

# **Middle-income groups and moving behaviour**

**The ability of middle-income groups to form and realise the intention  
to move and its relationship with housing market opportunities**

**Master Thesis**

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## **Preface**

While writing my master thesis to finish my master's degree Spatial Planning, I was privileged to receive guidance from two very inspiring professionals. In the first place I would like to thank my tutor Dr. Huub Ploegmakers. His help was indispensable in taking my thesis to a higher level with his critical and well-grounded view on the research. I also want to thank my supervisor Steven Kromhout, who has guided me in carrying out my research during my internship at RIGO Research & Advies. His advice and excessive knowledge of quantitative research has been immensely valuable for my research.

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## Abstract

In urban regions middle-income groups currently face challenges on the housing market, since it is difficult for these groups to obtain access to both owner-occupied and social housing (Bertaud, 2018). The private rental sector is more easily accessible, but most middle-income groups can only afford the affordable part of this segment, which consists of a small portion of the total rental stock. The remaining part of the private rental sector is expensive due to the high demand, especially in large urban regions (CBS, 2019a). However, a large number of these households currently live in other parts of the housing stock. Little is known about whether those households have the ability to move from their current house, considering difficulties with finding another affordable owner-occupied or private rental dwelling, or losing their right to social housing. This thesis examines whether those difficulties are reflected in middle-income groups less often forming an intention to move and less often realising this intention than low- and high-income groups. Furthermore, this thesis aims to determine whether difficulties in forming and realising the intention to move are even more acute when middle-income groups live in large urban regions - in this study, Amsterdam, Utrecht, and The Hague.

Using the 2018 WoonOnderzoek (WoON) data, various binary logistic regression analyses were conducted to gain insight into forming an intention to move and the ability to realise that intention, drawing a comparison between middle-income groups and low- and high-income groups. Moreover, middle-income groups living in Amsterdam, Utrecht, and The Hague were compared with those groups living in the rest of the Netherlands with regard to their intention to move and their ability to realise that intention. From these analyses, it can firstly be concluded that compared to high-income groups, those with a middle-income had a lower chance of forming an intention to move. There was no significant difference in forming an intention to move between low- and middle-income groups. Furthermore, middle-income groups living in Amsterdam, Utrecht, and The Hague were expected to have a lower chance of forming an intention to move than middle-income groups living in the rest of the Netherlands; however this was not confirmed. Secondly, concerning the ability to realise an intention to move in the period of one year, middle-income groups were less likely to realise that intention than low-income groups. This was in line with the expectations of the research, but the result regarding high-income groups was not. Relative to those with a middle-income, high-income groups had a lower chance of realising an intention to move in one to two years time. Finally, no significant difference was found in the chances of being able to realise an intended move between middle-income groups living in Amsterdam, Utrecht, and The Hague, and those groups living in the rest of the Netherlands.

Middle-income groups • Housing markets • Intentions to move • Moving Behaviour •

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## 1. Introduction

The position of middle-income groups<sup>1</sup> is currently receiving much national attention in the Netherlands. This is because this group increasingly experiences difficulties on the housing market, especially when living in urban areas. Housing councillor Laurens Ivens has stated that new regulation is needed to prevent cities such as Amsterdam from becoming unaffordable for middle-income households, and Klaas Knot, president of the Dutch Bank, expressed the necessity for more rental houses in large urban regions to accommodate middle-income groups (Gualthérie Van Weezel, 2018; Couzy, 2018).

The comment that has often been heard when discussing this group is that ‘they fall between two stools.’ On the one hand, middle-income groups do face difficulties accessing owner-occupied housing. Firstly, this is because there has been an upward trend in housing prices since 2013. Between 2017 and 2018, the prices even rose by 8.8%, which was the highest rise in 16 years (CBS, 2018a). Furthermore, mortgage-lending standards have become stricter since banks are more reluctant to grant a mortgage due to the credit crunch of 2008 (Groot et al., 2016; Hoekstra & Boelhouwer, 2014). Finally, the number of people with a permanent employment contract has decreased, which also makes financing an owner-occupied dwelling more difficult (Groot et al., 2016).

On the other hand, middle-income groups often earn too much to apply for social housing. Eighty percent of the dwellings released by housing corporations need to be allocated to low-income groups who can apply for social housing, earning under €36,165,- per year in 2017 (Woonbond, 2016). A maximum of 10% can be allocated to households with an income between €36,165 and €40,349, defined as lower-middle-income households, and the remaining 10% can be assigned freely by housing corporations. The lower-middle-income households can thus apply to a maximum of 20% of the social housing stock (Van Middelkoop & Schilder, 2017). However, in reality this percentage is much lower: housing corporations on average assign 6% of their dwellings to this group (Beuzenberg et al., 2018). Before 2011, when the income eligibility limits for social housing were not very strict, a substantial share (about 25%) of social rental dwellings was allocated to middle-income groups (Hoekstra & Boelhouwer, 2014). However, it is expected that each year, around 30,000 fewer middle-income households can obtain access to these dwellings, due to changing regulation under the pressure of the European Union (Rli, 2011; Hoekstra & Boelhouwer, 2014).

This results in middle-income groups mostly being dependent on the private rental sector, which can be divided into two subsectors: the free market and the affordable private rent sector. The first does not contain price regulation, and rents in this sector are generally high, at more than €900 per month (Schilder & Scherpenisse,

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<sup>1</sup> Middle-income groups are defined as earning between €36,165,- and €55,500,- per year (Van Middelkoop & Schilder, 2017).



2018). Middle-income groups have to spend a large proportion of their income on housing in this subsector (Hoekstra & Boelhouwer, 2014). Moreover, most commercial landlords have income requirements; households often need to earn a gross income of at least four times the rent. This results in middle-income groups not being able to apply for certain dwellings (Beuzenberg et al., 2018). The second subsector consists of the non-rent-regulated housing association dwellings and private rental dwellings that have an affordable rental price. However, it can be expected that the rent of most of the latest dwellings will rise above €900 per month with new rental contracts, especially in large urban regions (Hoekstra & Boelhouwer, 2014). Middle-income groups are mostly appointed to this subsector, but it only consists of a small part of the total housing stock, namely 4.3%. Moreover, this subsector represents only 10% of the total rental stock, in comparison with 46% for non-regulated rental dwellings with rental prices above €900 per month and 44% for social housing (CBS, 2019a; Schilder & Scherpenisse, 2018).

Given these circumstances, it could be expected that more middle segment houses are needed to meet the demand of middle-income groups, since they could otherwise become hindered in their ability to move. This thesis examines whether middle-income groups experience more difficulties realising an intention to move compared to other income groups, since only a small part of the stock is accessible and affordable to them. Moreover, since intending to move tends to be influenced by the prospect of being able to realise that intention, a shortage in middle segment housing could also result in middle-income groups less often forming such an intention (De Groot et al., 2013; McLaverty & Yip, 1993). This study explores whether middle-income groups form fewer intentions to move than other income groups for this reason. Furthermore, this thesis examines whether the housing market opportunities contribute to the extent to which middle-income groups form an intention to move and have the ability to realise those intentions. It is expected that problems with the ability to form and realise intentions to move for middle-income groups are more acute in three of the largest cities in the Netherlands, namely Amsterdam, Utrecht, and The Hague. Fewer housing market opportunities are expected there because of the high pressure on the housing markets, created by a shortage of vacancies available and a high demand for dwellings (Buys et al., 2007). Moreover, those factors result in higher housing prices, and in relation to the disposable income, the absolute and relative costs of living are already higher in the aforementioned cities than in most other areas in the Netherlands (CBS, 2019b). This could result in middle-income groups becoming stuck in their current dwelling, forming fewer desires to move, and not being able to fulfil aspired moves, since available options to move are limited within city regions. It is therefore interesting to examine these three cities and compare them to the rest of the Netherlands, especially in terms of intentions to move and moving abilities of middle-income groups.

## 1.1 Research aim and research questions

The aim of this research is first to examine whether middle-income groups form fewer intentions to move than other income groups. A second aim is to explore whether middle-income groups living in Amsterdam, Utrecht, and The Hague compared to those groups living in the rest of the Netherlands likewise form fewer intentions to move. Third, this research seeks to determine whether middle-income groups face more difficulties in their ability to fulfil such intentions than other income groups. Finally, this study investigates whether it is especially difficult for middle-income groups to realise an intention to move when living in the cities Amsterdam, Utrecht, and The Hague relative to those living in the rest of the Netherlands. This is important to research because only then the real problem of housing for middle-income groups can come to light, since without wanting to move this group is mostly not considered to have housing problems. Gaining insight into the extent to which middle-income groups, especially in large urban areas, face difficulties with the ability to move and thereby form fewer intentions to move can help to set policy goals to provide affordable housing in large cities and to make those dwellings more accessible to middle-income groups.

Based on the aims set for this study, the main research questions are as follows:

- To what extent do middle-income groups form fewer intentions to move compared to other income groups?
- To what extent do middle-income groups form fewer intentions to move when living in Amsterdam, Utrecht, and The Hague compared to those living in the rest of the Netherlands?
- To what extent do middle-income groups experience more difficulties in the ability to realise an intention to move compared to other income groups?
- To what extent do middle-income groups experience more difficulties in the ability to realise an intention to move when living in Amsterdam, Utrecht, and The Hague compared to those living in the rest of the Netherlands?

## 1.2 Relevance

### 1.2.1 Societal relevance

Politicians worry about the future of space for middle-income groups in urban regions. Policies to keep these groups in cities are important for two reasons. First, middle-income groups want to be able to live in cities, and the 'right to housing' is internationally seen as a political marker of concern; decent and affordable housing for all is a social right under the responsibility of welfare state policy (Hekwolter et al., 2017; Bengtsson, 2001). However, some middle-income households are more or less forced to leave the city due to a shortage of supply to meet their demand (Hekwolter et al., 2017). It is important to obtain insight into how problematic the moving behaviour of middle-income groups is, reflected in the present study by forming an intention to move and being able to realise that intention. This is because by framing this problem, policies can be adapted that can help give urban space to

middle-income groups. Second, it is also important to keep accommodating middle-income groups in cities; Dutch municipalities want to hold on to the idea of a 'mixed city' both socially and in housing (Van Middelkoop et al., 2013; Hekwolter et al., 2017). In addition, from an economic perspective, social and economic diversity contributes to a sustainable, dynamic, diversifying, and renewing urban economy. Cities therefore need current middle-income households, as well as young people and recent graduates, who are the future middle-income creative entrepreneurs, to keep their city diversified. Hence, appropriate regulation is necessary to structure the housing market in such a way that cities remain their role as accommodators for middle-income households (Musterd & Nijman, 2015).

### **1.2.2 Scientific relevance**

Besides its important societal relevance, this research can contribute to the on-going theoretical debates about the moving behaviour of middle-income groups, especially in large cities, in several ways. First, much research has examined either intentions to move or actual moving behaviour; the body of work that focuses on both is limited (Van Ham, forthcoming). However, only by combining the two a complete view of the moving behaviour of middle-income groups can be obtained, as this allows for a better assessment of triggers for wanting to move or moving on the one hand, and constraints, restrictions, resources, and opportunities on the other (De Groot et al., 2011). Furthermore, the chances of being able to realise an intention to move tend to influence the formation of such intention (De Groot et al., 2013; McLaverty & Yip, 1993). Thus, it is important to research using both factors, to better the understanding of the interrelation between those two.

Second, most of the research on the causal relationship between income and the possibility of realising an intention to move focuses on lower-income groups, since the idea remains that with every extra euro someone earns, it becomes easier to realise such an intention (Phinney, 2013; Basolo & Yerena, 2017; De Groot et al., 2011). This would mean that lower-income groups have the most disadvantaged position on the housing market and that they face the most difficulties achieving a desired move. However, the position of middle-income groups on the housing market in the Netherlands is considered to be unique, due to the specific history of this market (Hoekstra, 2013; Wind, 2018). The part of the housing stock that is likely to be most accessible to middle-income groups is particularly small, namely the private rental sector. In contrast, low-income groups have the ability to apply to social housing, which consists of a large proportion of the housing stock, and this type of housing additionally knows favourable subsidies (Wind, 2018; Groot et al., 2016). It could thus be expected that middle-income groups have a greater disadvantage on the housing market and therefore have less ability to realise an intention to move. This could additionally be reflected in middle-income groups forming fewer intentions to move. However, research is needed on the formation of intentions to move and the ability to realise those intentions among middle-income groups, since little previous work has been done on this topic. Adding to this argument, among the few existing studies, contrasting findings can be found. Thus, it remains important to investigate this subject to specify the possible problem of middle-income groups, to eventually be able to find a fitting solution.

Finally, this study examines the influence of housing market opportunities on the formation and realisation of intentions to move, among middle-income groups, which little research has investigated so far (De Groot et al., 2011; Jonkman & Janssen-Jansen, 2015). This adds to the importance of the present work.

## 2. Theoretical framework

This chapter starts by explaining how opportunities, constraints, resources, and restrictions influence both the formation of an intention to move and actual moving behaviour, thus residential mobility. Subsequently, the chapter examines differences in forming an intention to move and actual moving behaviour structured by income and the housing market context, since this is the main focus of the research. Finally, the differences between these two factors shaped by other individual characteristics are discussed; these characteristics function as the control variables in this study.

### 2.1 Residential mobility

This section explains the interconnection between having an intention to move and actual moving behaviour, as well as their link to opportunities and constraints, and resources and restrictions. This is important because most of the research on residential mobility examines either intention to move or actual moving behaviour. Only few studies compare the differences in results between these two factors. Hence, the present study aims to do so.

#### 2.1.1 Opportunities and constraints – Resources and restrictions

##### *2.1.1.1 Intention to move*

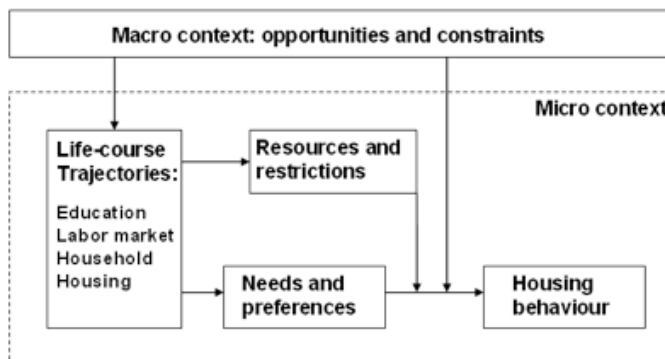
Regarding residential mobility, households first form a desire to move. This often follows triggers or motives. For instance, Brown and Moore (1970) argue that the desire to move mostly arises from people's dissatisfaction with their current dwelling due to changes in the neighbourhood or their family situation. Based on that, households enter a second phase, in which they examine the supply and either decide to stay or form an intention to move. However, this theory neglects that besides being formed by choice, an intention to move can also stem from necessity (Morrison & Clark, 2016; Clark, 2017).

Moreover, macro- and micro-level factors can also function as triggers to form an intention to move (see Figure 1). Examples of macro-level factors that influence the desire to move are market conditions, the availability of dwellings, the housing system, and the economic situation. Examples of micro-level factors are age, income, and household composition (Timmermans et al., 1994; Clark et al., 1994; Clark & Dieleman, 1996; Clark et al., 2006; De Groot et al., 2011). These factors can provide opportunities or resources, which increases the probability of an intention to move leading to an actual move. In turn, this positively influences the formation of an intention to move. This can be explained by the concept of 'adaptive preference formation'; chances of realising a move tend to influence the formation of an aspiration to move (De Groot et al., 2013; McLaverty & Yip, 1993). In contrast, for the same reasons, restrictions and constraints can lead to not forming a desire to move or adjusting that desire.

#### 2.1.1.2 Choice set

Residential mobility literature often discusses housing choice. However, this is a simplification, since for most households the choice set available to them when searching for a dwelling is highly limited (Van Ham & Manley, forthcoming). This choice set is widened by resources, such as income, and opportunities, such as the availability of more vacancies on the housing market. Restrictions, such as having to live close to a job, and constraints, such as a lack of affordable housing, narrow down the available choice set for households. In contrast to a narrow choice set, a wider choice set results in a higher probability of realising an intention to move (Van Ham, forthcoming).

The preferences and needs of households also have an influence on how they shape their own choice set, as dwellings are a bundle of various characteristics which may or may not fit their needs and preferences. When households are not able to find housing that fits their initial preferences or needs, they must make a trade-off between different characteristics to still be able to find a dwelling to move to (Van Ham, forthcoming; Timmermans et al., 1994). Making trade-offs is more often necessary in areas with higher general housing prices. However, personal circumstances, such as life stage, determine the extent to which a home seeker would want to change initial housing preferences or make the substitution of postponing an intended move (De Groot et al., 2013). If the latter is not possible, the only option is to adapt their needs and preferences when they are not able to find the dwelling they initially imagined.



*Source: based on Mulder & Hooimeijer, 1999*

*Figure 1: The interrelation between the macro and micro context (Source: Van Ham, forthcoming, based on Mulder & Hooimeijer, 1999).*

#### 2.1.1.3 Moving behaviour

When the desire to move is formed and a household starts looking for a dwelling within the choice set available to them, only a limited number of households translate their desire to move into an actual move (De Groot et al., 2011). This is because the same restrictions and constraints that influence the extent to which households form an intention to move could prevent them from acting on this intention. On the other hand, resources and opportunities that positively influence the formation of an intention to move tend to also have a positive influence on realising this intention.

Thus, triggers, needs, preferences, opportunities, constraints, resources, and restrictions all have an influence on the formation of an intention to move and the choice set available to households. In addition, those factors influence the probability of a household realising an intention to move (Van Ham, forthcoming).

## **2.2 Income**

### *2.2.1 Intention to move*

Differences in income are expected to be reflected in differences in forming an intention to move. Previous studies have found that high-income groups are more likely to have an intention to move in comparison with lower-income groups. (De Groot et al., 2011; Coulter, 2013; Boschman & De Groot, 2011). A possible explanation could be that a lack of resources, such as income, lowers the chances of actually moving. It has often been argued that people consider such hampering factors before formulating an intention to move (Mulder & Hooimeijer, 1999; De Groot et al., 2011; Gardner et al., 1985-86).

### *2.2.2 Moving behaviour*

Income is also expected to have an influence on the realisation of an intended move. Several studies have found a positive relationship between income and realising desires to move (Boschman & De Groot, 2011; Boheim & Taylor, 2002; Clark & Dieleman, 1996; Duncan & Newman, 1976; Coulter, 2013; Helderman et al., 2004). This may be because income widens the choice set of dwellings financially accessible to households. Moreover, this wider choice set makes it more likely that people will encounter a dwelling matching their preferences. Altogether, this influences the chances of realising an intention to move (Van Ham, forthcoming; Clark, 2017; Clark & Dieleman, 1996; Helderman et al., 2004). For households with a lower income level, a more limited choice set is available, which prevents them from acting upon their desires to move (Coulter & Van Ham, 2013). Furthermore, low-income groups are more likely to face constraints in housing choice and outcomes, due to limitations in their ability to secure a mortgage (Van Ham, forthcoming; Helderman et al., 2004). These limitations are structured by banks and mortgage lenders, who in this way influence the economic resources available to households to acquire an owner-occupied dwelling (Clark, 2017).

However, it should be noted that some studies have barely found an effect of income on the ability to realise an intention to move (Goetgeluk, 1997; Kan, 1999). Those results are supported by theories stating that higher-income groups only look at the upper end of the housing market (De Groot et al., 2011), meaning that they do not have a larger choice set available to them, thus not increasing their probability of realising an intended move. Another explanation could be that the income effect is mediated by intention to move, since people tend to consider their income before formulating such an intention (De Groot et al., 2011; Gardner et al., 1985-86). Hence, differences between income groups then would be found by examining the intention to move instead of moving behaviour.

## 2.3 Housing market opportunities

Besides individual characteristics such as income, a person forming an intention to move and the possibility of that person actually realising this intention depends on the housing market opportunities.

### 2.3.1 *Intention to move*

Since intentions to move are strongly linked to having the option to move, one would expect that housing market constraints such as a tight market would have a negative influence on forming an intention to move (Lu, 1999; Mulder & Hooimeijer, 1999). In line with this, Coulter (2013) found that people are more likely to abandon moving desires in areas with a tight housing market where opportunities to move are scarce. This is due to the insecure prospect of actually moving. The same neglect of a desire to move or constraint in forming that desire is expected in the case of high housing prices, which are mostly found in large cities (Dieleman et al., 2000). This was observed in Lu's (1998) study: people living in urban areas were less likely to have an intention to move than those living in suburban areas. However, it should be noted that people living in the city centre were as likely to have an intention to move as people living in the suburbs. Similarly, Kearns and Parkes (2003) found no significant difference in intentions to move between people living in suburbs, living in rural areas, and living in urban areas.

### 2.3.2 *Moving behaviour*

The degree of urbanisation is expected to have an influence on the ability to realise an intention to move. This is because the turnover rate of dwellings in urban regions is higher than in rural areas, creating more housing market opportunities (Helderman & Mulder, 2007; Dieleman, 2001). The reason for this is that much of the turnover in local housing markets is generated by moves from and within the rental sector. Since the housing stock in large cities often consists of a higher percentage of rental dwellings, this is expected to positively influence residential mobility (Dieleman et al., 2000; De Groot, 2011).

However, increasing turnover rates in the housing stock might also lead to increasing housing prices. Because housing prices in both the rental and owner-occupied sector are generally already higher in large cities, those increasing prices could form an obstacle for moving in these cities (Dieleman et al., 2000; De Groot, 2011; Mulder & Hooimeijer, 1999). Overall, increasing prices do have the effect of slowing residential mobility (Clark, 2017). For instance, De Groot (2011) found that people in very strongly urbanised regions were less likely to realise an intention to move than those living in non-urbanised regions.

Another factor that influences housing market opportunities is the tightness of the housing market. Van Ham and Feijten (2008) have argued that a tight housing market restricts people in acting upon their preferences to move. Coulter's (2013) study also found this result: people living in a tight housing market were less likely to fulfil their moving desires. In a more relaxed market, the contrary was observed: people were able to act upon their preferences of wanting to move. In addition, both



Kearns and Parkes (2003) and De Groot (2011) found that areas with a shortage of vacancies and a high demand for housing had barriers to realise intended moves.

## **2.4 Income and housing market opportunities**

### *2.4.1 Intention to move*

As seen in the previous sections, a lack of income and scarce housing market opportunities are both expected to result in people forming fewer intentions to move. Thus, one could expect that those factors together would have a strengthening negative effect on forming a desire to move. However, no empirical evidence can be found on the combined effect of income and housing market opportunities on the formation of a desire to move. Thus, this study aims to enlarge the empirical knowledge on this effect.

### *2.4.2 Moving behaviour*

As mentioned, having a lower income and wanting to move within a location with a tight housing market and high housing prices is expected to negatively influence actual moving behaviour. One would therefore expect residential mobility to be especially low for lower-income groups living in large cities where housing market opportunities are scarcer due to high housing prices and the shortage of available vacancies. This was shown in Fang's (2006) study: the combination of limited economic ability and a lack of choice on the housing market, led to constraints for people to act upon their strong intentions to move. Similarly, Basolo and Yerena (2017) examined residential mobility of low-income subsidised households and found a negative effect of perceived housing market constraints on the mobility of those households.

## **2.5 Control variables**

### **2.5.1 Education level**

#### *2.5.1.1 Intention to move*

Previous studies have found that highly educated people more often have an intention to move compared to less educated people (De Groot et al., 2008, 2011; Coulter et al., 2011). This may be explained by the fact that there is a positive relationship between income and education level: the higher the education level, the higher the probability that someone will generate a high income (Clark & Dieleman, 1996). Moreover, as explained before, people tend to consider facilitating or hampering factors such as their income before forming an intention to move. Thus, education level can be expected to have an influence on the formation of such an intention.

#### *2.5.1.2 Moving behaviour*

Education is a form of human capital which can help people to realise their intentions to move. A high education positively influences not only income but also career prospects, and those stable resources can help in the ability to move (Mulder

& Hooimeijer, 1999; Helderma et al., 2004). Moreover, highly educated people have been proven to be more mobile and less sensitive to moving distance, widening the choice set of housing available to them (Van Ommeren, 2000; Bauernschuster et al., 2014). It can thus be expected that highly educated people will realise their intentions to move more frequently than those who are less educated, especially since this has been found in previous studies (De Groot et al., 2011; Lu, 1998; Boheim & Taylor, 2002; Fischer & Malmberg, 2001).

## **2.5.2 Employment**

### *2.5.2.1 Intention to move*

Previous research has shown that people who are unemployed are more likely to have a desire to move than those who are employed. This is because unemployed people aim to seek employment through changing residential location (Boheim & Taylor, 2002; Fendel, 2014). Furthermore, becoming unemployed is expected to be associated with a more urgent intention to move, since moving is often needed due to changing circumstances (De Groot et al., 2011; Coulter et al., 2011). In a similar vein, Fischer and Malmberg (2001) found that people who were employed were less likely to want to move than unemployed people, since employed people were more tied to their current residential location. Moreover, examining two-earner households, Van Ommeren (2000) found that those households less often searched for a new dwelling and more often searched for a new job when the distance between the two workplaces of the household members was greater. This could imply that employees find it easier to decrease commuting time through changing jobs than through moving, resulting in them less often having a desire to move.

In contrast, Coulter (2013) found that being unemployed reduced the feasibility of moving because of a lack of resources, and thus more often triggered the abandonment of a moving desire, compared to being employed.

### *2.5.2.2 Moving behaviour*

The relationship between employment and actual moving behaviour goes in two directions. On the one hand, most households receive their resources by being employed. One or more household members being employed generates the income to fulfil housing needs and preferences (Van Ham, forthcoming). In this sense, being unemployed is likely to have a negative effect on realising an intended move, especially since the range of financially accessible housing options is smaller for people who are unemployed (De Groot, 2011). Furthermore, there is a higher probability of them not being able to afford the transaction costs associated with moving (Boheim & Taylor, 2002).

On the other hand, Boheim and Taylor (2002) only found a negative effect of unemployment on residential mobility when the unemployment was long-term. In their study, unemployed individuals were in fact more likely to realise an intention to move than otherwise similar employees. A possible explanation for this result is that being employed could lead to restrictions in housing choice, especially in residential location: employees consider their commuting costs and time when choosing a

dwelling. In contrast, unemployed people have more freedom in their choice of residential location in this sense, increasing their likelihood of realising a desired move (Coulter et al., 2011). However, as mentioned, if the unemployment is long-term, the probability of realising that move is expected to decrease.

### **2.5.3 Age**

#### *2.5.3.1 Intention to move*

Young people are expected to more often have an urgent desire to move due to changes or to their wanting to make changes in household composition, education, or career. In contrast, older people less often experience such changes and are expected to only form a desire to move when there is dissatisfaction with the dwelling or the neighbourhood, or some social reason (Niedomysl, 2011). In line with this, Coulter (2013) has shown that older people less often want to move and more often abandon the desire to move. As an explanation, it has been suggested that there is a lower urgency to move since many older individuals have selected themselves into more desirable locations and dwellings compared to younger people. Moreover, older people prefer not to move and only move when they are forced by shocks, such as the death of a spouse or health problems (Angelini & Laferrère, 2010).

#### *2.5.3.2 Moving behaviour*

Previous studies have shown that younger people have a higher probability of realising an intention to move than older people do (De Groot, 2011; Crowder, 2001; Dieleman, 2001; Lu, 1998; Kan, 1999). This could be explained by the fact that young people are still busy shaping their careers, households, and housing, and they therefore make several adjustment moves before settling down in more long-term housing (Helderman et al., 2004).

One might also expect a higher residential mobility at an older age: the need for space decreases when children leave their parental house or when a spouse dies. Furthermore, older homeowners are able to release home equity by taking up a mortgage or downsizing, or both. This could be used to keep a decent standard of living after retirement (Angelini & Laferrère, 2010). However, as shown before, previous studies have not found a positive effect of increasing age on residential mobility. This may be explained by the fact that older people have less urgent reasons for wanting to move and are hence less likely to actually move (Coulter & Scott, 2015). Moreover, as also mentioned earlier, older people already live in favourable dwellings and locations, which could result in them being critical when accepting a new dwelling to move to.

### **2.5.4 Ethnicity**

#### *2.5.4.1 Intention to move*

In a study by Clark and Coulter (2015), individuals of Mixed, Black, or other ethnic backgrounds were significantly more likely to want to move than Whites, with the exception of Asians. Similarly, Mateyka (2015) found that racial and ethnic minorities

in the US were more likely to have a desire to move than non-Hispanic Whites. This difference in forming a desire to move between ethnic minorities and Whites could possibly be explained by the fact that the former more often live in the most deprived areas, where levels of neighbourhood satisfaction are lower, thus resulting in a higher probability of wanting to move (Rabe & Taylor, 2010). In addition, Coulter et al. (2011) also observed that ethnic minorities more often had a desire to move than Whites. However, those minorities also stated that they did not expect to realise this desire, which indicates that they perceived themselves as less able to realise their housing preferences than Whites.

#### ***2.5.4.2 Moving behaviour***

Even though ethnic minority groups have been found to more often have a desire to move, a greater discrepancy between moving desires and actual moving behaviour can be found in these groups than in native groups (Boschman & De Groot, 2011; Crowder, 2001; Kan, 1999; De Groot et al., 2011; Coulter, 2013). Firstly, this could be because existing discrimination on the housing market leads to limited housing opportunities for ethnic minorities (South & Crowder, 1998; Aalbers, 2007). Secondly, minorities more often have a lower income, limiting the choice set of dwellings and decreasing the probability of realising an intended move (Boschman et al., 2017).

With regard to different ethnic minorities, it is often suggested that western minorities are more likely to be comparable to the native majority in their position on the housing market and their socio-economic status (Boschman et al., 2017). In that sense, non-western minorities could be expected to face the most difficulties in realising an intended move.

### **2.5.5 Household composition**

#### ***2.5.5.1 Intention to move***

One of the first researchers to stress the importance of family and household composition in the housing mobility process was urban sociologist Rossi (1955). Rossi argued that in different stages of the life cycle related to family and household composition, people have different needs, particularly in terms of space. In line with this, households are expected to want to move when there is no equilibrium between their needs and the space they have available to them. Since a change has occurred in the normative order and timing in which life cycle stages take place, the literature has shifted to the use of the concept of life-course; nevertheless, family structure and different related needs regarding space are still seen as important in the moving behaviour literature (Clark, 2017).

A few differences can be seen in household compositions' influence on the probability of having an intention to move. First, moving has often been shown to have a negative influence on children's social and educational functioning if they were to change schools (Coley & Kull, 2016; Mulder, 1993). Thus, this could lead to parents being more reluctant to change residential location which could lead to families less often forming a desire to move. Second, De Groot et al. (2011) found

that singles and one-parent families more often have a desire to move than couples and families do. This could be because singles and one-parent families do not have to consider a partners' moving preference (Helderman et al., 2004). However, the result of one-parent families is not in line with the first argument of families less often forming a desire to move. Third, Clark and Coulter (2015) have shown that singles and cohabitants are more likely to form a desire to move than married people are. A possible explanation is that married people more often already live in long-term housing, such as owner-occupied housing and single-family dwellings, resulting in less often having a desire to move. The transition to this type of housing is often made in conjunction with a commitment such as marriage (Feijten & Mulder, 2002). Mateyka (2015) observed the same effect of married people less often wanting to move than people who were divorced, separated, widowed, or were never married. After married people, widow(er)s were the most represented among people who did not have a desire to move in this study.

#### *2.5.5.2 Moving behaviour*

When people have children, it is likely to form an obstacle for moving, since children are an additional factor in the decision process (Clark & Davies Withers, 2009). The effect of the number of household members on the decision process can also be seen in the difference between families, couples, and singles: people in families have to take into account their partner's and children's preferences and daily activity spaces, and those in couples have to consider the same aspects for their partner; in contrast, singles do not face any restrictions in choice except for their own preferences and daily activities, which could positively influence their probability of realising a desire to move (Helderman et al., 2004). On the other hand, the disadvantage for singles is that they are not able to pool their income with a partner, which results in a lower general income and thus fewer dwellings in their financial reach (Mulder, 1993; Mulder & Hooimeijer, 1999). This disadvantage also affects people who are divorced or widowed. However, such life events are proven to greatly increase the probability of multiple residential moves (Fomby & Sennott, 2013; Saadeh et al., 2013). This is because people who are divorced or widowed can form new co-habiting unions, re-marry, and move to new homes (Boyle et al., 1998).

### **2.5.6 Form of ownership**

#### *2.5.6.1 Intention to move*

Intentions to move may be formed by the desire to change one's type of tenure. Indeed, the wish to move into homeownership is often an important trigger for wanting to move, as homeownership is seen as the preferred tenure in most developed countries (Mulder & Hooimeijer, 1999; De Groot, 2011). This preference is firstly structured because the exchange value offers opportunities for wealth accumulation, which helps households move to more desirable dwellings and locations over time (Coulter, 2013; Helderman et al., 2004). In addition, an advantage of owner-occupied housing is that the paid mortgage interest can be deducted from taxable income, thus saving money (De Groot et al., 2013; Hulse & Yates, 2017; Glaeser & Shapiro, 2002). In this sense, it can be expected that renters more often have a desire to move. Adding to this expectation, owner-occupied

dwelling are usually of higher quality and are seen as longer-stay housing, possibly resulting in their inhabitants less often wanting to move (Helderman et al., 2004; Feijten & Mulder, 2002).

#### *2.5.6.2 Moving behaviour*

De Groot et al.'s (2011) study found, compared to renters wishing to rent, owner-occupiers with a strong intention to move were more likely to realise an intention to move, moving either to a new owner-occupied dwelling or into the rental sector. This shows that homeowners encounter fewer obstacles when wanting to realise such intention (De Groot et al., 2011). In contrast, other studies have found the result that homeowners are actually less likely to realise an intention to move (Kearns & Parkes, 2003; Lu, 1998). This may be explained by the fact that moving from an owner-occupied dwelling is associated with high transaction costs, which might function as a constraint in realising an intended move (Helderman et al., 2004).

### **2.6 Control variables: Intention to move**

There are some other control variables which are expected to influence the intention to move. As stated before, people often want to move when there is a lack of equilibrium between their dwelling and their housing needs and preferences. Three indicators could possibly influence the desire to move, since they may reflect this lack of equilibrium: crowdedness, dissatisfaction with the neighbourhood, and dissatisfaction with the living environment.

#### **2.6.1 Crowdedness**

An important reason for wanting to move is that there is little space available relative to the number of household members (Clark & Onaka, 1983; Rossi, 1955; Clark et al., 2000). Relative space could decrease for example, through additions to the familial structure. When people have too little space available to them, the housing situation is considered to be overcrowded. Moving from an overcrowded house is seen as a move of greater necessity than moving from a normally or undercrowded dwelling, since not moving could imply living in a suboptimal situation. Hence, it could be expected that people living in an overcrowded house more often form an intention to move compared to people not living in such a situation (De Groot et al., 2011).

#### **2.6.2 Satisfaction with dwelling and living environment**

Residents' satisfaction with the dwelling and living environment has been an important topic of research within the study of residential mobility. Having a desire to move has been proven to be strongly influenced by satisfaction with the neighbourhood and dwelling (Rossi, 1980; Landale & Guest, 1985; Kearns & Parkes, 2003). From a classical perspective, it has often been argued that residential mobility is a process to resolve dissatisfaction caused by the neighbourhood, dwelling, or household changes (Speare 1970, 1974; Landale & Guest, 1985). More recently, Coulter et al. (2011) have shown that moving desires are more strongly influenced by subjective evaluations of the neighbourhood and dwelling quality than by the

likelihood of realising an intended move. It is thus expected that satisfaction with the dwelling and living environment is an important indicator for wanting to move.

## **2.7 Control variable: Moving behaviour**

Another variable that is expected to influence the probability of realising an intention to move is having an induced reason to move. The following further elaborates on this influence.

### **2.7.1 Induced reason to move**

People may want to move because of changes in their household, employment, or education. These are referred to as induced reasons to move (Clark & Onaka, 1983). Not realising those moves may imply postponing a life-course change, not being able to accept a certain job, or not enrolling in education. This makes those intentions to move of higher necessity. Moreover, since intended moves with a greater perceived necessity are more likely to succeed, it is expected that individuals who want to move for education, work, or a life-course change will be more successful in realising their intended moves (Goetgeluk, 1997; De Groot et al., 2011). Other reasons for wanting to move are feelings of dissatisfaction with the dwelling and the living environment (Coulter & Scott, 2015). These have a smaller perceived necessity, and are thus expected to less often result in an actual move.

## 2.8 Conceptual models

The conceptual model of forming an intention to move is shown in Figure 2. It is based on the relationship between the dependent and independent variables explored in the theoretical framework. As can be seen, the dependent variable of forming an intention to move is influenced by various independent variables. The main variables used to answer the main research questions are income and housing market opportunities. Some control variables are also added to check whether there could be other explanations for differences in having an intention to move: education level, employment, age, ethnicity, household composition, marital status, form of ownership, crowdedness, satisfaction with dwelling, and satisfaction with living environment. Intention to move is analysed based on this conceptual model.

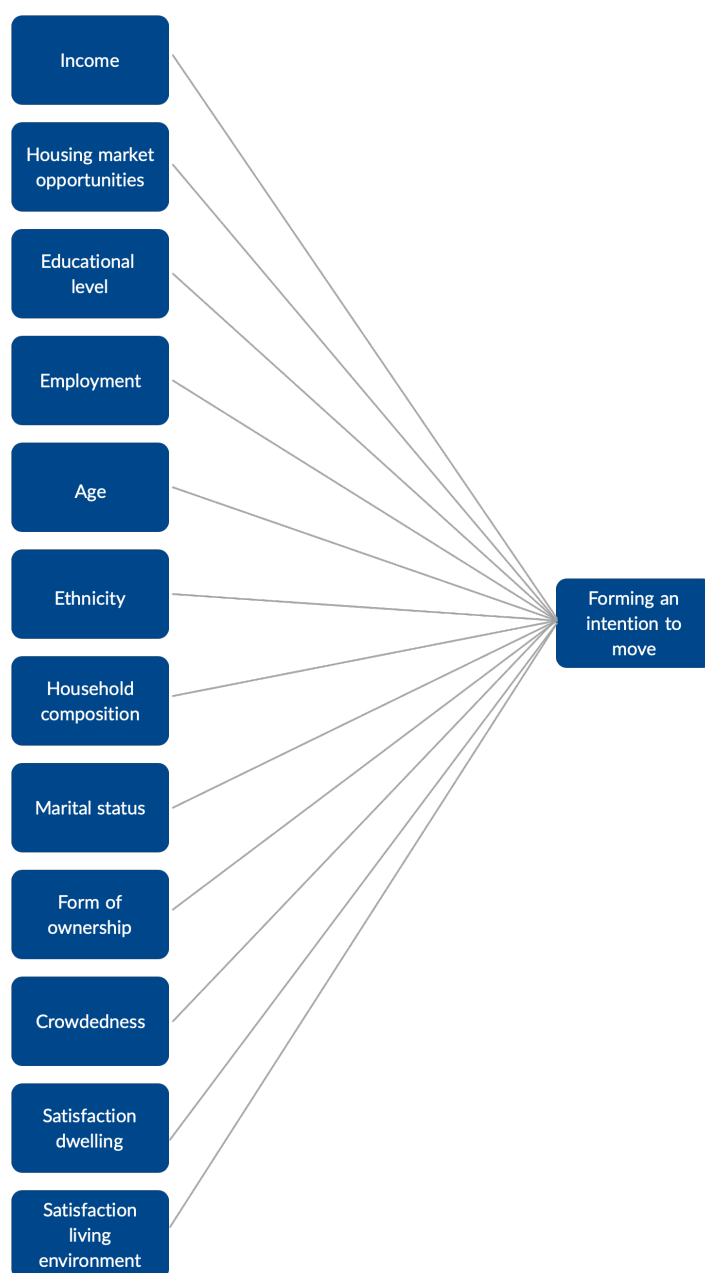
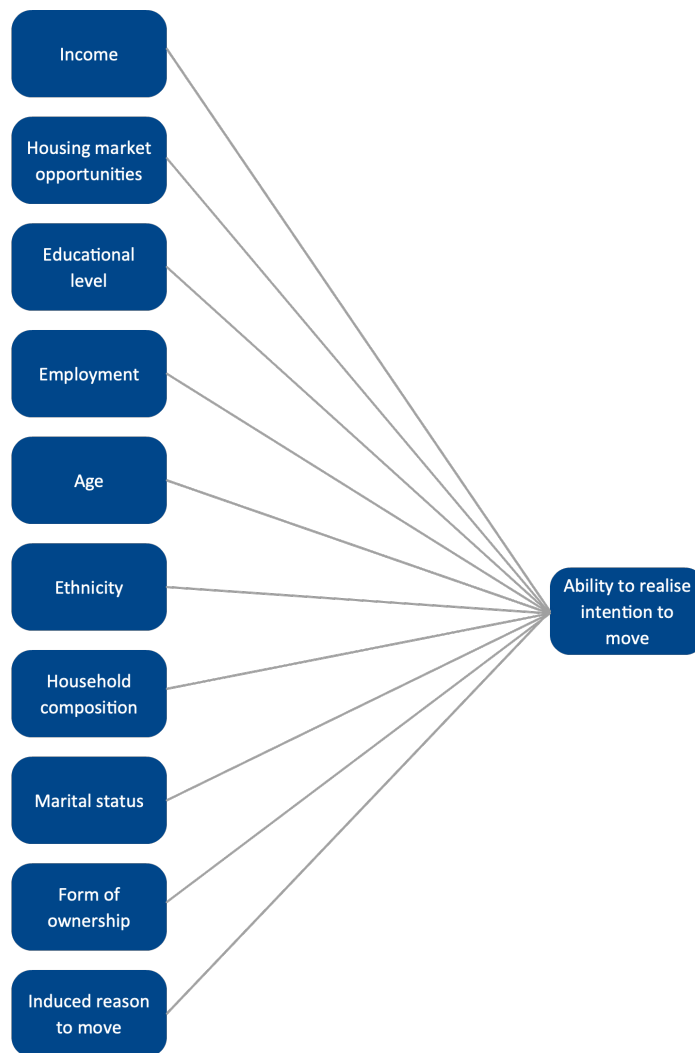


Figure 2: Conceptual model of intention to move.



Figure 3 shows the conceptual model of the dependent variable of moving behaviour, which is reflected by the ability to realise an intention to move. The main focus is again on how this ability is affected by the independent variables of income and housing market opportunities. The control variables used in the analyses are education level, employment, age, ethnicity, household composition, marital status, form of ownership, and induced reason to move; these serve to check for other explanations for differences in the ability to realise an intended move. Like intention to move, the analyses of moving behaviour are based on this conceptual model.



*Figure 3: Conceptual model of moving behaviour.*

### 2.8.1 Hypotheses

Based on previous studies examining the above-mentioned independent variables' influence on intention to move and moving behaviour, some hypotheses are formulated regarding the direction of this influence. The main focus is on the possible relationship between income and housing market opportunities, and forming an intention to move and the ability to realise that intention.

- I. Middle-income groups form fewer intentions to move compared to other income groups.
- II. Middle-income groups living in Amsterdam, Utrecht, and The Hague form fewer intentions to move compared to those living in the rest of the Netherlands.
- III. Middle-income groups experience more difficulties in realising an intention to move compared to other income groups.
- IV. Middle-income groups living in Amsterdam, Utrecht, and The Hague experience more difficulties in realising an intention to move compared to those living in the rest of the Netherlands.

### **3. Methodology**

#### **3.1 Research philosophy and research strategy**

The research philosophy followed in this study is positivism. This section first explains what positivism is, followed by the choice of a quantitative research design and how this fits the research questions. Finally, the section discusses why survey was chosen as a research strategy. The section after that will explain the survey used in this work. All those choices together formed the basis of this research.

##### **3.1.1 Research philosophy**

As mentioned, the research philosophy followed in this study is positivism. The first characteristic of positivism is that it follows a deductive approach. This was applied in this study as follows. There are many theoretical assumptions on the relationship between income and moving behaviour. This relationship is mostly considered from a linear perspective: the more income someone has, the easier it is supposed to be to realise an intention to move. However, the position of middle-income groups on the housing market in the Netherlands is considered to be unique, and there is a lack of theories on the relationship between income and moving behaviour from a non-linear perspective. In this study, theories about income found in the literature were tested for middle-income groups by formulating hypotheses and testing those hypotheses using data, thus making this research deductive in nature (Al Zefeiti & Mohamad, 2015; Gray, 2014; Bryman, 2012).

A second characteristic of positivism which formed an important basis of this research is that science should be obtained value-free. This means that the researcher should be objective and independent, and should obtain the data while remaining distant from the observed (Bryman, 2012; Guba & Lincoln, 1994). The present author aimed to maintain this attitude throughout this study. A third characteristic is that only a phenomenon that is confirmed by research can be seen as knowledge; in this way, positivism searches for the truth (Bryman, 2012). Therefore, this study examined the phenomenon of middle-income groups and their intention and ability to move, in order to be able to confirm it as knowledge or not. Fourth, the goal of positivist research is to identify causality between variables to determine the direction of the relationship between them (Gray, 2014). In this study, the formulating and testing of hypotheses served as a guide to identify this causality. Finally, in positivism there is a clear distinction between normative and scientific statements; namely, scientific statements are seen as the truth, and scientists should stay in that domain (Bryman, 2012). Since this research is of a scientific nature, it fits to this characteristic of positivism.

##### **3.1.2 Research strategy**

A quantitative research design was chosen in this study. The research questions concern the causal relationship between income and housing market opportunities, and intentions to move and moving behaviour. A quantitative design seemed like the best choice to address these, since correlational quantitative research is an

appropriate design to examine and measure the relationship between variables (Creswell, 2002). Furthermore, in this study a comparison was made between middle-income groups and low- and high-income groups, to determine whether they differ in intentions to move and moving abilities. The same was done for housing market opportunities: Amsterdam, Utrecht, and The Hague were compared with the rest of the Netherlands. A quantitative research method was appropriate to make those comparisons between different groups, since the differences between categories of variables could be measured.

To collect data, the survey was chosen as an instrument within the quantitative research design. A survey was used because it was the most fitting strategy to answer the research questions, which had the goal of generating explanatory knowledge about the causal relationship between income and housing market opportunities, and forming or realising an intention to move (Draper, 2004). Collecting data through a survey made it possible to investigate these causal relations. Moreover, using a large-scale survey helped make reliable comments on a national, provincial, and regional scale. Since the aim was to compare Amsterdam, Utrecht, and The Hague to the rest of the Netherlands, this was an important characteristic that the research strategy needed to have. Finally, by using a survey, the researcher kept a distance from the observed, allowing the research to be conducted in the most value-free way possible.

### **3.2 Methods of data collection**

This study did not use a self-constructed survey, but instead made use of data collected through the 2018 WoonOnderzoek (WoON) Nederland survey. WoON is a national residential study conducted once every three years by the Ministry of Interior and Kingdom Relations of the Netherlands. The function of WoON is to yield insight into the latest developments on the housing market, and thereby to influence the formation of new housing policies (WoonOnderzoek, N.D.).

The present study used the latest edition, which was published in April 2019 and for which respondents were questioned once between August 2017 and April 2018 (Ministerie van BZK, 2018a). This means that the research is cross-sectional. The selected respondents were surveyed by Statistics Netherlands (CBS). They were eligible to participate if they lived in the Netherlands, they were 18 years or older on the 1<sup>st</sup> of January 2018, they were registered in the Dutch population registry, and they were a member of a household of one or more persons in the same living space who secured their own basic necessities of daily life. From that group, around 115,000 persons were randomly selected to participate in the survey (Ministerie van BZK, 2018a). However, it should be noted that respondents were also selected from their municipality in proportion to the number of inhabitants in that municipality. This is further explained at the end of this chapter.

Of the 115,000 persons who were selected, about 43,000 participated, which makes WoON a large-scale study (WoonOnderzoek, N.D.). In addition, about 24,000 respondents were collected through oversampling, yielding a total of 67,000

participants for WoON 2018 (Ministerie van BZK, 2018b). This oversampling option was giving to municipalities, housing corporations, and policy makers to increase the number of respondents in certain areas, to be able to formulate more reliable statements on lower levels of scale, such as at the municipality or neighbourhood level (Ministerie van BZK, 2017).

Statistics Netherlands conducted the survey in three different ways: computer-assisted web interviews (CAWI), computer-assisted telephone interviews (CATI), and computer-assisted personal interviews (CAPI). First, the majority of the respondents, 65%, filled in the survey the CAWI way: online using a self-completion questionnaire (Herbers, 2019). This manner enhances discretion, but problems that often occur are that respondents misunderstand a question or fill in a value that is not possible as a response (Bryman, 2012). However, most of these errors and inconsistencies were removed, since the Ministry controlled the data before making it public. This was done through predetermined quality requirements and controls; when the quality of the given answers did not meet those requirements, the respondent was deleted from the data file. Therefore, the data has a high level of trustworthiness (Ministerie van BZK, 2017; Ministerie van BZK, 2018b).

Second, 21% of the respondents used the CATI manner, which means that the survey was held as a structured interview by telephone. Finally, 14% of the respondents participated in the CAPI manner, which means that the survey was also conducted through a structured interview, but this time it was a computer-assisted personal interview (Herbers, 2019; Bryman, 2012). A disadvantage of structured interviews compared to self-completion questionnaires is that the presence of an interviewer could influence the way in which interviewees answer the survey, and could result in less discretion. However, the interviewers were well trained to minimise this problem. On the other hand, an advantage is that the risk of misunderstanding a question or filling in a false response is considered to be lower, since the interviewer had the possibility to assist; this advantage is more acute with the CATI manner than the CAPI manner (Bryman, 2012).

### **3.3 Variable construction**

#### **3.3.1 Intention to move**

The intention to move was measured in two ways: having an intention to move or not, and searching for a dwelling or not. These separate measurements were used to see whether the results of the analysis of intention to move would be comparable to those of the analysis of search behaviour. It is often assumed that intention to move and search behaviour measure the same thing. However, it could be that people do have an intention to move but do not undertake the action of searching. Thus, it was interesting to see whether differences could be detected between the group that had an intention to move and the group that searched for a dwelling.

Intention to move was measured as follows. Two groups were formed: one group that did not have an intention to move and another group that did. Together, those groups formed the dependent dummy variable of intention to move. People who

had moved in the past two years were excluded beforehand. This was done because it was expected that the majority of these people would not want to move again; this would make them part of the group that did not have an intention to move, but they would not have been representative of this group since they had recently had such an intention. This variable was used in both the crosstabs and the logistic regression analysis. In the regression analysis of intention to move, the group that did not have an intention to move was used as a reference category, to determine the chances of having an intention to move. Various independent variables were added in the analysis to observe their influence on the chances of having an intention to move, which will be discussed in a following section.

The dependent variable of search behaviour was measured in two separate regression analyses. The first analysis was based on people who had searched for a longer period of time, namely two years or longer, and the second analysis was based on those who had searched for six months or longer. This was done to check whether differences could be detected between people searching within different time frames.

For the same reasons mentioned above, people who had just moved were excluded from both analyses of search behaviour. Search behaviour was first measured for the year 2015/2016. To select people who had searched in the year 2015, the respondents who completed the WoON 2018 survey in 2017 were selected. In the following step, a selection within that group was made of the respondents who indicated searching for two years or longer, to ensure that they were searching in 2015. The same approach was used to select people who indicated searching in 2016. First, respondents who filled in the survey in 2018 were selected. Then, within that group, the people who were searching for two years or longer were selected to ensure that they were searching in 2016. In the final step, the respondents searching in 2015 and those searching in 2016 were put into one group. The remaining respondents were used as a reference category for not searching in 2015/2016. This was done to examine the chances of searching for a dwelling to move to in 2015/2016.

The second analysis measured search behaviour in 2017. To this end, respondents were selected who had the intention to move and who had already been searching for more than six months when they were questioned. Since the first surveys were conducted in August 2017 and the last surveys in April 2018, all respondents who had searched for more than six months were searching in 2017. The respondents searching in 2017 were compared to those who were not searching in that year, using the latter group as a reference category. Again, this was done to examine the chances of searching for a dwelling in 2017.

Table 1 provides an overview of the dependent variables discussed above. The same independent variables as for intention to move were used to study search behaviour in 2015/2016 and in 2017, to see the influence of those variables on the chances of someone searching for a dwelling.

Concept	Indicator
<b>Dependent variables</b>	
Intention to move	No intention to move – intention to move
Search behaviour 2015/2016	Not searching for a dwelling in 2015/2016 – searching for a dwelling in 2015/2016 (and before)
Search behaviour 2017	Not searching for a dwelling in 2017 – searching for a dwelling in 2017 (and before)

*Table 1: Variable construction scheme of the dependent variables for the analyses of intention to move and search behaviour.*

### 3.3.2 Moving behaviour

Two separate regression analyses were conducted to research moving behaviour, to see whether the results would be similar when using a different reference year and a different time frame. The first analysis included respondents who were searching since 2015 and had not moved, and people who were searching since 2015 and had moved after one or two years. The second analysis included people who were searching since 2016 and had not moved and people who were searching since 2016 and had moved after one year. This way of measuring allowed to track moving behaviour over time within the survey and helped to add a longitudinal aspect to the research. The choice was thus made to compare the group that had an intention to move in a certain year, but did not realise that intention, with the group that had an intention to move in the same year and did realise that intention since then. This served to determine whether there was a difference in the composition of the two groups, considering various characteristics. The main aim was to identify whether realising an intention to move was especially difficult for middle-income groups compared to other income groups, and whether it was especially difficult for middle-income groups living in Amsterdam, Utrecht, and The Hague to realise an intention to move relative to those groups living in the rest of the Netherlands.

To select people who were searching as of 2015, respondents who completed the WoON 2018 survey in 2017 were selected. Subsequently, respondents who had already been searching for two years or longer and had not fulfilled their intention to move were grouped together. This group was used as the reference category. Another group was formed out of the respondents who moved in 2016 and before had searched for one year or longer, and those who moved in 2017 and had searched for two years or longer. In this way, people who had been searching since 2015 could be compared, to examine whether there was a difference between those who successfully realised their intention to move and those who did not.

The same technique was used to select people who had been searching since 2016. First, the people who completed the WoON 2018 survey in 2018 were selected. Then, respondents who had been searching for two years or longer but had not realised their intention to move were made the reference category group. This group was compared to those respondents who moved in 2017 after searching for one year or longer. These selections made it possible to compare the respondents who were searching as of the year 2016, one group being successful in the ability to

move and the other group being unsuccessful in this sense. Since there were very few respondents who moved in 2018 who had searched for two years or longer, they were not included in the group of successful movers.

Table 2 provides an overview of the dependent variables used in the crosstabs and the different regression analyses to research moving behaviour.

Concept	Indicator
<b>Dependent variables</b>	
Moving behaviour (between 2015 and 2016/2017)	Was searching since 2015 (and before) and did not move – was searching since 2015 (and before) and did move in 2016/2017
Moving behaviour (between 2016 and 2017)	Was searching since 2016 (and before) and did not move – Was searching since 2016 (and before) and did move in 2017

*Table 2: Variable construction scheme of the dependent variables for the analyses of moving behaviour.*

### 3.3.3 Independent variables

The main focus group in this study was middle-income households. To specify the exact income of this group, the example of the Netherlands Environmental Assessment Agency (PBL) was followed, but the numbers were converted from 2014 to 2017. Middle-income groups were defined as having a taxable household income higher than €36,165,- per year, since people with an income lower than this could apply for social housing. The limit for having a middle-income was defined as having a taxable household income lower than €55,500,- per year, which is 1.5 times the median gross income in the Netherlands (Van Middelkoop & Schilder, 2017). The middle-income groups were compared with low- and high-income groups to examine whether there was a difference between those groups in terms of having an intention to move and the ability to fulfil that intention. Low-income groups were defined as having a taxable household income lower than €36,165,- per year, and high-income groups as having a taxable household income higher than €55,500,-.

Besides income, another important focus point of this study was housing market opportunities. As seen in the theoretical framework (see Section 2.3), there are fewer housing market opportunities in areas with generally high housing prices and with a tight housing market. This is mostly the case in larger cities, and it results in fewer people having the intention to move and the ability to realise this intention. Initially, following this reasoning, the choice was made to compare the four largest cities of the Netherlands, namely Amsterdam, Utrecht, The Hague, and Rotterdam, with the rest of the Netherlands. However, in Rotterdam the problems of tightness in the housing market are less acute. This can be seen in Figure 4: the orange colour for Rotterdam indicates that the housing market is tight; however, the red colour for Amsterdam, Utrecht, and The Hague reflects a very tight market. This could mean that housing market opportunities in Rotterdam are less scarce and that intentions to move are more likely to be formed and to translate into an actual move. Therefore, the choice was eventually made to add Rotterdam to the housing market opportunities group comprising the rest of the Netherlands. This group was



represented by all municipalities from which there were respondents in the WoON 2018 survey.

There were two reasons not to include other cities that also experience extensive problems of housing market tightness in the group with Amsterdam, Utrecht, and The Hague. First, the demand and hence affordability issues were expected to be the most acute in these three large cities. Second, some additional analyses of moving behaviour were conducted that included those other cities with very tight housing markets, but they did not yield results as interesting as those for Amsterdam, Utrecht, and The Hague. Thus, the choice was made to include those cities in the category of the rest of the Netherlands.

By distinguishing between housing market opportunities, it was interesting to see their influence on the desire to move and the ability to realise that desire, especially for middle-income groups.



*Figure 4: Tension in housing market regions in the Netherlands (Source: Primos, 2019).*

Other independent variables were added to the analyses to ensure that there were no other explanations for the distinction in intention to move and in moving behaviour. The control variables used in all the analyses were education level, employment, age, ethnicity, household composition, marital status, and form of ownership. These were chosen because previous studies have shown that they have a significant influence on forming an intention to move and on the ability to realise that intention. The measurements of all these variables can be seen in Table 3. Most

measurements are straightforward, but some need further explanation and are elaborated in the following.

First, education level was defined as the respondent's completed level of education. This was divided into the categories of low, middle, and high, based on the Standard Classification of Education (CBS, 2017). A low education level was determined as having finished an elementary education, VMBO, or MBO level 1. VMBO is a pre-vocational education, after which pupils can enter MBO, which is a secondary vocational education. The middle education level was defined as having completed HAVO, which is senior general secondary education and functions as a preparation for higher vocational education. Having finished VWO, which is a pre-university education, or having finished levels 2 to 4 of MBO also counted as having a middle education level. Finally, the high education level was defined as having completed HBO, which refers to studies offered by universities of applied sciences, or WO, which is offered by research universities (Luijkx & De Heus, 2008).

To analyse intention to move and search behaviour, some additional control variables were added: crowdedness, satisfaction with the dwelling, and satisfaction with the living environment. The reasoning for only adding those variables to these analyses and not to moving behaviour was that it would only been interesting to include them for moving behaviour if the answers from people who had just moved were about their previous housing situation. However, this was not the case and could mean that crowdedness, dissatisfaction with the dwelling, or living environment had been solved through the action of moving. This would make it difficult to compare people with an intention to move and people who had just moved regarding these variables.

To clarify, crowdedness was defined as follows: overcrowding indicated that household members had less than one room per person, normally crowding indicated that household members had one to two rooms per person, and uncrowding meant that they had more than two rooms per person.

For the analyses of moving behaviour, the additional control variable of induced reason to move was added. This variable could only be included in those analyses since it was based on a question that was just asked to respondents who had recently moved or wanted to move. It was not posed to respondents who did not have an intention to move, so it could not be used in the analyses of intention to move. Induced reason to move was based on respondents' most important reason for wanting to move or recently moving. In this sense, an induced reason to move was a more prompting reason for moving, defined as wanting to move or having just moved for studies, work, or a change in the household composition. In such cases, moving was seen as being of higher necessity, since not realising an intention to move for such reasons could lead to postponing a life-course change. A less prompting reason for wanting to move or recently moving was defined as wanting to change housing characteristics, such as wanting more living space. The variable induced reason to move was divided into the following categories: yes, which meant

moving for studies, work, or a change in household composition; and no, which indicated moving to change housing characteristics.

The form of ownership variable used in analysing moving behaviour differed from the one used for intention to move. This is because it would not make sense to compare the current form of ownership of people who just moved with that of people who want to move. Specifically, form of ownership is interesting to add in the analyses of moving behaviour to examine the influence of form of ownership on the ability to realise an intention to move. This means that the previous form of ownership of people who recently moved should be used, something that the present work has done. For people who wanted to move but had not realised this desire yet, their current form of ownership was used.

Concept	Indicator
<b>Main independent variables</b>	
Income	Low – middle – high
Housing market opportunities	The rest of the Netherlands – Amsterdam, Utrecht, The Hague
<b>Control variables</b>	
Education level	Low – middle – high
Employment	No household member employed – one or more household members employed
Age	Age in years
Ethnicity	Non-western immigrant – native Dutch - western immigrant
Household composition	One-person household – couple – couple with children – one-parent family – non-family household
Marital status	Married – divorced – widow(er) – never married
Form of ownership	Rental – owner-occupied
Crowdedness	Overcrowded – normally crowded – undercrowded
Satisfaction dwelling	Very satisfied – satisfied – not satisfied, not dissatisfied – dissatisfied – very dissatisfied
Satisfaction living environment	Very satisfied – satisfied – not satisfied, not dissatisfied – dissatisfied – very dissatisfied
Induced reason to move	Yes – no

*Table 3: Variable construction scheme of the independent variables.*

### 3.4 Validity, reliability, and data analysis approach

It is important to consider the validity of the research, which entails the measurement validity, internal validity, and external validity, and the reliability of the findings of the research. This allows the integrity of the conclusions to be checked. This section begins by discussing the validity and reliability of this research, and subsequently covers the data analysis approach.

### **3.4.1 Research validity**

#### ***3.4.1.1 Measurement validity***

It is important to check the measurement validity of the research, to determine whether a concept is measured in a way that in fact reflects that concept (Bryman, 2012). The variable construction section already explained how concepts were measured in this study, to support certain choices made. Most measurements in this study were straightforward, but a weakness should be noted concerning moving behaviour. As previously stated, moving behaviour was measured by the discrepancy between having an intention to move and actual moving behaviour. An insecurity in this regard is whether this truly measures moving behaviour, since people who did not realise an intention to move were compared to people who did realise that intention. This was done instead of following people to see whether they realised their intention after a few years. It was thus assumed that using two different groups, one being successful and another unsuccessful, would measure the same thing as following one group and observing their ability to move in a few years' time. This measurement of the concept moving behaviour was chosen because it is extremely difficult to gain access to WoON respondents to follow them over several years. This is because the Ministry of the Interior and Kingdom Relations only gives permission to do so for some studies that are considered to be of great importance. To deal with this weakness in the best way possible, moving behaviour was measured in two different reference years and within two different time frames, to check if those analyses gave similar results of that behaviour.

#### ***3.4.1.2 Internal validity***

It is also important to examine the internal validity of the research. Internal validity concerns whether claims can be made with respect to causal relations (Bryman, 2012). An example can be found in this study: if a causal relationship is detected between income and housing market opportunities, and moving behaviour, the question is then if income and housing market opportunities are at least in part responsible for the variation in moving behaviour (Bryman, 2012). To confirm internal validity in this study, efforts were made to add all variables that could influence moving behaviour or the intention to move. This served to check whether there were other explanations possible for the variation in moving behaviour.

#### ***3.4.1.3 External validity***

A third important aspect of validity for research is external validity. This concerns whether research results can be generalised beyond the specific research context (Bryman, 2012). Problems that often occur with the use of surveys as a research instrument are non-random sampling and non-response, both of which negatively affect external validity. Non-random sampling is when the selection of the sample is not random. This could result in human judgement affecting the selection process, which in turn could lead to some members of the population being more likely to be selected than others. On the other hand, non-response is when selected people refuse to participate in the research. If the group that participates differs from the group that does not participate, there is a possibility that those differences could influence the results of the study (Bryman, 2012).

The problem of non-random sampling does not apply to this research, since the Ministry of the Interior and Kingdom Relations selected respondents to complete the survey in a stratified random sampling manner (Ministerie van BZK, 2017). This means that respondents were arbitrarily chosen, but the number of people approached differed per municipality in proportion to its population (Bryman, 2012). This was done to make the research more representative of both the Netherlands as a whole and on the smaller scale of municipalities.

Since the data used for this research is secondary data, it is difficult to detect whether a problem of non-response may have endangered the external validity. Namely, the data only consists of information about those respondents who completed the survey; however, information about people who did not participate is needed, to ensure that a certain group was not underrepresented relative to the group of respondents. Such underrepresentation may have influenced the results of the study, and thus the ability to generalise those results. To be able to make generalisations, the background characteristics of the sample group were compared with those of the entire Dutch population. This was done to determine whether the sample group was representative of the Dutch population. Those comparisons can be seen at the beginning of the next chapter (see Section 4.1.1).

Another problem concerning external validity would be if the sample size was not large enough to be representative of the total research population. The minimum required sample size with a standard error of 0.05 is 384 for the whole Dutch population (Krejcie & Morgan, 1970). All analyses included enough respondents to meet this required sample size. Furthermore, it was necessary to determine whether there was a sufficient number of respondents with a middle-income living in Amsterdam, Utrecht, and The Hague in WoON 2018, since this was the main focus of the present research. This was indeed the case as can be seen in the Annex (see Table 22).

### **3.4.2 Reliability of findings**

To ensure a high-quality study, it is also important for the findings to be reliable. Findings are mainly considered to be reliable when they can be replicated by other researchers (Bryman, 2012). This is the case in the present study, since the WoON 2018 data is available for everyone to request. However, it should be noted that the procedures conducted by the original researcher should be written down in great detail for others to be able to repeat the same steps. This is something that the present author strove to do. Another important aspect is that measurements of concepts should be consistent so that other researchers can obtain the same results when replicating the research. If the results fluctuate, they are not reliable, since this means that the measurement of the concepts is not valid (Bryman, 2012). The variable construction section discussed how concepts were measured, to support the reliability of this research.

### 3.4.3 Data analysis

The data analysis approach used in this study was the application of statistical techniques to the data collected through the WoON 2018 survey (Aliaga & Gunderson, 2000); this approach fits the quantitative research design. The statistical techniques were used to analyse, interpret, and present the quantitative data. In this way, statistics helped turn the data into understandable information for the recipient (Brown & Saunders, 2007).

By statistically analysing the WoON 2018 data, it was possible to more precisely estimate the degree of causal relationships between income, housing market opportunities, and the intention and ability to move (Bryman, 2015). This is in line with the research questions, which focus on these causal relationships. Based on the analyses, those questions can be answered. This in turn leads to the conclusions of this research, which identify wider patterns in the intention to move and moving behaviour of middle-income groups. The conclusions determine whether these groups face more difficulties compared to other income groups, and whether those living in Amsterdam, Utrecht, and The Hague struggle more than those living in the rest of the Netherlands.

To interpret the data collected through the surveys, various statistic methods were applied in the program SPSS. First, frequency tables were used to create a general outline of characteristics of the respondent group, to see if this group was representative of the research population (see Section 4.1.1). Second, cross tables were utilised to examine whether there were correlations between income and housing market opportunities, and other variables. For every crosstab, a chi-square test was conducted to determine whether there was a difference between income groups or housing market opportunity categories in relation other variables (University of Twente, 2019). Furthermore, Cramer's V was used to check the strength of the relationship between two nominal variables or one nominal and one ordinal variable (Bryman, 2012). These two tests will be further elaborated in the next chapter.

Looking at more complex statistical techniques, various binary logistic regression analyses were performed to determine the extent to which the independent variables influenced and predicted the dependent variable. The choice for logistic instead of linear regression analyses was made because this study considered income from a non-linear perspective. Middle-income groups were posited to have the most difficulties in forming and realising an intention to move, instead of the linear idea that the more income someone has, the easier it is to form and realise an intention to move. Furthermore, binary logistic regression analyses were chosen because the dependent variables used in the different analyses were binary. This means that the variables consisted of two categories (Voeten & Van Der Bercken, 2010). For example, the dependent variable of intention to move was structured as follows: did not have an intention to move (0) and did have an intention to move (1).

Three binary logistic regression analyses were conducted to investigate the intention to move. These analyses examined the difference between having an intention to

move and not having one, and between searching for a dwelling and not searching for one in two different time periods, namely 2015/2016 and 2017. In these logistic regression analyses, the intention to move and search behaviour were the dependent variables. The analyses measured the effects of the independent variables of income, housing market opportunities, education level, employment, age, ethnicity, household composition, marital status, form of ownership, crowdedness, satisfaction with dwelling, and satisfaction with living environment, on the dependent variables. In a second model, the same analysis for intention to move was performed, but an interaction effect was added to measure the combining influence of income and housing market opportunities on the intention to move.

Prior to the logistic regression analyses of moving behaviour and intention to move, multicollinearity tests were executed to determine whether the independent variables were not mutually strongly correlated, since this would influence the results of the regression analyses. If multicollinearity was detected, the variable causing that multicollinearity was excluded from the analyses (see Section 4.3.1).

Two binary logistic regression analyses were conducted to examine moving behaviour. The first analysis was done to identify the difference between people who had been searching since 2015 and had not moved, and people who had been searching since 2015 and did move in 2016/2017. The second analysis examined the difference between people who had been searching since 2016 and had not moved, and those who had been searching since 2016 and did move in 2017. Those moving behaviour variables were used as the dependent variables of the analyses, to measure the influence of the independent variables on them: income, housing market opportunities, education level, employment, age, ethnicity, household composition, marital status, form of ownership, and induced reason to move. Finally, in a second model of those analyses, an interaction effect was added to assess whether the two independent variables income and housing market opportunities together influenced the ability to realise an intended move.

The quality of all the logistic regression models was checked using the Nagelkerke R square test and the Wald chi-square test, which are explained later in this thesis. Moreover, for all statistic methods used, the results were checked against the requirement of meeting a significance level of  $p < 0.05$ . This was done to ensure that the results of the research were not coincidental (Bryman, 2015).

## 4. Results

### 4.1 Bivariate analyses

This section presents different bivariate analyses. First, some frequencies are shown to determine whether the respondent group in this study is representative of the research population. After that, crosstabs are used to detect any differences between income groups and housing market opportunities. These differences are shown through the division of frequencies of housing market opportunities or income in relation with another variable. Moreover, for every crosstab, a chi-square test is conducted. The chi-square value is calculated as the sum of the difference between the expected count, which would occur on the basis of chance alone, and the actual count of each cell in the table (Bryman, 2012). Therefore, every crosstab shows the expected count and the actual count. If there is a large difference between the two, this means that there is a difference between the income groups or the housing market opportunity categories in relation to the other variable in the crosstab. This would then reflect onto the chi-square test being significant ( $p < 0.05$ ); if the chi-square test is not significant there is no difference between those groups or categories in relation to the other variable (University of Twente, 2019).

A second test performed for every crosstab is the Cramer's V test, to determine the strength of a relationship between two nominal variables or one nominal and one ordinal variable. The value of Cramer's V can lie between 0 and 1, with 0 meaning that there is no relationship at all and 1 indicating a very strong relationship (Bryman, 2012). Again, for this test, the results are checked against the requirement of meeting a significance level of  $p < 0.05$ .

#### 4.1.1 Representativeness of respondent group

To determine whether the respondent group is representative of the Dutch population, this section compares some important characteristics of the respondents group with data of Statistics Netherlands about the Dutch population as a whole. This is done to ensure that the results of this research can be generalised.

Considering characteristics which are highly important for this research, it can first be seen that the low-income group is somewhat underrepresented in this study (see Table 4). However, since the difference between the percentage of low-income groups represented in the respondents group and the percentage of low-income groups in the Netherlands is smaller than 5%, this underrepresentation is not of great concern. Moreover, the main focus of this study is middle-income groups; hence, it can still be argued that the respondent group is representative of the research population. Second, regarding the place of residence (see Table 5), there are no striking differences in the division by place of residence between WoON 2018 respondents and the Dutch population.



	Percentage WoON	Percentage CBS
Low income (till €30,000)	22.4	27.2
Middle income (€30,000 - €50,000)	23.9	21.5
High income (> €50,000)	53.8	51.3
Total	100.0	100.0

*Table 4: Distribution of households' gross income for WoON 2018 respondents compared to the Dutch population (Source: CBS, 2018b).*

	Percentage WoON	Percentage CBS
Amsterdam, Utrecht, and The Hague	8.5	10.1
The rest of the Netherlands	91.5	89.9
Total	100.0	100.0

*Table 5: Distribution of place of residence of WoON 2018 respondents compared to the Dutch population (Source: CBS, 2019c).*

Some other general characteristics are also examined to check the representativeness of the respondent group. First, in terms of age, the respondent group is representative of the research population (see Table 6). Namely, looking at different age categories, the two groups do not differ by more than 2.6%.

	Percentage WoON	Percentage CBS
15-24 years	12.6	14.7
25-34 years	14.0	15.0
35-44 years	12.8	14.3
45-54 years	16.8	17.7
55-64 years	17.3	15.9
65-74 years	15.5	12.9
75 years and older	10.9	9.5
Total	100.0	100.0

*Table 6: Age distribution of WoON 2018 respondents compared to the Dutch population (Source: CBS, 2018c).*

The second general characteristic is gender (see Figure 5). The pie chart below shows that 47.3% of the WoON 2018 respondents were male and 52.7% were female. In comparison, 49.4% of the Dutch population is male and 50.6% female (CBS, 2018c). Again, this difference does not lead to concerns about the representativeness of the respondent group.

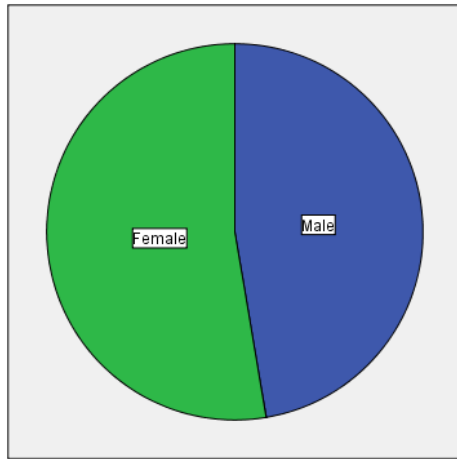


Figure 5: Gender distribution of WoON 2018 respondents.

The third general characteristic is form of ownership (see Table 7). It can be stated that people living in social housing are somewhat underrepresented in WoON 2018. However, the main focus of the present study is the moving behaviour of middle-income groups. Since they have a low probability of living in social housing, it can still be argued that the respondent group is representative of the research population.

	Percentage WoON	Percentage CBS
Owner-occupied	55.7	56.2
Social rental	21.7	29.6
Private rental	9.4	13.1
Unknown (respondent is not a member of a household core)	13.2	1.1
Total	100.0	100.0

Table 7: Distribution of WoON 2018 respondents' form of ownership regarding their current dwelling compared to the Dutch population (Source: CBS, 2018d).

#### 4.1.2 Crosstabs

Table 8 shows the causal relationship between intention to move and income. The percentage of respondents that wanted to move is compared with the percentage of those who did not want to move per income group. This makes it possible to see if those in middle-income groups wanted to move less than those in other income groups. If so, it could be because middle-income groups had already adapted their aspirations of moving to what seemed possible to them (De Groot et al., 2013; McLaverty & Yip, 1993). Table 8 shows that the highest percentage of people who did not want to move can be found in the middle-income group (87.5%), followed by the low-income and high-income groups (86.9% and 84.4%). However, these differences are not striking: the Cramer's V is 0.039, which is close to 0, meaning that there is no strong relationship between income and intention to move. Furthermore, this also shows through the differences between the actual counts and the expected counts not being striking either, indicating that there are no large differences in intentions to move between the income groups. Nevertheless, the chi-square test is

significant ( $p < 0.01$ ), thus this still shows that there is a difference. This could mean that middle- and low-income groups adapt their preference to move to some extent, since they do not expect to move.

<b>Table 8: Correlation between Intention to move &amp; Income</b>						
			Income			Total
			Low income	Middle income	High income	
Intention to move	No intention to move	Count	17,322	10,945	18,898	47,165
		Expected Count	17,145	10,759	19,261	47,165
		Percentage	86.9%	87.5%	84.4%	86.0%
	Intention to move	Count	2,612	1,564	3,496	7,672
		Expected Count	2,789	1,750	3,133	7,672
		Percentage	13.1%	12.5%	15.6%	14.0%

$\chi^2$  test = 84.993 ( $p = 0.000$ ), Cramer's V = 0.039 ( $p = 0.000$ )

Tables 9 and 10 concern the relationship between moving behaviour and income in specific periods. Table 9 shows the moving behaviour of respondents between 2015 and 2016/2017 in relation to income, and Table 10 shows the same relation for the period from 2016 to 2017. Interestingly, in both periods a higher percentage of people in the low-income group realised an intention to move (44.7% between 2015 and 2016/2017, and 52.2% between 2016 and 2017) compared to middle- and high-income groups. For the high-income group, it is noticeable that in both periods, only a very small percentage realised their intention to move (4.1% between 2015 and 2016/2017, and 7.4% between 2016 and 2017), while for the middle-income group this figure was nearly 23% for both periods. In addition, besides realising more intended moves, low-income households more often realised an unintended move compared to the other income groups (see Annex Table 23). The striking differences between the income groups are expressed by the Cramer's V of 0.381 in Table 9 and the Cramer's V of 0.423 in Table 10. Furthermore, the difference between the income groups can also be seen by some large discrepancies between the actual count and the expected count in both tables, and the chi-square tests fulfilling the significance requirement ( $p < 0.01$ ). In sum, these results are unexpected, since previous studies<sup>2</sup> reviewed in the theoretical framework suggested that it would be less difficult for high-income groups to realise an intention to move than it would be for lower-income groups.

<sup>2</sup> Boschman & De Groot, 2011; Boheim & Taylor, 2002; Clark & Dieleman, 1996; Duncan & Newman, 1976; Coulter, 2013; Helderman et al., 2004.

Table 9: Correlation between Moving behaviour (between 2015 and 2016/2017) & Income						
			Income			Total
			Low income	Middle income	High income	
Moving behaviour	Has been searching since 2015 (and before) and did not move	Count	540	256	445	1,241
		Expected Count	684	232	32	1,241
		Percentage	55.3%	77.3%	95.9%	70.0%
	Has been searching since 2015 (and before) and did move in 2016/2017	Count	437	75	19	531
		Expected Count	293	99	139	531
		Percentage	44.7%	22.7%	4.1%	30.0%

$\chi^2$  test = 257.864 ( $p = 0.000$ ), Cramer's  $V = 0.381$  ( $p = 0.000$ )

Table 10: Correlation between Moving behaviour (between 2016 and 2017) & Income						
			Income			Total
			Low income	Middle income	High income	
Moving behaviour	Has been searching since 2016 (and before) and did not move	Count	300	152	302	754
		Expected Count	411	129	214	754
		Percentage	47.8%	77.2%	92.6%	65.5%
	Has been searching since 2016 (and before) and did move in 2017	Count	328	45	24	397
		Expected Count	217	68	112	397
		Percentage	52.2%	22.8%	7.4%	34.5%

$\chi^2$  test = 205.470 ( $p = 0.000$ ), Cramer's  $V = 0.423$  ( $p = 0.000$ )

Table 11 indicates whether there is a difference between areas with different housing market opportunities in terms of having the intention to move. As explained in the variable construction section, these areas are divided into Amsterdam, Utrecht, and The Hague, where opportunities are low, and the rest of the Netherlands, where opportunities are generally higher. If people in Amsterdam, Utrecht, and The Hague want to move significantly less, this could be because of the housing market being tight, leading people to form fewer aspirations to move since realising those aspirations is more difficult (Coulter, 2013). However, as shown in Table 11, slightly more respondents living in the three large cities had the intention to move (20.4% compared to 13.5% in the rest of the Netherlands). The small difference in intentions to move between these cities and the rest of the Netherlands is expressed in the Cramer's  $V$  being close to 0, namely 0.053. Nevertheless, there still is a difference in intention to move, which is confirmed by the chi-square test fulfilling the significance requirement ( $p < 0.01$ ).

Table 11: Correlation between Intention to move & Housing market opportunities					
			Housing market opportunities		Total
			The rest of the Netherlands	Amsterdam, Utrecht, and The Hague	
Intention to move	No intention to move	Count	43,937	3,228	47,165
		Expected Count	43,676	3,489	47,165
		Percentage	86.5%	79.6%	86.0%
	Intention to move	Count	6,843	829	7,672
		Expected Count	7,104	568	7,672
		Percentage	13.5%	20.4%	14.0%

$\chi^2$  test = 151.153 ( $p = 0.000$ ), Cramer's  $V = 0.053$  ( $p = 0.000$ )

Table 12 shows the causal relationship between moving behaviour from 2015 to 2016/2017 and housing market opportunities, and Table 13 shows the same causal relationship for the period from 2016 to 2017. However, neither tables fulfil the significance requirement of  $p < 0.05$ , considering the chi-square test and the Cramer's  $V$ . This indicates that there was no significant difference in moving behaviour between regions with different housing market opportunities in those specific periods. In addition, this is confirmed by the fact that no great discrepancy is shown between the actual count and the expected count in both tables.

**Table 12: Correlation between Moving behaviour (between 2015 and 2016/2017) & Housing market opportunities**

			Housing market opportunities		Total
			The rest of the Netherlands	Amsterdam, Utrecht, and The Hague	
Moving behaviour	Has been searching since 2015 (and before) and did not move	Count	1,075	166	1,241
		Expected Count	1,086	156	1,241
		Percentage	69.4%	74.8%	70.0%
	Has been searching since 2015 (and before) and did move in 2016/2017	Count	475	56	531
		Expected Count	465	67	531
		Percentage	30.6%	25.2%	30.0%

$\chi^2$  test = 2.718 ( $p = 0.099$ ), Cramer's  $V = 0.039$  ( $p = 0.099$ )

**Table 13: Correlation between Moving behaviour (between 2016 and 2017) & housing market opportunities**

			Housing market opportunities		Total
			The rest of the Netherlands	Amsterdam, Utrecht, and The Hague	
Moving behaviour	Has been searching since 2016 (and before) and did not move	Count	648	106	754
		Expected Count	654	100	754
		Percentage	64.9%	69.3%	65.5%
	Has been searching since 2016 (and before) and did move in 2017	Count	350	47	397
		Expected Count	344	53	397
		Percentage	35.1%	30.7%	34.5%

$\chi^2$  test = 1.112 ( $p = 0.292$ ), Cramer's  $V = 0.031$  ( $p = 0.292$ )

Based on the results in the different crosstabs, a few things can be noted. Regarding the causal relationship between income and intention to move, it can be seen that those in the middle-income group less often wanted to move compared to those in the low- and high-income groups. The difference is not large, but it could still indicate that a percentage of respondents in the middle-income group adapted their preference for moving because they did not think it was likely that they would be able to do so. Second, a surprising result is that people with a low income more

often realised an intention to move than people with a middle or high income in both periods – from 2015 to 2016/2017, and from 2016 to 2017. This is in contrast to the expectation that people with a higher income face fewer difficulties realising an intention to move. Third, contrary to the expectations, people living in Amsterdam, Utrecht, and The Hague more often had a desire to move than people living in the rest of the Netherlands. It was expected that the prospect of having less ability to realise an intention to move, would be reflected in fewer people having a desire to move in these cities. However, a significant difference in realising an intention to move between the two housing market opportunity categories could not be found either.

## **4.2 Descriptive statistics**

This section first explores the descriptive statistics of the independent variables used in the logistic regression analysis of intention to move, divided into the two categories of that dependent variable. Then, the descriptive statistics of the same independent variables are examined for the two categories of search behaviour in 2017. Furthermore, the descriptive statistics of search behaviour in 2017 are compared with those of intention to move, to see whether striking differences can be found. For categorical variables, the total number of individuals in the sample ( $N$ ) and percentage of the total are given, and for the continuous variable, the mean and standard deviation (SD) are provided.

### **4.2.1 Intention to move**

Table 14 presents the descriptive statistics of the independent variables (see far left column) used to investigate the dependent binary variable of intention to move in the multivariate analyses (see two right columns). The second column on the left shows the results of the total sample.

First, it can be seen that of those respondents who had an intention to move, most had a high income (45.6%), followed by a low and a middle income (34% and 20.4%). Among those without an intention to move, again the majority had a high income (40.1%), followed by a low and a middle income (36.7% and 23.2%). However, in the latter group, the percentage of low- and middle-income respondents was proportionally higher, and the percentage of high-income respondents was proportionally lower compared to in the group with the intention to move. This is line with previous findings that high-income groups more often have the intention to move (De Groot et al., 2011; Coulter, 2013; Boschman & De Groot, 2011).

In line with the crosstabs, is the fact the percentage of people living in Amsterdam, Utrecht, and The Hague was comparatively higher among those with the intention to move (10.8%) than among those with no intention to move (6.8%). The opposite was true for the rest of the Netherlands: that group consisted of 89.2% of intention to move and 93.2% of no intention to move.

The different education levels were quite equally distributed among respondents who had no intention to move: 35.2% had a low education, 33.1% had a middle

education, and 28.5% had a high education. However, among those with an intention to move, a higher percentage had a middle or high education (41.6% and 33%, compared to 22.9% with a low education). This is in line with previous findings (De Groot et al., 2008, 2011; Coulter et al., 2011) and could possibly be explained by the fact that less educated people expect to have less ability to realise their intention to move, and thus less often form such intention.

Regarding employment, the group with one or more employed household member(s) represented a larger percentage of those with an intention to move than those with no intention to move (73% compared to 60.3%). Accordingly, those with no employed household members employed made up a greater percentage of the group with no intention to move (39.7%) relative to the group with this intention (27%). This is line with Coulter's (2013) finding that unemployed people are more likely to abandon a desire to move and thus less often having that desire, due to their lack of resources to realise that desire.

Regarding ethnicity, a larger percentage of the non-western immigrants was represented in the group with an intention to move compared to the group with no intention to move (11.3% compared to 5.9%). The opposite was true for native Dutch people, who represented a larger share of the group with no intention to move (85.6%) than the group with the intention to move (79.7%). The percentage of western immigrants in both groups was around 9%. The finding that non-western ethnic minorities represented a larger share of the group with an intention to move is in line with the work of Coulter et al. (2011), Clark and Coulter (2015), and Mayetka (2015).

When exploring the descriptive statistics of household composition, a few interesting things can be noted. First, in the group with no intention to move, a high percentage of the respondents were in one-person households and couples (28.2% and 31.7%), whereas these categories represented 22.9% and 17.3% of the group with the intention to move. Second, the percentage of couples with children and one-parent families was higher in the group with the intention to move (44.4% and 12.7%) than in the group with no intention to move (32.4% and 6.4%). This is interesting since it was expected that families would less often have an intention to move because of the possible negative consequences of moving for children (Coley & Kull, 2016; Mulder, 1993). However, De Groot et al. (2011) did find similar results: in their study, one-parent families more often had a desire to move, while couples less often had that desire.

The descriptive statistics regarding marital status show that among married people, a higher percentage was representing not having intention to move (49.1% of this group) compared to those who did (comprising 26.6% of this group). A similar result was found for widow(er)s: more of them were represented among the group with no intention to move (11.6%) than among the intention to move (4.2%). The opposite was found for people who were never married: they represented 59.3% of the people with the intention to move, and 28% of the people with no intention to move. Examining divorced people, they slightly consisted of a higher percentage of



no intention to move (representing 11.3% of this group) than intention to move (10%). Based on previous studies, these results were expected. Feijten and Mulder (2002) found that singles and cohabitants more often have an intention to move than married people. Furthermore, the research Mayteka (2015) reported that married and widowed people less often have a desire to move than people who were divorced, separated, or never married.

In terms of form of ownership, people living in a rental dwelling were more represented in the group with the intention to move (33.2%) than in the group with no intention to move (26.7%). This result could possibly be explained by the fact that renters more often want to move because they would like to make the transition to home ownership (Mulder & Hooimeijer, 1999; De Groot, 2011). In contrast, people living in an owner-occupied dwelling were more highly represented in the group with no intention to move (62.6%) than in the group with the intention to move (32.2%). This is line with the expectation that owner-occupiers would less often have a desire to move, since owner-occupied dwellings are usually of higher quality and are seen as more long-stay housing (Helderman et al., 2004; Feijten & Mulder, 2002).

As expected, there was a higher percentage of people living in normally crowded or undercrowded dwellings among the group that had no intention to move (45.4% and 43.1%) compared to the group with the intention to move (37.5% and 25.2%). It was posited that people living in overcrowded dwellings would mostly have a desire to move, since such dwellings are considered to be suboptimal (Clark & Onaka, 1983; Rossi, 1955; Clark et al., 2000; De Groot et al., 2011). This expectation was also reflected in the descriptive statistics: there were relatively more people living in overcrowded dwellings in the group with the intention to move (3.2%) than in the other group (1.3%).

As can be seen in Table 14, respondents who were satisfied or very satisfied with their dwelling or living environment represented a larger percentage of the group that had no intention to move, while those who were not satisfied not dissatisfied, dissatisfied, or very dissatisfied were more represented in the group that had an intention to move. This is line with the expectations, since moving can help to resolve those dissatisfactions (Rossi, 1980; Landale & Guest, 1985; Kearns & Parkes, 2003; Coulter et al., 2011; Speare 1970, 1974).

In terms of age, people who had the intention to move were on average younger (39.5 years) than those with no intention to move (54.8 years). This was expected, since older people mostly already live in favourable locations and dwelling, while younger people are still working on their housing career (Niedomysl, 2011, Coulter, 2013).

**Table 14: Descriptive statistics of variables in the analyses of the intention to move.**

<i>Categorical variables</i>	<b>Total</b>		<b>No intention to move</b>		<b>Intention to move</b>	
	<i>N</i> (100%)	%	<i>N</i> (100%)	%	<i>N</i> (100%)	%
<i>N</i>	54,837		47,165		7,672	
Income						
Low income	19,934	35.4	17,322	36.7	2,612	34.0
Middle income	12,509	21.8	10,945	23.2	1,564	20.4
High income	22,394	42.9	18,898	40.1	3,496	45.6
Housing market opportunities						
The rest of the Netherlands	50,780	91.2	43,937	93.2	6,843	89.2
Amsterdam, Utrecht and The Hague	4,057	8.8	3,228	6.8	829	10.8
Education level						
Low education	18,378	29.1	16,621	35.2	1,757	22.9
Middle education	18,791	37.4	15,601	33.1	3,190	41.6
High education	15,977	30.8	13,442	28.5	2,535	33.0
Employment						
No household member employed	20,794	33.4	18,725	39.7	2,069	27.0
One or more household members employed	34,043	66.7	28,440	60.3	5,603	73.0
Ethnicity						
Non-western immigrant	3,643	8.6	2,774	5.9	869	11.3
Native Dutch	46,486	82.7	40,375	85.6	6,111	79.7
Western immigrant	4,708	8.8	4,016	8.5	692	9.0
Household composition						
One-person household	15,070	25.6	13,314	28.2	1,756	22.9

Couple	16,297	24.5	14,970	31.7	1,327	17.3
Couple with children	18,683	38.4	15,280	32.4	3,403	44.4
One-parent family	3,990	9.6	3,017	6.4	973	12.7
Non-family household	797	2.0	584	1.2	213	2.8
Marital status						
Married	25,210	37.9	23,173	49.1	2,037	26.6
Divorced	6,096	10.7	5,332	11.3	764	10.0
Widow(er)	5,781	7.9	5,461	11.6	320	4.2
Never married	17,750	43.7	13,199	28.0	4,551	59.3
Form of ownership						
Rental	15,052	30.0	12,507	26.7	2,545	33.2
Owner-occupied	31,982	47.4	29,515	62.6	2,467	32.2
Crowdedness						
Overcrowded	843	2.3	597	1.3	246	3.2
Normally crowded	24,277	41.5	21,402	45.4	2,875	37.5
Undercrowded	22,246	34.2	20,312	43.1	1,934	25.2
Satisfaction dwelling						
Very satisfied	19,010	24.3	18,253	38.7	757	9.9
Satisfied	22,038	34.9	19,929	42.3	2,109	27.5
Not satisfied, not dissatisfied	4,666	12.0	3,376	7.2	1,290	16.8
Dissatisfied	1,217	4.7	596	1.3	621	8.1
Very dissatisfied	435	2.0	157	0.3	278	3.6
Satisfaction living environment						
Very satisfied	18,043	28.3	16,366	34.7	1,677	21.9
Satisfied	28,567	49.8	24,989	53.0	3,578	46.6
Not satisfied, not dissatisfied	5,731	13.6	4,360	9.2	1,371	17.9
Dissatisfied	1,890	6.0	1,171	2.5	719	9.4
Very dissatisfied	606	2.5	279	0.6	327	4.3

<i>Continuous variables</i>			Mean	SD	Mean	SD
Age	47.2	18.1	54.8	18.2	39.5	17.9

#### 4.2.2 Search behaviour

Table 15 shows the descriptive statistics of search behaviour. It is important to determine whether these statistics are more or less in line with those concerning intention to move, since it is often assumed that people who have the intention to move also search for a dwelling. However, this is not necessarily true, and it could be that the group with the intention to move differs from the group who searches. For this reason, only the most notable differences compared to Table 14 are discussed here.

Firstly, it is noticeable that the percentage of couples searching for a dwelling was respectively higher than the percentage of couples with the intention to move (23% compared to 17.3%). On the other hand, the percentage of couples with children searching for a dwelling was lower than the percentage of those who had an intention to move (38.9% compared to 44.4%). As mentioned before, couples with children have to consider the preferences and daily activities of both their children and partner (Helderman et al., 2004). Therefore, it becomes more difficult to find a dwelling that satisfies all those preferences. It could be that because searching for the right dwelling becomes challenging, it is postponed by couples with children. In this sense, couples without children have an easier searching process, since they only have to consider their partner's daily activities and preferences (Helderman et al., 2004).

Secondly, of the people searching for a dwelling, a higher percentage were married (38%) and a lower percentage had never been married (44.8%) relative to the group with intention to move (26.6% and 59.3%). A possible explanation is that of the people who had never been married, a higher percentage were single. Singles are not able to pool incomes as people who are married, which results in a difficult searching process, since fewer dwellings are within financial reach (Mulder, 1993; Mulder & Hooimeijer, 1999). This could result in people who never have been married less often undertaking the action of searching when having the intention to move compared to married individuals.

Thirdly, the percentage of owner-occupiers was proportionally higher in the group searching for a dwelling (45.6%) than in the group with the intention to move (32.2%). This could be because owner-occupiers less often have an intention to move, so if they do have such intention to move, they may have a more profound reason for wanting to move (Helderman et al., 2004; Feijten & Mulder, 2002). In turn, this could result in homeowners more often undertaking the action of searching in comparison to renters.

Fourthly, some differences can be found regarding crowdedness between Table 14 and Table 15. Individuals living in a normally crowded dwelling accounted for 44.9% of the group searching for a dwelling and 37.5% of the group having an intention to move. A similar difference was found when examining the people living in an undercrowded dwelling: this group consisted of 32% of people who were searching, compared to 25.2% of people having an intention to move. These differences are surprising, since one would expect that of the people searching, the percentage of people living in overcrowded dwellings would become higher in comparison to those living in normally or undercrowded dwelling. This is because moving from an overcrowded dwelling is seen as a move of higher necessity than moving from the latter, which was expected to result in those more often searching (De Groot et al., 2011). Yet, people living in an overcrowded dwelling barely represented a higher percentage in the group searching for a dwelling than the group with the intention to move (3.5% compared to 3.2%).

Fifthly, a higher percentage of people who were very satisfied or satisfied with their dwelling were represented in the searching group (14% and 35.3%) than in the group with the intention to move (9.9% and 27.5%). This is surprising, since it would be predicted that especially people who were dissatisfied or very dissatisfied with their dwelling would be more represented in the group of people searching: moving can help to resolve dissatisfaction, and these people would be expected to be in more of a rush to find a dwelling for that reason (Speare 1970, 1974). However, those representations barely differed in the searching group compared to the group with the intention to move (8.3% compared to 8.1% for people who were dissatisfied, and 4.4% compared to 3.6% for people who were very dissatisfied).

Finally, people searching were on average older (45.5 years) than people with an intention to move (39.5 years). However, the reverse was expected. Niedomysl (2011) has argued that young people more often have an urgent desire to move, due to experiencing or wanting to make changes in their household composition, education, or career. Due to that urgency, it was expected that younger would more often search and that the average age of people searching would thus be lower than the average of people wanting to move.

**Table 15: Descriptive statistics of variables in the analyses of search behaviour 2017.**

<i>Categorical variables</i>	<b>Total</b>		<b>Not searching for a dwelling</b>		<b>Searching for a dwelling in 2017</b>	
	<i>N</i> (100%)	%	<i>N</i> (100%)	%	<i>N</i> (100%)	%
<i>N</i>	54,837		50,549		4,288	
Income						
Low income	19,934	35.5	18,455	36.5	1,479	34.5

Middle income	12,509	21.8	11,626	23.0	883	20.6
High income	22,394	42.7	20,468	40.5	1,926	44.9
Housing market opportunities						
The rest of the Netherlands	50,780	91.0	46,960	92.9	3,820	89.1
Amsterdam, Utrecht and The Hague	4,057	9.0	3,589	7.1	468	10.9
Education level						
Low education	18,378	29.1	17,359	34.3	1,019	23.8
Middle education	18,791	36.2	17,145	33.9	1,646	38.4
High education	15,977	31.9	14,466	28.6	1,511	35.2
Employment						
No household member employed	20,794	34.0	19,538	38.7	1,256	29.3
One or more household members employed	34,043	66.0	31,011	61.3	3,032	70.7
Ethnicity						
Non-western immigrant	3,643	8.6	3,176	6.3	467	10.9
Native Dutch	46,486	82.3	43,087	85.2	3,399	79.3
Western immigrant	4,708	9.2	4,286	8.5	422	9.8
Household composition						
One-person household	15,070	26.1	14,019	27.7	1,051	24.5
Couple	16,297	26.7	15,309	30.3	988	23.0
Couple with children	18,683	36.3	17,016	33.7	1,667	38.9
One-parent family	3,990	9.2	3,496	6.9	494	11.5
Non-family household	797	1.8	709	1.4	88	2.1
Marital status						
Married	25,210	42.3	23,580	46.6	1,630	38.0
Divorced	6,096	11.9	5,552	11.0	544	12.7
Widow(er)	5,781	7.8	5,588	11.1	193	4.5

Never married	17,750	38.1	15,829	31.3	1,921	44.8
Form of ownership						
Rental	15,152	30.8	13,667	27.0	1,485	34.6
Owner-occupied	31,982	52.5	30,027	59.4	1,955	45.6
Crowdedness						
Overcrowded	843	2.5	692	1.4	151	3.5
Normally crowded	24,277	44.6	22,350	44.2	1,927	44.9
Undercrowded	22,246	36.7	20,873	41.3	1,373	32.0
Satisfaction dwelling						
Very satisfied	19,010	25.2	18,410	36.4	600	14.0
Satisfied	22,038	38.0	20,525	40.6	1,513	35.3
Not satisfied, not dissatisfied	4,666	13.1	3,874	7.7	792	18.5
Dissatisfied	1,217	5.0	861	1.7	356	8.3
Very dissatisfied	435	2.5	245	0.5	190	4.4
Satisfaction living environment						
Very satisfied	18,043	27.4	17,153	33.9	890	20.8
Satisfied	28,567	50.0	26,535	52.5	2,032	47.4
Not satisfied, not dissatisfied	5,731	13.7	4,987	9.9	744	17.4
Dissatisfied	1,890	6.4	1,467	2.9	423	9.9
Very dissatisfied	606	2.7	407	0.8	199	4.6
<i>Continuous variables</i>			Mean	SD	Mean	SD
Age	49.4	18.1	53.2	19.0	45.5	17.2

## 4.3 Multivariate analyses

### 4.3.1 Multicollinearity tests

Table 16 presents the results of the multicollinearity test for the dependent variable of moving behaviour between 2015 and 2016/2017. This test was conducted before the logistic regression analysis. All independent variables that were expected to have a relationship with moving behaviour were added; these variables were the same as the ones used in the logistic regression analysis. Regarding the variance inflation factor (VIF), the value should not exceed 2.5, since indicates a problem of multicollinearity in the model (Allison, 1999). However, as can be seen in Table 16, the result for number of household members did exceed that limit with a value of 2.749. When excluding this variable (see Table 17), the problem of multicollinearity was solved. The same issue of multicollinearity with number of household members was detected in multicollinearity tests conducted for other logistic models (see Annex). Therefore, this variable was excluded from all logistic regression analyses carried out and from other parts of this thesis.

	VIF
Income	1.864
Housing market opportunities	1.052
Education level	1.180
Employment	1.387
Age	1.874
Number of household members	2.749
Ethnicity	1.096
Household composition	2.041
Marital status	1.731
Form of ownership	1.576
Induced reason to move	1.264

*Table 16: Multicollinearity test for the logistic regression analysis of moving behaviour (between 2015 and 2016/2017).*

	VIF
Income	1.801
Housing market opportunities	1.050
Education level	1.177
Employment	1.386
Age	1.744
Ethnicity	1.095
Household composition	1.186
Marital status	1.475
Form of ownership	1.563
Induced reason to move	1.250

*Table 17: Multicollinearity test for the logistic regression analysis of moving behaviour (between 2015 and 2016/2017), excluding number of household members.*



#### 4.3.2 Intention to move and search behaviour

This section examines whether a difference can be detected in the chances of having an intention to move and not having an intention to move. The main goal is to determine whether middle-income groups have a lower chance of forming an intention to move than other income groups. Furthermore, this is compared to differences between the chances of searching and not searching for a dwelling both in 2015/2016 and in 2017. Thus, these three different ways of measuring intention to move are compared to determine whether they yield the same direction of results. Finally, an interaction effect is added in the second model to observe whether income and housing market opportunities together influence the chances of forming an intention to move. The aim of adding this interaction effect is to see whether middle-income-groups living in Amsterdam, Utrecht, and The Hague have a lower chance of having an intention to move than those who live in the rest of the Netherlands.

The second left column in Table 18 presents the results of the logistic analysis of intention to move. The people who did not have an intention to move were used as the reference category and compared with people who did have this intention. The Nagelkerke R square was used to indicate the overall explanatory power of the model. The higher the R square is, the higher that explanatory power is; thus, the R square value of 0.258 is considered to be modest. However, a low explanatory power is not unusual in this type of study. Apparently, it is quite difficult to predict intentions to move and moving behaviour on an individual level using the available independent variables (De Groot, 2011; Duncan & Newman, 1976). The Wald chi-square test shows the difference between the plausibility ratio of the predicted model and the plausibility ratio of the model with just the intercept included. This difference is calculated by the difference between the -2Loglikelihood of both models; this value is 6168.323 and is significant. This means that the predicted model is a significantly better fit than the null model in explaining the difference between the chances of people having and not having an intention to move (UCLA, 2019).

The results of the logistic regression analysis of intention to move are compared to the results of the analyses of search behaviour in 2015/2016 and search behaviour in 2017. This is done because it is often assumed that having an intention means that people are searching as well. However, it could be that people have this intention but do not undertake the action of searching. Considering the R square of search behaviour in 2015/2016 (0.136) and search behaviour in 2017 (0.144), it can be seen that they give a lower overall explanatory power than the model of intention to move.

The results of the three models are interpreted through the odds ratios shown in Table 18. When the odds ratios are lower than 1, it can be stated that the chances of having an intention to move or the chances of searching are lower than the reference category. In contrast, when the odds ratios are higher than 1, those chances are higher than the reference category. The closer the odds are to 0 or the higher the odds are above 1, the larger the difference compared to the reference

category. Those same effects of odds ratios are elaborated on in other logistic regression analyses.

As can be seen in Table 18, the results of the low-income groups are not significant in any of the three models, since they do not fulfil the requirement of the significance level of  $p < 0.05$ . Considering the numbers being close to 1 (0.932, 0.945, and 0.953), it is likely that there is no significant difference between low- and middle-income groups in having an intention to move or not, and searching or not. On the other hand, the results of the high-income groups compared to the middle-income groups are significant ( $p < 0.01$ ), and it can be seen that high-income groups have a higher chance of having an intention to move (1.158). This is in line with previous studies that found that high-income groups were more likely to have an intention to move than lower-income groups (De Groot et al., 2011; Coulter, 2013; Boschman & De Groot, 2011). A possible explanation for this is that households take into account hampering factors, such as a lack of income, before forming an intention to move (Mulder & Hooimeijer, 1999; De Groot et al., 2011; Gardner et al., 1985-86). The same result was found for search behaviour: people with a high income had a greater chance of searching in 2015/2016 (1.261) and in 2017 (1.306) than those with a middle income.

The results concerning housing market opportunities firstly show that there was no significant difference in the chances of having an intention to move between the rest of the Netherlands and Amsterdam, Utrecht, and The Hague (1.102). Considering the results of search behaviour in 2015/2016 and search behaviour in 2017, it can be seen that the chances of people searching were significantly higher in the three large cities compared to the rest of the Netherlands (1.235 in 2015/2016 and 1.150 in 2017). It could be that because it is more difficult to realise an intention to move in tight housing markets due to a high demand and a shortage of vacancies, people more often undertake the action of searching to have a higher chance of realising that intention (De Groot, 2011; Kearns & Parkes, 2003).

Regarding the control variables, it can firstly be seen that people with a middle education level had a higher chance to have an intention to move than those with a low education level (1.128). Moreover, people with a high education level had an even higher chance of having an intention to move compared to people with a low education level (1.547). The same was found for search behaviour: the chances of people with a middle education (1.327 in 2015/2016 and 1.226 in 2017) and a high education (1.606 in 2015/2016 and 1.521 in 2017) searching were higher than those with a low education. All the above results were significant and in line with expectations based upon previous studies (De Groot et al., 2008, 2011; Coulter et al., 2011). A possible explanation is that there is a positive relationship between income and education level, and hampering factors such as income and career prospects tend to have a negative influence on the formation of an intention to move (Clark & Dieleman, 1996).

Secondly, employment was only significant in the model of intention to move. One or more household members being employed had a negative impact on the chance of having an intention to move (0.806), compared to no household member being employed. This is in line with the argumentation that unemployment positively influences the chances of having an intention to move, since households tend to seek employment by changing residential location, or form a more urgent desire to move due to changing circumstances (Boheim & Taylor, 2002; Fendel, 2014; De Groot et al., 2011; Coulter et al., 2011). In addition, Fischer and Malmberg (2001) have argued that employed people are more bound to their residential location and are thus less eager to move.

Thirdly, Table 18 shows that age had a significant negative effect on the intention to move and search behaviour in both reference years (left to right: 0.957, 0.993, and 0.981). Because age is a ratio variable, this means that with every additional year in age, the chance of having an intention to move or searching for a dwelling decreased. The explanation of this result could be that young people more often have a desire to move due to changes in their household composition, education, or career. In contrast, older people do not often experience such changes and thus mostly only want to move when there is dissatisfaction with for example their dwelling (Niedomysl, 2011).

A fourth result is that native Dutch people (1.172) and western immigrants (1.228) had a significantly higher chance of wanting to move than non-western immigrants. Since western immigrants were thought to be more likely to be comparable to native Dutch people due to their similar socio-economic resources and housing market opportunities, this result is in contrast with the expectation based on the finding of previous studies. This finding is that ethnic minorities more often had the intention to move, possibly due to a generally lower neighbourhood satisfaction (Clark & Coulter, 2015; Mateyka, 2015; Rabe & Taylor, 2010; Coulter et al., 2011). Hence, it was expected that non-western immigrants would have a greater chance of intending to move (Boschman et al., 2017). The results in the models of search behaviour in 2015/2016 and in 2017 were not significant.

Considering the fifth control variable, namely household composition, only being in a couple and being in a couple with children were found to have a significant effect on having an intention to move relative to being in a one-person household. Couples had a higher chance to have an intention to move than those in one-person households (1.163). This is in contrast with De Groot et al.'s finding (2011) that singles were more likely to have an intention to move than couples. A possible explanation could be that couples want to make the transition into homeownership. It is often found that couples want to make this transition when anticipating the birth of a child (Feijten & Mulder, 2002). Regarding couples with children, their chances of having an intention to move were lower compared to one-person households (0.694). This is in line with De Groot et al.'s (2011) finding that singles were more likely to have an intention to move than families. This could be because parents are less eager to move due to the possible negative social and educational consequences this can have for their children (Coley & Kull, 2016; Mulder, 1993).

Concerning search behaviour, only the results of one-parent families were significant: namely, compared to one-person households, being a one-parent family had a positive effect on search behaviour (1.504 for searching in 2015/2016 and 1.261 for searching in 2017).

Sixthly, regarding marital status, only the results of widow(er)s were significant in terms of intention to move and search behaviour in 2015/2016. Surprisingly, the chances of having an intention to move were higher for widow(er)s than for people who had never been married (1.488). In contrast, in terms of searching in 2015/2016, the chances were lower for widow(er)s (0.677). It could be that widow(er)s would ideally want to move, but would often not make the effort of searching. However, this result is still in contrast with the expectation based on the study of Mateyka (2015) that widow(er)s are less likely than others, except for divorced people, to have an intention to move.

With regard to housing-related characteristics, a few things can be noted. First, the results of form of ownership were only significant in the model of intention to move. Owner-occupiers had a lower chance to have an intention to move than renters (0.776). This could be because owner-occupied housing is more often considered to be long-stay housing and of higher quality, resulting in inhabitants less often wanting to move (Helderman et al., 2004; Feijten & Mulder, 2002). Furthermore, it was expected that renters would have a higher chance of wanting to move because this group often has the desire to make the transition into homeownership (Mulder & Hooimeijer, 1999; De Groot, 2011).

Second, compared to people living in overcrowded houses, those who lived in normally crowded (0.511) or undercrowded (0.478) dwellings had a significantly lower chance of having an intention to move. Similar results were found when looking at search behaviour (see Table 18). This is line with the expectations, since moving from overcrowded housing is of higher necessity, as not doing so can lead to housing stress (Clark & Onaka, 1983; Rossi, 1955; Clark et al., 2000; De Groot et al., 2011). This results in these households having a higher chance of forming an intention to move and searching for a dwelling.

Finally, regarding satisfaction with the dwelling and living environment (see Table 18), compared to those who were very satisfied, in all three models each decrease in category significantly increased the chances of having an intention to move and of searching in 2015/2016 and in 2017. Again, this was expected, since it has often been proven that the wish to move is strongly influenced by the satisfaction with the dwelling and living environment (Rossi, 1980; Landale & Guest, 1985; Kearns & Parkes, 2003). In this sense, residential mobility is a way to resolve dissatisfaction (Speare 1970; 1974). As an aside, it should be noted that the difference between being satisfied with the living environment relative to being very satisfied were only significant for the model of search behaviour in 2015/2016 (1.180).

To summarise, there was no significant difference in the chances of having an intention to move between low- and middle-income groups. On the other hand, high-income groups had a higher chance to have an intention to move, and people with a middle and high education had a similarly higher chance than those with a lower education. No significant difference in likelihood of having an intention to move was found between the different housing market opportunities. Employed people, older people, and homeowners had a lower chance of intending to move compared to unemployed people, younger people, and renters. Furthermore, native Dutch and western immigrants had a higher chance of having an intention to move than non-western immigrants. Couples without children were more likely to have a desire to move than one-person households, whereas couples with children had a lower chance of having this desire. Widow(er)s had a higher chance of having that same desire compared to people who had never been married. Finally, being (very) dissatisfied with the dwelling or environment and living in an overcrowded dwelling increased the probability of wanting to move.

**Table 18: Logistic Regression Analysis of Intention to move and Search behaviour.**

	<b>Intention to move (model 1)</b>	<b>Search behaviour 2015/2016</b>	<b>Search behaviour 2017</b>
Income (ref = Middle income)			
Low income	0.932 (0.050)	0.945 (0.081)	0.953 (0.057)
High income	1.158 (0.048)***	1.261 (0.078)***	1.306 (0.053)***
Housing market opportunities (ref = The rest of the Netherlands)			
Amsterdam, Utrecht and The Hague	1.102 (0.057)*	1.235 (0.087)**	1.150 (0.064)**
Education level (ref = Low education)			
Middle education	1.128 (0.046)***	1.327 (0.074)***	1.226 (0.052)***
High education	1.547 (0.048)***	1.606 (0.077)***	1.521 (0.053)***
Employment (ref = no household member employed)			
One or more households members employed	0.806 (0.049)***	0.866 (0.077)*	0.962 (0.055)
Age	0.957 (0.002)***	0.993 (0.003)***	0.981 (0.002)***
Ethnicity (ref = Non-western immigrant)			
Native Dutch	1.172 (0.066)**	0.952 (0.099)	1.019 (0.074)
Western immigrant	1.228 (0.083)**	0.910 (0.127)	1.068 (0.092)
Household composition (ref = One-person household)			
Couple	1.163 (0.067)**	0.996 (0.112)	1.125 (0.076)
Couple with children	0.694 (0.081)***	0.985 (0.133)	0.926 (0.092)
One-parent family	0.925 (0.074)	1.504 (0.111)***	1.261 (0.082)***
Non-family household	1.293 (0.134)*	0.651 (0.269)	0.853 (0.172)

Marital status (ref = Married)			
Divorced	1.107 (0.070)	1.056 (0.111)	1.048 (0.078)
Widow(er)	1.488 (0.088)***	0.677 (0.154)***	0.883 (0.103)
Never married	1.017 (0.057)	1.015 (0.095)	0.968 (0.064)
Form of ownership (ref = Rental)			
Owner-occupied	0.776 (0.044)***	0.983 (0.072)	0.967 (0.050)
Crowdedness (ref = Overcrowded)			
Normally crowded	0.511 (0.099)***	0.597 (0.145)***	0.622 (0.109)***
Undercrowded	0.478 (0.109)***	0.606 (0.165)***	0.665 (0.122)***
Satisfaction dwelling (Ref = Very satisfied)			
Satisfied	2.044 (0.049)***	2.187 (0.086)***	1.977 (0.054)***
Not satisfied, not dissatisfied	5.309 (0.060)***	5.845 (0.102)***	4.563 (0.068)***
Dissatisfied	11.919 (0.082)***	11.204 (0.123)***	7.676 (0.090)***
Very dissatisfied	16.850 (0.125)***	19.102 (0.152)***	12.817 (0.123)***
Satisfaction living environment (Ref = Very satisfied)			
Satisfied	0.971 (0.046)	1.180 (0.079)**	1.102 (0.052)*
Not satisfied, not dissatisfied	1.690 (0.057)***	1.528 (0.098)***	1.582 (0.066)***
Dissatisfied	3.231 (0.072)***	2.302 (0.114)***	2.695 (0.080)***
Very dissatisfied	5.050 (0.112)***	3.282 (0.144)***	3.746 (0.114)***
<u>Model characteristics:</u>			
Intercept	0.798 (0.167)	0.021 (0.286)***	0.100 (0.201)***
Pseudo- $R^2$	0.258	0.136	0.144
Wald $\chi^2$	6168.323; $df = 27$ ***	1567.596; $df = 27$ ***	2740.375; $df = 27$ ***
$N$	45,471	45,471	45,471

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 19 shows the interaction effect of income and housing market opportunities on the intention to move. This interaction effect was added to examine whether the chances of forming an intention to move were especially low for middle-income groups living in Amsterdam, Utrecht, and The Hague relative to those living in the rest of the Netherlands. For the analyses of searching behaviour in 2015/2016 and in 2017, none of the results obtained with the addition of the interaction effect were significant. Since the main aim was to investigate the combining effect of income and housing market opportunities on forming an intention to move, the choice was made not to elaborate on the interaction effect of search behaviour. However, the results of those analyses can be seen in the Annex (see Table 27).

First, the interaction effects themselves should be clarified. Two notes can be made regarding the value of 0.771 of the interaction between low income and the housing market opportunity category of Amsterdam, Utrecht, and The Hague. First, this value shows that the effect of having a low income for people living in these three cities, decreased the chance of having an intention to move compared to having a middle income. This was contrary to the expectation that middle-income groups living in Amsterdam, Utrecht, and The Hague form fewer intentions to move than other income groups. However, since this result was not significant, this relationship cannot be confirmed. Secondly, the effect of living in Amsterdam, Utrecht, and The Hague for people with a low income decreased the chance of having an intention to move compared to those living in the rest of the Netherlands. The main effect of housing market opportunities in model 1 showed that the chance of having an intention to move was higher in Amsterdam, Utrecht, and The Hague than in the rest of the Netherlands (1.102). Thus, the interaction effect shows that this chance decreased for low-income groups living in those three cities. This is in line with the expectation that a tight housing market and high housing prices in combination with a lower income result in forming fewer intentions to move (Coulter, 2013; Dieleman et al., 2000; De Groot et al., 2011; Coulter, 2013; Boschman & De Groot, 2011). However, again, since the result was not significant, this result could not be confirmed.

The interaction effect between high income and the housing market category of Amsterdam, Utrecht, and The Hague had an odds ratio above 1, namely 1.179, and thus shows another direction of result than for low-income groups. First, the effect of having a high income for people living in Amsterdam, Utrecht, and The Hague increased the chance of having a desire to move compared to having a middle income and living in these cities. If this result was significant, which it is not, it would support the argument that high-income groups more often form an intention to move than middle-income groups (De Groot et al., 2011; Coulter, 2013; Boschman & De Groot, 2011). Second, this result showed that the effect of living in Amsterdam, Utrecht, and The Hague and having a high-income increased the chance of having an intention to move, compared to those living in the rest of the Netherlands. This is contrary to the expectation that people in larger cities form fewer intentions to move; however the result of that interaction could again not be confirmed, because they did not meet the significance requirement (Coulter, 2013; Dieleman et al., 2000).

With the addition of the interaction effect, the main effects of income now only accounted for those living in the rest of the Netherlands. It can be seen that the chances of having an intention to move for low-income groups living in the rest of the Netherlands were lower than middle-income groups living there (0.758). In contrast, the chances of high-income groups having an intention to move were higher than those of middle-income groups when both groups lived in the rest of the Netherlands (1.323). Both results were significant, but not relevant for the purpose of this research – namely, to compare those income groups living in Amsterdam, Utrecht, and The Hague, instead of in the rest of the Netherlands.

To compare those income groups living in Amsterdam, Utrecht, and The Hague, the odds ratios of the interactions had to be multiplied with the odds ratios of the main effects of income in model 2. The chances of low-income groups having an intention to move were lower than those of middle-income groups when both groups lived in the three large cities. This is because the odds value was below 1: 0.584 ( $0.758 * 0.771$ ). The chances of high-income groups having an intention to move while living in Amsterdam, Utrecht, and The Hague were higher than those of middle-income groups, as indicated by the odds ratio of 1.559 ( $1.323 * 1.179$ ). The possible interpretations of these results have already been provided. However, since the results of the interaction effects were not significant, these results obtained through the multiplications cannot be confirmed.

Furthermore, with the addition of the interaction effect, the main effect of housing market opportunities now only accounted for middle-income groups. The odds value of 1.177 shows that middle-income groups living in Amsterdam, Utrecht, and The Hague had a higher chance to have an intention to move than middle-income groups living in the rest of the Netherlands. This would be contrary to the expectation that middle-income groups living in the three large cities form fewer intentions to move, based on the separate findings reported in the literature that a lower income and scarce housing market opportunities negatively influenced the prospect of forming such intentions (De Groot et al., 2011; Coulter, 2013; Boschman & De Groot, 2011; Dieleman et al., 2000). However, since the main effect of housing market opportunities was not significant, this expectation cannot be confirmed or rejected.

In summary, no significant difference was found in the likelihood of having the intention to move between middle-income groups living in Amsterdam, Utrecht, and The Hague, and middle-income groups living in the rest of the Netherlands. Furthermore, no significant difference in chances of having the intention to move could be detected between low- and high-income groups, and middle-income groups living in Amsterdam, Utrecht, and The Hague. In contrast, low-income groups were found to have a significantly lower and high-income groups a significantly higher chance of having an intention to move compared to middle-income groups. This result only held for people living in the rest of the Netherlands, however, and was thus not in line with the interest of this study.

Since many of the results structured by the addition of the interaction effect were not significant, the R square and Wald chi-square barely increased. This means that the model did not have a better overall explanatory power and was not necessarily a better fit, compared to model 1 of intention to move shown in Table 18.



**Table 19: Logistic Regression Analysis of Intention to move (model 2).**

	Intention to move
Income (ref = Middle income)	
Low income	0.758 (0.127)**
High income	1.323 (0.133)**
Housing market opportunities (ref = The rest of the Netherlands)	
Amsterdam, Utrecht and The Hague	1.177 (0.122)
Interactions:	
Low income * Amsterdam, Utrecht & The Hague <sup>3</sup>	0.771 (0.145)*
High income * Amsterdam, Utrecht & The Hague	1.179 (0.152)
Education level (ref = Low education)	
Middle education	1.134 (0.046)***
High education	1.548 (0.048)***
Employment (ref = no household member employed)	
One or more households members employed	0.803 (0.049)***
Age	0.957 (0.002)***
Ethnicity (ref = Non-western immigrant)	
Native Dutch	1.160 (0.066)**
Western immigrant	1.213 (0.083)**
Household composition (ref = One-person household)	
Couple	1.155 (0.067)**
Couple with children	0.691 (0.081)***
One-parent family	0.924 (0.074)
Non-family household	1.291 (0.134)*
Marital status (ref = Married)	
Divorced	1.097 (0.070)
Widow(er)	1.467 (0.088)***
Never married	1.008 (0.057)
Form of ownership (ref = Rental)	
Owner-occupied	0.778 (0.044)***
Crowdedness (ref = Overcrowded)	

<sup>3</sup> The dummy-variable of housing market opportunities was centred to be able to use it as an interaction-variable.

Normally crowded	0.513 (0.099)***
Undercrowded	0.480 (0.110)***
Satisfaction dwelling (Ref = Very satisfied)	
Satisfied	2.042 (0.049)***
Not satisfied, not dissatisfied	5.311 (0.060)***
Dissatisfied	11.960 (0.082)***
Very dissatisfied	16.955 (0.125)***
Satisfaction living environment (Ref = Very satisfied)	
Satisfied	0.972 (0.046)
Not satisfied, not dissatisfied	1.693 (0.057)***
Dissatisfied	3.230 (0.072)***
Very dissatisfied	5.050 (0.112)***
<u>Model characteristics:</u>	
Intercept	0.864 (0.177)
Pseudo- $R^2$	0.259
Wald $\chi^2$	6180.506; $df = 29$ ***
$N$	45,471

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

#### 4.3.3 Moving behaviour

Table 20 indicates the effect of various variables on the ability to realise an intention to move between 2015 and 2016/2017. The most important aim is to test the two hypotheses about moving behaviour. The first hypothesis was that middle-income groups would have more difficulties in the ability to realise an intention to move than other income groups. The second was that it would be especially difficult for middle-income groups to realise an intention to move in Amsterdam, Utrecht, and The Hague compared to in the rest of the Netherlands. The first hypothesis was tested in the first logistic model, and the second was tested in the second model. The latter was done by adding an interaction effect of income and housing market opportunities to examine whether those variables combined had an influence on the ability to realise an intention to move.

The overall explanatory power of model 1 was 0.409, which was indicated by the Nagelkerke R square and is considered to be average. The Wald chi-square was 405.782 and significant, indicating that the predicted model was a significantly better fit than the null model in explaining the difference between wanting to move and actually moving.

Regarding the chances of realising an intention to move between 2015 and 2016/2017, interesting results were obtained by comparing different income groups. First, there was no significant difference between low- and middle-income groups' chances of realising an intention to move in that period. This is not in line with the expectation that middle-income groups would have a lower chance of realising an intended move than low-income groups. Furthermore, comparing middle- and high-income groups, high-income groups had a lower chance of realising an intention to move in that same period (0.248). This result is surprising since, based on previous studies, it was expected that with more income, it would be easier to realise an intention to move (Boschman & De Groot, 2011; Boheim & Taylor, 2002; Clark & Dieleman, 1996; Duncan & Newman, 1976; Coulter, 2013; Helderman et al., 2004).

Looking at housing market opportunities, it can be seen that aspiring movers living in Amsterdam, Utrecht, and The Hague had a lower chance of having realised an intention to move between 2015 and 2016/2017 than those living in the rest of the Netherlands (0.471). This is in line with the idea that in regions with a tight housing market and high housing prices, where housing market opportunities are scarce, people find it harder to realise a desired move (Coulter, 2013; Kearns & Parkes, 2003; De Groot, 2011; Dieleman et al., 2000; Mulder & Hooimeijer, 1999).

As previously stated, the interaction effect of income and housing market opportunities was added in model 2. This was done to test the fourth hypothesis: namely, that it would be especially difficult to realise an intention to move for middle-income groups living in Amsterdam, Utrecht and The Hague, compared to those living in the rest of the Netherlands.

The following first examines the interaction effect between low-income and the housing market opportunity category of Amsterdam, Utrecht, and The Hague (1.486). This result shows that the effect of having a low income for people living in these three cities increased the chances of realising an intention to move relative to having a middle income while living in these cities. This would be in line with the expectation that it is more difficult to realise an intention to move for middle-income groups than for low-income groups. In addition this effect shows that living in Amsterdam, Utrecht, and The Hague while having a low income increased the chances of realising an intended move compared to those living in the rest of the Netherlands. This is contrary to the expectations that it is more difficult to realise an intention to move in these cities due to the tightness of the housing market (Coulter, 2013; Kearns & Parkes, 2003; De Groot, 2011). However, the result of this interaction effect is not significant, and hence cannot be confirmed.

Second, regarding the interaction between high-income and Amsterdam, Utrecht and The Hague, a similar result was obtained as the one above (1.483). Namely, the effect of having a high-income for people living in Amsterdam, Utrecht, and The Hague increased the chances of realising a desired move compared having a middle income and living in these cities. However, as can be seen from the main effect in model 1, high-income groups had a lower chance of realising an intention to move than middle-income groups (0.248). Thus, the increasing of chances means that the differences in chances of realising an intention to move between high- and middle-income groups became smaller, when both groups lived in Amsterdam, Utrecht, and The Hague, specifically. The result of this interaction also shows that the effect of living in these three cities with a high income increased the chances of realising an intended move compared to those with a similar income living in the rest of the Netherlands. This is not in line with the expectation that realising a desire to move is more difficult in areas where housing market opportunities are scarce (Coulter, 2013; Kearns & Parkes, 2003; De Groot, 2011; Dieleman et al., 2000; Mulder & Hooimeijer, 1999). However, these effects cannot be confirmed since the interaction effect is not significant.

Considering the main effects of income, after the addition of the interaction effect, the results only accounted for people living in the rest of the Netherlands. The odds value of the low-income group (1.958) shows that people in this group had a higher probability of realising an intended move between 2015 and 2016/2017 than those with a middle income when both lived in the rest of the Netherlands. On the other hand, the result of high-income groups (0.341) shows that people with a high income living in the rest of the Netherlands had a lower chance of realising an intention to move in that period compared middle-income groups living there. However, these results are again not significant and thus cannot be confirmed.

To compare the effects of income level on the ability to move among those living in Amsterdam, Utrecht, and The Hague, the figures mentioned above were multiplied with the results of the interaction effects. Compared to a middle income, the effect of having a low income living in those three cities had a major positive influence on the chances of being able to move between 2015 and 2016/2017, as shown by the

odds value of 2.909 ( $1.958 * 1.486$ ). This result was expected. Furthermore, the chances of realising an intention to move were lower for high-income groups than for middle-income groups living in Amsterdam, Utrecht, and The Hague, shown through the odds of 0.506 ( $0.341 * 1.483$ ). This result again contrasts previous findings of a linear effect of income on the ability to realise an intention to move (Boschman & De Groot, 2011; Boheim & Taylor, 2002; Clark & Dieleman, 1996; Duncan & Newman, 1976; Coulter, 2013; Helderman et al., 2004). However, both the interaction effects and the results concerning income were not significant, so the findings above cannot be confirmed.

With the addition of the interaction effect, the main effect of housing market opportunities (0.337) now only accounted for middle-income groups. This means that middle-income groups living in Amsterdam, Utrecht, and The Hague had a lower chance of realising an intention to move between 2015 and 2016/2017, compared to those with a middle income living in the rest of Netherlands. This result seems to confirm the fourth hypothesis formulated in this study, reflecting that scarce housing market opportunities indeed negatively influence the ability to realise an intention to move for lower-income groups (Coulter, 2013; Kearns & Parkes, 2003; De Groot, 2011; Dieleman et al., 2000; Mulder & Hooimeijer, 1999). However, the result did not fulfil the requirement of the significance level ( $p < 0.05$ ), so the fourth hypothesis cannot be confirmed. Nevertheless, it is interesting to note that the significance level was 0.053, meaning that the result almost did fulfil the significance requirement of  $p < 0.05$ .

To summarise the above results, it can first be stated that there was no significant difference in the chances of being able to realise an intention to move between low- and middle-income groups in the period from 2015 to 2016/2017. However, in this period, contrary to expectations, high-income groups had a lower chance to have realised an intended move than middle-income groups. In line with the expectation, it was found that people living in Amsterdam, Utrecht, and The Hague had a significantly lower chance of having realised a desire to move between 2015 and 2016/2017. Regarding the interaction effect, no significant differences in chances of moving were found between middle-income and other income groups living in Amsterdam, Utrecht, and The Hague. Finally, the finding that middle-income groups living in Amsterdam, Utrecht, and The Hague had a lower chance to have realised an intention to move compared to those living in the rest of the Netherlands almost fulfilled the significance requirement. However, since it did not fulfil this requirement, the latter finding could not be confirmed.

In line with the interaction effects not being significant, the increase of the explanatory power indicated by R square and the increase of the Wald chi-square in model 2 compared to model 1, are not noteworthy. This means that the interaction effect added in model 2 did not improve the explanatory power and was necessarily a better fit to research moving behaviour than model 1.

Other results in model 1, besides those of income and housing market opportunities, will be elaborated on, to check whether other variables had a significant effect on the chances of realising an intention to move between 2015 and 2016/2017. First, Table 20 shows that the education level did not have a significant effect on those chances. This is contrast with previous studies that did find such an effect (De Groot et al., 2011; Lu, 1998; Boheim & Taylor, 2002; Fischer & Malmberg, 2001). Second, one or more household members being employed had a significant negative effect on the ability to realise an intention to move in the period from 2015 to 2016/2017 (0.657). Boheim and Taylor (2002) observed a similar effect in their study. This could possibly be explained by the fact that unemployed people do not have working ties and are thus freer in their choice of residential location, increasing the probability of moving (Coulter et al., 2011). Third, age was negatively associated with the chances of realising an intention to move in the aforementioned period, meaning that with every additional year in age, those chances became significantly lower (0.975). This is line with previous findings suggesting that younger people are more likely to realise an intention to move, since they are still shaping their households, housing, and careers (De Groot, 2011; Crowder, 2001; Lu, 1998; Kan, 1999; Helderman et al., 2004).

With regard to ethnicity, none of the results fulfilled the requirement of significance. For housing composition, only the result of one-parent families compared to one-person households were significant. One-parent families (0.643) had a lower chance to have realised an intention to move between 2015 and 2016/2017 than one-person households. This result is supported by the idea that it is more difficult to realise an intention to move with children, because it is necessary to consider their preferences and daily activities (Clark & Davies Withers, 2009; Helderman et al., 2004). For marital status, only the difference between being a widow(er) and being married was significant: the chance of realising an intention to move was higher for widow(er)s than for married people in the studied period (2.668). This is line with the expectation that union separation life events, such as becoming a widow(er), increase the probability of multiple residential moves (Fomby & Sennott, 2013; Saadeh et al., 2013). The reason behind this is that widow(er)s may form new co-habiting unions, re-marry, and move to new homes in the years after that life event (Boyle et al., 1998).

Looking at the results of form of ownership, living in an owner-occupied dwelling was negatively associated with the chances of realising an intended move between 2015 and 2016/2017 (0.223). Kearns and Parkes (2003) and Lu (1998) found similar results; these results could be explained by the fact that moving from an owner-occupied dwelling is associated with high transactions costs, possibly leading to a constraint in realising an intention to move. Finally, an induced reason to move, meaning moving for work, studies, or a change in household composition, had a highly positive influence on the chances of realising an intention to move between 2015 and 2016/2017 (4.489). Induced reasons for wanting to move are considered to be of higher necessity, as not moving could mean having to extend a life-course change. Since moves with a higher perceived necessity are more likely to succeed,

this significant result was in line with the expectations (Goetgeluk, 1997; De Groot et al., 2011).

To summarise the results regarding the control variables, it was firstly found that one or more household members being employed had a negative influence on the chances of being able to realise an intended move between 2015 and 2016/2017. Being older and being a homeowner compared to a renter also had a negative effect on these chances. Relative to one-person households, one-parent families had a lower chance to have realised an intention to move between 2015 and 2016/2017. Widow(er)s had a higher chance of having realised this intention than people who were married. Finally, an induced reason for wanting to move had a highly positive influence on the ability to realise an intention to move in the period between 2015 and 2016/2017.

**Table 20: Logistic Regression Analysis of Moving Behaviour (between 2015 and 2016/2017).**

	<b>Model 1</b>	<b>Model 2</b>
Income (ref = Middle income)		
Low income	1.428 (0.216)*	1.958 (0.535)
High income	0.248 (0.347)***	0.341 (0.871)
Housing market opportunities (ref = The rest of the Netherlands)		
Amsterdam, Utrecht and The Hague	0.471 (0.223)***	0.337 (0.562)*
<u>Interactions:</u>		
Low income * Amsterdam, Utrecht & The Hague <sup>4</sup>		1.486 (0.610)
High income * Amsterdam, Utrecht & The Hague		1.483 (1.016)
Education level (ref = Low education)		
Middle education	0.885 (0.192)	0.887 (0.192)
High education	0.848 (0.210)	0.850 (0.210)
Employment (ref = no household member employed)		
One or more households members employed	0.657 (0.178)**	0.659 (0.178)**
Age	0.975 (0.008)***	0.975 (0.008)***
Ethnicity (ref = Non-western immigrant)		
Native Dutch	0.686 (0.207)*	0.687 (0.207)*
Western immigrant	0.662 (0.292)	0.665 (0.292)
Household composition (ref = One-person household)		

<sup>4</sup> The dummy-variable of housing market opportunities was centred to be able to use it as an interaction-variable.

Couple	1.575 (0.283)	1.575 (0.283)
Couple with children	0.940 (0.310)	0.937 (0.310)
One-parent family	0.643 (0.221)**	0.642 (0.221)**
Non-family household	0.468 (0.474)	0.477 (0.475)
Marital status (ref = Married)		
Divorced	1.574 (0.297)	1.586 (0.297)
Widow(er)	2.668 (0.483)**	2.690 (0.484)**
Never married	1.094 (0.280)	1.093 (0.280)
Form of ownership (ref = rental)		
Owner-occupied	0.223 (0.218)***	0.221 (0.219)***
Induced reason to move (ref = no)		
Yes	4.489 (0.183)***	4.527 (0.184)***
Intercept	2.299 (0.601)	2.366 (0.603)
Pseudo- $R^2$	0.409	0.409
Wald Chi <sup>2</sup>	405.782; $df = 18$ ***	406.221; $df = 20$ ***
$N$	1,180	1,180

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 21 shows the moving behaviour in the period from 2016 to 2017. Like in Table 20, the two hypotheses about moving behaviour are tested. Moreover, the results are compared with those of Table 20, since the two tables are expected to have the same direction of results. The R square of model 1 is 0.451, which reflects an average explanatory power. The Wald chi-square is 300.473, so the difference to the null model is not that large. However, the Wald chi-square is significant, which means that this model is still a better fit to study moving behaviour than the null model.

Table 21 shows that low-income groups had a much higher chance (2.855) of having realised an intended move between 2016 and 2017 compared to middle-income groups. The direction of this result is the same as in Table 20 (1.428), but, unlike in Table 20, this result is significant ( $p < 0.05$ ). Furthermore, it is in line with the expectation that middle-income groups face more difficulties in realising an intention to move than low-income groups. On the other hand, the difference between high-income and middle-income groups in realising an intended move in that same period was not significant (0.609). This means that there was only a significant difference between high- and middle-income groups in their ability to realise an intended move when they searched for one to two years instead of one year (see Table 20). Based on these results, the third hypothesis could not be confirmed.

Regarding housing market opportunities, the direction of the result (0.751) is the same as in Table 20 (0.471). This would mean that it was more difficult for people living in Amsterdam, Utrecht, and The Hague to realise an intention to move between 2016 and 2017, compared to those living in the rest of the Netherlands.



However, unlike Table 20, the result concerning housing market opportunities is not significant in Table 21. Again, the effect of housing market opportunities on the chances of realising an intention to move was only detected when people have searched for one to two years.

In model 2, the interaction effect of income and housing market opportunities was added. This was done to compare the results with the interaction in Table 20, to confirm or reject the fourth hypothesis of this research with more confidence. The interaction between low-income and Amsterdam, Utrecht, and The Hague is in line with the one shown in Table 20 (1.486). For people living in those cities, having a low income increased the chances of being able to realise an intention to move compared to having a middle income (1.455). This interaction also shows that for low-income groups, living in these three cities increased the chances of realising an intention to move relative to living in the rest of the Netherlands. Considering the interaction between having a high income and living in Amsterdam, Utrecht, and The Hague, the result again has the same direction as the one in Table 20 (3.753 compared to 1.483 in Table 20). This value shows that the effect of having a high-income when living in Amsterdam, Utrecht, and The Hague greatly increased the chances of realising a desired move relative to having a middle income in those three cities. It also shows that for people with a high income, living in Amsterdam, Utrecht, and The Hague greatly increased the likelihood of being able to realise an intention to move compared to living in the rest of the Netherlands.

These results are firstly interesting because they show that for people living in Amsterdam, Utrecht, and The Hague, both having a low income and having a high income increased the chances of realising an intention to move compared to having a middle income. Furthermore, in contrary to expectations, these results show that for low- and high-income groups, the chances of realising an intended move increased when living in areas where housing market opportunities are supposedly scarce. However, the results of the interaction effects were not significant and could thus not be confirmed.

Regarding the main effects of low- and high-income groups in model 2, again, they only hold for people living in the rest of the Netherlands due to the addition of the interaction. For these individuals, having a low income had a much more positive effect on the chances of realising an intention to move between 2016 and 2017 than having a middle income (3.808). This result is significant, but is not very relevant for this research. Furthermore, for those living in the rest of the Netherlands, having a high income increased the chances of realising an intended move compared to having a middle income (1.642). However, this result is not significant.

Among those living in Amsterdam, Utrecht, and The Hague, low-income groups had a much higher chance than middle-income groups of realising an intention to move between 2016 and 2017, as shown through the multiplication of the odds ratios of the interaction effect and the main effect of income, namely 5.540 ( $3.808 * 1.455$ ). Furthermore, relative to a middle income, having a high income had a major positive effect on the chances of realising an intended move in those three cities. This is

shown through the odds ratio of 6.162 ( $1.642 * 3.753$ ). However, yet again, these results were not significant and could thus not be confirmed.

Due to the addition of the interaction, the main effect of housing market opportunities in model 2 again only accounted for middle-income groups. The chances of realising an intention to move were lower for middle-income groups living in Amsterdam, Utrecht, and The Hague than for those groups living in the rest of the Netherlands (0.493). This result appeared to support the fourth hypothesis, but it was not significant and thus could not be confirmed.

In line with the results for the interaction effect only being significant for the main effect of low-income groups, the R square and Wald chi-square in model 2 barely increased compared to model 1. This means that model 2 did not have better explanatory power than model 1, and that model 2 was not a better fit than model 1 to study moving behaviour.

To summarise the above results, it can first be stated that low-income groups had a higher chance than middle-income groups of having realised an intention to move between 2016 and 2017. Unlike in Table 20, no significant difference was found in the likelihood of realising an intention to move in that period between middle- and high-income groups, and between the two different housing market opportunity categories. This shows that a difference between low- and middle-income groups could only be detected when they searched for one year, and a difference between middle- and high-income groups and different housing market opportunities could only be detected when they searched for one to two years. Furthermore, comparing low- and high-income groups to middle-income groups living in Amsterdam, Utrecht, and The Hague, no significant difference was found in the ability to realise an intended move. In contrast, there was a significant difference between low-income groups and middle-income groups living in the rest of The Netherlands: low-income groups had a much higher chance of having realised an intention to move between 2016 and 2017. Finally, no significant difference was found in the ability to realise an intention to move between middle-income groups living in Amsterdam, Utrecht, and The Hague and middle-income groups living in the rest of the Netherlands.

Concerning the control variables in model 1, unlike in Table 20, people with a middle education level were significantly less likely to have realised a move between 2016 and 2017 than people with a low education level (0.592). This is in contrast to previous studies suggesting that less educated people less often realise an intention to move than more highly educated people due to the positive relationship between education level and income, which reflects on the ability to move (De Groot et al., 2011; Lu, 1998; Boheim & Taylor, 2002; Fischer & Malmberg, 2001; Mulder & Hooimeijer, 1999). The result of having a high education level relative to a low education level reflecting on the ability to realise an intended move in the aforementioned period was not significant.

One or more household members being employed again proved to have a significant negative influence on the chances of realising an intended move (0.608 between 2016 and 2017). This further strengthens the argument that employed people are more bound to their residential location due to working ties, thus reducing the choice set, which in turn negatively influences the prospect of being able to move (Coulter et al., 2011). Regarding age, the result was similar to that in Table 20 (0.975): in the period between 2016 and 2017, the likelihood of realising an intention to move decreased significantly for every additional year in age (0.980). This result further supports the findings of previous studies that young people are more likely to realise an intention to move (De Groot, 2011; Crowder, 2001; Lu, 1998; Kan, 1999). In contrast, the results of ethnicity, household composition, and marital status did not fulfil the requirement of significance level ( $p < 0.05$ ).

Compared to a rental dwelling, living in an owner-occupied dwelling had a significant negative effect on the chances of realising an intention to move between 2016 and 2017 (0.324). This is in line with the result shown in Table 20 (0.223) and with the previous studies (Kearns & Parkes, 2003; Lu, 1998). Finally, an induced reason for wanting to move again had a significant and major positive influence on the chances of realising an intention to move between 2016 and 2017 (6.705 compared to 4.489 in Table 20). This result is similar to the findings of Goetgeluk (1997) and De Groot et al. (2011).

To summarise the results regarding the control variables, people with a middle education level had a higher chance of having realised an intention to move between 2016 and 2017 than those with a low education level. Furthermore, being employed, being older, and being a homeowner again proved to have a negative influence on the chances of realising a desired move in that same period. Finally, having an induced reason to move once more showed a positive influence on the likelihood of realising an intention to move between 2016 and 2017.

**Table 21: Logistic Regression Analysis of Moving Behaviour (between 2016 and 2017).**

	Model 1	Model 2
Income (ref = Middle income)		
Low income	2.855 (0.285)***	3.808 (0.629)**
High income	0.609 (0.365)	1.642 (0.787)
Housing market opportunities (ref = The rest of the Netherlands)		
Amsterdam, Utrecht and The Hague	0.751 (0.276)	0.493 (0.653)
<u>Interactions</u>		
Low income * Amsterdam, Utrecht & The Hague <sup>5</sup>		1.455 (0.721)
High income * Amsterdam, Utrecht & The Hague		3.753 (0.943)

<sup>5</sup> The dummy-variable of housing market opportunities was centred to be able to use it as an interaction-variable

Education level (ref = Low education)		
Middle education	0.592 (0.244)**	0.595 (0.244)**
High education	0.654 (0.261)	0.665 (0.262)
Employment (ref = no household member employed)		
One or more households members employed	0.608 (0.224)**	0.602 (0.225)**
Age	0.980 (0.010)**	0.980 (0.010)**
Ethnicity (ref = Native Dutch)		
Non-western immigrant	0.797 (0.278)	0.808 (0.278)
Western immigrant	0.841 (0.413)	0.865 (0.414)
Household composition (ref = One-person household)		
Couple	1.717 (0.346)	1.717 (0.347)
Couple with children	0.528 (0.410)	0.524 (0.412)
One-parent family	0.622 (0.286)*	0.616 (0.287)*
Non-family household	0.364 (0.565)*	0.358 (0.568)*
Marital status (ref = Married)		
Divorced	1.175 (0.388)	1.164 (0.389)
Widow(er)	2.797 (0.587)*	2.828 (0.589)*
Never married	0.804 (0.362)	0.788 (0.363)
Form of ownership (ref = rental)		
Owner-occupied	0.324 (0.274)***	0.325 (0.274)***
Induced reason to move (ref = no)		
Yes	6.705 (0.238)***	6.813 (0.240)***
Intercept	1.620 (0.795)	1.743 (0.943)
Pseudo- $R^2$	0.451	0.453
Wald $\chi^2$	300.473; $df = 18$ ***	302.511; $df = 20$ ***
$N$	752	752

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

## 5. Conclusions and recommendations

This chapter presents some concluding remarks based on the findings of this study, with the goal of answering the main research questions. Subsequently, some recommendations for future research are provided. The chapter ends with a critical reflection on the research process and the results.

### 5.1 Conclusion

This study was structured around the following research questions:

- To what extent do middle-income groups form fewer intentions to move compared to other income groups?
- To what extent do middle-income groups form fewer intentions to move when living in Amsterdam, Utrecht, and The Hague compared to those living in the rest of the Netherlands?
- To what extent do middle-income groups experience more difficulties in the ability to realise an intention to move compared to other income groups?
- To what extent do middle-income groups experience more difficulties in the ability to realise an intention to move when living in Amsterdam, Utrecht, and The Hague compared to those living in the rest of the Netherlands?

Through various logistic regression analyses, this study strove to answer these research questions. The first research question can be answered on the basis of the following findings. High-income groups had a significantly higher chance of having an intention to move than middle-income groups did. This was in line with previous studies showing that high-income groups more often formed an intention to move than lower-income groups (De Groot et al., 2011; Coulter, 2013; Boschman & De Groot, 2011). This result can be supported by the argument that people consider hampering or facilitating factors such as income before formulating an intention to move (Mulder & Hooimeijer, 1999; De Groot et al., 2011; Gardner et al, 1985-86). No significant difference was found between low- and middle-income groups in their chances of having an intention to move. Thus, to answer the research question, it can be stated that middle-income groups formed fewer intentions to move compared to high-income groups, but not compared to low-income groups. These results still support the studies of De Groot et al. (2011), Coulter (2013), and Boschman and De Groot (2011), who observed that higher-income groups more often formed an intention to move than lower-income groups. On the other hand, the present results are not in line with the expectation in this research that middle-income groups form fewer intentions to move than both low- and high-income groups.

To answer the second research question, an interaction effect was added to the logistic regression analysis of intention to move, to investigate the influence of income and housing market opportunities together on the chances of forming an intention to move. The goal was to examine whether middle-income groups living in

Amsterdam, Utrecht, and The Hague would form fewer intentions to move than those living in the rest of the Netherlands. However, this effect was not significant. This is in line with the research of Kearns and Parkes (2003), who found no significant difference in intentions to move between people from urban areas, where housing market opportunities were expected to be scarce, suburban areas, and rural areas. In answer to the main question, it can be stated that middle-income groups living in Amsterdam, Utrecht, and The Hague did not form fewer intentions to move than those living in the rest of the Netherlands. Thus, this study did not demonstrate the expected effect of a tight housing market and generally high housing prices, which can be found in these three cities, on the formation of intentions to move of middle-income groups.

Before answering the third research question, the results of moving behaviour comparing different income groups will be repeated. First, among middle- and high-income groups who spent one to two years searching for a dwelling (2015 to 2016/2017), high-income groups had a lower chance of realising an intention to move. This was unexpected, since previous studies suggested that more income would result in a wider choice set of housing, which would make it easier to realise a desired move (Boschman & De Groot, 2011; Boheim & Taylor, 2002; Clark & Dieleman, 1996; Duncan & Newman, 1976; Coulter, 2013; Helderma et al., 2004; Clark, 2017). A possible explanation could be that high-income groups are more critical and not less constrained in their choice set since they only view housing in the upper market as a potential to move to (De Groot et al., 2011). Among both groups searching for one year, in the period from 2016 to 2017, no significant difference was found in their ability to realise an intention to move. Thus, high-income groups only have more difficulties to realise an intended move relative to middle-income groups when they search for a longer period of time, namely one to two years.

Secondly, comparing low- and middle-income groups in their ability to realise an intention to move yielded contrasting results. When both groups searched for one to two years (between 2015 and 2016/2017), no significant difference was found in their chances of realising an intended move. However, when both groups searched for one year (from 2016 to 2017), low-income groups had a significantly higher chance of realising an intention to move than middle-income groups. This result was in line with the expectation that middle-income groups would face more difficulties when wanting to move compared to low-income groups. However, a possible explanation for this result could be that low-income groups only form an intention to move when they are high on the waiting list of social housing and have the prospect of quickly realising that intention. Furthermore, low-income groups' ability to more easily realise an intention to move is not necessarily positive: previous research has shown that when they move, these groups barely make improvements in terms of neighbourhood and housing quality (Clark et al., 2006). Thus, this would mean that low-income groups are still constrained in their moving behaviour.

Based on these results, the third research question can be as follows. When searching for a dwelling for one to two years, and in comparison to high-income groups, middle-income groups experience fewer difficulties in the ability to realise an intention to move. However, when searching for a dwelling for one year and when compared to low-income groups, middle-income groups do experience more difficulties in realising this intention.

The aim of the fourth research question was to determine whether it was especially difficult for middle-income groups living in Amsterdam, Utrecht, and The Hague to realise an intention to move compared to those groups living in the rest of the Netherlands. This was explored by adding an interaction effect to both moving behaviour analyses, to observe the combined effect of income and housing market opportunities on the ability to realise an intended move. However, the only significant effect found was that having a low income while living in the rest of the Netherlands had a major positive influence on the chances of realising an intention to move between 2016 and 2017, compared to having a middle income and living in the rest of the Netherlands. Since the interest in this study was examining whether it was especially difficult for middle-income groups to realise an intention to move in Amsterdam, Utrecht, and The Hague, this result did not provide an answer for the fourth research question.

Another result worth noting with regard to the fourth research question is the main effect of housing market opportunities in the second model of moving behaviour between 2015 and 2016/2017. This result almost met the significance level requirement. It showed that middle-income groups living in Amsterdam, Utrecht, and The Hague had a lower chance of realising an intention to move relative to those living in the rest of the Netherlands. This suggests that scarce housing market opportunities indeed create difficulties for middle-income groups in realising an intention to move. As mentioned, this result could not be confirmed because it did not meet the significance requirement, however it would be interesting to explore this relationship further in future research. Thus, to answer the fourth research question, middle-income groups living in Amsterdam, Utrecht, and The Hague did not experience more difficulties in the ability to realise an intention to move compared to middle-income groups living in the rest of the Netherlands.

## **5.2 Recommendations**

Further research is needed to clarify the effect of income and housing market opportunities on intention to move and moving behaviour. Moreover, it is important to examine the reasoning behind this behaviour to obtain a more complete view of the problem. This additional research is needed to be able to provide fitting recommendations for policy makers regarding new policies. Hence, recommendations for future research are presented in the following.

First, since the result in this study was found that low-income groups relative to middle-income groups had a much higher chance to have realised the intention to move in one year time (between 2016 and 2017) when both groups lived in the rest

of the Netherlands, it would be recommended to examine this result further in future research. Hence, it could be that the real problem for middle-income groups to realise an intended move in a short period of time does not lie in large cities, where turnover rates are higher due to a larger rental stock, but in other regions (Helderman & Mulder, 2007; Dieleman, 2001; De Groot, 2011). It would be interesting to explore what this result means by going more in depth, perhaps by specifying more and other housing market opportunity categories.

Second, given that high-income groups face more difficulties in realising an intention to move compared to middle-income groups, it would be interesting to examine the reasoning behind this phenomenon in more depth. High-income groups being more critical in their housing preferences seems to be a logical explanation, but there could be another underlying reason. The same is true for low-income households. Their ability to more easily realise an intention to move than middle-income groups does not necessarily reflect something positive. However, this reasoning is not certain, so additional research is needed. To examine the underlying reasons for moving behaviour in the best way possible, the use of a qualitative study is recommended.

Third, this study investigated the intentions to move and moving behaviour of people living in Amsterdam, Utrecht, and The Hague. Another perspective on this topic that would be interesting to research is the repression of middle-income groups, and possibly other income groups as well. Namely, this study did not consider households that used to live in these three cities but were forced to move to other regions to be able to realise an intended move. Since this is an important part of the affordability problem and its reflection on moving behaviour, it is recommended that research be conducted on this topic. Furthermore, researching such moving streams could help to give direction regarding future housing supply needs. However, it should be noted that researching repression and moving streams is difficult, since developing fitting models to study these topics is complex.

A fourth recommendation for future research is to investigate the extent to which people adapt their moving preferences and the reasoning behind these adaptations. Mapping this group would yield more comprehensive results regarding the issue of not having the ability to realise an intended move. Finally, it would be interesting to examine the types of substitutions people make, if any, to still be able to move, especially regarding residential location.

### **5.3 Reflection**

It is important to reflect on the choices that were made during the research process and to identify the main limitations of the study as a result of those choices. Furthermore, critical reflection is helpful to learn from mistakes for future research.

Since this study made use of the large-scale data collected through WoON 2018, a great advantage is that the results are considered to be reliable. Around 67,000 respondents participated, so reliable comments could be made on national and



regional scale. However, as previously mentioned, a problem with using this secondary data concerns the external validity: the composition of the non-response group was uncertain, and it was therefore not possible to check whether a certain group was underrepresented in this study. To solve this problem in the best way possible, a comparison was made between the sample and the Dutch population considering important personal characteristics. Nevertheless, it is important to stress this weakness of the research once more.

Another shortcoming of this study concerns the variable construction of moving behaviour. Specifically, people who had the intention to move were compared with people who actually moved. It would have been better to follow respondents who had the desire to move a few years ago, to see if they had since then realised this desire. The WoON 2015 respondents would have been used, which would have strengthened the results of the research. It could be that the results of the current study were influenced because two different groups were compared to measure one concept, namely moving behaviour. However, as mentioned, it would not have been possible to obtain access to information about the moving behaviour of WoON 2015 respondents, due to restrictions in that access. To minimise the effect of using those two different groups to measure moving behaviour, a reference searching year was chosen to ensure that unsuccessful and successful aspiring movers had at least searched for a dwelling in the same time frame. Furthermore, this was done twice to control the results for coincidence.

A third limitation of this study is that there could be other large cities with tight housing markets (see Figure 4) where income-related differences could be detected in intentions to move and moving behaviour. However, the choice was made to focus on Amsterdam, Utrecht, and The Hague, since the problems of affordability were expected to be the greatest in those cities. Furthermore, some analyses including other large cities experiencing tightness on the housing market yielded no interesting results.

Fourthly, for people who had a desire to move, their current residential location was used to define their housing market opportunity category. It would have been better to define the housing market opportunities based on the residential location to which they wanted to move. However, a problem with this was that only one-third of aspiring movers filled in their desired residential location in the WoON 2018 survey. The choice was therefore made to define housing market opportunities based on the current residential location, to be able to include all individuals wanting to move in the analyses. Supporting this choice is that among the respondents who lived in Amsterdam, Utrecht, and The Hague and wanted to move, almost 70% wished to move within the same city. Of the remaining individuals, around 10% did not know where they wanted to move, and around 20% wanted to move to other areas in the Netherlands. However, it was expected that a percentage of the latter would want to move to another large city. To conclude, this shortcoming may have somewhat influenced the results of this research, but not so much that it is of great concern for the reliability of those results.

A final limitation of the research is that there could be other explanations for having an intention to move or moving behaviour. Indeed, the explanatory power of the logistic models of intention to move was considered to be rather low, and that of moving behaviour was neither high nor low. However, it should be noted that it is not unusual to find a low explanatory power in analyses for this type of study (see: Duncan & Newman, 1976; De Groot, 2011). It seems to be difficult to predict moving behaviour on the level of individual characteristics. Furthermore, since the researcher conducted an extensive literature review to try to add all possible variables of influence on intention to move and moving behaviour in the analyses, giving a recommendation to do different in future research is difficult.

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## 7. Annex

Table 22: Division Housing market opportunities & Income					
		Income			Total
		Low income	Middle income	High income	
Housing market opportunities	The rest of the Netherlands	22,972	14,186	24,636	61,794
	Amsterdam, Utrecht, and The Hague	2,633	1,114	1,982	5,729
Total		25,605	15,300	26,618	67,523

Table 23: Unintended movers per income group					
		Income			Total
		Low income	Middle income	High income	
Moving behaviour	Moved between 2015 and 2016/2017	303	61	54	418
	Moved between 2016 and 2017	161	37	17	215
Total		464	98	71	633

	VIF
Income	1.773
Housing market opportunities	1.063
Education level	1.288
Employment	2.121
Age	2.294
Number of household members	3.184
Ethnicity	1.027
Household composition	2.537
Marital status	1.495
Form of ownership	1.490
Crowdedness	1.798
Satisfaction dwelling	1.417
Satisfaction living environment	1.252

Table 24: Multicollinearity test for the logistic regression analysis of intention to move.

	<b>VIF</b>
Income	1.773
Housing market opportunities	1.063
Education level	1.288
Employment	2.121
Age	2.294
Number of household members	3.184
Ethnicity	1.027
Household composition	2.537
Marital status	1.495
Form of ownership	1.490
Crowdedness	1.798
Satisfaction of dwelling	1.417
Satisfaction of living environment	1.252

*Table 25: Multicollinearity test for the logistic regression analyses of search behaviour 2015/2016 and search behaviour 2017.*

	<b>VIF</b>
Income	1.798
Housing market opportunities	1.091
Education level	1.188
Employment	1.379
Age	1.965
Number of household members	2.699
Ethnicity	1.113
Household composition	1.959
Marital status	1.780
Form of ownership	1.578
Induced reason to move	1.348

*Table 26: Multicollinearity test for the logistic regression analysis of moving behaviour (between 2016 and 2017).*

**Table 27: Logistic Regression Analyses of Search behaviour (model 2).**

	<b>Search behaviour 2015/2016</b>	<b>Search behaviour 2017</b>
Income (ref = Middle income)		
Low income	0.953 (0.189)	0.824 (0.142)
High income	1.008 (0.215)	1.221 (0.149)
Housing market opportunities (ref = The rest of the Netherlands)		
Amsterdam, Utrecht and The Hague	1.327 (0.187)	1.285 (0.136)*
<u>Interactions:</u>		
Low income * Amsterdam, Utrecht & The Hague	1.015 (0.218)	0.834 (0.163)
High income * Amsterdam, Utrecht & The Hague	0.761 (0.245)	0.922 (0.170)
Education level (ref = Low education)		
Middle education	1.323 (0.074)***	1.227 (0.052)***
High education	1.606 (0.077)***	1.520 (0.053)***
Employment (ref = no household member employed)		
One or more households members employed	0.868 (0.077)*	0.960 (0.055)
Age	0.993 (0.003)***	0.981 (0.002)***
Ethnicity (ref = Non-western immigrant)		
Native Dutch	0.959 (0.099)	1.016 (0.074)
Western immigrant	0.916 (0.127)	1.064 (0.092)
Household composition (ref = One- person household)		
Couple	1.005 (0.112)	1.125 (0.076)
Couple with children	0.990 (0.133)	0.926 (0.092)
One-parent family	1.503 (0.111)***	1.261 (0.082)***
Non-family household	0.655 (0.269)	0.852 (0.172)
Marital status (ref = Married)		
Divorced	1.064 (0.111)	1.046 (0.078)
Widow(er)	0.685 (0.155)***	0.880 (0.104)
Never married	1.022 (0.095)	0.966 (0.065)
Form of ownership (ref = Rental)		
Owner-occupied	0.982 (0.072)	0.969 (0.050)
Crowdedness (ref = Overcrowded)		
Normally crowded	0.595 (0.145)***	0.623 (0.109)***
Undercrowded	0.604 (0.165)***	0.666 (0.122)***

Satisfaction dwelling (Ref = Very satisfied)		
Satisfied	2.189 (0.086)***	1.976 (0.054)***
Not satisfied, not dissatisfied	5.846 (0.102)***	4.562 (0.068)***
Dissatisfied	11.197 (0.123)***	7.681 (0.090)***
Very dissatisfied	19.035 (0.152)***	12.830 (0.123)***
Satisfaction living environment (Ref = Very satisfied)		
Satisfied	1.180 (0.079)**	1.102 (0.052)*
Not satisfied, not dissatisfied	1.527 (0.098)***	1.583 (0.066)***
Dissatisfied	2.304 (0.114)***	2.696 (0.080)***
Very dissatisfied	3.284 (0.144)***	3.746 (0.114)***
<u>Model characteristics:</u>		
Intercept	0.020 (0.287)***	0.099 (0.202)***
Pseudo- $R^2$	0.137	0.144
Wald $\chi^2$	1569.928; $df = 29$ ***	2741.730; $df = 29$ ***
$N$	45,471	45,471

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$