and that reality may therefore differ from this estimation.

This study has further shown that people living in rental properties are more willing to look for affordable alternatives than those in owner-occupied dwellings. They often have a lower household income which makes the monthly cost attribute of even more importance. Another noticeable result is that almost all characteristics of a rental dwelling are not preferred. A private rental dwelling is never a desirable form on the basis of the characteristics included in this study. Social rental dwellings are considered to be a suitable option due to their affordability.

5.3 Policy and practical implications

This study shows that a substantial proportion of respondents prefer a dwelling with lower financial monthly costs. The housing cooperative is a form of housing tenure that guarantees this in the long term. Governments would therefore do well to actively explore and promote this form of housing tenure. The strength of a housing cooperative is based on the long term, but for this, housing cooperatives must first be established. Currently, housing cooperatives in the Netherlands still experience many problems during this phase. Several implications can be identified in which governments and financial institutions can play a role to reduce or remove the barriers in the development process.

The housing market in the Netherlands benefits from diversification of forms of housing tenure, and therefore it should become easier to set up housing cooperatives. Housing cooperatives need structure and guidance during the establishment process. Current knowledge platform CoopLink in cooperation with Platform31 already offers several tools and guidance for starting housing cooperatives. Municipalities can provide clarity by drawing up standardised policies stipulating conditions for the establishment of a housing cooperative. At the moment, it takes a lot of time and effort to set up a housing cooperative. Standardisation promotes the development process, making it easier to establish a housing cooperative, which supports the growth of housing cooperatives. Municipalities can develop strategies and provide or reserve land for housing cooperative projects. In addition, governments can offer fiscal benefits for establishing a housing cooperative. Housing cooperatives need to be looked at in a new way as the real estate has no investment aspect. This makes it different from owner-occupied or rental dwellings.

Access to finance needs to be simplified and clarified. As far as known, no banks in the Netherlands have granted a mortgage to a housing cooperative based on common ownership. A few banks are willing to enter the discussion. Housing cooperatives would benefit from a bank that is prepared to lend mortgages and set uniform conditions. The German GLS bank, which has already financed many housing cooperatives in Germany but also some in the Netherlands, can serve as an example. They use a different calculation method which does not assume a residual value of the real estate but calculates their return on the rental income.

Starting housing cooperatives should focus on the ownership structure of a housing cooperative. This feature ensures long-term affordability and keeps the housing cooperative attractive. There should be less focus on achieving idealistic goals that require a strong residential community. This is because most respondents did not give a positive preference to the presence of a residential community. Housing cooperatives should also keep as much responsibility and decisions with the individual in their organisation as possible. People prefer to decide for themselves on the adaptability of their dwelling. The more regulation attached to this, the fewer people would like to live in a housing cooperative. It can also be further investigated whether housing cooperatives can be established in which an aspect of asset accumulation and investment is present as people value this relatively highly. However, this study underlines that housing speculation causes housing cooperatives to lose their existence and therefore should be treated with caution.

This study also showed that people are willing to live in social rental dwelling. The aspects of a rental dwelling itself are not what people prefer, but the affordability of social housing makes the form of tenure attractive. Housing associations are currently limited in their options. The overall trend over the past two or three decades has been to narrow the target group that is eligible for social rental housing. The government should review laws and regulations (for instance the SGEB and non- SGEB division) allowing housing associations to house a wider target group. This way, more people can qualify for affordable housing, which increases overall sentiment among house seekers.

5.4 Limitations of this study

The sample size of this study was not found to be representative for the Dutch population. There was an overrepresentation of respondents who are generally relatively young and highly educated with an average higher household income. Therefore, the results and conclusions cannot be generalised and should be interpreted or adopted with care.

For this study, a stated choice experiment was used. This method requires complex choice tasks to be simplified so that relevant aspects can be examined and lead to clear conclusions. In this study, extensive attention and time was spent on this and the survey was tested several times before it was distributed. However, a notable number of respondents quit while completing the survey, which may imply that the stated choice experiment was too much reading work or too difficult.

5.5 Recommendations for future research

No other studies are known to the researcher that have examined preferences based on the rights and obligations associated with a form of housing tenure as was done in this study. This study was therefore new and exploratory, and the results have led to new insights and advice for follow-up research.

The results of this study are based on a sample that was found not to be representative for the Dutch population. It would therefore be interesting to repeat the study with a representative sample size. Mainly the participation of older participants (36+) and less educated individuals was missing in this study.

During interviews and personal conversations by the researcher with family, friends and relatives, it was mostly found that housing tenure is a topic that is not thought about very thoroughly. During the interviews, most respondents indicated that they want to buy a dwelling and only rent a dwelling out of necessity because of the missing aspect of financial asset accumulation. They often did not go beyond these aspects of housing tenure. Therefore, it is recommended to obtain qualitative research in the future in which, for instance, means-end techniques can be used to better determine what people consider really important about the concept of housing tenure.

Then, in follow-up research, it can be chosen to repeat a stated choice experiment, but the advice would be to include a maximum of two alternatives and a maximum of four attributes. It is a relatively difficult concept for people to relate to. Therefore, as small a design as possible should be sought. The interviews showed that people first look at other aspects such as floor space and location. So, it could be interesting to investigate whether there are distinctive aspects in this area for a housing cooperative compared to an owner-occupied house to see how this affects choice behaviour.

As related earlier in the discussion, this study was conducted as a moment in time in which respondents may have let their choice be influenced by current cost aspects. It would therefore be interesting to repeat the study in a period when housing prices are more affordable, or in a time with lower inflation rates, or to repeat the study over a longer period (longitudinal study). It would be interesting to see how people let then influence their choice behaviour by the monthly cost aspect.

Finally, this study used an unlabelled experiment in which the demand for housing cooperatives was deduced based on the attributes that were used. It could provide interesting insights if respondents were asked the direct question whether they would prefer to live in an owner-occupied house, rental dwelling or a housing cooperative. The recommendation is to explore this through qualitative interviews so that it can be found out why people would or would not want to live in a housing cooperative.

REFERENCES

Aalbers, M. B., Van Loon, J., & Fernandez, R. (2017). The financialization of a social housing provider. *International Journal of Urban and Regional Research*, *41*(4), 572–587. https://doi.org/10.1111/1468-2427.12520

Aedes. (n.d.). *Hoe komen huurprijzen tot stand?* Retrieved 12 February 2023, from https://aedes.nl/huurbeleid-en-betaalbaarheid/hoe-komen-huurprijzen-tot-stand

Aernouts, N., & Ryckewaert, M. (2019). Reproducing housing commons. Government involvement and differential commoning in a housing cooperative. *Housing Studies*, *34*(1), 92–110. https://doi.org/10.1080/02673037.2018.1432756

Ahedo, M., Hoekstra, J., & Etxezarreta, A. (2021). Socially oriented cooperative housing as alternative to housing speculation. Public policies and societal dynamics in Denmark, the Netherlands and Spain. *Review of Social Economy*, 1–22. https://doi.org/10.1080/00346764.2021.1917646

Andersen, H. S. (2011). Motives for tenure choice during the Life cycle: The importance of non-economic factors and other housing preferences. *Housing, Theory and Society*, *28*(2), 183–207. https://doi.org/10.1080/14036096.2010.522029

Angel, S., & Gregory, J. (2021). Does housing tenure matter? Owner-occupation and wellbeing in Britain and Austria. *Housing Studies*, 1–21. https://doi.org/10.1080/02673037.2021.1912714

Archer, T. (2022). The mechanics of housing collectivism: How forms and functions affect affordability. *Housing Studies*, *37*(1), 73–102. https://doi.org/10.1080/02673037.2020.1803798

Arundel, R., Li, A., Baker, E., & Bentley, R. (2022). Housing unaffordability and mental health: Dynamics across age and tenure. *International Journal of Housing Policy*, 1–31. https://doi.org/10.1080/19491247.2022.2106541

Ball, H. L. (2019). Conducting online surveys. *Journal of Human Lactation*, *35*(3), 413–417. https://doi.org/10.1177/0890334419848734

Balmer, I., & Gerber, J. D. (2018). Why are housing cooperatives successful? Insights from Swiss affordable housing policy. *Housing Studies*, *33*(3), 361–385. https://doi.org/10.1080/02673037.2017.1344958

Bani, M. (2023, March 17). Starter historisch hoog aandeel van inkomen kwijt aan hypotheek. *ING*. https://www.ing.nl/zakelijk/economie/nederland/starter-historisch-hoog-aandeel-van-inkomen-kwijt-aan-hypotheek

Barenstein, J. D., Koch, P., Sanjines, D., Assandri, C., Matonte, C., Osorio, D., & Sarachu, G. (2022). Struggles for the decommodification of housing: The politics of housing cooperatives in Uruguay and Switzerland. *Housing Studies*, *37*(6), 955–974. https://doi.org/10.1080/02673037.2021.1966392

Barlow, J., & Duncan, S. (1988). The use and abuse of housing tenure. *Housing Studies*, *3*(4), 219–231. https://doi.org/10.1080/02673038808720632

Beekers, W. P. (2012). *Het bewoonbare land: Geschiedenis van de volkshuisvestingsbeweging in Nederland* (1st ed.). BOOM.

Birchall, J. (2003). *Rediscovering the cooperative advantage: Poverty reduction through self-help* (1st ed.). International Labour Organization.

Blandy, S., & Goodchild, B. (1999). From tenure to rights: Conceptualizing the changing focus of housing law in England. *Housing, Theory and Society*, *16*(1), 31–42. https://doi.org/10.1080/14036099950150071

Bliemer, M. C. J., & Rose, J. M. (2014). Designing and conducting stated choice experiments. In S. Hess & A. Daly (Eds.), *Handbook of Choice Modelling* (2nd, forthcoming ed.). Edward Elgar Publishing. https://doi.org/10.4337/9781781003152

Boelhouwer, P., & van der Heijden, H. (2022). De woningcrisis in Nederland vanuit een bestuurlijk perspectief: Achtergronden en oplossingen. *Bestuurskunde*, *31*(1), 19–33. https://doi.org/10.5553/Bk/092733872022031001002

Bossuyt, D. (2020). Gaat de coöperatie de woningnood oplossen? *AGORA Magazine*, *36*(1), 21–23. https://doi.org/10.21825/AGORA.V36I1.16905

Bossuyt, D. (2022). Who owns collaborative housing? A conceptual typology of property regimes. *Housing, Theory and Society*, *39*(2), 200–216. https://doi.org/10.1080/14036096.2021.1888788

Bossuyt, D., Salet, W., & Majoor, S. (2018). Commissioning as the cornerstone of self-build. Assessing the constraints and opportunities of self-build housing in the Netherlands. *Land Use Policy*, *77*, 524–533. https://doi.org/10.1016/j.landusepol.2018.06.003

Boumeester, H. J. F. M. (2011). Traditional Housing Demand Research. In S. J. T. Jansen, H. C. C. H. Coolen, & R. W. Goetgeluk (Eds.), *The Measurement and Analysis of Housing Preference and Choice* (1st ed., pp. 27–55). Springer. https://doi.org/10.1007/978-90-481-8894-9

Brandsen, T., & Helderman, J. K. (2011). The conditions for successful co-production in housing: A case study of German housing cooperatives. In V. Pestoff, T. Brandsen, & B. Verschuere (Eds.), *New public governance, the third sector, and co-production* (1st ed., pp. 169–191). Routledge. https://doi.org/10.4324/9780203152294

Briene, M., Kievit, R., Van Ossenbruggen, E., Bos, R., & De Gouw, F. (2021). *Europees onderzoek naar wooncoöperaties. Inzicht in de mogelijke bijdrage van wooncoöperaties voor de Nederlandse woningmarkt*. Ecorys. https://www.ecorys.com/sites/default/files/2021-07/rapport-europees-onderzoek-naar-wooncooperaties%20%283%29.pdf

Bruun, M. H. (2018). The financialization of Danish cooperatives and the debasement of a collective housing good. *Critique of Anthropology*, *38*(2), 140–155. https://doi.org/10.1177/0308275X18761960

Bryman, A. (2016). *Social research methods* (5th ed.). Oxford University Press.

Campbell, D., & Erdem, S. (2019). Including opt-out options in discrete choice experiments: Issues to consider. *The Patient - Patient-Centered Outcomes Research*, *12*(1), 1–14. https://doi.org/10.1007/s40271-018-0324-6

CBS. (2016). *Aantallen en kenmerken van Verenigingen van Eigenaren. Een verkennend onderzoek*. Centraal Bureau voor de Statistiek. https://www.cbs.nl/nl-nl/achtergrond/2016/20/aantallen-en-kenmerken-van-verenigingen-van-eigenaren

CBS. (2022a). *Bevolking; kerncijfers, 1950-2022* [Data set]. https://opendata.cbs.nl/#/CBS/nl/dataset/37296ned/table

CBS. (2022b). *Inkomen van huishoudens; inkomensklassen, huishoudenskenmerken* [Data set]. https://opendata.cbs.nl/#/CBS/nl/dataset/83932NED/table

CBS. (2023a). *Arbeidsdeelname; kerncijfers seizoengecorrigeerd* [Data set]. https://opendata.cbs.nl/#/CBS/nl/dataset/85224NED/table

CBS. (2023b). *Bevolking; hoogst behaald onderwijsniveau en herkomst* [Data set]. https://opendata.cbs.nl/#/CBS/nl/dataset/85453NED/table

CBS. (2023c). *Bevolking op 1 januari en gemiddeld; geslacht, leeftijd en regio* [Data set]. https://opendata.cbs.nl/#/CBS/nl/dataset/03759ned/table

CBS. (2023d). *Consumentenprijzen; prijsindex 2015=100* [Data set]. https://opendata.cbs.nl/statline/#/CBS/nl/dataset/83131ned/table?fromstatweb

CBS. (2023e). *Huishoudens; samenstelling, grootte, regio, 1 januari* [Data set]. https://opendata.cbs.nl/#/CBS/nl/dataset/71486ned/table

CBS. (2023f). *Leerlingen en studenten; onderwijssoort, woonregio* [Data set]. https://opendata.cbs.nl/#/CBS/nl/dataset/71450ned/table

CBS. (2023g). *Personen met AOW-uitkering; geslacht, leeftijd en migratieachtergrond* [Data set]. https://opendata.cbs.nl/#/CBS/nl/dataset/84943NED/table

CBS. (2023h). *Voorraad woningen; eigendom, type verhuurder, bewoning, regio* [Data set]. https://opendata.cbs.nl/#/CBS/nl/dataset/82900NED/table?ts=1667126540833

CBS & TU Delft/OTB. (2020, February 13). *Monitor koopwoningmarkt* [Data set]. https://www.cbs.nl/nl-nl/visualisaties/monitor-koopwoningmarkt

Conijn, J. (2022). *Financiering van wooncoöperaties. Een verkenning van mogelijkheden*. Finance Ideas. https://finance-ideas.nl/financiering-van-wooncooperaties-een-verkenning-van-mogelijkheden/

CoopLink. (n.d.-a). *Doe mee!* Retrieved 21 February 2023, from https://www.cooplink.nl/initiatieven

CoopLink. (n.d.-b). *Gemeentelijk beleid wooncoöperatie*. Retrieved 28 February 2023, from https://www.platform31.nl/wat-we-doen/kennisdossiers/wooncooperatie-1/gemeentelijk-beleid-wooncooperatie

CoopLink. (2022, September 3). *Ruim baan voor de wooncoöperatie*. https://www.cooplink.nl/wp-content/uploads/2022/10/20220903-VERSLAG-Ruim-baan-voor-de-wooncooperatie.pdf

Czischke, D. (2014). *Social housing organisations in England and The Netherlands: Between the state, market and community* (1st ed.). https://doi.org/10.7480/abe.2014.14.792

Czischke, D. (2018, May). Collectief wonen populair in Europa. *De Wooncooperatie Die Komt Er Wel*, 49–51.

Czischke, D., Carriou, C., & Lang, R. (2020). Collaborative housing in Europe: Conceptualizing the field. *Housing, Theory and Society*, *37*(1), 1–9. https://doi.org/10.1080/14036096.2020.1703611

Czischke, D., & van Bortel, G. (2018). An exploration of concepts and polices on 'affordable housing' in England, Italy, Poland and The Netherlands. *Journal of Housing and the Built Environment*. https://doi.org/10.1007/s10901-018-9598-1

De Bekker-Grob, E. W., Donkers, B., Jonker, M. F., & Stolk, E. A. (2015). Sample size requirements for discrete-choice experiments in healthcare: A practical guide. *The Patient - Patient-Centered Outcomes Research*, *8*(5), 373–384. https://doi.org/10.1007/s40271-015-0118-z

De Groot, C. (2011). Longitudinal Analysis. In S. J. T. Jansen, H. C. C. H. Coolen, & R. W. Goetgeluk (Eds.), *The Measurement and Analysis of Housing Preference and Choice* (1st ed., pp. 225–252). Springer. https://doi.org/10.1007/978-90-481-8894-9

De Groot, C., Manting, D., & Mulder, C. H. (2013). Longitudinal analysis of the formation and realisation of preferences to move into homeownership in the Netherlands. *Journal of Housing and the Built Environment*, *28*(3), 469–488. https://doi.org/10.1007/s10901-012-9320-7

De Jonge, H. (2023, February 8). *Aanpak wooncoöperaties* [Letter of government]. https://www.rijksoverheid.nl/documenten/kamerstukken/2023/02/08/kamerbrief-over-aanpak-wooncooperaties

Dieleman, F. M. (1999). Policy review. The impact of housing policy changes on housing associations: Experiences in the Netherlands. *Housing Studies*, *14*(2), 251–259. https://doi.org/10.1080/02673039982948

Duivesteijn, A. (2018, May). De paradox van ons sociale woonstelsel. *De Wooncooperatie Die Komt Er Wel*, 21–22.

Econometric Software, Inc. (2016). *NLOGIT 6*. https://www.limdep.com/products/nlogit/

Elsinga, M. (2005). Affordable and low-risk home ownership. In P. Boelhouwer, J. Doling, & M. Elsinga (Eds.), *Home ownership. Getting in, getting from, getting out* (1st ed., pp. 75–94). Delft University Press. http://resolver.tudelft.nl/uuid:10d9a898-d36a-4a9a-bca8-0254bab7896f

Elsinga, M. (2012). Intermediate Housing Tenures. In S. J. Smith (Ed.), *International Encyclopedia of Housing and Home* (1st ed., pp. 124–129). Elsevier Science. https://doi.org/10.1016/B978-0-08-047163-1.00210-1

Elsinga, M., Haffner, M., & Van Der Heijden, H. (2008). Threats to the Dutch unitary rental market. *European Journal of Housing Policy*, *8*(1), 21–37. https://doi.org/10.1080/14616710701817141

Elsinga, M., & Wassenberg, F. (2014). Social Housing in the Netherlands. In K. Scanlon, C. Whitehead, & M. F. Arrigoitia (Eds.), *Social housing in Europe* (1st ed., pp. 25–40). Wiley Blackwell. https://doi.org/10.1002/9781118412367

Fahrner, L., Kotulla, T., & Beusker, E. (2019). Motivations to become a member of a housing cooperative: Comparison of the national characteristics of Sweden, Germany and the USA. In *26th Annual European Real Estate Society Conference*. ERES. https://doi.org/10.15396/eres2019_118

Gemeente Amsterdam. (2020). *Aan de slag met wooncoöperaties! Eindrapport kwartiermaker*. https://www.aef.nl/storage/images/Eindrapport_uitwerking_Actieplan__Aan_de_slag_met_Wooncooperaties__12_m.pdf

Goedhart, M. (Director). (2023). Van krot tot arbeiderspaleis (Episode 1) [Documentary]. In *Van krot tot Vinex: 100 jaar wonen*. NTR.

Greene, W. (2016). *NLOGIT Version 6. Reference guide* (1st ed.). Econometric Software, Inc. https://pages.stern.nyu.edu/~wgreene/DiscreteChoice/Software/manual/NLOGIT%206%20Reference%20Guide.pdf

Griffith, E. J., Jepma, M., & Savini, F. (2022). Beyond collective property: A typology of collaborative housing in Europe. *International Journal of Housing Policy*, 1–21. https://doi.org/10.1080/19491247.2022.2123272

Guity Zapata, N. A., & Stone, W. M. (2022). Home motivations and lived experiences in housing cooperatives and cohousing communities: A two-contexts scoping review. *Housing Studies*, 1–24. https://doi.org/10.1080/02673037.2022.2157801

Haffner, M. E. A. (2000). Costs and fiscal subsidies in owner occupation: Method and outcomes. *Journal of Housing and the Built Environment*, *15*(1), 53–69.

Hensher, D. A., Rose, J. M., & Greene, W. H. (2015). *Applied Choice Analysis* (2nd ed.). Cambridge University Press. https://doi.org/10.1017/CBO9781316136232

Hochstenbach, C. (2022). *Uitgewoond: Waarom het hoog tijd is voor een nieuwe woonpolitiek* (3rd ed.). DasMag.

Hoekstra, J. (2017). Reregulation and Residualization in Dutch Social Housing: A Critical Evaluation of New Policies. *Critical Housing Analysis*, *4*(1), 31–39. https://doi.org/10.13060/23362839.2017.4.1.322

Hoekstra, J., & Boelhouwer, P. (2014). Falling between two stools? Middle-income groups in the Dutch housing market. *International Journal of Housing Policy*, *14*(3), 301–313. https://doi.org/10.1080/14616718.2014.935105

Hulse, K. (2008). Shaky Foundations: Moving Beyond "Housing Tenure". *Housing, Theory and Society*, *25*(3), 202–219. https://doi.org/10.1080/14036090802117572

IBM. (2023). *SPSS Software 29*. https://www.ibm.com/spss

Jansen, S. J. T., Coolen, H. C. C. H., & Goetgeluk, R. W. (Eds.). (2011). Introduction. In *The Measurement and Analysis of Housing Preference and Choice* (1st ed., pp. 1–26). Springer. https://doi.org/10.1007/978-90-481-8894-9

Janssen-Jansen, L. B., & Schilder, F. P. W. (2015). How healthy and sustainable is the Dutch housing mix? Measuring and comparing the theoretical housing market balance of Dutch regional housing markets. *Urban, Planning and Transport Research*, *3*(1), 88–108. https://doi.org/10.1080/21650020.2015.1054565

Johnson, D. R. (2007). Reflections on the Bundle of Rights. *Vermont Law Review*, *32*(2), 247–272.

Jonkman, A. (2021). *Housing Opportunities Instead Of Market Responsiveness* [European Liberal Forum Policy Paper]. European Liberal Forum EUPF. http://resolver.tudelft.nl/uuid:aeb03e44-7de4-466b-8ca8-bc5565573527

Kemperman, A. (Astrid). (2000). *Temporal aspects of theme park choice behavior: Modeling variety seeking, seasonality and diversification to support theme park planning* (1st ed.). Technische Universiteit Eindhoven. https://doi.org/10.6100/IR542240

Kløjgaard, M. E., Bech, M., & Søgaard, R. (2012). Designing a Stated Choice Experiment: The Value of a Qualitative Process. *Journal of Choice Modelling*, *5*(2), 1–18. https://doi.org/10.1016/S1755-5345(13)70050-2

Koffijberg, J. J. (1997). *Tussen sturen en schipperen: Decentralisatie van de volkshuisvesting: deelstudie vijftig jaar DGVH* (1st ed.). Delft University Press. http://resolver.tudelft.nl/uuid:fefbdc7b-8a0d-4c3d-94a0-337e6b7311ae

Lang, R., Carriou, C., & Czischke, D. (2020). Collaborative housing research (1990–2017): A systematic review and thematic analysis of the field. *Housing, Theory and Society*, *37*(1), 10–39. https://doi.org/10.1080/14036096.2018.1536077

Larsen, H. G. (2019). Three phases of Danish cohousing: Tenure and the development of an alternative housing form. *Housing Studies*, *34*(8), 1349–1371. https://doi.org/10.1080/02673037.2019.1569599

Lengkeek, A., & Kuenzli, P. (2022). *Operatie wooncoöperatie: Uit de wooncrisis door gemeenschappelijk bezit* (1st ed.). Valiz.

LimeSurvey. (2023). *LimeSurvey—Free Online Survey Tool*. https://www.limesurvey.org/

Mariel, P., Hoyos, D., Meyerhoff, J., Czajkowski, M., Dekker, T., Glenk, K., Jacobsen, J. B., Liebe, U., Olsen, S. B., Sagebiel, J., & Thiene, M. (2021). *Environmental Valuation with Discrete Choice Experiments: Guidance on Design, Implementation and Data Analysis* (1st ed.). Springer. https://doi.org/10.1007/978-3-030-62669-3

McFadden, D. (1979). Quantitative methods for analysing travel behaviour of individuals: Some recent developments. In D. A. Hensher & P. Stopher (Eds.), *Behavioural Travel Modelling* (1st ed., Vol. 12, pp. 279–318). Routledge. https://doi.org/10.4324/9781003156055

Microsoft. (2023). *Microsoft 365 Excel*. https://www.microsoft.com/nl-nl/microsoft-365/excel

Ministry of the Interior and Kingdom Relations. (n.d.). *Heb ik recht op huurbescherming?* Rijksoverheid. Retrieved 27 May 2023, from https://www.rijksoverheid.nl/onderwerpen/woning-huren/vraag-en-antwoord/heb-ik-recht-op-huurbescherming

Ministry of the Interior and Kingdom Relations. (2022a). *Nationale woon- en bouwagenda*. Rijksoverheid. https://open.overheid.nl/repository/ronl-0343841159fc06a67a58b04ad520068192c521d1/1/pdf/nationale-woon-en-bouwagenda.pdf

Ministry of the Interior and Kingdom Relations. (2022b, December 20). *Huurliberalisatiegrenzen tot 1 januari 2024*. Rijksoverheid. https://www.rijksoverheid.nl/onderwerpen/woning-huren/documenten/publicaties/2022/12/20/huurliberalisatiegrenzen-tot-1-januari-2024

Musterd, S. (2014). Public housing for whom? Experiences in an era of mature neo-liberalism: The Netherlands and Amsterdam. *Housing Studies*, *29*(4), 467–484. https://doi.org/10.1080/02673037.2013.873393

Oppewal, H., & Timmermans, H. J. P. (1993). Conjuncte keuze-experimenten: Achtergronden, theorie, toepassingen en ontwikkelingen. In F. Bronner (Ed.), *Recente ontwikkelingen in het marktonderzoek: Jaarboek van de Nederlandse vereniging van Marktonderzoekers 1992-'93* (1st ed., pp. 33–58). De Vrieseborch. https://pure.tue.nl/ws/portalfiles/portal/54539825/593611.pdf

Orme, B., & Johnson, R. (2010). Sample Size Issues for Conjoint Analysis. In B. Orme (Ed.), *Getting started with conjoint analysis: Strategies for product design and pricing research* (4th ed., pp. 57–65). Research Publishers LLC.

Pérez-Troncoso, D. (2020). *A step-by-step guide to design, implement, and analyze a discrete choice experiment*. https://doi.org/10.48550/arXiv.2009.11235

Priemus, H. (2013). The future of social housing. The Dutch case. *International Journal of Co-Operative Management, 6*(2), 13–24.

Reddit, Inc. (2023). *Reddit-Dive into anything*. https://www.reddit.com/

Reed, R., & Sims, S. (2015). *Property Development* (6th ed.). Routledge. https://doi.org/10.4324/9781315766652

Reynolds, K. (2018). Creating permanent housing affordability: Lessons from German cooperative housing models. *Cityscape*, *20*(2), 263–276. https://www.jstor.org/stable/26472178

Rijksoverheid. (n.d.). *Wat houdt een Vereniging van Eigenaars (VvE) in?* Retrieved 18 January 2023, from https://www.rijksoverheid.nl/onderwerpen/huis-kopen/vraag-en-antwoord/wat-houdt-een-vereniging-van-eigenaars-vve-in

Rose, J. M., & Bliemer, M. C. J. (2013). Sample size requirements for stated choice experiments. *Transportation*, *40*(5), 1021–1041. https://doi.org/10.1007/s11116-013-9451-z

Ruonavaara, H. (1993). Forms and types of housing tenure: Towards solving the comparison/translation problem. *Scandinavian Housing and Planning Research, 10*(1), 3–20. https://doi.org/10.1080/02815739308730315

Ruonavaara, H. (2005). How divergent housing institutions evolve: A comparison of Swedish tenant co-operatives and Finnish shareholders' housing companies. *Housing, Theory and Society*, *22*(4), 213–236. https://doi.org/10.1080/14036090500375373

Ruonavaara, H. (2012). Tenant Cooperatives, Shareholders' Housing Companies. *International Encyclopedia of Housing and Home*, 180–184. https://doi.org/10.1016/B978-0-08-047163-1.00488-4

Savini, F., & Bossuyt, D. (2022). Housing commons as a degrowth planning practice. Learning from Amsterdam's de Nieuwe Meent. In F. Savini, F. António, & K. Von Schönfeld (Eds.), *Post-growth planning. Cities beyond the market economy* (1st ed., pp. 35–48). Routledge. https://doi.org/10.4324/9781003160984-5

Savini, F., & Jepma, M. (2021, October 25). Opinie: 'Maak wooncoöperaties geen zeepbel voor de hoogopgeleide stedelijke elite'. *Het Parool*. https://www.parool.nl/columns-opinie/opinie-maak-wooncooperaties-geen-zeepbel-voor-de-hoogopgeleide-stedelijke-elite~b8e2e7ca/

Siksio, O. (1990). *Learning from tenure: An international comparison on the meaning of tenure in nine European countries. East and West*. 151–173. https://www.irbnet.de/daten/iconda/CIB15525.pdf

Sørvoll, J., & Bengtsson, B. (2018). The Pyrrhic victory of civil society housing? Co-operative housing in Sweden and Norway. *International Journal of Housing Policy*, *18*(1), 124–142. https://doi.org/10.1080/14616718.2016.1162078

Spiess, A. N., & Neumeyer, N. (2010). An evaluation of R2 as an inadequate measure for nonlinear models in pharmacological and biochemical research: A Monte Carlo approach. *BMC Pharmacol*, *10*(6), 1–11. https://doi.org/10.1186/1471-2210-10-6

Timmermans, H., Molin, E., & Noortwijk, L. (1994). Housing choice processes: Stated versus revealed modelling approaches. *Netherlands Journal of Housing and the Built Environment*, *9*(3), 215–227. https://doi.org/10.1007/BF02496997

Turner, S., & Canning, E. (2015). Constructing Home and Community in Halifax Housing Cooperatives. *Journal for Undergraduate Ethnography*, *5*(1), 30–41. https://doi.org/10.15273/jue.v5i1.8264

Van de Reep, J., & Van Rein, E. (2022, December 9). De kanteling van de woningmarkt in tien grafieken. *Het Financieele Dagblad*. https://fd.nl/economie/1460365/de-kanteling-van-de-woningmarkt-in-tien-grafieken

Van Den Berg, P., Sanders, J., Maussen, S., & Kemperman, A. (2021). Collective self-build for senior friendly communities. Studying the effects on social cohesion, social satisfaction and loneliness. *Housing Studies*, *38*(7), 1–19. https://doi.org/10.1080/02673037.2021.1941793

Van Duijne, R. J., & Ronald, R. (2018). The unraveling of Amsterdam's unitary rental system. *Journal of Housing and the Built Environment*, *33*(4), 633–651. https://doi.org/10.1007/s10901-018-9601-x

Van Geuns, M. (2022, January 14). De wooncoöperatie: 'Een uitkomst voor de middengroep die in de huizencrisis tussen wal en schip is beland'. *NRC*. https://www.nrc.nl/nieuws/2022/01/13/de-wooncooperatie-een-uitkomst-voor-de-middengroep-die-in-de-huizencrisis-tussen-wal-en-schip-is-beland-a4078807

Van Poelgeest, M., & Lupi, T. (2018). *De woöncooperatie en de gemeente*. Platform31. https://www.platform31.nl/artikelen/notitie-de-wooncooperatie-en-de-gemeente/

Van Selm, M., & Jankowski, N. W. (2006). Conducting Online Surveys. *Quality and Quantity*, *40*(3), 435–456. https://doi.org/10.1007/s11135-005-8081-8

Van Staveren, I. (2022, June 9). *Hoe verpest kapitalisme onze economie?* [Video]. Universiteit van nederland. YouTube. https://www.youtube.com/watch?v=j9tJpOBMFwg

Vergara, L. M. (2018). Social innovation in condominium management. The intermediary role of third sector organisations in supporting low-income homeowners. *ISR-Forschungsberichte*, *47*, 83–102. https://doi.org/10.1553/ISR_FB047s83

Verheul, W. J., & Hobma, F. (2022). Institutionele ruimte voor wonen: De woning-crisis en achterliggende systeemkwesties op de agenda. *Bestuurskunde*, *31*(1), 3–18. https://doi.org/10.5553/Bk/092733872022031001001

VrijCoop. (2019). *Hoe Werkt het / Structuur*. https://vrijcoop.org/

Wassenberg, F., Morsheim, T., & Van Egmond, A. (2022). *De behoefte aan wooncoöperaties*. Platform31. https://www.platform31.nl/artikelen/de-behoefte-aan-wooncooperaties/

Weel, F. (2022, November 19). Zelf bouwen en van jezelf huren: Eerste wooncoöperatie heeft woning bijna af, nieuwe projecten onder druk. *AT5*. https://www.at5.nl/artikelen/217806/zelf-bouwen-en-van-jezelf-huren-eerste-wooncooperatie-heeft-woning-bijna-af-nieuwe-projecten-onder-druk

Weller, B. E., Bowen, N. K., & Faubert, S. J. (2020). Latent Class Analysis: A Guide to Best Practice. *Journal of Black Psychology*, *46*(4), 287–311. https://doi.org/10.1177/0095798420930932

Wolff, J. (2016). *An introduction to political philosophy* (3rd ed.). Oxford University Press.

WoON. (2021). *Woononderzoek Nederland* [Data set]. Rijksoverheid. https://www.woononderzoek.nl/viewer

WoON. (2022). *Wonen langs de meetlat: Resultaten van het WoonOnderzoek Nederland 2021*. Ministerie van Binnenlandse Zaken en Koninkrijksrelaties. https://www.woononderzoek.nl/style/custom/citavista/pdf/Kernpublicatie_WoON_2021_INTERACTIEF.pdf

Woonwijkvereniging 'De Volharding'. (n.d.). *Over ons*. Retrieved 14 May 2023, from https://wwvdevolharding.nl/

Zhang, B. (2021). Re-conceptualizing housing tenure beyond the owning-renting dichotomy: Insights from housing and financialization. *Housing Studies*, 1–24. https://doi.org/10.1080/02673037.2021.1961693

Zonneveld, J., & Lupi, T. (2018, May). Hoe (komt de wooncoöperatie) verder? *De Wooncooperatie Die Komt Er Wel*, 52–55.

APPENDIX I APPROVAL OF ETHICAL REVIEW BOARD

Mr. E. Kooijman
e.p.g.kooijman@student.tue.nl

TU/e
EINDHOVEN UNIVERSITY OF TECHNOLOGY

Date
April 25, 2023

Reference
ERB2023BE27

Ethical Review Board TU/e

T +31 (0)40 247 6259
ethics@tue.nl

intranet.tue.nl/ethics

Ethical review research proposal

Dear Mr. Kooijman,

It is a pleasure to inform you that the Ethical Review Board (ERB) has discussed and approved your application "The demand for housing cooperatives in the Netherlands. An exploratory study of the quantitative demand for housing cooperatives based on the qualitative".

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

Success with your research!

Sincerely,

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

Enclosures
1

The ERB retains the right to revise its decision regarding the implementation and the WMO[1]/WMH[2] status of any research study in response to changing regulations, research activities, or other unforeseen circumstances that are relevant to reviewing any such study. The ERB shall notify the principal researcher of its revised decision and of the reasons for having revised its decision.

[1]WMO: Law on Medical Scientific Research involving Human Beings (in Dutch: Wet medisch-wetenschappelijk onderzoek met mensen)

[2]WMH: Medical Device Directive (in Dutch: Wet op de medische hulpmiddelen)

APPENDIX 1

Terms and conditions

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

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

APPENDIX II INVITATION FOR INTERVIEW

Dear Sir/Madam,

My name is Ewoud Kooijman and I study at Eindhoven University of Technology. I am doing research on how the living situation of people is influenced by the dwelling they live in. In particular, I am interested in the experiences of people in different forms of housing, such as owner-occupied housing, private rental housing, social rental housing and dwellings in a housing cooperative. Since you live in a [*housing tenure situation*], you fall within this target group.

Why participate?
I would like to interview you to learn more about your personal experiences and how your life is affected by your housing situation. Your contribution to this research will be very valuable and help to better understand the relationship between people and the type of ownership of their dwelling. The questions will be about your personal experiences.

Time, location and data processing
The interview will last between 30 and 45 minutes and can take place at a location and time that is most convenient for you. Preferably a quiet location without too much background noise. The interview can also be conducted through video calling (Microsoft Teams) if that is preferred by you. If you agree, the interview will be recorded in order to make a transcript and analysis. All information and recordings you provide will be kept strictly confidential and used only for academic purposes. Also, all information will be anonymised making it impossible to trace the information back to you as an individual.

If you are interested in participating in this study and would like to make an appointment, or if you have any questions before you want to participate, please feel free to email me at: e.p.g.kooijman@student.tue.nl.

Thank you in advance for your time and I hope you would like to contribute in this research.

Kind regards,

Ewoud Kooijman

Eindhoven University of Technology
Department of the Built Environment
Master student Urban Systems & Real Estate
Mail: e.p.g.kooijman@student.tue.nl

APPENDIX III INFORMATION SHEET FOR INTERVIEW

1. Introduction

You have been invited to take part in research project housing preferences.

Participation in this research project is voluntary: the decision to take part is up to you. Before you decide to participate, we would like to ask you to read the following information, so that you know what the research project is about, what we expect from you and how we go about processing your personal data. Based on this information you can indicate by way of the consent declaration whether you consent to taking part in this research project and in the processing of your personal data.

You may of course always contact the researcher via e.p.g.kooijman@student.tue.nl , if you have any questions, or you can discuss this information with people you know.

2. Purpose of the research

This research is managed by Ewoud Kooijman under the supervision of R.P. van Dongen, M.I.K. Leussink and T.A. Arentze of Eindhoven University of Technology.

The purpose of this study is to find out what ownership factors people in the Netherlands consider important when choosing a new dwelling. This will make it possible to analyse whether the housing cooperative is a suitable alternative form of housing compared to traditional forms of housing.

3. Controller in the sense of the GDPR

TU/e is responsible for processing your personal data within the scope of the research. The contact data of TU/e are:

Technische Universiteit Eindhoven
De Groene Loper 3
5612 AE Eindhoven

4. What will taking part in the research project involve?

You will be taking part in a research project in which we will gather information by:

- Interviewing you about your housing situation in relation to your ownership of the dwelling and noting/recording your answers via audio/video recording. A transcript of the interview will also be prepared.

For your participation in this research project, you will not be compensated.

5. What personal data from you do we gather and process?

Within the framework of the research project, we process the following personal data:

- Questions related to your housing situation, such as ownership of your dwelling.
- Your preferences for ownership factors in housing.

In order to answer the questions in this research and publish the results, it is necessary to collect, use and store your data. The answers you provide to the questions asked will be processed completely anonymously, meaning that the researcher will not know which data belongs to you.

Explicit consent is requested for the use of your data.

6. Withdrawing your consent and contact data

Participation in this research project is entirely voluntary. You do not have to answer questions you do not wish to answer. You may end your participation in the research project at any moment or withdraw your consent to using your data for the research, without specifying any reason. Ending your participation will have no disadvantageous consequences for you.

If you decide to end your participation during the research, the data which you already provided up to the moment of withdrawal of your consent will be used in the research. Do you wish to end the research, or do you have any questions and/or complaints? Then please contact the researcher via e.p.g.kooijman@student.tue.nl

If you have specific questions about the handling of personal data you can direct these to the data protection officer of TU/e per mail via functionarisgegevensbescherming@tue.nl Furthermore, you have the right to file complaints with the Dutch data protection authority: the Autoriteit Persoonsgegevens.

Finally, you have the right to request access, rectification, erasure or adaptation of your data. Submit your request via privacy@tue.nl

7. Basis for processing your data

To be permitted to process your personal data, the processing must be based on one of the legal bases from the GDPR. For this research project "housing preferences" that is explicit consent.

For general information on your rights when processing your personal data, please visit the website of the Personal Data Authority: https://autoriteitpersoonsgegevens.nl/

8. Who has access to your personal data?

Access to personal data within TU/e

All relevant employees who are involved in the research project have access to your personal data, but only as far as is necessary to fulfil their respective tasks. These employees are the researcher (Ewoud Kooijman) and supervisors (R.P. van Dongen, M.I.K. Leussink en T.A. Arentze). Furthermore, your data can only be accessed by authorised persons in relevant TU/e departments such as IT, Legal and/or Compliance, but only to the extent necessary to fulfil their respective duties.

Access to personal data by other parties

Within the framework of the research project your personal data will be shared with:

- Storage solution: SURF drive
- Interview tool: Microsoft Teams, iPhone Dictaphone
- Data analysis tool: maxQDA, SPSS

When a third party processes your personal data on our instructions, then this party is a processor. We conclude an agreement with such a processor concerning the processing of your personal data. This agreement stipulates at least that certain obligations for protection of your personal data are respected, to ensure that the data are processed in such a way that the requirements and standards of TU/e are met.

TU/e will process your personal data only within the European Economic Area (EEA) by storing the data on a server inside the EEA.

9. How are your personal data protected?

TU/e have implemented appropriate technical and organizational measures for protection of personal data against unintended or unlawful destruction, unintended damage, loss, alteration and unauthorized publication or access, and against all other forms of unlawful processing (including, but not limited to unnecessary gathering of data) or further processing. These appropriate technical and organizational measures include: limitation of access to data through authorization and authentication, guidelines within the organization concerning the processing of personal data, encryption or ISO standardization, storage on protected locations that are offered by the ICT service of TU/e.

10. How long will your personal data be retained?

Your personal data will be kept in accordance with the AVG. The data will be kept for 10 years at the TU/e research facility. To check whether the research has been conducted correctly, supervisory authorities may be granted access. The data will not be kept longer than necessary to achieve the purposes for which the data was collected and will be deleted when you withdraw your consent and there is no other basis for lawfully processing your data.

11. Confidentiality of data

We make every effort to protect your privacy as much as possible. The research results that are published will in no way contain confidential information or personal data from or about you that would allow anyone to recognise you.

Finally, this research has been assessed and approved [research manager fills in] by the ethical committee of Eindhoven University of Technology.

APPENDIX IV CONSENT FORM FOR INTERVIEW

By signing this consent form, I acknowledge the following:

1. I am sufficiently informed about the research project through a separate information sheet. I have read the information sheet and have had the opportunity to ask questions. These questions have been answered satisfactorily.

2. I take part in this research project voluntarily. There is no explicit or implicit pressure for me to take part in this research project. I am clear that I can end participation in this research project at any moment, without giving any reason. I do not have to answer a question if I do not wish to do so.

Furthermore, I consent to the following parts of the research project

3. I consent to processing my personal data gathered during the research in the way described in the information sheet.

   YES ☐ NO ☐

4. I consent to processing special categories of personal data as mentioned in section 5 of the information sheet.

   YES ☐ NO ☐

5. I consent to making (sound/image) recordings during the interview and to processing my answers into a transcript.

   YES ☐ NO ☐

6. I consent to using my answers for quotes in the research publications – without my name being published in these.
   YES ☐ NO ☐

Name of Participant:	Name of Researcher:
Signature:	Signature:
Date:	Date:

APPENDIX V INTERVIEW FORMAT

Interviewer: Ewoud Kooijman
Date:

Structure of the interview

Thank you for participating in this interview.

The purpose of this interview is to gain insight into your personal experiences, opinions and perspectives on your housing situation regarding the form of ownership of your dwelling.

I have prepared 20 questions for this interview. If necessary, I will ask follow-up questions. This may be confirming so that I am sure I have understood you correctly or it may be a supplementary question so that I learn more about your experience or opinion. There are no right or wrong answers, it is all about your experiences and perceptions.

The questions will cover several topics, for example the type of dwelling you live in, your experiences with this dwelling, advantages or disadvantages you experience in this dwelling, your control over the dwelling and your opinion on the affordability of the dwelling.

The interview is expected to last between 30 and 45 minutes. If you agree, the interview will be recorded so that a report and analysis can be made. If you have any questions during the interview or if there is anything you do not wish to discuss, please indicate this. Your privacy is important and any information you provide will be kept strictly confidential and used only for the purpose of this interview.

Specific terms may come up during the interview. The table below lists some terms in advance. If you do not understand a question during the interview, feel free to indicate this. I will then give an additional explanation or example.

Terms	**Definition**
Form of ownership with the dwelling	This refers to the ownership relationship of the resident with his or her dwelling. Examples include owner-occupied housing (individual ownership), private or social rented housing (external ownership) or housing cooperative (collective ownership).
VVE	Homeowner association

Do you have any questions before we start?

If not, we can now start with the interview.

Interview questions

Nr.	Topic list	Questions
1	• Ownership	Do you live in an owner-occupied dwelling, a free sector rental dwelling, a social sector rental dwelling, a dwelling in a housing cooperative, or another form of tenure? • Ask affirmative question. So, you are [name form of ownership: individual owner, no owner or collective owner]?
2	• Ownership • Choice • Preference • Attributes • Access to dwelling • Distribution and access (rent)	Did you consciously choose for a [form of housing: rental dwelling, owner-occupied dwelling or housing cooperative] or was it the only possibility? • Could you explain your answer (motives/reasons)?
3	• Ownership • Choice • Preference • (New) attributes	Have you also considered a dwelling with a different type of ownership? • Could you explain your answer (motives/reasons)?
4	• Ownership • Preference • (New) attributes • Advantages	Do you experience specific advantages of living in this form of tenure? • For example: affordable housing, more control, no financial risks, etc.?
5	• (New) attributes) • Disadvantages	Do you experience any specific disadvantages of living in this form of home ownership? • For example: high monthly costs, overdue maintenance, etc?
6	• Preference • (New) attributes	Do you have wishes regarding housing that the current form of ownership [name respondent's form of ownership] cannot provide compared to other forms of ownership [name alternatives]? • For example: would you like more communal areas to meet people or cook together, or a communal roof terrace?
7	• Community	Is there a community, and if so, how do you notice this? • For example, are there joint activities, events or decision-making processes involving multiple residents? • Do you experience the feeling of living in a community, are social ties between residents strong? • How important is community building to you?
8	• Access to the dwelling • Access to shared spaces • Right of control • Right of use	Do you experience restrictions in access to or use of your dwelling? Do you experience restrictions in access to shared spaces or use of shared spaces?
9	• Right to income • Return on investment • Right to sell • Financial risks • Right of disposal • Right of collateral • Right of Bequest	Ask in case of an owner-occupied dwelling or housing cooperative. • Can you sell the property and make or lose money from it? • Do you consider that there are also financial risks of having an owner-occupied dwelling? If yes, do you experience that and how? • Does your dwelling serve as collateral (for mortgage or investor)? • Is it possible for you to give the dwelling away or bequeath it to others (gift)?

10	• Right to modify • Right to alter the dwelling • Commissioning • Control	Is it possible for you to modify the dwelling? • How far can you go? For example, can you change the spatial layout of your dwelling (break through walls)? • Have you (had) a say in the design of the dwelling?
11	• Empowerment • Landlord-tenant relation • Autonomy • Commissioning • Control	To what extent do you have a say in decision-making about the dwelling? • For example, do you have a say in maintenance decisions, admitting new neighbours, or other matters such as furnishing the building. If so, would you like to have more say, or perhaps less?
12	• Autonomy • Landlord-tenant relation	Ask in case of a housing cooperative. Is there a different degree of autonomy compared to housing forms you have lived in in the past, if so, how do you experience this? • Are you less dependent on a landlord, investor or other external parties (bank)?
13	• Democratic self-control • Empowerment on decisions	Ask in case of a housing cooperative. Is there a democratic voting system, if so, how does it work?

14	• Collaboration
	• Obligated maintenance
	• Structure of cooperative
		Do you have specific obligations to fulfil?
		• Are you required to perform or manage maintenance?
		• For example, do you have to conduct minor or major maintenance?
		• Are you a member of a VVE, for example?
		  ○ Do you have to make a (financial) contribution to this?
		• Do you have to hold compulsory meetings?
		• Can you think of any other obligations following the above examples?
		
		Ask in case of a housing cooperative.
		• For example, do you need to attend meetings?
		  ○ How often do you need to attend meetings?
		• How many hours do you spend on commitments on a weekly basis?

15	• Right to fiscal arrangements	Are you entitled to tax benefits such as subsidies or other financial schemes? • If yes, which ones and why?
16	• Exclusion of people	Do you have a say in allowing potential residents (new neighbours) in your neighbourhood or in the complex?
17	• Exclusion of people	Do you have a say in evicting existing residents in your neighbourhood or in the complex?
18	• Security of tenure • Exclusion of people	Is it possible for you to be evicted from your dwelling, if so, how is this possible (for example: temporary contract or eviction cooperative)? • Do you feel you have full housing protection?
19	• Monthly costs • Affordability • Price setting (rent)	What is your opinion on the price of your dwelling in relation to its value and quality? Are you satisfied with the current price you are paying for your dwelling, or would you like to pay a different price? If so, why?
20	• Long term affordability • Price increases	How will your dwelling remain affordable in the long term? • Do monthly expenses go up by a certain amount or percentage each year, can you give an estimate? Do you know why monthly costs are going up?

APPENDIX VI SUMMARIES OF INTERVIEWS

Nr.	Place of interview	Date	Type of tenure	Type of landlord	Comment
1	Rotterdam	26-04-2023	Social rental	Housing association	-
2	Amsterdam	28-04-2023	Private rental	Housing association	-
3	Nieuwegein	03-05-2023	Owner-occupied	-	-
4	Nijmegen	03-05-2023	Owner-occupied	-	Part of VVE
5	Amsterdam	10-05-2023	Social rental	Housing association	-
6	Boekel	15-05-2023	Housing cooperative	-	Ekodorp Boekel
7	Maasbree	16-05-2023	Housing cooperative	-	De Leef en Groei Hoeve
8	Amsterdam	17-05-2023	Social rental	Private landlord	-
9	Amsterdam	22-05-2023	Private rental	Private landlord	-
10	Hilversum	23-05-2023	Owner-occupied	-	Part of VVE
11	Hilversum	26-05-2023	Private rental	Private landlord	-
12	Amsterdam	05-06-2023	Housing cooperative	-	De Nieuwe Meent

SUMMARY OF ALL INTERVIEWS

The interviews revealed that owner-occupiers chose to buy a dwelling because it was financially more attractive than renting. Owning a dwelling gives them the opportunity to accumulate financial wealth and renting is considered as throwing money away. The advantage of the owner-occupied dwelling is found in having full control over the adaptability of a dwelling, although this may again be limited in a VVE construction. One respondent could imagine that it could be nice not to be responsible for management and maintenance as in a rental dwelling. However, none of the respondents experienced it as a limitation to be responsible for maintenance themselves as it was partly known as a feature at the time the dwelling was bought. The respondents in the individual owner-occupied mentioned that neighbours do bond with each other and undertake activities, but it cannot really be considered as a residential community. A respondent in an apartment with a VVE construction indicated that some residents move together to form a block within the VVE building. But there is no such thing as a strong noticeable residential community. The long-term affordability depends mainly on the mortgage taken out. One respondent said he had paid off his entire mortgage and therefore experiences little financial burden. The other two respondents indicated that they managed to take out a mortgage during a favourable period when interest rates were low. However, they are not currently thinking about how this will be in five to ten years when the interest rates on the mortgage will be adjusted. All three respondents also perceived having an owner-occupied home as a financial risk because it acts as collateral for a bank. One respondent expressed a desire to have more say in admitting new neighbourhood residents. He mentioned the importance of social inclusion and diversity in order to achieve a better reflection of society at neighbourhood level.

The respondents who live in a rental dwelling actually all live in it since buying a dwelling was not accessible from a financial point of view. They all indicated that the lack of opportunity to accumulate financial wealth is a disadvantage. The advantage mentioned is that in a rental dwelling there is no need to think about management and maintenance because the landlord is responsible for this. However, it was noted during the interviews that one respondent was dissatisfied with the manner and amount of maintenance conducted by his landlord. This resulted for him in the wish to have more control over decision-making processes. Other respondents in rental dwellings indicated that they did not have this need because they had the experience that the landlord performs his tasks simply fine. In addition, these respondents mentioned that they could imagine that more control over admitting new neighbours is desirable if a lot of nuisances is experienced. If this is not the case, respondents do not really care who comes to live next to them. Respondents find it a limitation that not all kind of adjustments can be made in the dwelling due to external ownership. Furthermore, it also prevents respondents from investing a lot of money in the dwelling because it does not work as an investment. Respondents in social rented housing generally experience the benefits of a cheap rent that leaves money for other activities. They indicate that there is an annual cost increase, but the dwelling remains affordable. Respondents in private rental housing generally paid more and indicated that there is a relatively high annual cost increase but that it remains affordable because it is matched by a good household income. In some rental properties, there was a community as they were often living in apartments. Joint activities are also undertaken in these communities, however, not all rental dwellings had the presence of a community. Also, respondents found the presence of a community of varying importance.

Respondents who live in a housing cooperative say they mainly want this from idealistic motives and the wish to live in a residential community. Motives are mentioned as social inclusion, affordable sustainable housing for everyone and an alternative answer to the capitalist structure of the housing market. The presence of a strong community is mentioned as one of the most important aspects in a housing cooperative. This means that people undertake activities together but also support each other in daily life. The moment the community is not strong, it can result in conflicts at the expense of joint decision-making processes. Respondents mentioned that in a housing cooperative, the maintenance and

management and decision-making processes about the dwellings all take place jointly since collective ownership is assumed. To protect the community, it is possible to decide as a collective who will and will not be admitted to the housing cooperative. Sale of dwellings is statutorily excluded at all three housing cooperatives. Two housing cooperatives have used a dispersed ownership structure in collaboration with VrijCoop. The monthly rents of dwellings are all below the social rent limit except for the housing cooperative that has yet to be realised. The respondent indicates that they have been highly affected by increased construction costs and are experiencing difficulties in getting a mortgage from a Dutch bank. This forced them to increase rents. The two housing cooperatives that are also members of VrijCoop took out a loan with the German GLS bank which has a lot of experience in financing housing cooperatives abroad. All three housing cooperatives are forced to work with annual rent indexations, but the two realised housing cooperatives indicate that this has been kept as low as possible and is likely to disappear once the mortgage is paid off. New residents will then move into a dwelling where there will not be any rent increases from the start.

SUMMARY INTERVIEW 1

Date:	26-04-2023	Form of housing Tenure:	Social rental sector
Location:	Rotterdam	Landlord:	Housing association

The respondent indicates to live in a social rental dwelling but would prefer an owner-occupied dwelling. In terms of financial resources, the current dwelling was simply the only option at the moment. The respondent indicated that it is better to invest in something that is owned by yourself.

The respondent mentioned she liked the fact that when something is broken, it is repaired almost immediately by the landlord. In addition, this party communicates very pleasantly, and they are very involved with the residents. In addition, events are also organised by the landlord. The respondent also enjoys not having to think about things like gas, water and electricity, as these are taken care of by the landlord and the residents' committee.

The respondent mentioned that there are no specific disadvantages to living in a social rented house but more because she lives in a flat. Occasionally, there is still a nuisance present from, for example, people throwing a party on Monday nights. Sometimes there is rubbish in the corridors or students who have given a party whose rubbish is left behind.

The respondent lives with a flatmate and would have liked it if they had a common living room. In addition, there is a communal roof terrace for the whole building, and it is considered very pleasant and is used a lot. Other than that, the respondent does not need to have many communal areas. Her previous experience is that many people end up making little use of these and that is then a bit of a waste of space. The respondent indicated that there is now a shared laundry room and that it would be nice to have this individually.

There is some kind of community. Various activities are organised by the residents' committee and once every few months a drink is organised on the communal roof terrace and afterwards people go out in the city collectively. You also notice that everyone is willing to help each other with small things. For example, someone who needs a printer or tools for something. It is nice to know you can knock on your neighbours' doors to ask for help. But other than that, there is not really a community. In that sense, perhaps a community is also different from a friendship because a good neighbour is very nice to have but this does not necessarily mean that someone wants to interact with them every day.

The respondent again mentioned that a hindrance for her is that she cannot spontaneously do laundry. But otherwise, there are few obstacles in her everyday activities. For example, the roof terrace is accessible to residents 24/7. The respondent has painted the walls of her dwelling and basically, she is allowed to drill into the walls so that things can be hanged up. But other than that, not too much alteration is allowed. For example, walls may not be broken through or anything like that. Furthermore, as a tenant, you also have little basically to no say in the layout or design of the dwelling.

The respondent indicated that it is possible to have more say through the residents' committee and really likes the fact that it exists. However, she feels little interest in actively participating in it because she is too busy with other matters. She is a member of the collective group app, and many messages are shared in it. Updates are shared when there is a nuisance or when the lifts are not working. Problems the residents' committee is working on are also shared about. The group app can also be used by people who have an individual problem, such as when they can no longer enter the apartment complex because they have lost a key or something similar.

However, the respondent indicated that she could imagine that she would like to have more of a say in things like rent increases and maintenance work at the time when no residents' committee would be present. But she again mentions that she actually prefers to deal with other matters and needs time to delve into those kinds of issues that the residents' committee and the landlord deal with. She would rather not do that.

The respondent says she has little say in decision-making processes involving the landlord. She indicates that she does not need to have a say in this either. There are also few or no other obligations the respondent has to comply with apart from paying the monthly rent. There is some kind of obligation to keep your dwelling and the hallways tidy but that makes sense, says the respondent.

The respondent says she is entitled to rent allowance but is actually not very sure why she is entitled to it. It will probably have to do with the fact that it is social rental dwelling.

The respondent cares little about who comes to live in the building. In her view, it would be unfair if people were allowed to be rejected in a certain way because of who they are. But if a lot of people come to live there who cannot behave normally and therefore cause a nuisance, it does become a problem. Specific to her dwelling, it is possible for her to nominate a subtenant to the landlord at the time she leaves the property for a temporary period.

The respondent indicated that she could probably be evicted from the dwelling but has no idea when that exactly might happen. However, she did understand that when people, for example, pollute the lift or are actively molesting that camera footage is viewed and attempts are made to trace back who did this so that there can be consequences as well.

The respondent does experience full housing protection. Also, because she knows you are not immediately evicted from the dwelling if you receive a warning once for noise nuisance or something similar.

The respondent is very satisfied with the price. She lives in the middle of Rotterdam city centre in a reasonably large apartment for a very affordable rent. If she compares this price with rents paid by friends in the centre of Amsterdam or Utrecht, she thinks she is paying a very reasonable rent. She indicates that this has most likely have to do with the type of landlord.

The dwellings are likely to remain affordable because the rent increase should not be too high says the respondent. She understands from the residents' committee that there is a cap and that the rent increase is only relative to the bare rent. The respondent indicated that she does not know exactly why the rent increase is necessary. In the past year, everything has become more expensive which has probably made renting more expensive too.

SUMMARY INTERVIEW 2

Date:	28-04-2023	Form of housing Tenure:	Free rental sector
Location:	Amsterdam	Landlord:	Housing association

The respondent lives in a free rental sector dwelling owned by a housing association. His main motivation to rent had to do with the fact that he wanted to live in Amsterdam. An owner-occupied dwelling as form of ownership was considered but it was not an option with a single person household income. A rental dwelling in the social sector is not eligible to the respondent since the household income is too high. The possibility of buying a dwelling was not a decisive factor but mainly the location was. The respondent has thought about it but would not like to live in a different city just to be able to buy a dwelling. He was aware of the fact that with an owner-occupied house, you do build something financially because you pay off the mortgage in the long run, but you also have to continue living there and the respondent said that you never really receive that capital. The respondent compares an owner-occupied dwelling with an expensive inheritance.

The respondent mentioned the advantage of being able to live with a stunning view in the centre of Amsterdam because he rents it. If this had to be bought it would probably be unaffordable. Another advantage is that the landlord comes to fix everything if something is broken. The disadvantage is that it can take a long time before it then actually gets fixed. The respondent mentioned that the landlord has to give permission and contractors suffer from staff shortages and other work. Another disadvantage is that you do not make certain adjustments or investments since it is not yours. The respondent indicated that he would have liked to plaster the walls but that is something you do not do as that is actually work the landlord has to do. You could still do it but if you move out after 1.5 years since you do not know what the future holds, that investment might not have been entirely worth it.

The respondent mentioned that this dwelling can actually offer him what he likes about living. He would not want to move to another apartment. When asked whether he would like more communal areas in the complex, the respondent replied that he could see the advantages of this. In his previous dwelling there were communal lavatories, bicycle parking and practical rooms. People are more likely to meet each other there and have a chat. In his current dwelling, everyone does their own thing, and you do not really meet the neighbours. A communal rooftop terrace, kitchen area or party room would contribute in a positive way to the number of social contacts you have with your neighbours.

There is no community in the apartment complex. Neighbours do talk with each other, but there are no joint activities or events organised. The respondent indicated that he actually thinks that a certain community is important. It is a piece of social control to know what is going on with your neighbour, which for instance is a bit older, or that you inform each other if you are having a party. You also hear more and more that young people are lonely and then these kinds of joint meeting places and communities do work as part of a solution. However, the respondent indicated that he did not necessarily experience this from himself but said he could recognise that this might work like this for others.

The dwelling actually offers everything the respondent needs regarding the concept of living. He only says that for the future, suppose you get a girlfriend or have children then that actually does mean you have to leave. The apartment will then become too small, which in itself is a shame because he would like to continue living in this place. When asked whether the respondent had taken this consideration into account when choosing to live here, he replied that it had not. Before this, the respondent lived in a dwelling with a temporary lease of up to five years. At first you are not concerned with that temporary duration but when the lease term reached 3.5 years, the respondent did start thinking that he had to leave,

and you do not want to end up on the street without a dwelling. Because if you cannot find something, you have to leave the area where you live so comfortably with friends and work. So, when my current apartment was offered then you are more concerned with the fact that you need living space right now instead of choosing something that fully meets the potential life developments you are going through, you do not let that opportunity pass you by. In itself, the respondent sees the benefits of the concept of a temporary contract. You know that by doing so, every four or five years a dwelling becomes vacant with which you give a new generation a chance to live in the city. However, the system stalls after that, people who need to leave then have trouble finding housing. In addition, the respondent also mentioned that his old apartment was 27 square metres. It was actually quite good to be able to live in such a small space because it showed that you can do quite a lot with little space. In that sense, it would be good for everyone to start in a somewhat smaller room.

As a tenant, the structural layout of the appartement cannot be changed. The respondent would not have liked that either, he thinks the appartement is laid out in the most efficient way. As it is an existing appartement, the respondent had no say in the design.

The respondent says he has no say in decision-making processes beyond the rights that he has as a tenant. If large-scale renovation is to take place, the respondent knows that as many as 70% of the residents have to vote in favour. So, on that point you do have a say, but it has not come up so far. The respondent does not necessarily need to have more say either. That also comes more with bad experiences, then you want to act. But if the landlord regulates everything well, then that is only in your advantage.
As a tenant, you are obliged to let the landlord conduct maintenance, for instance on the boiler or on the exterior if necessary. That is for the sake of safety and so that also seems to the respondent to be a legitimate obligation to cooperate. Of course, you are responsible for that yourself when you buy it. There is also a list of things in the dwelling that you, as a tenant, are responsible to maintain yourself, like loose door handles or something like that.

Since you are a tenant, there is no owners' association, which is the landlord. But where the respondent lived before, there were also owner-occupied flats that were in a VVE. There was a housing association that had also bought up owner-occupied flats and they had more than 50% of the votes. So, they did arrange that the management was good in itself, but the neighbours who lived in owner-occupied apartments were less likely to get their points pushed through. That is not very democratic when in fact that is how the system is supposed to work.

The respondent indicates that he is not entitled to any fiscal benefits as the household income is too high. Respondent has no say in admitting or evicting residents. Neither would he want to. As long as people just act normal then it does not matter so much who moves in. The respondent has not had any other problems from neighbours either, so then it does not matter much, he thinks. The respondent says he has a fixed contract and points out that contractual agreements can lead to him being evicted. But that is about criminal activities and things like that. Respondent does not feel that he does not have full housing protection as long as he just continues to act normally.

If you look at the price what the respondent is paying, he thinks it is just okay. It is a good market price. Of course, it is still a lot of money but if you calculate the rent based on the central government's scoring system, you arrive at about the same amount. The respondent says he received an indexation of 3% this year which he considers a decent increase given this year's inflation index. However, in the long run this obviously has an interest-on-interest effect. So, if it is 3% every year then it does add up quickly and the property becomes a lot more expensive. Furthermore, the respondent was informed about the rent increase but does not know exactly what it all includes. It is mentioned that it is inflation but in what costs exactly is not told. He does not necessarily need to know this as long as the amount is affordable.

SUMMARY INTERVIEW 3

Date:	03-05-2023	Form of housing Tenure:	Owner-occupied
Location:	Nieuwegein	Landlord:	Not applicable

Respondent indicates owning an owner-occupied dwelling as at the time of buying it was financially more attractive to have an owner-occupied dwelling than a rental dwelling. In addition, the consideration included the fact that an owner-occupied house accumulates wealth. Another consideration was that the type of house suited the respondent's housing needs and there were more owner-occupied dwellings than rental dwellings available.

An advantage mentioned by the respondent is that in an owner-occupied dwelling, you have full ownership and can therefore determine all the adjustments yourself. If you are going to do a renovation, it does have to be indicated in the neighbourhood but basically you can just adapt the house to your taste and style.

A disadvantage is that you are therefore also responsible for all the maintenance. So, if you physically deteriorate or have a financial setback, you have to be prepared. For example, a boiler that suddenly breaks down. So, the responsibilities the respondent experiences are both advantages and potential disadvantages.

The respondent indicated that he had no wishes regarding living that a rental dwelling could offer compared to an owner-occupied dwelling because he is quite handy and likes to adapt things to the dwelling. The respondent indicated that he did not need more communal areas. After all, if there were, then you would also have a responsibility to maintain that.

There are activities undertaken in the neighbourhood by residents, but those residents have also known each other for a long time so it is an older and more closely neighbourhood. This community already existed when the respondent came to live there. There is no real committee or anything like that but there is a selective group of residents who take the lead. The respondent indicated that a community does make the neighbourhood more welcoming, and it is a nice idea to be able to knock on the door of your neighbours if you need anything, but it was not important when choosing a dwelling. The location was the most important thing to decide and then everything that comes with it kind of follows.

The respondent indicated that there are no obstacles that adversely affect living. Since a mortgage has been taken out for this dwelling, there are also financial risks involved in having an owner-occupied dwelling. The respondent himself does not really see this as a risk because he is fairly young and has a good job position and therefore does not feel that payment problems will arise. During corona, the respondent did briefly have the thought of, suppose if things fall away within my working area, what then. But even then, arrangements could be made with banks (which the respondent did not take advantage of).

It is possible for the respondent to leave the dwelling to someone else, however, this is currently not an issue. The respondent indicated that he could change the spatial layout if he wanted to. The window frames have already been replaced once and solar panels have been installed on the roof. Other than that, there are ideas but have not been taken forward because it is a project that is too big at the moment. The respondent says he has full control over the dwelling. If he would like to install a dormer, it is possible, but it has to be approved by the municipality.

There are no specific obligations that the respondent has to fulfil but he does check with the neighbour whether it is possible to do shared maintenance when it comes to common parts such as the gutter. This is considered very pleasant by both the neighbour and the respondent because the costs can be shared, and the neighbour (older in age) does not have to go up on the roof.

Furthermore, there are no obligations, but the respondent did mention that there are residents in the neighbourhood who collectively hire the service of a window cleaner. Then they agree on a total price, and they split that over the number of households. It is also the intention that everyone keeps their garden a bit tidy but that is not an obligation.

To the respondent's knowledge, he is only entitled to tax benefits such as mortgage interest deduction and a subsidy or VAT subsidy for the purchase of solar panels. The respondent says he has no say in allowing new residents into the neighbourhood. If he were to sell his own property, he does have the say in who he can sell the property to if necessary. The respondent would like to have more say in admitting new residents so that the neighbourhood can become younger or a more inclusive neighbourhood with different ethnicities. To the respondent's knowledge, he has no say in evicting existing residents.

The respondent indicated that he did not feel full housing protection. It was not possible for him to take out a mortgage with national mortgage guarantee at the time. However, the respondent does think it is possible to come to a compromise if it occurs that payment obligations can no longer be met.

The respondent mentioned that the price he paid for the house at the time was a fairly high average price but still quite affordable. Now the value has risen enormously and based on the WOZ value and all the adjustments that have been made to the dwelling, the respondent feels that the price is absolutely out of proportion to the quality and type of dwelling. The monthly affordability is highly dependent on the type of mortgage a person has, and the respondent thinks he was able to secure a reasonably favourable mortgage. The mortgage is structured so that more is repaid in the beginning and less is repaid in the longer term because then the interest on the debt to be repaid is less. So that way, the respondent gets a little more financial space every month. So, in the beginning the mortgage seems very expensive but in the long run it is much cheaper than any other type of mortgage.

The interest rate is fixed for 10 years, which at the time was a very favourable moment for interest rates to pay off a mortgage. What the interest rate will be after the fixed rate period is a question that nobody knows the answer to, but the respondent is not worried about that now either. As a person, he is not able to influence that so he will see that by then. The respondent can also choose to make additional annual repayments if he wants to. So that also saves on affordability in the long run.

SUMMARY INTERVIEW 4

Date:	03-05-2023	Form of housing Tenure:	Owner-occupied (VVE)
Location:	Nijmegen	Landlord:	Not applicable

Respondent resides in an owned apartment and partly owns the common area as a member of the owner's association (VVE). He indicates that he chose an owner-occupied dwelling because the respondent never wanted to rent, he considered it as a waste of money. He ended up with an apartment as an individual owner-occupied dwelling was financially not feasible. In addition, the respondent did not want to live in a big dwelling and an apartment suit that well. But the financial incentive was definitely the deciding factor not to rent.

As an advantage, the respondent mentioned having the control to change things. Perhaps it is also possible in a rented house, but then it is not yours, so replacing the window frames does not become a financial investment in your dwelling. A disadvantage is that as an owner you have to pay for everything yourself and when you rent then the landlord pays the costs. However, the respondent does not experience it as a disadvantage that he has to pay for everything himself.

The respondent has no desire to make more use of communal areas. Neither are there any of such areas in the building. The respondent says that he is happy with his balcony and therefore does not feel that the apartment lacks anything. However, the respondent would like to have a skylight built in his apartment, but that modification is difficult to accept within the VVE.

As a VVE, you are part of the building and in that sense, you could say it is a community, but no other joint activities are undertaken. Social ties are strong in some parts of the building but not everywhere. There are also many people living there who are on their own, but the people who have lived there for a bit longer tend to move closer together. This is also noticeable at VVE meetings. Those people often form a bit of a block towards other people. The respondent also indicated that a community is not necessarily very important to him.

The respondent indicated that he would like to improve things regarding making the apartment complex more sustainable from which you can benefit as a collective, but this is now being blocked by a select group of people. The respondent indicated that this was a pity. The respondent indicated that it is not possible to expand since it is an apartment but otherwise, he can adjust everything in the dwelling. So, it is possible to realise more or fewer rooms in the dwelling. When window frames are replaced or a sliding door is installed, those are things that also have to be approved by the VVE. For example, all window frames must be the same colour to match the street pattern.

It is possible to sell the dwelling and currently the respondent can also earn a lot of money from it. However, something has to be bought back for that and other dwellings also cost a lot of money. Besides, the respondent does consider having a mortgage a risk the moment you become unemployed. You have to pay off your monthly payments after all. However, the respondent does not consider this in his daily life, he does not assume that he will become unemployed for a long time. Because of the mortgage financing, the house also serves as collateral and the respondent can leave the dwelling to others. However, this is not on his mind at the moment.

The respondent says he has almost complete control over the dwelling. Over the elements that fall within the VVE, he has control over as one vote in of all the dwellings. The management of a VVE can be done by the residents themselves or by an external manager. It used to be managed externally, but nowadays

it is done by the residents themselves. The respondent's preference is to organise management externally. He notices a clear division between the younger and older generation. The younger generation would like to improve the sustainability of the building, while the older generation, who have been there longer and are less well-off, hold back since they are in the majority. This does not necessarily cause friction, but he does notice that people are bothered by this.

The meetings are not compulsory, but it is desirable if you join them. But people who let their dwelling, for instance, do not attend since they are not interested. For the VVE, you pay a monthly contribution towards the service costs. A meeting is about twice a year and currently there is a management committee of 2 residents who run the VVE. But there are few people who step into management with a lot of enthusiasm. So, the respondent's preference is to do it externally where there is a bit of professionalism, knowledge and experience involved as they manage several VVEs. But in the respondent's apartment complex, there are residents who have had unpleasant experience with an external manager, so it does not happen then. Other than that, there are few obligations you have to conduct as a resident, but you do have a kind of social obligations. If you notice someone making a mess in the stairwell, then you do say something about it.

The respondent says he is not entitled to tax benefits. The VVE might be eligible for sustainability subsidies but that is separate from subsidies as an owner. Everyone has the right to live in the complex if they are able to afford it. It would be crazy to exclude people, so the respondent does not need to have a say in that. Nor about evicting residents, that would be unfair. There is no possibility of the respondent to be placed out of the dwelling. The only possibility could be the bank when the respondent does no longer meet payment obligations. But then things must already be turning strange says the respondent. Otherwise, he does not feel that he does not have full housing protection.

The respondent indicates that he finds it crazy that the WOZ value of his house has almost doubled in five years. He indicates that it is a really nice flat in a nice location, but the price is too ridiculous. The respondent indicated that the property was bought 5 years ago and that at that time the property was affordable. However, the taxes he pays on the basis of the WOZ value have also risen very sharply in price, so in that area, he believes he is paying too much. But in terms of the mortgage, 5 years ago the mortgage rates were also extremely low so in that sense it was a very favourable time. In 5 years, which is going to change again as the interest rate was fixed for 10 years. So, the respondent says he expects to go down in terms of interest rates. However, he is not concerned with that. He says that this will be something to think about in five years' time. You do not know how things will develop, so he does not worry about that now.

SUMMARY INTERVIEW 5

Date:	10-05-2023	Form of housing Tenure:	Social rental sector
Location:	Amsterdam	Landlord:	Housing association

The respondent lives in social housing owned by a housing association. It was the only way to get housing 30 years ago. In the past, attempts were made to buy the dwelling, but the housing association refused to sell it. The respondent did not want to move to be able to buy a dwelling. Housing factors such as location played a more decisive factor for the respondent than whether she would own a dwelling.

A huge advantage is that the dwelling was very affordable back then and it still is today. The neighbourhood and surroundings with its neighbours and amenities are greatly appreciated. The roof terrace which belongs to the dwelling is used a lot. It does not matter to the respondent that the dwelling is not owned. It can be useful to own the dwelling as you can use it when you buy a larger dwelling. The respondent indicates that the high affordability makes it possible to save a lot of money and do nice things with it. A disadvantage of the dwelling is that it is a bit smaller, and it is not on the ground floor which means you always have to climb three stairs before you get upstairs. The respondent indicated that if she had owned it, she would probably have done some renovations. However, the danger of owning a house is that you also continue to put more money into the dwelling without any actual necessity. Another advantage is also seen in the convenience when something breaks apart, the housing association will just come and fix it.

Many activities are undertaken in the neighbourhood and neighbours talk to each other on a regular basis. There is a neighbourhood app and a website on which a lot is undertaken by neighbours and there are also participation evenings organised by the municipality. You are then kept informed of developments in the neighbourhood and get the idea that major renovations or changes are not beyond you then. You can and may express your concerns there, but it remains to be seen whether anything happens. The respondent would not necessarily want more control over this.

The respondent does not experience any restrictions in her everyday activities in the dwelling. At most that she lives on the third floor, but that is also a choice. The respondent had a new kitchen installed and the bathroom refurbished, which the housing association agreed on very quickly. However, this was in line with a planned large-scale renovation, therefore the resident had a say in certain options. This involvement was considered to be very pleasant. Furthermore, the respondent has little control over the dwelling and is very satisfied with how the housing association manages maintenance and management. Since it is all well organised, she does not want to have a say either.

Apart from the fact that the rent has to be paid monthly, there are no obligations. Neither is the respondent entitled to tax subsidies since the household income is too high for that. The respondent has no say in allowing or evicting neighbours. That would also not be fair and therefore not quite the right thing to do, thinks the respondent. At the moment, a lot of diverse types of people live there, so you have a mixed neighbourhood. Furthermore, the respondent did not feel that people or neighbours would want to have a say in the matter. However, the respondent could imagine that if the nuisance were considerable, she would want to have some kind of say.

The respondent feels she has full security of tenure. In principle, she cannot be evicted from the dwelling either. On the price, the respondent cannot complain she indicates. She pays €620 a month and she

indicate that it might not be entirely fair to other people. But so many dwellings are being purchased and then let on the open market that she does not feel guilty about it.

Housing remains affordable in the long term as rent increases should only be based on small percentages. In the last two years, rent increases have been slightly higher, around €100, as it is to discourage skewed housing. Before that, it was a few percent and that was about €10. The respondent does not know what exactly this rent increase is for. She knows it is inflation but where that comes from, no idea. The respondent does not have to know that either. She mentions that her salary also goes up every year and the costs and benefits pretty much maintain each other. Other than that, that is also a complicated economic system, and the respondent does not really want to know anything about that.

SUMMARY INTERVIEW 6

Date:	15-05-2023	Form of housing Tenure:	Housing cooperative
Location:	Boekel	Landlord:	Eco-village Boekel

All dwellings within the housing cooperative are social rental dwellings. Two associations have been set up within the housing cooperative, a real estate association that owns the land and the dwellings (VaVer). It also holds the mortgage with the bank, loans with the province and has done all the crowdfunding and received grants. In addition, there is a residents' association (BeVer) which, as an association, is a member of the VaVer. Each resident in turn is a member of the BeVer to which everyone remits their rent on which the BeVer pays the collective rent to the VaVer. Then the VaVer pays the mortgage repayment plus interest to the bank and the repayment to the province.

The motives for moving into and establishing this housing cooperative were, firstly, to demonstrate that it is possible for everyone to live sustainably, regardless of anyone's income. Therefore, the dwellings necessarily had to be social housing. In addition, as a group it was very important for them to decide who will live here in order for everyone to support and pursue the same vision. The most important thing in this is that everyone pursues the sustainability vision and can live well in a group, so very dominant people are not welcome here. This is also possible since housing cooperatives do not have to comply with that section of the Housing Act as it is not a housing association. This also makes it possible for people with very high incomes to live here in a social rental dwelling, they just do not receive a rent allowance.

There are eco-village initiatives that work with owner-occupied dwellings but then only people who can afford owner-occupied dwellings can be admitted. The respondent did consider a structure with owner-occupied houses but that went against the conviction to create dwellings accessible to every target group. Every year a solidarity contribution is paid to VrijCoop, which will eventually be used to co-finance other start-up housing communities. That amount is not very much now (€2000 - €3000 per year) but every year that amount increases slightly and at some point, the mortgage is paid off and from that point on a lot of money can be shared. Within this housing co-op, there are people who really like that solidarity principle.

Because there is a lot of cooperation within the cooperative and everyone has an equal vote, it also happens that things sometimes stagnate before a decision is taken. The respondent indicates that he often wants to move forward quickly while others take longer to think about an issue. This can have a delaying effect. The respondent indicated that he has no wishes regarding housing that this form of housing cannot provide.

In the housing cooperative, there is a strong presence of a community where people do a lot of activities together. People often eat together and when someone sits down on the central terrace, almost always someone joins them. In addition, the housing cooperative itself provides all the food needed and it is free for all residents. So, when something is harvested, an email goes around saying that a certain vegetable has been harvested and that everyone can come and pick it up.

The respondent indicated that a strong community is very important for the housing cooperative. It is like the oil that makes the machine run. The moment the community is not present and clear, conflicts can arise which are not beneficial to the cooperative. Currently, the housing cooperative consists of about 47 members but from its start till now, about double the number who have been a member temporarily or for several years. The turnover is not extremely high anymore now that people are

actually living here. But some people have already moved to another housing cooperative, who did not like living in a large community very much after all and started a housing cooperative with 2 other families.

The respondent does not necessarily experience any limitations but does mention that the dwellings on the south side get extremely hot in summer, partly because they are very well insulated. The heat hangs around for an awfully long time and the respondent would like to buy sunscreens. At the moment, this is not possible as finances do not allow for it. But it is something that will be paid from the collective account the moment that it is possible.

Limits have been set for modifying the dwellings. Firstly, only sustainable materials may be used and, on walls, only vapour-open materials (e.g., wallpaper is not allowed) or a specific type of paint. There are also restrictions on floor coverings, e.g., a poured floor is not allowed because you cannot remove it afterwards. It is possible to change the layout of dwellings, but this must be discussed within the real estate circle (workgroup). They then assess whether the quality of the dwelling remains the same or is improved but if it reduces the quality of the dwelling, it is not allowed. These kinds of adaptations are not always funded from the collective. If these are adaptations where only the individual benefits, then the costs are also for the resident himself. The dwellings were designed by the housing cooperative itself. Every resident was able to be in the design circle at the time to help design the dwellings. Major decisions were always taken jointly like the shape of the dwellings.

The dwellings must remain affordable for everyone at all times. This is guaranteed by the fact that the dwellings cannot be sold. Our VaVer has two members, the BeVer and VrijCoop is a member. The objective of VrijCoop is to ensure that dwellings cannot be sold and therefore cannot be subject to speculation. In addition, VrijCoop has the objective after the repayment of the mortgage that all rental income which is left over goes towards financing new start-up housing communities. Currently, this housing cooperative has no spare money, but VrijCoop is following the example of the Mietshäuser syndicate in Germany. There, this structure has been functioning for XXX years and has about 190 housing cooperatives as members with 5-10 new housing cooperatives joining every year. Sometimes new start-up housing cooperatives go home with 1 million or 1.5 million from the solidarity fund. Banks can then lend the remaining money needed. This is not yet possible in the Netherlands as banks have no experience in providing loans to cooperatives. Specifically in our case as an eco-village, there were too many innovations present for banks to calculate what the risk profile of the loan would be. In the end, the German GLS bank was willing to provide a loan and they did it very easily. Their experience was that they had already provided over 90 housing cooperatives with a loan and had never experienced that a cooperative had failed to pay the repayment on time. So, for that bank, the risk profile is very low.

It is not possible to transfer the dwellings the moment a resident leaves the dwelling. The cooperative determines at all times who is admitted to the housing cooperative. Within the housing cooperative, circles (working groups) are set up. Every resident is required to be a member of at least one working group because this keeps residents involved in the cooperative. The respondent says he is in four or five circles since he wants to invest more time in the housing cooperative. Within the circles, everyone has a role to ensure that the responsibility remains as low as possible in the organisation which increases the sense of responsibility among residents. The respondent says he holds about 23 roles in which some roles require a lot of consultation and in some roles individual responsibility is very high and no consultation is needed. Preferably the responsibility lies with one person but if the issue affects several people, then it should be discussed at the village circle which is a larger circle with more representatives from all other circles. In the VaVer and BeVer, board members are also present, but they are only allowed to sign off on something that has been dealt with by other circles. Therefore, the responsibility does not lie with the board but function as a board committee that can confirm decisions or arrange

investigations. So, if a circle has taken a decision on something, the board committee has to sign it for confirmation, but the board committee cannot overrule the decision.

There is also a general membership meeting at the real estate association and a general membership meeting at the residents' association. At least two representatives of the residents' association and one or two representatives of VrijCoop attend the real estate association meetings. Those meetings are not that large so sometimes more people can attend but they do not have voting rights. VrijCoop has a veto right on the sale of dwellings and at the time the residents' association dares to take out a risky loan. At the general membership meeting of the residents' association, everyone has one vote so that decisions can be decided in the most democratic way. The meeting is at least once a year so that the annual financial reports can be gone through.

The association is dependent on VrijCoop and is not autonomous in that sense. Furthermore, the housing cooperative is connected to many networks but is not dependent on them. Also, the cooperative is not independent of the government and is subject to laws and regulations. However, there are exceptions in the Crisis and Recovery Act that apply to the tiny house community that have emerged from this initiative.

The respondent indicated that he sometimes thought of wanting more control in order to speed up decision-making processes, but that goes against the democratic voting right. In the end, the decision has to be taken by the collective and therefore a short cut is not possible. It also would not benefit the group since it would bring a dominant person into the group.

A separate circle of real estate is in place for maintenance and management. Someone within the real estate circle is responsible for the NUTS facilities and managing and maintaining the washing machines in the lavatory. There is also someone who is responsible for the MJOP who ensures that in the long term everything is well taken care of such as the painting work and that the residents are informed about this by then. So here again, the responsibility lies preferably with one person and therefore as low as possible, but the moment someone does not get it right or does not perform his task properly, the circle as a group can intervene or offer help. An average resident is estimated to spend ¾ to 1 day a week on responsibilities.

The respondent mentions that people living here may be entitled to rent allowance. Furthermore, he does not receive personal subsidies but does enjoy the benefit of not having to pay sewerage tax as they filter their own water. There were also subsidy pots for specific parts of the construction of the dwellings, such as for the solar collectors on the roof.

The circle of gatekeepers determines whether someone may and can be admitted to the residential community. There is also a procedure for when someone may be excluded, but that is not easy. In a general membership meeting, at least 75 per cent would then have to say that that person does not fit the vision of the residential community and that is not expected to happen any time soon as admission to the cooperative is based on requirements and there are different methods of dealing with conflicts. Despite such measures, the respondent experiences full security of tenure.
The price of the houses is considered to be fine and well affordable for people who are entitled to rent allowance. The monthly costs did go up due to increased construction costs, but everyone was able to have a say in the level of rent. The rent is now as high as necessary to pay off the mortgage. The houses will remain affordable in the long run because there is a very good chance that rents will eventually stop being indexed. Now they still are as the mortgage needs to be paid off but after that, rents will probably stay the same. The decision can then also be made to adjust rents further downwards if needed. Rents are indexed annually at the same rate as housing associations are allowed to do.

SUMMARY INTERVIEW 7

Date:	16-05-2023	Form of housing Tenure:	Housing cooperative
Location:	Maasbree	Landlord:	De Leef en Groei Hoeve

The respondent lives in a housing cooperative and consequently owns the dwelling collectively as a member of the cooperative. The housing cooperative originated from the idealistic idea that housing and real estate are part of a fundamental need and should not have a profit motive. The moment the profit motive disappears the basic need becomes much more in focus again and becomes housing more affordable for everyone. In addition, the respondent indicated that based on equality within communal living there is very good basis for collective ownership. When nobody owns property in a private way, that is an excellent basis. In addition, a motivation to move into collective ownership was the self-sustainability it could bring with it and the aspect of living together. That implies looking after each other as neighbours and supporting each other when necessary. The respondent experiences a certain tendency in society that shows that these values are lacking.

In the past, the respondent has lived in owner-occupied dwellings, rental dwellings and lived in another housing cooperative. At the time, the respondent did not experience any stress or pressure of living in owner-occupied housing, but once the dwelling was sold, it felt tremendously relieved. It felt like a piece of freedom was returned. Unconsciously, there was some kind of ballast attached to being a homeowner. The respondent found it especially a relief to get out of the (economically) system that the society created and keeps in place. With an individual owner-occupied dwelling comes a lot of responsibility and also a bit of false security. Everyone assumes that dwelling values will continue to rise, but you can also end up in danger.

The respondent names common responsibility, the sharing and caring for each other and for each other's children as major benefits of living in a housing cooperative. On such a huge farm where they live now, the respondent would not want to own that on her own. That requires too much maintenance, time and responsibility of one person.

Currently, the monthly expenses are about the same as the respondent had in the owner-occupied dwelling before. But the difference is that the rent is not going to increase. So, in 10 years, that difference will be significantly present. In addition, some dwellings within the cooperative fall below the liberalisation threshold, entitling residents to rent subsidy. In addition, the respondent mentioned that, in her view, it is also just not right to have to pay so much money for a basic need.

Because the housing cooperative is still in its pioneering phase, the respondent also experiences some disadvantages. Financing is difficult and that requires a lot of determination and courage to step out of your comfort zone. This is hard work because the financial world is not yet as far along as we would like it to be. Several Dutch banks express their willingness to finance these kinds of projects, but reality shows that they are not yet willing to take part and so you need a bank with a more idealistic vision. The respondent mentions that the cooperative can easily pay off a mortgage with corresponding interest rates over 30 years. However, there is too much profit to be made on those loans that it is too contradictory to our project, and it is looking for a middle path, which has not been found yet. In Germany, there is the GLS bank, which has more experience with this and argues precisely that financing collectively gives more confidence because the mortgage is spread over more people instead of one person as legal liability. So collective ownership gives them more confidence. The Dutch banks mainly see the conflicts and risks.

The respondent could not name anything as an aspect concerning living that the housing cooperative cannot offer compared to other forms of ownership. There is a lot of cooperation and living together within the cooperative. The respondent can imagine that in apartment complexes it is more challenging to get people to interact with each other. But on the farm, everyone actually lives in their dream home. The only thing the respondent would like is that for similar projects, it becomes easier to realise and for that, institutions within the current systems also have to change.

There is a strong sense of community within the cooperative. During the week, four evenings a week are planned where cooking is done for everyone. You get to decide whether to join the table or eat at your own place. There is also shared responsibility for maintaining the garden and maintenance of the dwellings. Every week there is a meeting in which all ongoing matters are discussed, and everyone looks after each other's children. The weekly meeting is not compulsory to attend but it is desirable to be there as much as possible. There is a shared car available and a shared washing machine. So, in that sense, there is definitely a community. The community feeling is considered to be very important. It gives a lot of pleasure to be part of a community and do things that I enjoy doing. What I enjoy doing less probably someone else enjoys doing more and that does contribute to the enjoyment of life.

It is not possible for the dwellings to be sold. That is stipulated in the statutes and also as part of VrijCoop which has a say in it. So, this kind of project is not allowed to be sold at a profit and thus in the end of time affordable rental dwellings are available. In a certain sense, the property does count as collateral for the financiers because of its value, but the GLS bank finances more on the basis of rent value than sale value. Also, because the bank assumes that the dwelling will not be sold.

As a result, it is also not possible to give or bequeath the dwellings to third parties. It is possible to nominate prospective members when the respondent leaves the cooperative, but the active members decide whether someone is admitted.

As the project is in its pioneering phase, it is possible to have the opportunity to have a say in the design. Before this, when respondent lived in another housing cooperative, there were more rules about this because the dwellings also had to be well maintained in a very sustainable ecological way.

Because the people in the housing cooperative are jointly responsible for management and maintenance, people start to feel that sense of responsibility. As a result, you also have joint control over your own living environment. The cooperative decides how paths will be laid, which trees and plants will be planted, how the dwellings will be built. That is very different from when the municipality or a housing association decides.

The respondent mentioned that because this cooperative is relatively small, people also feel more responsibility as they can see more quickly how decisions affect their living environment. In a larger group, people are often more distant from the decision-making process, and you do not really want that. Because then you get a kind of tenant-landlord feeling again. People need to be actively reminded of that.

A consensus system is used within the cooperative. You can bring a motion before the meetings and also give your opinion whether you go consent or not. If you do not go consent, then it is called a serious reasoned objection and that means you also have to put forward a new proposal that suits the common purpose.

Furthermore, every member is obliged to pay a deposit when joining the housing cooperative which is paid back when the membership is resigned, in other words, a deposit. There is no clock to record how many hours everyone contributes to the cooperative. There is an obligation to contribute, but it should

be done in a nice way, without any obligations. Also, if someone is unable to contribute as well as you can (whether it is temporarily or not), you should discuss this together and find a solution.
Currently, a lot of time goes into organising the housing cooperative. The respondent indicates that at least 20 to 30 hours a week are spent on this now. Once the renovation is done and the cooperative is up and running, the expectation is that 8 to 16 hours will be needed to keep the cooperative running. This also depends on the division of roles, because one person wants to be involved full-time while another has less time for it because of other activities.

There is definitely a different degree of autonomy because you have more control over your living environment, but with that comes more responsibilities too. There are currently special subsidies for setting up housing cooperatives. In addition, some residents are also entitled to rent subsidies.

Not everyone can just join and come and live here. The cooperative has to approve the membership, which is now done on a gut feeling basis. So first we meet and spend a few days together and then see what else is needed to get to know each other better and judge what is possible.

It is also possible to evict people from the housing cooperative, but that is not easy. New members are initially members for a year and so you have until then the opportunity to do things if certain memberships are not satisfactory to do something about it. Thereby, there are certain rules laid down about serious disturbance of peace or something similar. Besides, there is also national legislation that does not make this easy. So, it is not an easy arrangement, especially when someone has moved to permanent membership after one year. But basically, the decision-making structure prevents you from getting to that point. So, it is not expected to happen soon. The respondent indicated that if she made it very crazy it would be possible to be evicted, but that it was actually irrelevant. She therefore experiences the idea that she has full housing protection.

The respondent feels that the dwellings are affordable within the options available under the current system, but it could be a lot more affordable if housing will be seen even more as a basic need. In the long run, housing remains affordable because it is guaranteed that most rents remain below the rent subsidy limits because rents may not be indexed. This is the ideal aspiration, by the way, because the financing structure is unlikely to allow rents not to be indexed. In addition, the properties may not be indexed beyond the social rent cap imposed by the government. In the respondent's case, it is very clear where that rent increase comes into play because you jointly determine that there is a need to increase rent. In this case, it is purely to pay the interest on the mortgage.

SUMMARY INTERVIEW 8

Date:	17-05-2023	Form of housing Tenure:	Social rental sector
Location:	Amsterdam	Landlord:	Private landlord

The respondent mentioned living in a social rented house but from a private landlord. It was really the only choice to live in the city and it was meant as an interim solution. Before this apartment, the respondent also lived in a social rented house, but it was much larger (60 m2) and rented from a housing association. This dwelling is 24 m2 and the plan was initially to stay for six months and then move on to an owner-occupied dwelling. Meanwhile, the respondent has been living in this dwelling for 5 years now and an owner-occupied dwelling has become financially out of reach. The respondent indicated that he would very much like to live in an individual owner-occupied dwelling because that way you invest in something for yourself. In his view, renting is kind of a waste of money after all. The respondent also mentions the importance of location and spaces in the neighbourhood, etc. That has to be a consideration too, but the most important thing is the financial incentive. It is a constraint to live where the respondent lives now because it feels like you are stagnating your life. The respondent indicated that it is very difficult to find an affordable dwelling elsewhere. His employer pays a decent salary but to pay €1,500 a month for a free rental dwelling that is maybe 1.5 times bigger, that is just a waste of money in his opinion. The most important thing is that the respondent can continue to live in the city, but the financial constraints attached to this do limit the possibilities.

The advantage of the dwelling of the respondent is its affordability. It is a social rental dwelling and therefore very affordable or rather cheap as the respondent says. Furthermore, the location is fantastic apart from the local nuisance of tramps. It is affordable in the sense when you compare the price with other dwellings. It is not a fair price for what you get in return in terms of physical features of the dwelling (area). In the opinion of the respondent, there is hardly any maintenance done by the landlord. However, the fact that the respondent can live here on his own is a very pleasant idea. Renting feels like a never-ending story. The respondent refers to rent-to-buy constructions abroad (percentage of monthly rent is deducted from the purchase price that you thus have the option to buy the house after 10 years). Furthermore, he pays a lot of service charges of which the respondent has no idea where it goes. In his opinion, he does not see much in return.

The respondent would very much like to have something of outdoor space such as a balcony or garden. An extra room would also be nice because now all his daily activities take place in one room (studio). He mentions that this eventually affects your mental health. The respondent also mentioned that he would like to be open to having more common rooms. There used to be some but a few years ago the landlord decided to create additional apartments in there. Communal balconies are also present but have been closed by the landlord due to fire safety concerns. But that argument is questioned by the respondent. He says that he would like to live in a residential group. It seems very nice to him but with more space for yourself and then a communal kitchen or outdoor kitchen, which seems to be great. However, the respondent thinks that in the current housing market this kind of initiatives are not feasible.

There is an increasing sense in the apartment complex that a community is emerging. There is now a WhatsApp group chat, but it was created out of necessity due to local nuisance. Furthermore, the respondent does feel that residents are becoming closer and closer and talk to each other more often. The respondent regularly chats with neighbours, which makes the area feel a bit more like a neighbourhood which gives a pleasant feeling. The positive energy that comes from it is mentioned but the feeling of social control is also very pleasant. In this world, which is mainly individualistic, this is necessary, says the respondent. If all goes well, a joint activity will also be organised this summer, a party or something similar. The respondent does look forward to that. There is also a residents'

committee in the building and the respondent is also a member of it, but it was born out of necessity to report the nuisance in the neighbourhood. The residents' committee has its hands full in shifting between politicians, the municipality, the landlord and the addiction clinic. That is a lot of work that does not really belong to a tenant.

The resident occasionally feels that the space is very small to live in, especially as the respondent previously had a larger dwelling. In addition, the lift is often broken which is very annoying and further, the maintenance is also just poor. As a tenant, you are allowed to hang things on the wall, but you are not allowed to break through them. Also, the landlord does not allow a washing machine or dishwasher. This also runs into costs as the respondent has to go to the laundrette every time. The respondent indicated that he had no say in the design of the dwelling as it was already existing.

The respondent would like to have a say in management and maintenance activities but indicated that the landlord is not open to this. Complaints about this are not listened to or you do not hear anything about it afterwards. As a tenant, you have a lot of say in decision-making processes as a result of your tenancy rights. So, if the landlord wants to demolish or convert the building, they do have to offer a replacement property that you agree to. So, in that sense, you have a say. Furthermore, the respondent indicated that he has no say over common areas or the exterior of the dwelling. For example, window cleaning is not done by the landlord but hanging out the window at six floors high to properly clean the windows is too dangerous in the respondent's opinion. The respondent makes a division between participation and control. Currently, in the long term, you are not informed about what work is going to take place, it is more of an announcement such as the lift will not work next week. The respondent would like to have a say in the design of the building so that, for example, there could be a sheltered bicycle parking or laundrette. These are additions that the respondent misses very much. In the past, those promises have also been made but they have been replaced by apartments.

Apart from paying the rent, there are no obligations for the respondent. There is no obligation to meet or manage other things. Thankfully, the respondent says, he is already busy enough. Apart from having a small amount of housing allowance, the Respondent is not eligible for any other financial arrangements. He has no say in admitting new residents. You used to be able to put people forward on the waiting list but that is full these days. The respondent would like to have a say in admitting neighbours to ensure that only "normal" people can live here. There are also people living in this complex from the addiction clinic down the street. It can be quite intimidating the way they behave.

If the respondent is causing a lot of nuisances, it may be possible to be removed from the dwelling, but in principle not. Since you have tenancy rights as a tenant, you can never be evicted from the dwelling that easily. In terms of price, it is affordable, but the respondent thinks it is a ridiculous price for what you get in return. The respondent pays €765 a month and that will be raised to €780 this year. The respondent wonders what this is for and mentions that 15 years ago, €200 was still being asked for this kind of dwellings. It has just become normal to pay so much money for a small dwelling, simply because there is an overheated housing market. It is crazy to see everyone just getting on with it and paying for these dwellings. The respondent is definitely not satisfied with the price he is paying. A fair price would have been €500 where everything is included.

Respondent indicates that from a landlord's perspective, the dwellings are likely to remain in the social segment because subsidies may be involved. So, in that sense, it remains affordable. Rent increases involve a percentage of 1% to 4% set by the government and then the landlord gets to decide what percentage they give. As a tenant, you are compulsorily notified of the price increase every year, so you have time to object. The respondent does not know where those costs come from. It is just a rent increase for inflation.

SUMMARY INTERVIEW 9

Date:	22-05-2023	Form of housing Tenure:	Free rental sector
Location:	Amsterdam	Landlord:	Private landlord

The respondent indicated that he chose a private rental dwelling as it was really no other option. An owner-occupied dwelling was financially not feasible, and the household income is too high for the social segment. Dwellings are extremely scarce at the moment due to the housing shortage so then the only option left is private renting. The location also plays a role in this, says the respondent. If you like to live in the city, then dwellings are even scarcer. The respondent says that he would like to have an owner-occupied dwelling because of the wealth accumulation aspect but that it is not affordable now.

The advantage of renting is that all maintenance is taken out of your hands, and you get some additional services, which is a nice idea. The flat itself is a newly built dwelling so all the construction benefits are there too. There are also certain services that the respondent does not use but pays for, such as a common room and mail parcel facility. But that is kind of part of it. The respondent consciously chooses not to use it while he can. It is just that you are obliged to take the service when you come to live there. However, the respondent does say that he understands that it is perceived as convenient for other residents. The respondent also indicated that because the dwelling is newly built, the general public areas are not quite finished. This is also dealt with in a somewhat lax manner, as if it does not really matter. The green facades of the building are also deteriorating due to the lack of maintenance. These are actually quite shameful things because you indirectly pay for that as well. The same applies to the courtyard garden in the apartment complex.

The respondent mentioned that now he is not accumulating anything financially and that compared to buying it is also a more expensive alternative, which is a disadvantage. The respondent also mentioned that this house is not suitable for life. If the family expands, extra space will be needed for bedrooms. So that means moving, perhaps out of town. The respondent indicated that he did not necessarily need more communal areas, but after thinking long and hard, a communal roof terrace would have been nice.

The common room the respondent referred to other residents use earlier as a service to organise events, such as a cinema night or watching a football match. But the respondent does not join these. Furthermore, there is also a neighbourhood application with a community manager who also organises these kinds of events. She works in the common room during office hours as well. A lot of things are shared within that application. People also like to lend things to each other, such as tools, a car, a parking space or a bedroom and much more. So, in itself, the respondent thinks it is possible to speak of a community, but it is your own choice to join it, and everything is without obligation. The platform was offered from the landlord, but you notice afterwards that the residents actually adopt it and continue to use it. That is something positive. In addition, the respondent said that he liked the fact that there is such a community. It ensures that people look out for each other and, if you need something small, you can just ask your neighbours if you can borrow something. It also provides a kind of social control and solidarity. The respondent does experience that as pleasant living.

The respondent experiences no restrictions in daily living activities or access to the dwelling. Only people with access keys can enter the building so that is also very pleasant. The respondent indicated that it is not possible to change the structural layout of the dwelling. You also have to return the dwelling in the state as you got it when you move out. It is possible to furnish the dwelling as you like but it is not possible to modify the interior such as the plumbing or the kitchen. Furthermore, the respondent had no say in the design of the dwelling and neither did he need to have.

The respondent indicated that there is a residents' committee that also meets with some regularity. Residents receive a report of each meeting with the discussed points. It is possible for everyone to join the residents' committee only the respondent personally does not have time for that, though he did consider joining. Therefore, residents have the opportunity to conduct participation through this committee. The only question is what you can achieve with it. Through the residents' meeting, every resident can have a say through the democratic right to vote, but the control ultimately remains with the landlord. Besides, a residents' committee should not really concern itself with issues that are not properly regulated by the landlord. The landlord should just pick that up on its own. Furthermore, the respondent indicated that he did not necessarily want to have more say; he enjoys living there and likes it. But in the hypothetical case that there are things that are not to his liking, you can also just end the rent and leave.

Apart from the fact that as a tenant you have to pay the monthly rent, there are no obligations. To the best of his knowledge, the respondent is not entitled to financial arrangements. The respondent says he has no say in evicting or admitting residents. It should also be accessible for everyone to live there if they want, in his opinion. In that case, he does not care who comes to live there as long as everyone simply behaves normally. The respondent says he feels he has full security of tenure. If you just live by the rules, you can hardly be evicted.

The price paid by the respondent is fine in his opinion. It could be cheaper but that is not realistic in this market for the same quality and location. So, the respondent does think this is a fair price. It is also an affordable price which, however, is indexed annually with inflation. The dwelling is expected to remain affordable in the long run. The respondent recently received the letter for the rent increase, stating that the rent will go up by 4.2%. The respondent mentioned that this is part of the deal, but he did not know what the costs would be, he just mentioned inflation.

SUMMARY INTERVIEW 10

Date:	23-05-2023	Form of housing Tenure:	Owner-occupied (VVE)
Location:	Hilversum	Landlord:	Not applicable

The respondent says he lives in an owner-occupied apartment and made a conscious decision to do so. He always believed that owning a dwelling brings independence and wealth accumulation in the long term. Thus, the living enjoyment component that you get to furnish and modify the dwelling as you like, the control. That is what comes from not being dependent. That is why I have never thought of any other form of ownership.

The big advantage is that there is no accountability, and you are not dependent of rent increases. This gives a sense of freedom. Disadvantages the respondent experiences more on the financial side in tax-changing legislation. The government is increasingly looking at assets and entrepreneurs used to see real estate as a pension investment, but that has to be considered differently now. In this sense, it is becoming less attractive to own an owner-occupied house. The respondent owns a number of owner-occupied houses for his retirement, so changing the rules of the game does affect that. In addition, the monthly costs or maintenance that needs to be done on the dwellings in the long run are also a disadvantage with an owner-occupied dwelling.

There are no immediate wishes that the dwelling cannot offer due to the fact that it is an owner-occupied house. However, the respondent does have a wish to live somewhere with more fresh air at some point in the future. In the city centre, he does notice the disadvantages of this. There is a compulsory owners' association (VVE) in the apartment complex according to legislation which is relatively small as there are only 4 apartments. Apart from that, there is not really the feeling of a community it is more that you meet the neighbours from time to time, but no joint activities are undertaken. Once a year there is a general members' meeting where decisions are made especially about large maintenance. There are no common rooms either. Every apartment has a balcony and therefore nobody feels that anything is lacking something in the apartment either. The respondent does think it is important to regularly ask his neighbours how they are doing. This is a way of showing interest in the people around you and also a kind of social control of who you meet in the lift. That does not happen much here because there are only four apartments, but the respondent believes this is important.

Being part of a VVE does limit the options available to you so that means if you want to paint the outside and not everyone agrees, it will not happen. You have a shared ownership which also limits the decisions you can make. The respondent does not necessarily see this as a disadvantage. In essence, the respondent can change everything, but some parts require permission from the VVE. For example, when laying a certain type of floor, or extending the terrace/balcony. The municipality also asks for this permission when granting the permit. But in principle, you do not need permission for anything inside the dwelling. The respondent indicated that he also had a say in the design when buying the apartment because it was newly built at the time. The respondent found that degree of control on the layout very pleasant.

The respondent indicated that it is possible to sell the dwelling and make money from it. There are also financial risks involved in owning a dwelling because of the mortgage that is taken out. The buyer also has to deal with interest rates rising after the fixed-interest period has expired, for instance. But the respondent no longer has to deal with that. It is possible to bequeath or donate the dwelling to third parties and the respondent plans to do so.

The VVE is mainly for major maintenance. That is the paintwork, the lift, the roof (almost never the case). Usually, every few years there is some need for these kinds of issues. There is usually a chairman and a financial treasurer present in the VVE in this case the respondent is the chairman. The inside of the dwellings is the responsibility of each individual. The outsides of the dwellings are for the VVE, and the costs are shared through the distribution key that is present. The costs are covered by the service charges that the residents remit monthly. The control in the VVE is based on votes. In this case, there are only 4 votes but the articles of association state that if there are 2 votes in favour and 2 against then the votes of those in favour carry more weight. However, practice has shown that this has never been a problem. The respondent says he does not need more control, but he would like to get rid of the chairperson role at some point. But it takes relatively little effort to fulfil this now. Furthermore, the VVE has a housekeeping regulation that includes basic things regarding noise pollution and similar issues. These are basic rules and furthermore there is the obligation to pay the monthly service fee. In addition, the annual members' meeting is mandatory but if it is not possible for someone to attend, then in our case it is not difficult to reschedule the meeting. There are preservation rules and the like that you can be eligible for as a VVE but other than that the respondent does not know of any financial arrangements. The respondent is personally not entitled to any subsidies.

The respondent says he is free to decide those to whom he sells the dwelling. But if he is going to rent out the dwelling, the VVE does have a say in who comes to live there. Since there are relatively older people living in the apartment complex now, who do not prefer families with children who make a lot of noise or anything like that. But the respondent does not know whether there is any legal objection to that. The respondent also does not need to have any say in allowing or evicting residents, but he can imagine that it is different if you experience a lot of nuisances.

The mortgage has been paid off and therefore the bank as an outside party can no longer make a right on the dwelling. The respondent indicated that as an entrepreneur, he can always be held personally liable but that in principle everything is well protected. But it is never 100 percent guaranteed. However, he does not feel that he is not experiencing full security of tenure. Since the mortgage has been paid off, the entrepreneur has no more expenses except for the service charges, and these are very affordable in his view. So, on housing affordability, the respondent is very satisfied.

Whether the dwelling remains affordable in the long term depends on financial and tax regulations changing indicates the respondent. If it becomes more unfavourable to hold on to an owner-occupied dwelling instead of renting it could be an incentive to move in the long run says the respondent. Service charges are only increased when it is deemed necessary. If work is disappointing, we discuss together what is needed to pay the bill. This may result in the monthly costs going up slightly, but in principle it is a cost-covering price.

SUMMARY INTERVIEW 11

Date:	26-05-2023	Form of housing Tenure:	Free rental sector
Location:	Hilversum	Landlord:	Private landlord

The respondent lives in a private rental dwelling in the free rental sector and therefore does not own the dwelling. Before moving here, the respondent owned an owner-occupied dwelling and before that several other owner-occupied dwellings. Taking a financial point of view, the respondent had expected higher interest rates and subsequent negative impact on the value development of the housing market. At the time, he decided to sell his dwelling in order to buy a dwelling for a cheaper amount in return when prices started to fall. However, this has not been the case and he continue to rent this dwelling.

The advantage of this rental dwelling is that it is fairly new. The fact that the dwelling is rented means that the landlord comes to fix something if things are broken, and the landlord has a proper system to do this. The respondent is happy that he does not have to deal with that all by himself. A disadvantage the respondent mentions is that in a rental dwelling you do not take part in the value development of the housing market, you cannot benefit asset accumulation. He would like to see a construction from which you can eventually buy a rental dwelling. According to the respondent, it would be good if this creates more sense of ownership among tenants. He does regularly hear experiences of landlords that after their tenant moves out, the dwelling has to be renovated quite a bit to get it back in good condition.

The respondent does actively search for a dwelling that is more centrally located. The dwelling in this apartment complex has a large roof terrace but there is no garden. So, it is not easy to have a barbecue with friends as everyone would have to go all the way upstairs. He does find that a disadvantage. The advantage is that there is no garden to maintain. The respondent mentioned that there is no community present. On an annual basis, there are about two activities organised, but the respondent does not go to them. The respondent indicates that he does somewhat miss the community feeling but mentions that it is no need. A community makes it easier to connect with neighbours and have a chat. The apartment complex does have an area with a shared coffee room, but the respondent does not make use of it.

The respondent mentioned as a barrier that he would have painted the walls or ceiling if the dwelling was his own instead of renting it. One particular room did get a luxurious laminate covering by the respondent, but it remains to be seen whether that will be allowed to stay in when he moves out. The landlord may say that it does not belong in there and thus has to be taken out. Special shower fittings that have been installed also have to be removed. Not being able to make these kinds of adjustments hinders the respondent's enjoyment of living.

The respondent indicated that the dwelling was the first to be rented after it was completed. In the design of the dwelling, the ground floor is not level but has small floors. The respondent mentioned that it is a nice design but not very practical. He would have liked more to say or participation in the design of the dwelling. Then it would still have been possible to make certain modifications that would have resulted in higher living enjoyment. The respondent mentioned that it could also help to ensure that people then stay in a dwelling longer which also benefits the landlord.

The respondent is not so sure whether he has a say in certain decision-making processes. He does know that he has a say on, for example, the installation of car charging stations. But ultimately that is more participation than control. Besides, there are also matters on which you are not allowed to have a say, which is a pity. The respondent would like to have more control. He mentions that the dwelling is well insulated and that there are solar panels on the roof but that the window frames have no ventilation

position. He would have liked to be involved in discussions about that during the design. There is a kind of participation council present in which residents can have a say on management and maintenance, but that is about small matters such as how often the windows are cleaned or what greenery should be placed in the garden if it is replaced.

The respondent mentions as an obligation that no adjustments should be made, but other than that, there are no obligations regarding meetings or anything like that. The respondent is not entitled to any tax benefits or arrangements. However, he does benefit from the solar panels that are on his roof, which therefore contribute to reduce energy bills.

It is possible to nominate someone at the time the respondent is going to leave their rental property, and you can coordinate with them to see if they want to take over certain furniture or elements in the dwelling. That can be an advantage. But there is no other explicit say in allowing or evicting existing neighbours. There is an employee in the apartment complex who you can speak to if there are complaints about co-tenants, but ultimately it is up to the landlord to do something about it or not.

The respondent can imagine being evicted if he does not pay the rent but otherwise, he does not feel that he does not have full security of tenure. The respondent said he found it difficult to assess the affordability of the dwelling. The respondent now pays less per month than he spent on the mortgage of the owner-occupied house he had before. He thinks it is a lot of money for a rental property but feels it is a fair price. The respondent also mentioned that with an owner-occupied house, there are also a lot of hidden costs. This is often not considered when calculating the total costs and perhaps the current rental dwelling is then a better alternative. He mentions the advantage that the rental dwelling can be easily left, an owner-occupied dwelling also needs to be sold.

The respondent expects the house to remain affordable until he retires, then it will become an expensive house. He measures this by the fact that he will be working until then, so it will be affordable as long as there is an income. The price of the dwelling is indexed annually at the rate of inflation, and this does add up as it is an annual interest-on-interest effect. The respondent has already started paying 300 euros more per month in five years. Costs are increased under the label of inflation, but this is not further specified. The respondent says that it would be fairer to know what the cost increase consists of instead of the bucket of inflation. You pay a lot of money, and it still gives the idea that you do not really know what the increase is for. As a tenant, there is also little you can do against that increase in the cost for inflation.

SUMMARY INTERVIEW 12

Date:	05-06-2023	Form of housing Tenure:	Housing cooperative
Location:	Amsterdam	Landlord:	De Nieuwe Meent

The respondent is currently living in a free sector rental dwelling but has the ambition to live in the housing cooperative de Nieuwe Meent. He mentioned that he has no chance on the housing market and mentioned that as a non-white man, with a study debt and no ambition to buy something together with someone in the short term, it does not make it any easier. The respondent had been approached by people in local politics asking to get involved in De Nieuwe Meent's initiative. These people mentioned that housing cooperatives and residential groups in the Netherlands tend to be white homogeneous of colour and focus entirely on sustainability. This initiative focuses mainly on inclusiveness. The respondent thinks he earns enough to continue renting in the free sector, but that this is a nice opportunity to be able to pay a lower amount of money that equals a mortgage without passing on the dwelling and accumulated wealth to the next generation. In particular, the housing cooperative offers the possibility of offering opportunities to people who are more limited in their options.

Thought was also given to existing housing groups and cooperatives, but often these are pre-existing networks of people who have stepped in at an early stage and often also have families. At the Nieuwe Meent, he was given the opportunity to put together his own group, so that seemed more fun. The respondent, by itself, is more likely to take others into account and therefore more likely to think about the accessibility of a dwelling. So, to be able to contribute in that decision-making process as well is a nice opportunity. The respondent does not like the idea of owning a dwelling individually. Above all, he is looking for a living environment where there is a lot of togetherness, such as cooking and eating together. That feels nice and more natural to him.

The respondent mentioned that he thinks that the process of establishing a housing cooperative is very rewarding. So many different disciplines and activities are involved that something is actually always learned. Other advantages are mentioned in the aspects of sustainability and affordability, although the respondent says this is almost impossible. The increase in costs and the financial possibilities with banks being very limited do not make it easy to keep the intended rents low.

The respondent also experiences the process of establishing a housing cooperative as a disadvantage. Sometimes there are discussions that are completely irrelevant in the respondent's eye. For instance, there was once a discussion about whether the footpath should be 1.20 or 1.40 metres wide and a certain relief in the design of the façade had been imagined. The municipality had a different view on this, resulting in lengthy discussions in which one might wonder what the purpose of it all was.

Currently, the respondent pays a monthly rental amount to the landlord and has no idea that for which those proceeds are used. He likes the idea that after the mortgage repayment period, the rental income will be used for new housing cooperative initiatives.

The respondent also looks forward to the social contact and living together with other people. He personally really likes it when cooking and eating collectively. In this way, money is saved and at the same time not everyone has to cook every night. The respondent indicated that there was a strong community feeling, especially in the initiation phase. Back then, various activities and meetings were organised, and everyone was willing to spend more than 10 to 20 hours a week to realise de Nieuwe Meent. Over the last 1.5 years, the project has mainly stalled in discussions with the bank. As a result, several people find it harder to motivate themselves to work on the project.

Within the community, interests differ widely. For example, there are those who like to get involved in organising events or meetings, while others prefer to hold discussions with external parties such as the bank and municipality. Also, not everyone has the privilege of devoting the same number of hours to the housing cooperative. Experience from other housing cooperatives shows that generally 1/3 of the members are involved and really take the lead. Within the housing cooperative, there is also the idea of taking care of each other since inclusiveness is high in this initiative.

The difficulty of adapting dwellings is limited but certainly possible. The building has a structure of hard walls as the main load-bearing structure, and this is difficult to adapt. If the structural layout is adapted for future residents, the cost of this will be at their own expense. The dwellings are delivered as casco so residents can furnish them themselves. The idea also arose after the floor plans were worked out to add a lift, but this was structurally not possible without high costs. This is seen by some members as a pity because the building is not fully inclusive to everyone as a result.

The housing cooperative has statutorily and in agreements with the municipality excluded the possibility to sell the dwellings. Currently, it is a tricky point of discussion with the potential mortgage lender because they assume that if the project fails there would be a sale of the project. But that is not possible. The respondent also indicates that the municipality (which also provided a loan) wants to claim repayment from a sale first. The municipality and the bank have so far failed to come to an agreement on that. The housing cooperative is not part of VrijCoop but has recently had internal discussions about it. The respondent does not know the current status of this.

Everyone has an equal voice but at the same time it was decided to work with a consensus structure. Using this control structure does sometimes make it difficult to take decisions. The housing cooperative did discuss whether it would not be nicer if some people had more say during the construction phase, for example. It is nice if decisions can be taken quickly. The respondent indicated that not everyone wants to bear this responsibility.

Within the cooperative, there are 9 working groups responsible for various parts of the management and administration of the housing cooperative. Currently, the respondent is part of the legal working group but has been active in several other working groups in the past. As a housing cooperative, there are several solidarity funds that have been used and also a loan has been taken out with the municipality at a favourable interest rate.

The housing cooperative has an admission committee that goes through application procedures with prospective members. At this committee (working group), the board also watches along to check that these procedures are properly followed. There are mutual agreements that each resident has to follow. The respondent himself is going to live in a residential group. One of the rules in this is that when you have children you leave the residential group. Other than that, the respondent does not remember exactly what all the rules are. The respondent does experience full residential protection because he cannot be evicted from the dwellings without reason.

In the respondent's mind, the dwellings are on the excessive side because otherwise the project is not financially feasible. However, the respondent is currently paying €1000 per month and that will be a maximum of €750. As a housing cooperative, they are trying to make the affordability of the dwellings collectively bearable to everyone. There are also 15 social housing dwellings present on which there are maximum rents, and a number of free-sector family dwellings will be built. Rents are indexed annually until the mortgage is paid off, but this cannot exceed the indexation set for social housing. Long-term affordability is guaranteed as the dwellings cannot be sold. As a result, all rental income can be used to reinvest in other new projects after the mortgage is paid off. Also, rents do not have to be indexed after the repayment period.

APPENDIX VII MONTHLY USER COST CALCULATIONS

Owner occupied

The user-cost calculation for the tenure forms individual owner-occupied and apartment right (VVE) is shown **Table 23**. Since the apartment right is logically dominated by apartments and individual owner-occupied by single-family houses, it made sense to divide the cost calculation in the same way. In doing so, the consideration was to calculate user costs for a dwelling with an average purchase price. The purchase price of an average owner-occupied house was €392,533 in 2021 (CBS & TU Delft/OTB, 2020). The national housing survey divided user costs for owner-occupied houses into price categories. The amount of the average dwelling purchase price fell almost exactly in between two categories. Since both categories represent an almost equal number of dwellings, the average of the categories was taken for the user costs calculation (WoON, 2022).

Table 23
Average user costs for owner-occupied forms of tenure

		Individual owner-occupied	Apartment right (VVE)
+	gross mortgage expenses	720	628
+	additional purchase expenses	83	73
+	maintenance reservations	133	110
–	tax effect of owning a dwelling	158	110
+	additional housing expenses	243	183
+	contribution VVE	n/a	180
	Total user costs	1,021	1,064

Note. The costs are expressed in whole euros per month
Source. WoON (2021)

Rent

To make the most uniform as possible comparison with owner-occupied houses, it was required to compare the same type of dwellings. Apartments are in general smaller than individual owner-occupied dwellings and therefore lower in user costs. As there are also significant amounts of apartments managed by housing associations and private landlords, the average user costs of both types of dwellings combined are not in proportion to the average user costs of an individual owner-occupied dwelling. It was therefore decided to look at the average monthly user cost of single-family dwellings in both the regulated and free rental segments. Another consideration made was to divide the forms of tenure also into two different landlords, namely a private landlord or a housing association as landlord. Literature argues that private rent is mostly characterised by a private landlord and social rent by a housing association (Elsinga & Wassenberg, 2014; Hochstenbach, 2022; Hoekstra & Boelhouwer, 2014). In the Netherlands, both types of landlords are very active in both segments when the comparison is made for single family dwellings (see **Table 24**). However, a clear observation can be seen that private landlords dominate the free rental segment and housing associations dominate the social rental segment. The user cost calculation for private rent and social rent is shown in **Table 25**.

Table 24
Distribution of the households living in single-family dwelling by rent segment

	Private rent	Social rent
Regulated rental segment	167,430	869,610
Free rental segment	160,710	59,960

Source. WoON (2021)

Table 25
Average user costs for private rent and social rent as form of tenure

		Private rent	Social rent
+	gross rent	1,065	590
-	rent allowance	5	115
+	additional housing expenses	195	170
	Total user costs	1,255	645

Note. The amounts are expressed in whole euros per month and based on the average user costs for a single-family dwelling.
Source. WoON (2021)

Housing cooperative

There is no data kept by the central government or the Central Bureau of Statistics on average user costs for housing cooperatives as there are still very few of them in the Netherlands. However, it is known that the main characteristic and objective of a housing cooperative is to aim for affordable housing. Housing cooperatives are mostly characterised abroad by consisting of apartments combined with shared spaces. In the Netherlands, both housing cooperatives consisting of apartments and shared spaces and housing cooperatives consisting of single-family dwellings occur.

The study by Briene et al (2021) includes two cases that give an indication of rents. It refers to housing cooperative de Warren in Amsterdam which built 36 apartments ranging in size from 20 to 65 square metres with a rental price range from €450 for the smallest flat to €970 for the largest. They intentionally chose to realise relatively small apartments so that an additional usable area of 719 square metres is available for shared spaces and facilities. The other case concerns Roggeveenstraat in The Hague which took over 65 rental flats from a housing association in 2014. It is known that upon takeover, rents had to be increased to around €450 per month.

Various sources mention that rents in a housing cooperative tend to be below the rent levels of a private landlord. However, a one-to-one comparison with the Netherlands is difficult as financing structures of housing cooperatives abroad are very diverse. During the three interviews with housing cooperatives in the Netherlands, it emerged that the dwellings were rented out for social rents, indicating that the rents fall below the liberalisation limit of 808.06 euro per month. Based on the above-mentioned known examples, it can be concluded that the monthly costs for a housing cooperative varies and depends on various factors such as, financing constructions, area of use, quality, etc. However, it can be concluded that the prices vary between a range of €450 and €1000 with mostly a social rent level as characteristic. Therefore, the price level of a housing cooperative is set upon the same level as for social rent.

APPENDIX VIII FRACTIONAL FACTORIAL DESIGN

	Attributes							
Profile	**Monthly costs**	**Maintenance and management of the dwelling**	**Control over adaptability of the dwelling**	**Annual cost increase**	**Asset accumulation and investment**	**Responsibility and control over shared elements, spaces and facilities**	**Control over neighbours**	**Residential community**
1	€ 700	Individual	Individual	Yes	Yes	External (e.g., landlord)	Yes	Yes
2	€ 700	External (e.g., landlord)	External (e.g., landlord)	Yes	No	Common (e.g., with neighbours)	No	Yes
3	€ 700	Common with neighbours	Common with neighbours	No	Yes	External (e.g., landlord)	No	No
4	€ 700	External (e.g., landlord)	External (e.g., landlord)	No	No	Common (e.g., with neighbours)	Yes	No
5	€ 1150	Individual	External (e.g., landlord)	No	No	External (e.g., landlord)	No	No
6	€ 1150	External (e.g., landlord)	Individual	No	Yes	Common (e.g., with neighbours)	Yes	No
7	€ 1150	Common with neighbours	External (e.g., landlord)	Yes	No	External (e.g., landlord)	Yes	Yes
8	€ 1150	External (e.g., landlord)	Common with neighbours	Yes	Yes	Common (e.g., with neighbours)	No	Yes
9	€ 1600	Individual	Common with neighbours	Yes	No	Common (e.g., with neighbours)	Yes	No
10	€ 1600	External (e.g., landlord)	External (e.g., landlord)	Yes	Yes	External (e.g., landlord)	No	No
11	€ 1600	Common with neighbours	Individual	No	No	Common (e.g., with neighbours)	No	Yes
12	€ 1600	External (e.g., landlord)	External (e.g., landlord)	No	Yes	External (e.g., landlord)	Yes	Yes
13	€ 1150	Individual	External (e.g., landlord)	No	Yes	Common (e.g., with neighbours)	No	Yes
14	€ 1150	External (e.g., landlord)	Common with neighbours	No	No	External (e.g., landlord)	Yes	Yes
15	€ 1150	Common with neighbours	External (e.g., landlord)	Yes	Yes	Common (e.g., with neighbours)	Yes	No
16	€ 1150	External (e.g., landlord)	Individual	Yes	No	External (e.g., landlord)	No	No

APPENDIX IX BLOCKS OF CHOICE SETS USED IN SCE

1		2		3		4		5	
pr 5	pr 6	pr 10	pr 12	pr 6	pr 7	pr 9	pr 13	pr 2	pr 5
pr 13	pr 14	pr 5	pr 7	pr 2	pr 3	pr 2	pr 6	pr 9	pr 14
pr 1	pr 2	pr 2	pr 4	pr13	pr 16	pr 11	pr 15	pr 3	pr 8
pr 15	pr 16	pr 14	pr 16	pr 1	pr 4	pr 1	pr 5	pr 1	pr 6
pr 3	pr 4	pr 1	pr 3	pr 14	pr 15	pr 4	pr 8	pr 10	pr 13
pr 11	pr 12	pr 9	pr 11	pr 9	pr 12	pr10	pr 14	pr 12	pr 15
pr 7	pr 8	pr 13	pr 15	pr 10	pr 11	pr 3	pr 7	pr 11	pr16
pr 9	pr 10	pr 6	pr 8	pr5	pr 8	pr 12	pr 16	pr 4	pr 7

6		7		8		9		10	
pr 11	pr 13	pr 3	pr 6	pr 6	pr 14	pr 8	pr 15	pr 7	pr 13
pr 1	pr 7	pr 10	pr 15	pr 4	pr 12	pr 2	pr 9	pr 1	pr 11
pr 9	pr 15	pr 12	pr 13	pr 2	pr 10	pr 5	pr 14	pr 5	pr 15
pr 4	pr 6	pr 1	pr 8	pr 8	pr 16	pr 3	pr 12	pr 3	pr 9
pr 12	pr 14	pr 11	pr 14	pr 5	pr 13	pr 7	pr 16	pr 2	pr 12
pr 10	pr 16	pr 4	pr 5	pr 7	pr 15	pr 1	pr 10	pr 8	pr 14
pr 2	pr 8	pr 2	pr 7	pr 1	pr 9	pr 6	pr 13	pr 4	pr 10
pr 3	pr 5	pr 9	pr 16	pr 3	pr 11	pr 4	pr 11	pr 6	pr 16

11		12		13		14		15	
pr 1	pr 12	pr 4	pr 16	pr 2	pr 15	pr 6	pr12	pr 3	pr 14
pr 5	pr16	pr 5	pr 9	pr 8	pr 9	pr 4	pr 14	pr 2	pr 13
pr 8	pr 13	pr 6	pr 10	pr 4	pr 13	pr 1	pr 15	pr 6	pr 9
pr 7	pr 14	pr 8	pr 12	pr 7	pr 12	pr 5	pr 11	pr 1	pr 16
pr 4	pr 9	pr 7	pr 11	pr 1	pr 14	pr 7	pr 9	pr 7	pr 10
pr 2	pr 11	pr 2	pr 14	pr 6	pr 11	pr 8	pr 10	pr 8	pr 11
pr 3	pr 10	pr 1	pr 13	pr 5	pr 10	pr 2	pr 16	pr 4	pr 15
pr 6	pr 15	pr 3	pr 15	pr 3	pr 16	pr 3	pr 13	pr 5	pr 12

Note. The abbreviation of ‘pr’ stands for profile.

APPENDIX X EFFECT CODING OF SCE VARIABLES

Attributes	Measurement scale	Levels	Var. 1	Var. 2
A Monthly costs	Ordinal	1. € 700	1	0
		2. € 1150	0	1
		3. € 1600	-1	-1
E Control over adaptability of the dwelling	Nominal	1. Individual	1	0
		2. External (e.g., landlord)	0	1
		3. Common with neighbours	-1	-1
D Maintenance and management of the dwelling	Nominal	1. Individual	1	0
		2. External (e.g., landlord)	0	1
		3. Common with neighbours	-1	-1
B Cost increase	Nominal	1. Yes	1	
		2. No	-1	
C Asset accumulation and investment	Nominal	1. Yes	1	
		2. No	-1	
F Responsibility and control over shared elements, spaces and facilities	Nominal	1. External (e.g., landlord)	1	
		2. Common with neighbours	-1	
G Control over neighbours	Nominal	1. Yes	1	
		2. No	-1	
H Community	Nominal	1. Yes	1	
		2. No	-1	

APPENDIX XI INFORMATION SHEET FOR SURVEY

1. Introduction

You have been invited to take part in research project housing preferences.

Participation in this research project is voluntary: the decision to take part is up to you. Before you decide to participate, we would like to ask you to read the following information, so that you know what the research project is about, what we expect from you and how we go about processing your personal data. Based on this information you can indicate by way of the consent declaration whether you consent to taking part in this research project and in the processing of your personal data.

You may of course always contact the researcher via e.p.g.kooijman@student.tue.nl , if you have any questions, or you can discuss this information with people you know.

2. Purpose of the research

This research is managed by Ewoud Kooijman under the supervision of R.P. van Dongen, M.I.K. Leussink and T.A. Arentze of Eindhoven University of Technology.

The purpose of this study is to find out what ownership factors people in the Netherlands consider important when choosing a new dwelling. This will make it possible to analyse whether the housing cooperative is a suitable alternative form of housing compared to traditional forms of housing.

3. Controller in the sense of the GDPR

TU/e is responsible for processing your personal data within the scope of the research. The contact data of TU/e are:

Technische Universiteit Eindhoven
De Groene Loper 3
5612 AE Eindhoven

4. What will taking part in the research project involve?

You will be taking part in a research project in which we will gather information by:

- Asking you to fill in a questionnaire on your preferences regarding dwelling ownership. You can complete this questionnaire digitally.

For your participation in this research project, you will not be compensated.

5. What personal data from you do we gather and process?

Within the framework of the research project, we process the following personal data:

- Your age, gender, cultural background, ethnical background, household composition, education level, household income, residential place, employment status.
- Questions related to your housing situation, such as ownership of your dwelling.
- Your preferences for ownership factors in housing.

In order to answer the questions in this research and publish the results, it is necessary to collect, use and store your data. The answers you provide to the questions asked will be processed completely anonymously, meaning that the researcher will not know which data belongs to you.

Explicit consent is requested for the use of your data.

6. Withdrawing your consent and contact data

Participation in this research project is entirely voluntary. You do not have to answer questions you do not wish to answer. You may end your participation in the research project at any moment or withdraw your consent to using your data for the research, without specifying any reason. Ending your participation will have no disadvantageous consequences for you.

If you decide to end your participation during the research, the data which you already provided up to the moment of withdrawal of your consent will be used in the research. Do you wish to end the research, or do you have any questions and/or complaints? Then please contact the researcher via e.p.g.kooijman@student.tue.nl

If you have specific questions about the handling of personal data you can direct these to the data protection officer of TU/e per mail via functionarisgegevensbescherming@tue.nl Furthermore, you have the right to file complaints with the Dutch data protection authority: the Autoriteit Persoonsgegevens.

Finally, you have the right to request access, rectification, erasure or adaptation of your data. Submit your request via privacy@tue.nl

7. Basis for processing your data

To be permitted to process your personal data, the processing must be based on one of the legal bases from the GDPR. For this research project "housing preferences" that is explicit consent.

For general information on your rights when processing your personal data, please visit the website of the Personal Data Authority: https://autoriteitpersoonsgegevens.nl/

8. Who has access to your personal data?

Access to personal data within TU/e

All relevant employees who are involved in the research project have access to your personal data, but only as far as is necessary to fulfil their respective tasks. These employees are the researcher (Ewoud Kooijman) and supervisors (R.P. van Dongen, M.I.K. Leussink en T.A. Arentze). Furthermore, your data can only be accessed by authorised persons in relevant TU/e departments such as IT, Legal and/or Compliance, but only to the extent necessary to fulfil their respective duties.

Access to personal data by other parties

Within the framework of the research project your personal data will be shared with:

- Storage solution: SURF drive
- Survey tool: LimeSurvey
- Data analysis tool: maxQDA, SPSS

When a third party processes your personal data on our instructions, then this party is a processor. We conclude an agreement with such a processor concerning the processing of your personal data. This agreement stipulates at least that certain obligations for protection of your personal data are respected, to ensure that the data are processed in such a way that the requirements and standards of TU/e are met.

TU/e will process your personal data only within the European Economic Area (EEA) by storing the data on a server inside the EEA.

9. How are your personal data protected?

TU/e have implemented appropriate technical and organizational measures for protection of personal data against unintended or unlawful destruction, unintended damage, loss, alteration and unauthorized publication or access, and against all other forms of unlawful processing (including, but not limited to unnecessary gathering of data) or further processing. These appropriate technical and organizational measures include: limitation of access to data through authorization and authentication, guidelines within the organization concerning the processing of personal data, encryption or ISO standardization, storage on protected locations that are offered by the ICT service of TU/e.

10. How long will your personal data be retained?

Your personal data will be kept in accordance with the AVG. The data will be kept for 10 years at the TU/e research facility. To check whether the research has been conducted correctly, supervisory authorities may be granted access. The data will not be kept longer than necessary to achieve the purposes for which the data was collected and will be deleted when you withdraw your consent and there is no other basis for lawfully processing your data.

11. Confidentiality of data

We make every effort to protect your privacy as much as possible. The research results that are published will in no way contain confidential information or personal data from or about you that would allow anyone to recognise you.

Finally, this research has been assessed and approved [research manager fills in] by the ethical committee of Eindhoven University of Technology.

APPENDIX XII SURVEY DESIGN

Welcome page
Thank you for participating in this survey. This survey is part of a master's thesis at Eindhoven University of Technology. Your answers are very important to obtain insight into preferences for different housing types.

The first part of the survey contains a choice experiment, and the second part contains personal questions. It will take about 10 minutes to complete. Please be honest and follow your intuition when making the choices.

Your participation is completely confidential, and the results of this survey will be published by Eindhoven University of Technology without being traceable back to an individual. Information on the processing of your data can be found here. Participation in this study is voluntary. By answering the questions on the next page, you give consent for your answers to be processed.

If you have any questions about this survey, please do not hesitate to contact me at: e.p.g.kooijman@student.tue.nl

Yours faithfully,
Ewoud Kooijman

Informed consent
By giving consent, I acknowledge the following:

- I have been adequately informed about the study through a separate information sheet. I have read the information sheet and then had the opportunity to ask questions. These questions have been sufficiently answered.
- I am voluntarily participating in this study. There is no explicit or implicit compulsion for me to participate in this study. I am clear that I can terminate participation in the study at any time, without giving any reason. I do not have to answer a question if I do not want to.
- I consent to the processing of personal data collected from me during the study as set out in the information sheet.
- I consent to the processing of special categories of personal data as included in paragraph 5 of the information sheet.

Please choose one of the following answers:
[ ] Yes, I consent
[ ] No, I do not give consent

Conditional questions
To participate in this survey, you must live in the Netherlands and be 18 years or older.

Please choose one of the following answers:
[ ] Yes, I live in the Netherlands and am 18 years or older
[ ] No, I do not live in the Netherlands or am younger than 18 years old

Explanation choice experiment

The choice experiment involves a situation where you are asked to choose between two dwellings. You are presented with a total of eight scenarios. Your situation is the same in each scenario, only the listed attributes of the dwellings are different. Read each scenario carefully and select the dwelling that best suits your preference. Be honest and follow your intuition when making the choices.

Situation

Your current home no longer meets your needs, and you are planning to move. Each dwelling has different attributes with corresponding responsibilities and opportunities. You have two dwellings in mind that meet all your requirements and are exactly the same in terms of area, quality, location, etc. The dwellings differ only on the attributes below.

Click on the attribute for an explanation.

Characteristics of dwelling	**Definition**
Monthly costs	The total monthly cost of the dwelling.
Maintenance and management	Who is responsible for management and maintenance of the dwelling.
Control over adaptability	Who has control over the adaptability of the dwelling.
Annual cost increase	Whether there is a (yearly) cost increase.
Asset accumulation and investment	The ability to accumulate capital through the dwelling, even if it requires a mortgage and may involve financial risks. You therefore have the possibility of being able to make or lose money by selling the property and transferring the dwelling through a bequest.
Responsibility and control over shared elements, spaces and facilities.	Who is responsible for management and maintenance and has control over the use and adaptability of shared elements (roof, facade, lift, hall etc.), shared spaces and facilities.
Control over neighbours	The ability to have a say in allowing potential new residents into the neighbourhood or building.
Residential community	Whether you are part of a residential community.

Question 1 out of 8

Situation
Your current home no longer meets your needs, and you are planning to move. Each dwelling has different features with corresponding responsibilities and possibilities. The two dwellings below meet all your requirements and are exactly the same in terms of area, quality, location, etc. The dwellings differ only on the attributes below. You will move into one of the dwellings. Which dwelling do you prefer?

Tip
Click on the attribute to read the explanation again.

Attributes	Dwelling A	Dwelling B
Monthly costs		
Cost increase		
Asset accumulation and investment		
Maintenance and management of the dwelling		
Control over adaptability of the dwelling		
Responsibility and control over shared elements, spaces and facilities.		
Control over neighbours		
Residential community		

Please choose one of the following answers:
[ ] Dwelling A
[ ] Dwelling B

Based on the characteristics listed above, would you in reality want to live in the chosen dwelling?

Please choose one of the following answers:
[ ] Yes
[ ] No

Question 2 out of 8
… Same text as question 1 but different profiles depending on the choice set …

Question 3 out of 8
… Same text as question 1 but different profiles depending on the choice set …

Question 4 out of 8
… Same text as question 1 but different profiles depending on the choice set …

Question 5 out of 8
… Same text as question 1 but different profiles depending on the choice set …

Question 6 out of 8

… Same text as question 1 but different profiles depending on the choice set …

Question 7 out of 8
… Same text as question 1 but different profiles depending on the choice set …

Question 8 out of 8
… Same text as question 1 but different profiles depending on the choice set …

Notification
You have reached the end of the choice experiment. The next (and final) part of this survey contains questions about you as a person. It takes about **two minutes** to complete part two.

Question 9
What is your age?
Please choose one of the following answers:
[ ] 17 or younger
[ ] 18 - 25
[ ] 26 - 35
[ ] 36 - 45
[ ] 46 - 55
[ ] 56 - 65
[ ] 66 - 75
[ ] 76 - 85
[ ] 86 or older
[ ] Prefer not to say

Question 10
What is your gender?
Please choose one of the following answers:
[ ] Male
[ ] Female
[ ] Other
[ ] Prefer not to say

Question 11
What is the highest level of education that you completed?
Please choose one of the following answers:
[ ] Primary school
[ ] VMBO
[ ] HAVO
[ ] VWO
[ ] MBO
[ ] HBO
[ ] WO
[ ] PhD or higher
[ ] Prefer not to say
[ ] Other, namely …

Question 12
What is your ethnical background?
Please choose one of the following answers:
[ ] Native Dutch background
[ ] Western foreign background
[ ] Non-western foreign background
[ ] Other / Prefer not to say

Question 13
Which answer best describes your work situation?
Please choose one of the following answers:
[ ] Full-time employed
[ ] Part-time employed
[ ] Unemployed
[ ] Student
[ ] Retired
[ ] Other / Prefer not to say

Question 14
What is the current form of ownership of your dwelling?
Please choose one of the following answers
[ ] Living with parents
[ ] Owner-occupied dwelling
[ ] Rental dwelling
[ ] Housing cooperative based on collective ownership
[ ] Other / I don't know / Prefer not to say

Question 14A (if Q14 is answered with owner-occupied)
Is your dwelling part of a homeowner association (VVE)?
Please choose one of the following answers
[ ] Yes
[ ] No
[ ] Prefer not to say

Question 14B (if Q14 is answered with rental dwelling)
What type of landlord do you currently rent the dwelling from?
Please choose one of the following answers
[ ] Housing association
[ ] Private landlord / Commercial landlord
[ ] I don't know / Prefer not to say
[ ] Other, namely …

Question 14C (if Q14 is answered with rental dwelling)
Do you rent a social rental dwelling or a free-sector rental dwelling?
Please choose one of the following answers
[ ] Social rent
[ ] Free sector / Private sector
[ ] I don't know / Prefer not to say
[ ] Other, namely …

Question 15

What is your household composition?
Please choose one of the following answers
[ ] One person household
[ ] Multi-person household with partner
[ ] Multi-person household with partner and 1 or 2 children
[ ] Multi-person household with partner and 3 children or more
[ ] Multi-person household without partner and 1 child or more
[ ] Multi-person household with 2 or 3 adults
[ ] Multi-person household with 4 adults or more
[ ] Other / Prefer not to say

Question 16
What is your household income on an annual basis?
Please choose one of the following answers
[ ] Less than €20,000
[ ] €20,000 - €40,000
[ ] €40,000 - €60,000
[ ] €60,000 - €80,000
[ ] €80,000 - €100,000
[ ] More than €100,000
[ ] I don't know / Prefer not to say

Question 17
To what extent …

	Very few	Few	Average	Much	Very much	Prefer not to say
... are you worried about your housing costs?	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
... are you experiencing nuisance from local residents?	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
... are you satisfied with your current dwelling (thinking of comfort, quality, your landlord, etc.)?	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
... are you satisfied with your living environment (think of facilities such as retail and restaurants, environment, green spaces, safety, etc.)?	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Image of the explanation of the explanation of the choice experiment in the online survey

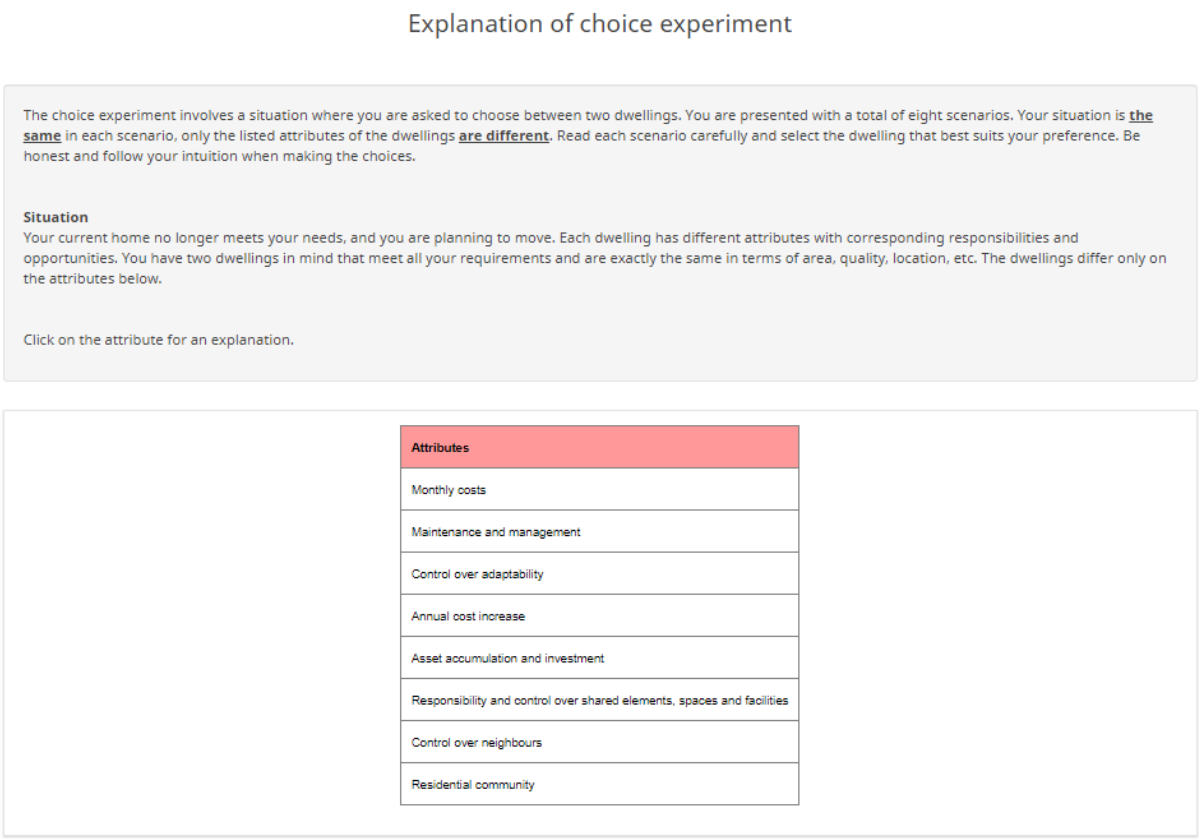
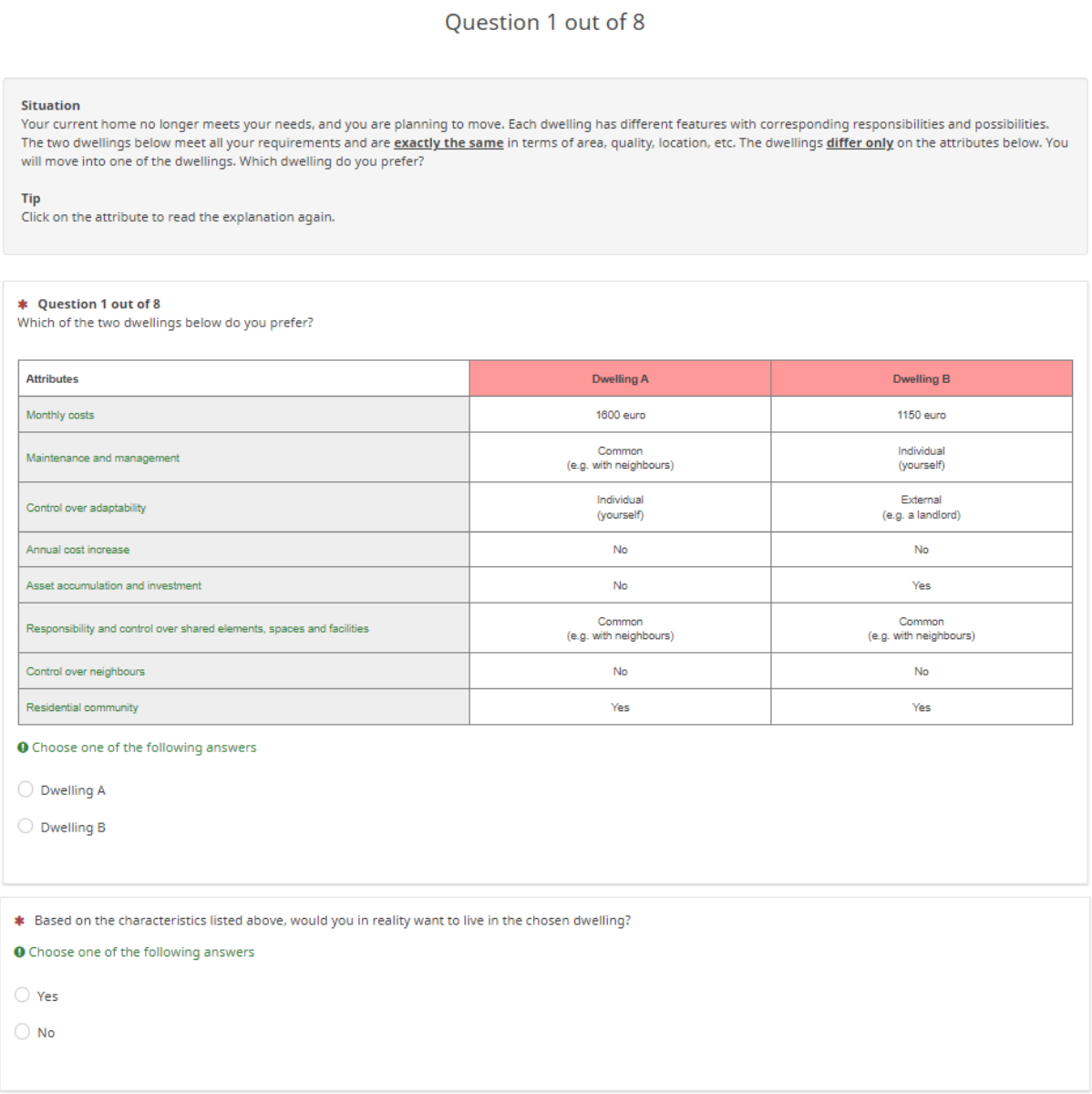


Image of a choice task during the choice experiment in the online survey



Question 1 out of 8

Situation
Your current home no longer meets your needs, and you are planning to move. Each dwelling has different features with corresponding responsibilities and possibilities. The two dwellings below meet all your requirements and are **exactly the same** in terms of area, quality, location, etc. The dwellings **differ only** on the attributes below. You will move into one of the dwellings. Which dwelling do you prefer?

Tip
Click on the attribute to read the explanation again.

✱ **Question 1 out of 8**
Which of the two dwellings below do you prefer?

Attributes	Dwelling A	Dwelling B
Monthly costs	1600 euro	1150 euro
Maintenance and management	Common (e.g. with neighbours)	Individual (yourself)
Control over adaptability	Individual (yourself)	External (e.g. a landlord)
Annual cost increase	No	No
Asset accumulation and investment	No	Yes
Responsibility and control over shared elements, spaces and facilities	Common (e.g. with neighbours)	Common (e.g. with neighbours)
Control over neighbours	No	No
Residential community	Yes	Yes

Choose one of the following answers

- Dwelling A
- Dwelling B

✱ Based on the characteristics listed above, would you in reality want to live in the chosen dwelling?

Choose one of the following answers

- Yes
- No

APPENDIX XIII DATA STRUCTURE WIDE FORMAT

							Attributes										
Resp. nr.	Choice set	Choice task	Alternatives	Profiles	Choice	Constant	MC1	MC2	MMD1	MMD2	CAD1	CAD2	CI	AAI	RCS	CN	COM
1	1	1	1	5	1	1	0	1	1	0	0	1	-1	-1	1	-1	-1
1	1	1	2	6	0	1	0	1	0	1	1	0	-1	1	-1	1	-1
1	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	2	1	13	1	1	0	1	1	0	0	1	-1	1	-1	-1	1
1	1	2	2	14	0	1	0	1	0	1	-1	-1	-1	-1	1	1	1
1	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	3	1	1	1	1	1	0	1	0	1	0	1	1	1	1	1
1	1	3	2	2	0	1	1	0	0	1	0	1	1	-1	-1	-1	1
1	1	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	4	1	15	0	1	0	1	-1	-1	0	1	1	1	-1	1	-1
1	1	4	2	16	1	1	0	1	0	1	1	0	1	-1	1	-1	-1
1	1	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	5	1	3	1	1	1	0	-1	-1	-1	-1	-1	1	1	-1	-1
1	1	5	2	4	0	1	1	0	0	1	0	1	-1	-1	-1	1	-1
1	1	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	6	1	11	0	1	-1	-1	-1	-1	1	0	-1	-1	-1	-1	1
1	1	6	2	12	1	1	-1	-1	0	1	0	1	-1	1	1	1	1
1	1	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	7	1	7	0	1	0	1	-1	-1	0	1	1	-1	1	1	1
1	1	7	2	8	0	1	0	1	0	1	-1	-1	1	1	-1	-1	1
1	1	7	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0
1	1	8	1	9	0	1	-1	-1	1	0	-1	-1	1	-1	-1	1	-1
1	1	8	2	10	0	1	-1	-1	0	1	0	1	1	1	1	-1	-1
1	1	8	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0

APPENDIX XIV ADJUSTMENT OF VARIABLES

Variables	Levels in survey	New levels in dataset
Age	0. Prefer not to say	0. Prefer not to say
	1. Younger than 18 years	
	2. 18 – 25 years	1. 18 – 25 years
	3. 26 – 35 years	2. 26 – 35 years
	4. 36 – 45 years	3. 36 – 45 years
	5. 46 – 55 years	4. 46 – 55 years
	6. 56 – 65 years	5. 56 or older
	7. 66 – 75 years	
	8. 76 – 85 years	
	9. Older than 85 years	
Gender	0. Other / Prefer not to say	0. Other / Prefer not to say
	1. Male	1. Male
	2. Female	2. Female
Level of education	0. Prefer not to say	0. Prefer not to say
	1. Primary school	1. Low & Secondary
	2. VMBO	
	3. HAVO	
	4. VWO	
	5. MBO	
	6. HBO	2. High
	7. WO	
	8. PhD or higher	
	9. Other, namely …	
Ethnical background	0. Other / Prefer not to say	0. Other / Prefer not to say
	1. Native Dutch background	1. Native Dutch background
	2. Western foreign background	2. Foreign background
	3. Non-western foreign background	

Employment status	0.	Other / Prefer not to say	0.	Other / Prefer not to say
	1.	Employed Full-Time	1.	Employed Full-Time
	2.	Employed Part-Time	2.	Employed Part-Time
	3.	Unemployed	3.	Unemployed
	4.	Student	4.	Student
	5.	Retired	5.	Retired
Current form of housing tenure	0.	Other / I don't know / Prefer not to say	0.	Other / I don't know / Prefer not to say
	1.	Living at parents	1.	Living at parents
	2.	Owner-occupied dwelling	2.	Owner-occupied dwelling
	3.	Rental dwelling	3.	Rental dwelling
	4.	Housing cooperative based on collective ownership	4.	Housing cooperative based on collective ownership
* Part of a homeowner association	0.	I don't know / Prefer no to say	VARIABLE EXCLUDED	
	1.	Yes		
	2.	No		
** Type of landlord	0.	I don't know / Prefer not to say	VARIABLE EXCLUDED	
	1.	Housing association		
	2.	Private landlord / commercial landlord		
	3.	Other, namely …		
** Type of rental segment	0.	I don't know / Prefer not to say	VARIABLE EXCLUDED	
	1.	Free sector / Private rental		
	2.	Social rental		
	3.	Other, namely …		
Household composition	0.	Other / Prefer not to say	0.	Other / Prefer not to say
	1.	Single person household	1.	Single person household
	2.	Multi-person household with partner	2.	Multi-person household without children
	3.	Multi-person household with 2 or 3 adults		
	4.	Multi-person household with 4 adults or more		
	5.	Multi-person household without partner and 1 child or more	3.	Multi-person household with children
	6.	Multi-person household with partner and 1 or 2 children		
	7.	Multi-person household with partner and 3 children or more		

Household income	0. I don’t know / Prefer not to say	0. I don’t know / Prefer not to say
	1. Less than € 20.000, -	1. Less than € 20.000, -
	2. € 20.000 - € 40.000	2. € 20.000 - € 40.000
	3. € 40.000 - € 60.000	3. € 40.000 - € 100.000
	4. € 60.000 - € 80.000	
	5. € 80.000 - € 100.000	
	6. More than € 100.000	4. More than € 100.000

The table below shows which answers were given as 'other, namely ...' in response to the question for the variable 'education level' and to which levels these answers were adjusted.

Answer by respondent	**Adjusted to**
Hbo en premaster bestuurskunde afgerond	High
WO-propedeuse	High
Hbo AD	Low & Secondary
Ook in bezit van een havo diploma	Low & Secondary
Wel een bachelor gevolgd, dus qua niveau van functioneren, WO	High
High school (USA)	Low & Secondary

APPENDIX XV NLOGIT CODE MNL MODEL 1

```
|->
NLOGIT;Lhs=Choice;CheckData;Choices=0,1;Rhs=MC1,MC2,MMD1,MMD2,CAD1,CAD2,CI,
AAI,RCS,CN,COM;Pds=8$
+---------------------------------------------------------+
| Inspecting the data set before estimation.              |
| These errors mark observations which will be skipped.   |
| Row Individual = 1st row then group number of data block |
+---------------------------------------------------------+
No bad observations were found in the sample

Iterative procedure has converged
Normal exit:   6 iterations. Status=0, F=    .3934496D+04

---------------------------------------------------------------------------
--
Discrete choice (multinomial logit) model
Dependent variable                Choice
Log likelihood function     -3934.49624
Estimation based on N =   7560, K =  11
Inf.Cr.AIC  =   7891.0 AIC/N =    1.044
--------------------------------------
            Log likelihood R-sqrd R2Adj
Constants only  -5135.3729  .2338 .2327
Note: R-sqrd = 1 - logL/Logl(constants)
Warning:  Model does not contain a full
set of ASCs. R-sqrd is problematic. Use
model setup with ;RHS=one to get LogL0.
--------------------------------------
Response data are given as ind. choices
Number of obs.=  7560, skipped    0 obs
--------+------------------------------------------------------------------
--
        |                 Standard            Prob.      95% Confidence
  CHOICE|  Coefficient       Error       z    |z|>Z*         Interval
--------+------------------------------------------------------------------
--
     MC1|    1.03228***      .03398    30.38  .0000      .96569   1.09887
     MC2|     .04646*        .02502     1.86  .0633     -.00257    .09549
    MMD1|     .03724         .02968     1.25  .2095     -.02093    .09541
    MMD2|     .13074***      .02575     5.08  .0000      .08026    .18122
    CAD1|     .39286***      .03090    12.71  .0000      .33229    .45343
    CAD2|    -.32675***      .02563   -12.75  .0000     -.37699   -.27652
      CI|    -.36154***      .01975   -18.30  .0000     -.40025   -.32282
     AAI|     .41004***      .01994    20.57  .0000      .37096    .44912
     RCS|    -.02392         .01878    -1.27  .2026     -.06072    .01288
      CN|     .18170***      .01905     9.54  .0000      .14437    .21903
     COM|    -.25082***      .01948   -12.87  .0000     -.28900   -.21263
--------+------------------------------------------------------------------
--
***, **, * ==>  Significance at 1%, 5%, 10% level.
Model was estimated on Jul 07, 2023 at 11:05:50 PM
---------------------------------------------------------------------------
--
```

APPENDIX XVI NLOGIT CODE MNL MODEL 2

```
|->
NLOGIT;Lhs=Choice;CheckData;Choices=0,1,2;Rhs=NC,MC1,MC2,MMD1,MMD2,CAD1,CAD
2,CI,AAI,RCS,CN,COM;Pds=8$
+---------------------------------------------------------+
| Inspecting the data set before estimation.              |
| These errors mark observations which will be skipped.   |
| Row Individual = 1st row then group number of data block |
+---------------------------------------------------------+
No bad observations were found in the sample

Iterative procedure has converged
Normal exit:   6 iterations. Status=0, F=    .6635870D+04

------------------------------------------------------------------------------
--
Discrete choice (multinomial logit) model
Dependent variable                Choice
Log likelihood function     -6635.86954
Estimation based on N =   7560, K =  12
Inf.Cr.AIC  =  13295.7 AIC/N =    1.759
--------------------------------------
            Log likelihood R-sqrd R2Adj
Constants only  -7580.8767  .1247 .1240
Note: R-sqrd = 1 - logL/Logl(constants)
Warning:  Model does not contain a full
set of ASCs. R-sqrd is problematic. Use
model setup with ;RHS=one to get LogL0.
--------------------------------------
Response data are given as ind. choices
Number of obs.=  7560, skipped    0 obs
--------+---------------------------------------------------------------------
--
        |                   Standard            Prob.      95% Confidence
  CHOICE|  Coefficient       Error       z    |z|>Z*         Interval
--------+---------------------------------------------------------------------
--
      NC|    -.97052***      .03166   -30.66  .0000    -1.03257   -.90848
     MC1|    1.06063***      .03227    32.86  .0000      .99738   1.12389
     MC2|     .03038         .03051     1.00  .3195     -.02943    .09018
    MMD1|     .02670         .03622      .74  .4610     -.04429    .09769
    MMD2|     .12062***      .03067     3.93  .0001      .06051    .18073
    CAD1|     .32505***      .03429     9.48  .0000      .25784    .39226
    CAD2|    -.23969***      .03040    -7.88  .0000     -.29927   -.18011
      CI|    -.29059***      .02202   -13.20  .0000     -.33375   -.24742
     AAI|     .32399***      .02298    14.10  .0000      .27896    .36902
     RCS|    -.04490**       .02285    -1.96  .0495     -.08969   -.00011
      CN|     .14465***      .02165     6.68  .0000      .10221    .18709
     COM|    -.20632***      .02293    -9.00  .0000     -.25125   -.16139
--------+---------------------------------------------------------------------
--
***, **, * ==>  Significance at 1%, 5%, 10% level.
Model was estimated on Jul 08, 2023 at 08:28:41 PM
------------------------------------------------------------------------------
--
```

APPENDIX XVII NLOGIT CODE LC MODEL 2 CLASSES

```
|-> NAMELIST;(new);pclass=pc1,pc2$
|->
LCLOGIT;Lhs=Choice;Choices=0,1,2;Checkdata;Rhs=NC,MC1,MC2,MMD1,MMD2,CAD1,CA
D2,CI,AAI,RCS,CN,COM;Classp=pclass;Pts=2;Pds=8$
+---------------------------------------------------------+
| Inspecting the data set before estimation.              |
| These errors mark observations which will be skipped.   |
| Row Individual = 1st row then group number of data block |
+---------------------------------------------------------+
No bad observations were found in the sample

Iterative procedure has converged
Normal exit:   6 iterations. Status=0, F=    .6635870D+04

------------------------------------------------------------------------------
--
Discrete choice (multinomial logit) model
Dependent variable                Choice
Log likelihood function     -6635.86954
Estimation based on N =   7560, K =  12
Inf.Cr.AIC  =  13295.7 AIC/N =    1.759
--------------------------------------
            Log likelihood R-sqrd R2Adj
Constants only  -7580.8767  .1247 .1232
Note: R-sqrd = 1 - logL/Logl(constants)
Warning:  Model does not contain a full
set of ASCs. R-sqrd is problematic. Use
model setup with ;RHS=one to get LogL0.
--------------------------------------
Response data are given as ind. choices
Number of obs.=  7560, skipped    0 obs
--------+---------------------------------------------------------------------
--
        |                   Standard            Prob.      95% Confidence
  CHOICE|  Coefficient       Error       z    |z|>Z*         Interval
--------+---------------------------------------------------------------------
--
    NC|1|    -.97052***      .03166   -30.66  .0000    -1.03257   -.90848
   MC1|1|    1.06063***      .03227    32.86  .0000      .99738   1.12389
   MC2|1|     .03038         .03051     1.00  .3195     -.02943    .09018
  MMD1|1|     .02670         .03622      .74  .4610     -.04429    .09769
  MMD2|1|     .12062***      .03067     3.93  .0001      .06051    .18073
  CAD1|1|     .32505***      .03429     9.48  .0000      .25784    .39226
  CAD2|1|    -.23969***      .03040    -7.88  .0000     -.29927   -.18011
    CI|1|    -.29059***      .02202   -13.20  .0000     -.33375   -.24742
   AAI|1|     .32399***      .02298    14.10  .0000      .27896    .36902
   RCS|1|    -.04490**       .02285    -1.96  .0495     -.08969   -.00011
    CN|1|     .14465***      .02165     6.68  .0000      .10221    .18709
   COM|1|    -.20632***      .02293    -9.00  .0000     -.25125   -.16139
--------+---------------------------------------------------------------------
--
***, **, * ==>  Significance at 1%, 5%, 10% level.
Model was estimated on Jul 08, 2023 at 08:52:07 PM
------------------------------------------------------------------------------
--

Iterative procedure has converged
Normal exit:  31 iterations. Status=0, F=    .6048066D+04
```

```
--------------------------------------------------------------------------------
--
Latent Class Logit Model
Dependent variable                CHOICE
Log likelihood function     -6048.06593
Restricted log likelihood   -8305.50890
Chi squared [ 25](P= .000)   4514.88594
Significance level               .00000
McFadden Pseudo R-squared      .2718007
Estimation based on N =   7560, K =  25
Inf.Cr.AIC  =  12146.1 AIC/N =    1.607
---------------------------------------
           Log likelihood R-sqrd R2Adj
No coefficients -8305.5089  .2718 .2706
Constants only  -7580.8767  .2022 .2009
At start values -6635.9395  .0886 .0871
Note: R-sqrd = 1 - logL/Logl(constants)
Warning:  Model does not contain a full
set of ASCs. R-sqrd is problematic. Use
model setup with ;RHS=one to get LogL0.
---------------------------------------
Response data are given as ind. choices
Number of latent classes =            2
Average Class Probabilities
     .523  .477
LCM model with panel has     945 groups
Fixed number of obsrvs./group=        8
Number of obs.=  7560, skipped    0 obs
--------+-----------------------------------------------------------------------
--
        |                   Standard            Prob.      95% Confidence
  CHOICE|  Coefficient       Error       z    |z|>Z*         Interval
--------+-----------------------------------------------------------------------
--
        |Random utility parameters in latent class -->>
1.....................
    NC|1|   -2.07065***      .09693   -21.36  .0000    -2.26062  -1.88067
   MC1|1|    1.16672***      .07396    15.78  .0000     1.02177   1.31167
   MC2|1|    -.21820***      .07661    -2.85  .0044     -.36836   -.06805
  MMD1|1|     .28149***      .08106     3.47  .0005      .12263    .44036
  MMD2|1|     .01439         .07196      .20  .8415     -.12665    .15544
  CAD1|1|     .44712***      .07829     5.71  .0000      .29369    .60056
  CAD2|1|    -.42757***      .07166    -5.97  .0000     -.56801   -.28712
    CI|1|    -.25247***      .05077    -4.97  .0000     -.35198   -.15296
   AAI|1|     .34303***      .05481     6.26  .0000      .23559    .45046
   RCS|1|    -.11846**       .05385    -2.20  .0278     -.22401   -.01290
    CN|1|     .14500***      .05325     2.72  .0065      .04064    .24936
   COM|1|    -.43491***      .05934    -7.33  .0000     -.55121   -.31861
        |Random utility parameters in latent class -->>
2.....................
    NC|2|     .15712*        .09271     1.69  .0901     -.02459    .33883
   MC1|2|    1.20784***      .05250    23.01  .0000     1.10495   1.31074
   MC2|2|     .10312**       .04359     2.37  .0180      .01769    .18856
  MMD1|2|    -.08723         .05327    -1.64  .1015     -.19163    .01717
  MMD2|2|     .20741***      .04325     4.80  .0000      .12265    .29217
  CAD1|2|     .37475***      .04950     7.57  .0000      .27773    .47177
  CAD2|2|    -.22712***      .04254    -5.34  .0000     -.31051   -.14374
    CI|2|    -.39364***      .03251   -12.11  .0000     -.45736   -.32992
   AAI|2|     .38496***      .03221    11.95  .0000      .32183    .44809
   RCS|2|    -.05261*        .03184    -1.65  .0984     -.11501    .00979
```

```
    CN|2|     .16686***      .03078     5.42  .0000      .10653    .22718
   COM|2|    -.18711***      .03369    -5.55  .0000     -.25314   -.12108
        |Estimated latent class
probabilities..............................
 PrbCls1|     .52261***      .03320    15.74  .0000      .45753    .58769
 PrbCls2|     .47739***      .03320    14.38  .0000      .41231    .54247
--------+-------------------------------------------------------------------
--
***, **, * ==>  Significance at 1%, 5%, 10% level.
Model was estimated on Jul 08, 2023 at 08:52:15 PM
-------------------------------------------------------------------------------
--
```

APPENDIX XVIII NLOGIT CODE LC MODEL 3 CLASSES

```
|-> NAMELIST;(new);pclass=pc1,pc2,pc3$
|->
LCLOGIT;Lhs=Choice;Choices=0,1,2;Checkdata;Rhs=NC,MC1,MC2,MMD1,MMD2,CAD1,CA
D2,CI,AAI,RCS,CN,COM;Classp=pclass;Pts=3;Pds=8$
+---------------------------------------------------------+
| Inspecting the data set before estimation.              |
| These errors mark observations which will be skipped.   |
| Row Individual = 1st row then group number of data block |
+---------------------------------------------------------+
No bad observations were found in the sample

Iterative procedure has converged
Normal exit:   6 iterations. Status=0, F=    .6635870D+04

------------------------------------------------------------------------------
--
Discrete choice (multinomial logit) model
Dependent variable                Choice
Log likelihood function     -6635.86954
Estimation based on N =   7560, K =  12
Inf.Cr.AIC  =  13295.7 AIC/N =    1.759
--------------------------------------
            Log likelihood R-sqrd R2Adj
Constants only  -7580.8767  .1247 .1225
Note: R-sqrd = 1 - logL/Logl(constants)
Warning:  Model does not contain a full
set of ASCs. R-sqrd is problematic. Use
model setup with ;RHS=one to get LogL0.
--------------------------------------
Response data are given as ind. choices
Number of obs.=  7560, skipped    0 obs
--------+---------------------------------------------------------------------
--
        |                   Standard            Prob.      95% Confidence
  CHOICE|  Coefficient       Error       z    |z|>Z*         Interval
--------+---------------------------------------------------------------------
--
    NC|1|    -.97052***      .03166   -30.66  .0000    -1.03257   -.90848
   MC1|1|    1.06063***      .03227    32.86  .0000      .99738   1.12389
   MC2|1|     .03038         .03051     1.00  .3195     -.02943    .09018
  MMD1|1|     .02670         .03622      .74  .4610     -.04429    .09769
  MMD2|1|     .12062***      .03067     3.93  .0001      .06051    .18073
  CAD1|1|     .32505***      .03429     9.48  .0000      .25784    .39226
  CAD2|1|    -.23969***      .03040    -7.88  .0000     -.29927   -.18011
    CI|1|    -.29059***      .02202   -13.20  .0000     -.33375   -.24742
   AAI|1|     .32399***      .02298    14.10  .0000      .27896    .36902
   RCS|1|    -.04490**       .02285    -1.96  .0495     -.08969   -.00011
    CN|1|     .14465***      .02165     6.68  .0000      .10221    .18709
   COM|1|    -.20632***      .02293    -9.00  .0000     -.25125   -.16139
--------+---------------------------------------------------------------------
--
***, **, * ==>  Significance at 1%, 5%, 10% level.
Model was estimated on Jul 08, 2023 at 08:47:08 PM
------------------------------------------------------------------------------
--

Maximum of  100 iterations. Exit iterations with status=1
```

```
--------------------------------------------------------------------------------
--
Latent Class Logit Model
Dependent variable                CHOICE
Log likelihood function     -5920.01014
Restricted log likelihood   -8305.50890
Chi squared [ 38](P= .000)   4770.99752
Significance level               .00000
McFadden Pseudo R-squared      .2872189
Estimation based on N =   7560, K =  38
Inf.Cr.AIC  =  11916.0 AIC/N =    1.576
---------------------------------------
           Log likelihood R-sqrd R2Adj
No coefficients -8305.5089  .2872 .2854
Constants only  -7580.8767  .2191 .2171
At start values -6636.0434  .1079 .1057
Note: R-sqrd = 1 - logL/Logl(constants)
Warning:  Model does not contain a full
set of ASCs. R-sqrd is problematic. Use
model setup with ;RHS=one to get LogL0.
---------------------------------------
Response data are given as ind. choices
Number of latent classes =           3
Average Class Probabilities
     .182  .560  .258
LCM model with panel has     945 groups
Fixed number of obsrvs./group=        8
Number of obs.=  7560, skipped    0 obs
--------+-----------------------------------------------------------------------
--
        |                   Standard            Prob.      95% Confidence
  CHOICE|  Coefficient       Error       z    |z|>Z*          Interval
--------+-----------------------------------------------------------------------
--
        |Random utility parameters in latent class -->>
1.....................
    NC|1|   -5.29032       3221.345      .00  .9987 -6319.01015  6308.42950
   MC1|1|    4.18798       6442.690      .00  .9995 ***********  2631.62757
   MC2|1|    2.66808       6442.690      .00  .9997 ***********  2630.10767
  MMD1|1|    1.92795       3221.345      .00  .9995 -6311.79194  6315.64785
  MMD2|1|   -3.21102       6442.690      .00  .9996 ***********  2624.22857
  CAD1|1|    2.48112       3221.345      .00  .9994 -6311.23869  6316.20094
  CAD2|1|   -4.44808       6442.690      .00  .9994 ***********  2622.99152
    CI|1|    -.12633         .31922     -.40  .6923     -.75199     .49933
   AAI|1|   -2.30164       4832.017      .00  .9996 -9472.88133  9468.27805
   RCS|1|   -2.81389       4832.017      .00  .9995 -9473.39357  9467.76580
    CN|1|     .10750         .31477      .34  .7327     -.50944     .72443
   COM|1|    -.44078*        .22582    -1.95  .0510     -.88338     .00183
        |Random utility parameters in latent class -->>
2.....................
    NC|2|   -1.15387***      .07617   -15.15  .0000    -1.30315   -1.00458
   MC1|2|    1.23399***      .05497    22.45  .0000     1.12624    1.34173
   MC2|2|    -.07729         .05257    -1.47  .1415     -.18033     .02575
  MMD1|2|     .13186**        .05778     2.28  .0225      .01861     .24512
  MMD2|2|     .07469         .05122     1.46  .1448     -.02571     .17508
  CAD1|2|     .43229***      .05688     7.60  .0000      .32081     .54377
  CAD2|2|    -.31434***      .05026    -6.25  .0000     -.41285    -.21583
    CI|2|    -.31587***      .03601    -8.77  .0000     -.38646    -.24528
   AAI|2|     .35044***      .03849     9.11  .0000      .27501     .42588
   RCS|2|    -.04782         .03739    -1.28  .2009     -.12109     .02546
    CN|2|     .16953***      .03473     4.88  .0000      .10146     .23761
```

```
   COM|2|    -.36572***      .04243    -8.62  .0000     -.44888   -.28255
        |Random utility parameters in latent class -->>
3...................
    NC|3|     .95197***      .13076     7.28  .0000      .69568   1.20826
   MC1|3|    1.27998***      .08281    15.46  .0000     1.11769   1.44228
   MC2|3|     .15995***      .06038     2.65  .0081      .04162    .27829
  MMD1|3|    -.16479**       .07464    -2.21  .0273     -.31108   -.01850
  MMD2|3|     .27348***      .06061     4.51  .0000      .15469    .39228
  CAD1|3|     .34946***      .07080     4.94  .0000      .21069    .48823
  CAD2|3|    -.21651***      .06086    -3.56  .0004     -.33579   -.09723
    CI|3|    -.45108***      .04714    -9.57  .0000     -.54347   -.35870
   AAI|3|     .45001***      .04701     9.57  .0000      .35788    .54215
   RCS|3|    -.06043         .04563    -1.32  .1853     -.14985    .02899
    CN|3|     .16567***      .04472     3.70  .0002      .07801    .25332
   COM|3|    -.11073**       .05020    -2.21  .0274     -.20911   -.01234
        |Estimated latent class
probabilities.............................
 PrbCls1|     .18161***      .01865     9.74  .0000      .14505    .21816
 PrbCls2|     .56008***      .02372    23.61  .0000      .51359    .60657
 PrbCls3|     .25832***      .02358    10.95  .0000      .21209    .30454
--------+-------------------------------------------------------------------
--
***, **, * ==>  Significance at 1%, 5%, 10% level.
Model was estimated on Jul 08, 2023 at 08:47:29 PM
-------------------------------------------------------------------------------
--
```

APPENDIX XIX NLOGIT CODE LC MODEL 4 CLASSES

```
|-> NAMELIST;(new);pclass=pc1,pc2,pc3,pc4$
|->
LCLOGIT;Lhs=Choice;Choices=0,1,2;Checkdata;Rhs=NC,MC1,MC2,MMD1,MMD2,CAD1,CA
D2,CI,AAI,RCS,CN,COM;Classp=pclass;Pts=4;Pds=8$
+---------------------------------------------------------+
| Inspecting the data set before estimation.              |
| These errors mark observations which will be skipped.   |
| Row Individual = 1st row then group number of data block |
+---------------------------------------------------------+
No bad observations were found in the sample

Iterative procedure has converged
Normal exit:   6 iterations. Status=0, F=    .6635870D+04

---------------------------------------------------------------------------
--
Discrete choice (multinomial logit) model
Dependent variable                Choice
Log likelihood function     -6635.86954
Estimation based on N =   7560, K =  12
Inf.Cr.AIC  =  13295.7 AIC/N =    1.759
--------------------------------------
            Log likelihood R-sqrd R2Adj
Constants only  -7580.8767  .1247 .1217
Note: R-sqrd = 1 - logL/Logl(constants)
Warning:  Model does not contain a full
set of ASCs. R-sqrd is problematic. Use
model setup with ;RHS=one to get LogL0.
--------------------------------------
Response data are given as ind. choices
Number of obs.=  7560, skipped    0 obs
--------+------------------------------------------------------------------
--
        |                   Standard            Prob.      95% Confidence
  CHOICE|  Coefficient       Error       z    |z|>Z*          Interval
--------+------------------------------------------------------------------
--
    NC|1|    -.97052***      .03166   -30.66  .0000    -1.03257   -.90848
   MC1|1|    1.06063***      .03227    32.86  .0000      .99738   1.12389
   MC2|1|     .03038         .03051     1.00  .3195     -.02943    .09018
  MMD1|1|     .02670         .03622      .74  .4610     -.04429    .09769
  MMD2|1|     .12062***      .03067     3.93  .0001      .06051    .18073
  CAD1|1|     .32505***      .03429     9.48  .0000      .25784    .39226
  CAD2|1|    -.23969***      .03040    -7.88  .0000     -.29927   -.18011
    CI|1|    -.29059***      .02202   -13.20  .0000     -.33375   -.24742
   AAI|1|     .32399***      .02298    14.10  .0000      .27896    .36902
   RCS|1|    -.04490**       .02285    -1.96  .0495     -.08969   -.00011
    CN|1|     .14465***      .02165     6.68  .0000      .10221    .18709
   COM|1|    -.20632***      .02293    -9.00  .0000     -.25125   -.16139
--------+------------------------------------------------------------------
--
***, **, * ==>  Significance at 1%, 5%, 10% level.
Model was estimated on Jul 08, 2023 at 08:50:48 PM
---------------------------------------------------------------------------
--

Maximum of  100 iterations. Exit iterations with status=1
```

```
--------------------------------------------------------------------------------
--
Latent Class Logit Model
Dependent variable                CHOICE
Log likelihood function     -5860.85902
Restricted log likelihood   -8305.50890
Chi squared [ 51](P= .000)   4889.29977
Significance level               .00000
McFadden Pseudo R-squared      .2943408
Estimation based on N =   7560, K =  51
Inf.Cr.AIC  =  11823.7 AIC/N =    1.564
---------------------------------------
            Log likelihood R-sqrd R2Adj
No coefficients -8305.5089  .2943 .2920
Constants only  -7580.8767  .2269 .2243
At start values -6636.1102  .1168 .1138
Note: R-sqrd = 1 - logL/Logl(constants)
Warning:  Model does not contain a full
set of ASCs. R-sqrd is problematic. Use
model setup with ;RHS=one to get LogL0.
---------------------------------------
Response data are given as ind. choices
Number of latent classes =           4
Average Class Probabilities
     .182  .068  .499  .251
LCM model with panel has     945 groups
Fixed number of obsrvs./group=       8
BHHH estimator used for asymp. variance
Number of obs.=  7560, skipped    0 obs
--------+-----------------------------------------------------------------------
--
        |                   Standard            Prob.      95% Confidence
  CHOICE|  Coefficient       Error       z    |z|>Z*         Interval
--------+-----------------------------------------------------------------------
--
        |Random utility parameters in latent class -->>
1.....................
    NC|1|   -4.30944       477.0589     -.01  .9928  -939.32768  930.70881
   MC1|1|    2.18160       954.0470      .00  .9982 -1867.71619  1872.07939
   MC2|1|     .84153       954.0421      .00  .9993 -1869.04657  1870.72962
  MMD1|1|    1.02739       477.0283      .00  .9983  -933.93087  935.98565
  MMD2|1|   -1.39600       954.0490      .00  .9988 -1871.29761  1868.50560
  CAD1|1|    1.44221       477.0350      .00  .9976  -933.52916  936.41358
  CAD2|1|   -2.32559       954.0663      .00  .9981 -1872.26124  1867.61007
    CI|1|    -.16803         .25178     -.67  .5045     -.66152    .32546
   AAI|1|    -.87737       715.5422      .00  .9990 -1403.31427  1401.55954
   RCS|1|   -1.30907       715.5426      .00  .9985 -1403.74680  1401.12866
    CN|1|     .08420         .36230      .23  .8162     -.62589    .79430
   COM|1|    -.61272**       .26643    -2.30  .0215    -1.13490   -.09053
        |Random utility parameters in latent class -->>
2.....................
    NC|2|   -3.06407        44.16420     -.07  .9447   -89.62430  83.49617
   MC1|2|    2.06266        42.22733      .05  .9610   -80.70138  84.82670
   MC2|2|     .04298        24.59883      .00  .9986   -48.16985  48.25580
  MMD1|2|    1.06530        42.23701      .03  .9799   -81.71773  83.84832
  MMD2|2|    -.12999        24.60875     -.01  .9958   -48.36225  48.10227
  CAD1|2|     .53059        36.91176      .01  .9885   -71.81512  72.87630
  CAD2|2|    -.05590         .24153     -.23  .8170     -.52930    .41750
    CI|2|    -.09704        23.31141      .00  .9967   -45.78655  45.59248
   AAI|2|     .93302        23.32157      .04  .9681   -44.77642  46.64246
   RCS|2|     .16307        21.90175      .01  .9941   -42.76357  43.08972
```

```
    CN|2|      .22804       21.89751       .01  .9917   -42.69028  43.14636
   COM|2|    -3.91651       41.35062      -.09  .9245   -84.96224  77.12921
        |Random utility parameters in latent class -->>
3...................
    NC|3|   -1.15817***       .06819   -16.98  .0000    -1.29183  -1.02452
   MC1|3|    1.27708***       .04851    26.33  .0000     1.18200   1.37216
   MC2|3|    -.13603**        .05377    -2.53  .0114     -.24142   -.03064
  MMD1|3|     .14557**        .06458     2.25  .0242      .01900    .27214
  MMD2|3|     .08103          .05567     1.46  .1455     -.02808    .19015
  CAD1|3|     .47449***       .05923     8.01  .0000      .35840    .59057
  CAD2|3|    -.39062***       .05510    -7.09  .0000     -.49862   -.28262
    CI|3|    -.31980***       .03978    -8.04  .0000     -.39777   -.24183
   AAI|3|     .34528***       .04098     8.43  .0000      .26496    .42559
   RCS|3|    -.07832*         .04662    -1.68  .0929     -.16968    .01304
    CN|3|     .19039***       .03966     4.80  .0000      .11266    .26813
   COM|3|    -.19171***       .04725    -4.06  .0000     -.28432   -.09910
        |Random utility parameters in latent class -->>
4...................
    NC|4|     .92979***       .10796     8.61  .0000      .71819   1.14139
   MC1|4|    1.34012***       .07160    18.72  .0000     1.19979   1.48045
   MC2|4|     .18084***       .06516     2.78  .0055      .05313    .30855
  MMD1|4|    -.18734**        .08814    -2.13  .0335     -.36010   -.01459
  MMD2|4|     .27911***       .06672     4.18  .0000      .14834    .40988
  CAD1|4|     .36116***       .07493     4.82  .0000      .21430    .50802
  CAD2|4|    -.20481***       .06024    -3.40  .0007     -.32287   -.08675
    CI|4|    -.47759***       .04655   -10.26  .0000     -.56882   -.38635
   AAI|4|     .47280***       .04293    11.01  .0000      .38866    .55693
   RCS|4|    -.05389          .05218    -1.03  .3018     -.15616    .04839
    CN|4|     .16849***       .04598     3.66  .0002      .07837    .25860
   COM|4|    -.03447          .05790     -.60  .5516     -.14796    .07901
        |Estimated latent class
probabilities.............................
 PrbCls1|     .18225***       .01898     9.60  .0000      .14505    .21946
 PrbCls2|     .06810***       .01482     4.60  .0000      .03905    .09714
 PrbCls3|     .49910***       .02589    19.27  .0000      .44835    .54985
 PrbCls4|     .25055***       .01976    12.68  .0000      .21183    .28927
--------+-------------------------------------------------------------------
--
***, **, * ==>  Significance at 1%, 5%, 10% level.
Model was estimated on Jul 08, 2023 at 08:51:20 PM
-------------------------------------------------------------------------
--
```