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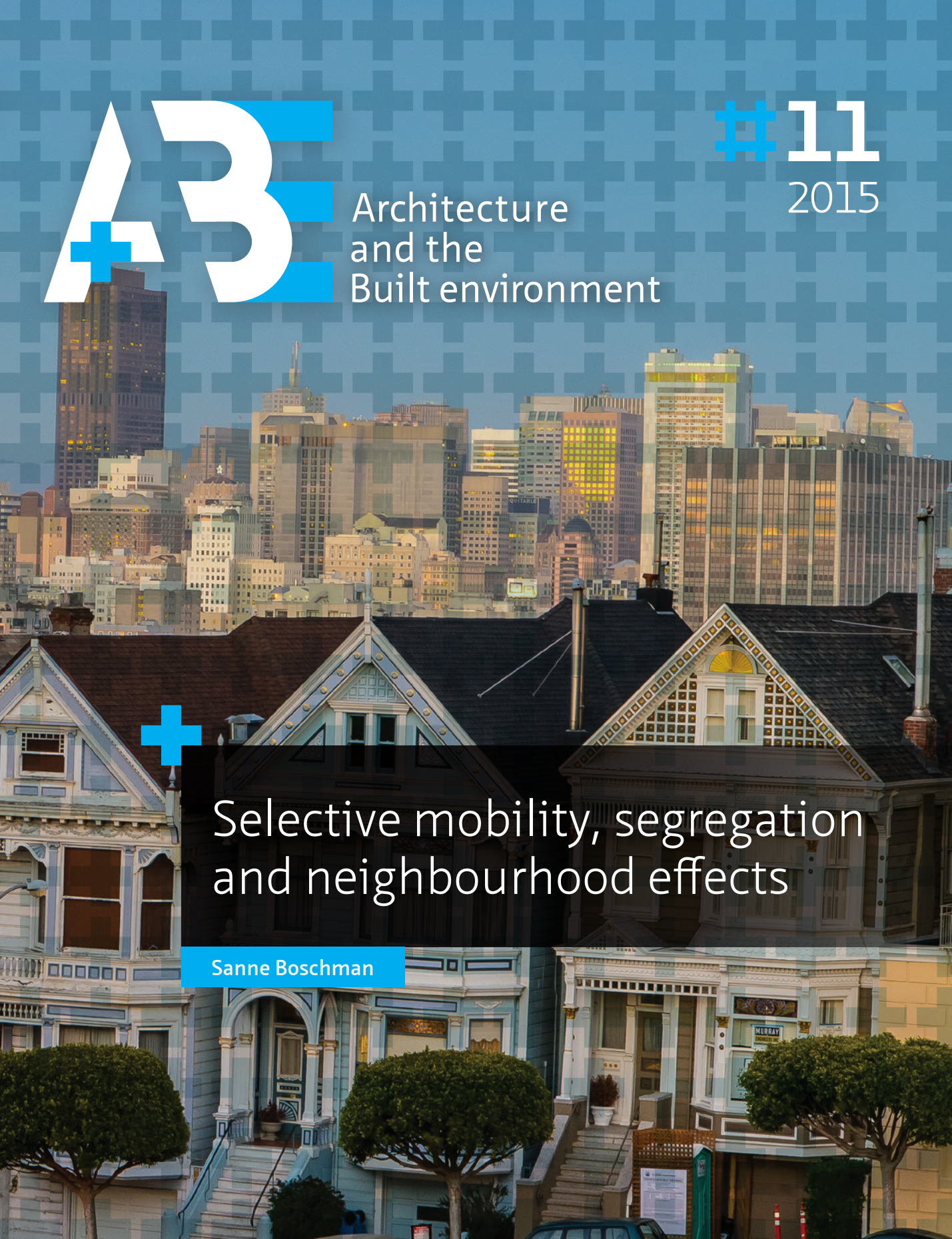

Selective mobility, segregation and neighbourhood effects

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Selective mobility, segregation and neighbourhood effects

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Selective mobility, segregation and neighbourhood effects

1 Introduction

1.1 Introduction

The residential neighbourhood is thought to affect residents because of presumed neighbourhood effects; the independent effects of a neighbourhood's characteristics on the life chances of its residents. An enormous body of research has tried to measure neighbourhood effects, however, there are no clear conclusions on how much, if any, effect the neighbourhood has on its residents. There is non-random selection of people into neighbourhoods which causes a bias in the modelling of neighbourhood effects. Any correlation found between neighbourhood characteristics and individual outcomes might be explained by selection bias and can therefore not prove the existence of a causal neighbourhood effect. The question is; do poor neighbourhoods make people poor, or do poor people live in unattractive neighbourhoods because they cannot afford to live elsewhere (Cheshire, 2007). Therefore, insight in selection is important to gain more insight in neighbourhood effects (Van Ham and Manley, 2012). For neighbourhood effects research it is important to study selective mobility and neighbourhood choice and to combine neighbourhood effects research with neighbourhood selection research (Doff, 2010a; Van Ham and Manley, 2012; Van Ham et al., 2012; Galster, 2003; Hedman, 2011). The aim of this thesis therefore is to gain more insight in both the causes and the consequences of segregation and thus to study both individual residential mobility and neighbourhood selection and neighbourhood effects. Besides the neighbourhood effects literature, also the segregation literature will benefit from better insights in selective residential mobility because selective residential mobility is one of the main driving forces of segregation.

There are two main research questions for this thesis. Firstly, I try to give insight in selective mobility and neighbourhood choice and thus to study where, when and why which people move. What is the effect of personal characteristics, neighbourhood characteristics and macro level housing market developments on individual neighbourhood satisfaction, moving wishes, moving behaviour and neighbourhood

selection and on macro level selective mobility patterns and segregation? Secondly, I will test presumed neighbourhood effect mechanisms. Concentration areas of ethnic minorities are seen as undesirable, because their residents are thought to have less contact with the native majority which might hamper their integration and their life chances. It is, however, unclear to what extent social contact is affected by the residential neighbourhood. The second research question therefore asks whether ethnic minorities have less contact with the native majority if they live in minority concentration neighbourhoods.

1.2 Segregation

Segregation is defined as the population composition of neighbourhoods in relation to each other; that is, the concentration or underrepresentation of population groups in neighbourhoods compared to a city or national level average. Selective residential mobility is one of the main driving forces of segregation. Households move to a certain neighbourhood, either because they choose to live there, or because they are constrained in their choice options. Therefore segregation can be both voluntary and involuntary. This thesis focuses on selective residential mobility as cause of segregation, therefore it tries to understand why and where people move.

According to residential mobility theory, personal characteristics determine residential preferences and if the residential situation is not in line with these preferences this will lead to dissatisfaction and a desire to move (Brown and Moore, 1970). Whether a dissatisfied household succeeds in moving to a dwelling and neighbourhood more in line with their preferences, depends on their personal resources and restrictions and macro level opportunities and constraints (Mulder and Hooimeijer, 1999). Successful households will move to a neighbourhood more in line with their preferences. There are, however, differences between households in which neighbourhoods are open to choice. Low income households will only be able to select neighbourhoods in which inexpensive dwellings are available. Similarly, households who depend on the social housing sector, or on the owner-occupied sector will only be able to select neighbourhoods where dwellings of this tenure are available. In addition, there are differences between households in which neighbourhood is (deemed) most attractive. People prefer to live among others who are similar to themselves and also facilities directed towards specific groups will make especially concentration neighbourhoods of the own ethnic or income group attractive. Besides residential preferences, also other factors will affect neighbourhood selection; population groups will differ in access to information on neighbourhood attractiveness or housing opportunities and discrimination, or fear of discrimination, can limit the opportunities of minority groups on the housing market.

1.3 Neighbourhood effects

It is typically assumed in European and American urban policy and academic research that spatial concentrations of low income households or ethnic minorities have negative effects on their inhabitants (Friedrichs et al., 2003). An enormous body of research has tried to measure neighbourhood effects; the independent effect of a neighbourhood on its residents when controlling for individual characteristics (see for a review Dietz, 2002; Ellen and Turner, 1997; Sharkey and Faber, 2014; Van Ham et al., 2012). The research attention for neighbourhood effects started with the seminal work of Wilson (1987). He argued that living in concentration areas of the jobless lowest class, isolated from role models, mainstream values and norms, and informal job networks and social contacts with employed, has a negative effect on your life chances.

Neighbourhoods can affect their residents via a number of mechanisms (Ellen and Turner, 1997; Erbring and Young, 1979; Galster, 2012). Firstly, the *geographical location* determines job access and thereby labour market opportunities. Secondly, pollution, noise and disturbance affect health and (thereby) life chances via *environmental mechanisms*. In addition, neighbourhood *stigmatisation* can reduce life chances because others have prejudiced ideas and low expectations of the residents of stigmatised neighbourhoods. Also, the quality of *institutions* such as schools, museums, libraries and sport facilities will generally be lower in disadvantaged neighbourhoods, thereby reducing the life chances of residents. Finally, neighbourhood effects can transpire via *social interactions* with neighbours. Through collective socialisation and peer pressure people are thought to conform to local social norms (Jencks and Mayer, 1990). Positive role models and social network contacts with individuals with more social capital can help people advance in their work or educational career (Ellen and Turner, 1997). For ethnic minorities it can be important to have social interactions with the native majority to have the opportunity to learn the majority language, standards and values (Lazear, 1999) and to have bridging network ties that can provide access to valuable information not present within the own ethnic network (Buck, 2001).

Many neighbourhood effect researchers believe that living in concentrated poverty has negative effects on individuals, and policymakers try to create mixed neighbourhoods to prevent these negative neighbourhood effects. However, although "it is perfectly plausible that poor people are made poorer by the characteristics of the neighbourhoods in which they live" (...) "a close examination of the best research available does not reveal any clear evidence to support it" (Cheshire, 2007: p. ix). Almost all neighbourhood effect studies struggle with selection bias (Cheshire, 2007). Any relation found between neighbourhood characteristics and individual outcomes might be a selection effect and therefore cannot prove the existence of a causal neighbourhood effect.

Neighbourhood effects researchers have tried to reduce or eliminate selection bias. Firstly this is done by using quasi-experimental study designs, using households whose residential neighbourhood is determined by external factors (Sampson et al., 2002). Secondly, advanced statistical methods such as sibling studies, fixed effects studies, instrumental variables and propensity score matching are used to reduce selection bias or to control for selection (Harding, 2003). These advancements in methodology have improved our insight in selection bias and in neighbourhood effects, however, since there are no methods that can completely eliminate selection bias, there is still no clear evidence of causal neighbourhood effects. Generally, methods that apply more controls for selection bias find smaller neighbourhood effects.

Instead of trying to eliminate selection bias, this thesis tries to provide insight in selection, in why and where which people move. In addition, this thesis tests presumed neighbourhood effect mechanisms. Social interactive mechanisms assume that neighbourhood effects transpire because the population composition of the residential neighbourhood affects with whom you interact (Ellen and Turner, 1997; Galster, 2012). Therefore I test whether the ethnic composition of the neighbourhood affects interethnic contact.

2 Individual differences in determinants of residential satisfaction

Residential satisfaction is a key variable in understanding individual residential mobility (Lu, 1999; Speare, 1974), as dissatisfaction leads to desires to move (Wolpert, 1965). Many researchers have studied the individual level and neighbourhood level determinants of residential satisfaction, however, very few have studied which neighbourhood characteristics are important to whom. People differ in which neighbourhood characteristics affect their residential satisfaction (Galster and Hesser, 1981). If certain neighbourhood characteristics lead to dissatisfaction and therefore to mobility desires for specific groups, this might lead to selective mobility and segregation. Therefore, in Chapter 2 I study individual differences in the determinants of residential satisfaction.

I estimate ordered logit models explaining satisfaction on residents of urban areas within the Housing Research Netherlands 2012 survey. To test whether there are individual differences in the effects of neighbourhood characteristics on satisfaction I include interaction effects between individual characteristics and neighbourhood characteristics. These interaction effects test whether neighbourhood characteristics such as the neighbourhood ethnic composition, crime rates or dwelling values have similar effects on all individuals, or whether individual characteristics affect the size and direction of these effects. To my knowledge, previously only Greif (2015) and Parkes et al. (2002) have tested interaction effects between tenure and neighbourhood characteristics and there is no earlier research on ethnic or household differences in the determinants of neighbourhood satisfaction. Because there is almost no earlier research on individual differences in the

determinants of satisfaction, I combine literature on residential satisfaction with literature on residential preferences, mobility desires and behaviour to create hypotheses about which neighbourhood characteristics are important to whom.

In line with the literature, I find that the share of non-western minorities in the neighbourhood has a negative effect on neighbourhood satisfaction, an effect that is stronger for natives than for non-western minorities themselves. This can be explained by own group preferences; people are more satisfied in neighbourhoods with higher shares of their own ethnic group and when this is taken into account the differences between ethnic groups in the effect of the total neighbourhood share of non-western ethnic minorities on satisfaction disappear. Satisfaction is found to be more dependent on neighbourhood characteristics for owner-occupiers than for renters and more for households with children than for other households. However, while earlier research has found that owner-occupiers and households with children are especially sensitive to the neighbourhood ethnic composition (Ellen, 2000; Goyette et al., 2014; Greif, 2015; Xie and Zhou, 2012), I find that it is not the neighbourhood ethnic composition, but neighbourhood safety that is especially important for these groups.

There are thus differences between ethnic groups, tenure groups and household types in the determinants of residential satisfaction. These differences might lead to selective mobility, segregation and high turnover rates. Policymakers in many countries try to create stable, attractive and mixed neighbourhoods (Bolt et al., 2010; Baum et al., 2009; Cheshire, 2007), also by attracting higher income households to deprived urban restructuring neighbourhoods (see Chapter 5). These insights in which neighbourhood characteristics are important to whom, are very important for effective policy design (Baum et al., 2009; Ellen et al., 2013; Pinkster et al., 2015).

3 Ethnic differences in realising desires to leave the neighbourhood

Residential dissatisfaction leads to mobility desires which could lead to residential mobility (Brown and Moore, 1970; Wolpert, 1965). Whether people realise their desire to move depends on their personal resources and restrictions (Mulder and Hooimeijer, 1999), there are thus individual differences in how successful people are in realising their desires to move. In Chapter 3, I focus on people who expressed a desire to leave their neighbourhood and study who realises this desire within two years and who manages to escape from poverty neighbourhoods or minority concentration neighbourhoods. To do this, I use a unique combination of survey data and register data. Cross-sectional survey data in which people are asked about their desire to leave the neighbourhood are merged with longitudinal register data on their subsequent residential mobility behaviour. This allows me to test if people with a desire to leave the neighbourhood actually do leave their neighbourhood within two years and which neighbourhoods they move to and from.

Earlier research has found that ethnic minorities are less likely to leave ethnic minority concentration neighbourhoods (Bolt and Van Kempen, 2010; Pais et al., 2009; South and Crowder, 1998) and poverty neighbourhoods (Bolt and Van Kempen, 2003; Quillian, 2003; South et al., 2005; South and Crowder, 1997). It was, however, unclear whether this was explained by the fact that ethnic minorities less often want to leave these neighbourhoods, or whether they are less successful in leaving these neighbourhoods, also if they have a desire to leave. It is important to understand why there are ethnic differences in mobility patterns. If there are ethnic differences in mobility desires, this might lead to voluntary segregation. However, if certain (ethnic) groups are equally likely to want to leave certain neighbourhoods, but less successful than others in realising this desire, this indicates segregation is involuntary.

I find that non-western ethnic minorities are less successful than natives in realising desires to leave their neighbourhood. In addition, they are found to be less likely than natives to escape from ethnic minority concentration neighbourhoods and poverty neighbourhoods, also if they have expressed a desire to leave their neighbourhood. Non-western ethnic minorities who realise a desire to leave their poverty or minority concentration neighbourhood, more often than natives, move to another poverty or minority concentration neighbourhood. In this chapter, I thus find ethnic selectivity in the realisation of mobility desires. These differences can lead to selective residential mobility and (involuntary) segregation.

4 Neighbourhood selection of non-western ethnic minorities. Testing the own-group effects hypothesis using a conditional logit model

Residential dissatisfaction will lead to a desire to move and people who realise their desire to move will select a new neighbourhood. Also in the selection of a destination neighbourhood there are differences between population groups. Neighbourhoods differ in population composition, amenities, dwelling availability and housing costs and population groups differ in resources, restrictions and preferences (Mulder and Hooimeijer, 1999), in their access to knowledge and opinions about neighbourhoods (Hedman, 2013) and in information about housing opportunities available to them (Bolt, 2001; Huff, 1986). In neighbourhood selection research, until now most studies characterise the neighbourhood based on a limited number of characteristics; they model the effect of personal characteristics on the probability to move to a poverty neighbourhood (Bolt and Van Kempen, 2003; Clark et al., 2006; Logan and Alba, 1993) or a minority concentration neighbourhood (Bråmå, 2006; Clark and Ledwith, 2007; Doff, 2010b; South and Crowder, 1998). However, in reality the selection of a neighbourhood will depend on multiple neighbourhood characteristics that are assessed simultaneously and in combination (Hedman *et al.*, 2011).

Ethnic minorities have been found to be more likely than natives to move to minority concentration neighbourhoods (Clark and Ledwith, 2007; Doff, 2010b; South and Crowder, 1998). However, this is not necessarily explained by the ethnic composition, also other neighbourhood characteristics correlated with ethnic composition might explain why especially ethnic minorities move to ethnic minority concentration neighbourhoods. In Chapter 4, I estimate the effect of various neighbourhood characteristics on neighbourhood selection of ethnic minority households. I use a conditional logit model, which allows me to simultaneously take into account multiple neighbourhood characteristics and thereby to distinguish the effect of the share of the own ethnic group, other ethnic minority groups and housing market characteristics on neighbourhood selection.

Ethnic minorities are found to more often than others move to neighbourhoods with low dwelling values and high shares of social housing. These areas are often also ethnic minority concentration neighbourhoods, thus, housing market characteristics partly explain why ethnic minorities more often than others move to ethnic minority concentration neighbourhoods. Also when housing market characteristics are taken into account, I find evidence for own group effects; ethnic minorities are more likely to move to neighbourhoods with higher shares of their own ethnic group. Most likely, ethnic minorities select these neighbourhoods because they prefer to live among family or other own group members, and/or because they find a dwelling via their mono-ethnic network. This chapter focuses specifically on the four largest ethnic minority groups in the Netherlands. I find that for Surinamese and Antilleans the combination of housing market characteristics and own group effects explains why they more often than natives move to ethnic minority concentration neighbourhoods. Turks and Moroccans, however, are found to move more often to concentration neighbourhoods of ethnic minorities (other than their own ethnic group), also when housing market characteristics and own group effects are taken into account. Discrimination or fear of discrimination most likely explains why Turks and Moroccans are not willing or able to move to native majority concentration neighbourhoods.

5 Mixed neighbourhoods; effects of urban restructuring and new housing development

Many European countries use mixed housing policies to decrease the spatial concentration of low-income households. Within the Netherlands, large scale urban restructuring programs have been implemented in which inexpensive social rented dwellings in deprived neighbourhoods are demolished and replaced by more expensive and more often owner-occupied dwellings (Kleinhans, 2004). These urban restructuring programs have attempted to attract middle- and higher income households to deprived neighbourhoods. However, at the same time large numbers of expensive and mostly owner-occupied dwellings have been built on greenfield locations around the major cities. Urban restructuring programs might be less

successful in attracting higher income households to deprived neighbourhoods when they have to compete with large scale greenfield development. In addition, greenfield development creates opportunities for relatively high income households to leave existing neighbourhoods, which will accelerate the process of selective outflow and income sorting and thereby increase the spatial concentration of low income households who are left behind.

In Chapter 5 I study the effect of urban restructuring and new housing development on selective mobility patterns and income segregation. I compare three urban regions in the Netherlands with different patterns of urban restructuring and greenfield development. I use longitudinal register data to study income and income development of people who move to or from various neighbourhood types or to newly built dwellings and the effects of these selective mobility patterns on income segregation.

I find that urban restructuring programs within deprived neighbourhoods are successful in attracting middle and higher income households, also when they have to compete with large scale greenfield development within the same urban region. Large scale greenfield development, however, leads to an outflow of relatively high income households from existing neighbourhoods. This outflow of higher income households leads to a further concentration of low income households in deprived neighbourhoods and an overall increase in residential income segregation.

6 Residential segregation and interethnic contact in the Netherlands

In Chapters 2 to 5 I study selective residential mobility and neighbourhood choice, while in Chapter 6 I study presumed neighbourhood effects mechanisms. According to the neighbourhood effects literature, one of the mechanisms through which neighbourhood effects transpire is via social interactions with neighbours (Ellen and Turner, 1997; Erbring and Young, 1979; Galster, 2012). Social interactions with natives provide ethnic minorities with the opportunity to learn the majority language, standards and values (Lazear, 1999), and with access to valuable information not present within the own ethnic network. Living in ethnic minority concentration neighbourhoods might reduce the opportunities for ethnic minorities to interact with natives and thereby hamper their integration and there life chances. Policymakers in many European countries therefore perceive concentrations of ethnic minorities as undesirable and try to create more mixed neighbourhoods (Bolt, 2009). It is, however, unclear to what extent the population composition of the residential neighbourhood determines social interactions, as people are found to increasingly have social contacts over larger areas (Boomkens, 2006). Therefore, in Chapter 6 I test whether the ethnic composition of the residential neighbourhood affects interethnic contact.

I estimate a multilevel binary logistic regression model explaining whether or not ethnic minorities have contact with native Dutch people. This regression model includes both personal characteristics and neighbourhood characteristics including the share of native Dutch people in the neighbourhood. In earlier research (Gijsberts and Dagevos, 2005; Van der Laan Bouma-Doff, 2007) ethnic minorities have been found to have less contact with natives if the share of natives in the neighbourhood is lower, however, I find no effect of the neighbourhood ethnic composition on interethnic contact. Whether ethnic minorities have contact with the native majority is mainly explained by their individual characteristics such as educational level and household type. Also differences are found between ethnic minorities who live in the four largest cities -cities with high shares of ethnic minorities- and ethnic minorities in other cities with much lower shares of ethnic minorities. When these personal and regional characteristics are taken into account, the ethnic composition of the neighbourhood does no longer affect whether ethnic minorities have contact with the native majority. It is therefore unlikely that living in minority concentration neighbourhoods hampers life chances and integration of minorities *via social interactive mechanisms*. Ethnic residential segregation on neighbourhood level does not affect ethnic minorities' social contact with the native majority and thus does not necessarily hamper integration and life chances of ethnic minorities.

7 Conclusions: Selective mobility, segregation and neighbourhood effects

The aim of this thesis is to gain more insight in both the causes and the consequences of segregation, through studying both individual residential mobility and neighbourhood selection and neighbourhood effects. Various authors have argued that selection bias is one of the main challenges in neighbourhood effects research (Harding, 2003; Sampson et al., 2002; Van Ham and Manley, 2012). It is not possible to completely eliminate selection bias from neighbourhood effects research, however, insight in selection will help to address selection bias (Manley and Van Ham, 2012; Van Ham and Manley, 2012; Winship and Mare, 1992). This thesis provides insight in both neighbourhood selection and neighbourhood effects and creates a link between these two fields of literature. It adds to the previous research as it studies selectivity in various aspects of the residential mobility process, thereby providing a more thorough insight in the causes of selective residential mobility and segregation.

A central finding of this thesis is that there is non-random selection of people into neighbourhoods. Individual characteristics such as ethnicity, tenure, household type and income affect residential satisfaction, mobility preferences and behaviour and neighbourhood selection. Because of this non-random selection into neighbourhoods, a correlation found between neighbourhood characteristics and individual outcomes does not prove the existence of a neighbourhood effect.

In this thesis I distinguish separate ethnic minority groups which allows me to decompose the causes of ethnic selective mobility. Both ethnic minorities and natives are less satisfied in neighbourhoods with higher shares of (other) ethnic minorities, however, ethnic minorities are more satisfied if the share of their own ethnic group in the neighbourhood is higher. Ethnic minorities thus prefer to live among their own ethnic group or close to ethnic specific facilities and these own group effects are found to partly explain why ethnic minorities more often than natives move to minority concentration neighbourhoods. However, not only preferences but also constraints due to housing market characteristics or discrimination cause ethnic minorities to move to ethnic minority concentration neighbourhoods. In addition, ethnic minorities are found to be less successful in realising their desires to leave their neighbourhood. Ethnic residential segregation is thus partly voluntary and partly involuntary.

Besides ethnic selectivity, I also found selectivity in the residential mobility process with regard to household type, tenure and income. Residential mobility is selective with regard to income because higher income households are more successful than lower income households in realising residential preferences, not necessarily because their preferences are different. Household type and tenure are found to affect both residential preferences and the ability to realise these preferences.

Neighbourhood effects can transpire via a number of presumed mechanisms. To provide a better insight in neighbourhood effects, it is important to study these mechanisms. (Andersson and Musterd, 2010). Social interactive mechanisms assume that neighbourhood effects transpire because the population composition of the residential neighbourhood affects with whom you interact (Ellen and Turner, 1997; Galster, 2012). However, this thesis shows that the ethnic composition of the residential neighbourhood does not affect whether ethnic minorities have contact with the native majority population. It is therefore unlikely that living in minority concentration neighbourhoods hampers life chances and integration of minorities *via social interactive mechanisms*.

7.1 Directions for further research

In further research, firstly, it is important to gain a better understanding of the potential mechanisms through which neighbourhood effects transpire. Social interactive mechanisms assume that (neighbourhood effects transpire because) the residential neighbourhood affects your social network and social contacts. In this thesis, I found that ethnic segregation on the scale of the residential neighbourhood does not affect whether working age ethnic minorities have social contacts with natives. It is therefore unlikely that, *for this group and on this scale*, neighbourhood effects transpire via social interactive mechanisms. More research on segregation on different spatial scales and on different population groups could give insight in when, where and for

whom neighbourhoods affect social interactions and thus under which circumstances neighbourhood effects can possibly transpire via social interactive mechanisms.

Besides social interactive mechanisms, neighbourhoods are also expected to transpire via job access, stigmatisation, the quality of local services and institutions and environmental mechanisms. Also for these mechanisms it is important to derive clear hypotheses about how the neighbourhood affects its residents and to subsequently test these hypotheses. Further research could for instance test if people in neighbourhoods with lower accessibility of jobs are more often unemployed, or if employers prefer employees from 'good' neighbourhoods over equally qualified ones from stigmatised neighbourhoods. Different neighbourhood effects mechanisms will work on different neighbourhood scales, be important for different groups of people, after different times of exposure to different neighbourhood conditions. Research that explicitly tests whether, for whom and under which circumstance these presumed mechanisms are at work, can provide insight in how, when, where and for whom the residential neighbourhood can *possibly* affect its residents.

Secondly, neighbourhood effects research would benefit from more research actually trying to understand neighbourhood selection. We need to both empirically and theoretically link neighbourhood selection research to neighbourhood effects research. Empirically, selection research can be linked to neighbourhood effects research by incorporating models of selection into neighbourhood effects studies. Although models incorporating selection will not be able to completely eliminate selection bias from neighbourhood effects research, such research can show how incorporating selection affects the outcomes of neighbourhood effects models and thus give insight in the effects of selection bias.

Theoretically, it is important to understand selective residential mobility and neighbourhood choice and to create a theory of selection bias. A theory of selection bias should explain how and why which factors affect both neighbourhood selection and individual outcomes (Van Ham and Manley, 2012). Such a theory could be used to design quasi-experimental studies, to invent new controls for selection bias, or to argue to what extent outcomes from neighbourhood effects studies are biased. This thesis provided some first ideas of what should be included in a theory of selection bias, but more research is needed. Differences in opportunities, differences in residential preferences and differences in access to information lead to individual differences in residential mobility decisions and outcomes and thus to selection bias. More insight is needed in why preferences and opportunities are different and in individual search strategies and decision-making processes; why do some individuals accept a certain dwelling in a certain neighbourhood while others continue searching for better housing opportunities?

7.2 Policy implications

This thesis finds that segregation is partly voluntary, caused be preferences to live among similar people and partly involuntary, caused by group differences in constraints induced by housing market characteristics or discrimination. To the extent that segregation is voluntary it will be neither possible nor useful to create stable mixed neighbourhoods (Cheshire, 2007). However, involuntary segregation can be, and has to be, addressed by policy-makers. Policies that reduce constraints and increase the options for households to move to a neighbourhood of their preference can reduce involuntary segregation and increase residential satisfaction. These policies, however, do not necessarily lead to more mixed neighbourhoods as people might use their increased freedom of neighbourhood choice to move close to similar people.

Social interactions between people of various ethnic and socio-economic groups are important for emancipation and integration and to prevent segregated and separated worlds that can lead to fear and exclusion. However, as the population composition of the neighbourhood does not necessarily determine with whom people interact, creating mixed neighbourhoods is necessary nor sufficient to promote social integration. Other policy efforts that promote social contacts between various ethnic and socio-economic groups remain necessary.

This thesis finds no neighbourhood effect of the ethnic composition of the residential neighbourhood on whether working age ethnic minorities in the Netherlands have contact with native Dutch people. However, working age people leave their small residential area on a daily basis and within the Netherlands, most high ethnic minority concentration neighbourhoods contain relatively high shares of natives. This level of segregation, on this spatial scale, is found to have no neighbourhood effect on contact. If, however, larger areas would become concentrations of very high shares of deprived households or ethnic minorities, residents will no longer have opportunities to meet and interact with more resourceful people or with the native majority. Therefore, continuing policy attention is needed to prevent high levels of segregation at larger spatial scales.

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Samenvatting

Selectief verhuisgedrag, segregatie en buurteffecten

1 Introductie

1.1 Introductie

Een buurteffect is een onafhankelijk effect van de buurt op haar inwoners; kenmerken van de woonbuurt worden geacht de kansen en mogelijkheden van de bewoners te beïnvloeden. Er is zeer veel wetenschappelijk onderzoek gedaan naar buurteffecten, maar er is nog altijd geen duidelijke conclusie hoeveel invloed de buurt heeft op individuen en of er wel een onafhankelijk effect van de buurt bestaat. Deze onduidelijkheid over het al dan niet bestaan van causale buurteffecten wordt veroorzaakt door de manier hoe mensen hun buurt selecteren. Persoonlijke kenmerken bepalen de woonvoorkeuren en de mogelijkheden van mensen; in welke buurt ze willen wonen en in welke buurt ze een woning kunnen vinden en betalen, dus persoonlijke kenmerken bepalen in welke buurt iemand woont. Een relatie tussen buurtkenmerken en kenmerken van de bewoners kan daarom zowel duiden op een buurteffect als op een selectie-effect. Als er wordt gevonden dat mensen in arme buurten een lager inkomen hebben, kan dat veroorzaakt worden doordat het wonen in een arme buurt een negatief effect heeft op kansen op de arbeidsmarkt, maar het is ook mogelijk dat mensen in een arme buurt zijn gaan wonen omdat ze een laag inkomen hebben. Met hun inkomen konden ze de woningen in betere, rijkere buurten niet betalen. Om te kunnen bepalen of de buurt een effect heeft op haar inwoners is het daarom belangrijk om inzicht te hebben in buurtselectie; inzicht in de invloed van persoonlijke kenmerken op woonvoorkeuren, verhuisgedrag en buurtkeuze (Van Ham and Manley, 2012). Daarnaast is het van belang om een link te leggen tussen onderzoek naar buurteffecten en onderzoek naar buurtselectie, zodat er meer inzicht komt in het effect van selectie en selectiebias op buurteffectenonderzoek (Doff, 2010a; Galster, 2003; Hedman, 2011). Het doel van dit proefschrift is om meer inzicht te krijgen in zowel oorzaken als de gevolgen van segregatie, dus om zowel te kijken naar individueel verhuisgedrag en buurtselectie als naar buurteffecten. Niet alleen de literatuur over buurteffecten, maar ook de segregatieliteratuur zal profiteren van een beter inzicht in verhuisgedrag en buurtselectie aangezien selectief verhuisgedrag een van de voornaamste oorzaken van segregatie is.

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Dit proefschrift beantwoordt twee centrale onderzoeksvragen. Ten eerste probeer ik inzicht te geven in selectief verhuisgedrag en buurtselectie. Daarom bestudeer ik waar, wanneer en waarom welke mensen verhuizen. Wat is het effect van persoonlijke kenmerken, buurtkenmerken en ontwikkelingen op de woningmarkt op tevredenheid met de woonsituatie, verhuiswensen, verhuisgedrag en buurtselectie en op verhuisstromen en segregatie? Ten tweede kijkt dit proefschrift naar buurteffecten en naar hoe, via welke mechanismes, de buurt geacht wordt invloed te hebben op haar bewoners. Het wonen in een etnische concentratiebuurt wordt geacht negatieve gevolgen te hebben voor etnische minderheden omdat ze in deze buurten minder mogelijkheden hebben om contact te hebben met autochtone Nederlanders en daardoor minder kansen hebben om te integreren en succesvol te zijn in de Nederlandse samenleving. De vraag is echter in hoeverre de buurt waarin iemand woont invloed heeft op de sociale contacten. Daarom is de tweede onderzoeksvraag of etnische minderheden minder contact hebben met autochtone Nederlanders als ze in buurten met een lager aandeel autochtone Nederlanders wonen.

1.2 Segregatie

Wanneer bevolkingsgroepen ongelijk verdeeld zijn over buurten is er sprake van segregatie. Een van de voornaamste oorzaken van segregatie is selectief verhuisgedrag; verschillende mensen gaan in verschillende buurten wonen. Mensen komen in een bepaalde buurt terecht, ofwel omdat ze deze buurt verkiezen boven andere buurten, ofwel omdat ze beperkt worden in hun keuzevrijheid waardoor ze in andere buurten geen woning kunnen vinden. Segregatie kan dus zowel vrijwillig als onvrijwillig zijn. Behalve door selectief verhuisgedrag, wordt de bevolkingssamenstelling van een buurt ook beïnvloedt door gebeurtenissen binnen de buurt. Verschillen tussen buurten in sociale mobiliteit of in geboorte- en sterftepatronen leiden daarom ook tot veranderingen in segregatie. In dit proefschrift focus ik op selectief verhuisgedrag als oorzaak van segregatie, daarom probeer ik inzicht te geven in waarom en waarheen mensen verhuizen.

Volgens de literatuur over verhuisgedrag worden woonvoorkeuren bepaald door persoonlijke kenmerken. Als de woonsituatie niet in overeenstemming is met de woonvoorkeuren leidt dit tot ontevredenheid en een wens om te verhuizen (Brown and Moore, 1970). Of een ontevreden huishouden er ook in zal slagen om een woning en woonsituatie te vinden die beter overeenkomt met zijn woonvoorkeuren hangt af van individuele hulpbronnen en restricties en van de mogelijkheden en beperkingen op macroniveau (Mulder and Hooimeijer, 1999). Succesvolle huishoudens zullen verhuizen naar een woning en woonbuurt die beter overeenkomt met hun woonvoorkeuren. Er zijn echter verschillen tussen huishoudens in welke buurten bereikbaar zijn. Huishoudens met een laag inkomen zijn aangewezen op buurten waarin betaalbare woningen beschikbaar zijn en huishoudens die zijn

aangewezen op de (sociale) huur dan wel koopsector kunnen alleen een woning vinden in buurten waarin woningen in deze sector beschikbaar zijn. Daarnaast zijn er verschillen tussen huishoudens in welke buurt als meest aantrekkelijk wordt beschouwd. Voor veel mensen is het aantrekkelijk om tussen soortgelijke mensen te wonen; mensen voelen zich thuis bij hun eigen etnische of sociaaleconomische groep en buurten met veel hoge of juist lage inkomens, of met een hoog aandeel van een bepaalde etnische (minderheids)groep zullen vaak voorzieningen aanbieden die speciaal op deze groep gericht zijn en daarmee de buurt aantrekkelijker maken voor nieuwe instroom van juist deze groep. Niet alleen woonvoorkeuren maar ook andere factoren bepalen naar welke buurt iemand verhuist. Mensen krijgen informatie over welke buurten aantrekkelijk zijn en over waar een woning beschikbaar is via hun persoonlijke netwerk. Omdat netwerken vaak homogeen zijn in woonbuurt, etniciteit en sociaaleconomische status zullen mensen eerder een woning zoeken en eerder een woning vinden in de buurt van soortgelijke mensen. Daarnaast kan discriminatie, of de angst voor discriminatie, de keuzevrijheid van etnische minderheden beperken.

1.3 Buurteffecten

Over het algemeen beschouwen beleidsmakers en wetenschappers concentratiebuurten van lage inkomenshuishoudens of etnische minderheden als een probleem omdat het wonen in deze buurten een negatief effect zou hebben (Friedrichs et al., 2003). Er is enorm veel onderzoek gedaan naar buurteffecten; naar het onafhankelijke effect van de buurt op haar inwoners (zie voor een overzicht Dietz, 2002; Ellen and Turner, 1997; Sharkey and Faber, 2014; Van Ham et al., 2012). De grootschalige aandacht voor buurteffecten onderzoek begon met de studie van Wilson (1987) naar concentratiebuurten van de onderklasse en de gevolgen van het wonen in zulke buurten waar mensen nauwelijks contact hebben met meer kansrijke mensen en daardoor afgesloten zijn rolmodellen, informele netwerken en informatie over banen.

Er zijn verschillende mechanismes waardoor de buurt invloed kan hebben op zijn bewoners (Ellen and Turner, 1997; Erbring and Young, 1979; Galster, 2012). Ten eerste bepaalt de locatie van de buurt welke banen er bereikbaar zijn en dus welke mogelijkheden inwoners hebben op de arbeidsmarkt. Ten tweede zijn er verschillen tussen buurten in omgevingskwaliteit; geluidsoverlast, luchtvervuiling en/of (externe veiligheid) risico's beïnvloeden gezondheid en (daarmee) de kans op sociaaleconomisch succes. Daarnaast kan er een stigma aan een buurt kleven, mensen uit deze buurt hebben dan minder kansen in het leven doordat anderen lagere verwachtingen van hen of vooroordelen over hen hebben. Ook zijn er verschillen tussen buurten in de kwaliteit van instellingen en voorzieningen zoals scholen, bibliotheken of sportvoorzieningen, mensen die opgroeien in een buurt met slechte scholen en minder toegang tot voorzieningen worden daardoor benadeeld. Tenslotte kan de buurt

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haar inwoners beïnvloeden door middel van sociale interacties met buurtgenoten. Buurtgenoten kunnen fungeren als een positief rolmodel of mensen helpen bij het vinden van een baan of het kiezen van een studie (Ellen and Turner, 1997). Lokale normen of groepsdruk leiden ertoe dat mensen zich aanpassen aan hun buurtgenoten, wat zowel een positief als een negatief effect kan zijn (Jencks and Mayer, 1990). Voor etnische minderheden kan het belangrijk zijn om contact te hebben met autochtonen, om op die manier de taal te leren en de normen en waarden over te nemen die van belang zijn om succesvol te zijn in hun nieuwe thuisland (Lazear, 1999). Allochtonen hebben vaak contacten binnen hun etnische netwerk, maar juist 'overbruggende' contacten met autochtonen zijn belang voor hun sociaaleconomische kansen omdat ze via deze contacten aan waardevolle informatie kunnen komen die binnen het eigen etnische netwerk niet bekend is (Buck, 2001; Van Eijk, 2010).

Veel onderzoekers en beleidsmakers geloven in de negatieve effecten van het wonen in concentratiebuurten van lage inkomenshuishoudens of etnische minderheden en beleidsmakers investeren in het mengen van buurten om deze negatieve buurteffecten te voorkomen. Het lijkt volstrekt logisch dat mensen succesvoller zijn als ze in een goede buurt wonen; deze buurten hebben immers betere voorzieningen, er zijn meer banen bereikbaar en buurtgenoten kunnen een positief rolmodel zijn of helpen bij het vinden van een baan. Desondanks is er geen sluitend bewijs dat de buurt een onafhankelijk effect heeft op de sociaaleconomisch positie en de kansen van haar bewoners (Cheshire, 2007). Er is enorm vele onderzoek naar buurteffecten, maar (bijna) al deze studies hebben last van selectiebias (Cheshire, 2007). Als er al een relatie wordt gevonden tussen kenmerken van de buurt en individuele uitkomsten is dit geen bewijs voor een buurteffect, het kan ook veroorzaakt worden door een selectie-effect. Mensen met meer mogelijkheden, betere contacten of betere vooruitzichten gaan in goede, aantrekkelijke buurten wonen. In arme buurten wonen arme mensen; mogelijk zijn deze mensen arm doordat de buurt een negatief effect heeft op hun kansen in het leven, maar in ieder geval wonen arme mensen in arme buurten omdat ze woningen in betere, aantrekkelijker buurten niet kunnen betalen (Cheshire, 2007).

In het buurteffectenonderzoek wordt vaak geprobeerd om selectiebias te verminderen of uit te sluiten. Dit gebeurd bijvoorbeeld in quasi-experimentele studies; dit zijn studies waarin gebruik wordt gemaakt van mensen voor wie de buurt bepaald is door externe factoren; mensen die dus niet hun eigen buurt hebben uitgekozen (Sampson et al., 2002). Daarnaast kunnen geavanceerde statistische methoden zoals sibling studies, fixed effects modellen, instrumentele variabelen of propensity score matching selectiebias verminderen of controleren voor selectie-effecten (Harding, 2003). Deze vooruitgang in onderzoeksmethodologie en onderzoeksontwerp heeft geleid tot een beter inzicht in selectie-effecten, selectiebias en buurteffecten. Geen enkele methode kan echter selectiebias volledig wegnemen, waardoor er geen sluitend bewijs is dat de buurt een causaal effect heeft op haar inwoners. Over het algemeen geldt dat, hoe beter een studie controleert voor selectiebias, hoe kleiner de buurteffecten die worden gevonden.

Dit proefschrift probeert daarom niet om selectiebias te verminderen, maar om inzicht te geven in selectie. Ik onderzoek het verhuisgedrag van mensen; waar, wanneer en waarom verhuizen welke mensen? Daarnaast onderzoek ik mogelijke buurteffectenmechanismes; op welke manier beïnvloedt de buurt haar inwoners? Sociaal-interactieve mechanismes gaan er van uit dat buurteffecten doorwerken omdat de buurt waarin je woont bepaalt met wie je contact hebt (Ellen and Turner, 1997; Galster, 2012). Daarom onderzoek ik het effect van de etnische samenstelling van de buurt op contacten tussen allochtonen en autochtonen.

2 Welke buurtkenmerken zijn belangrijk voor wie? Individuele verschillen in woontevredenheid

Om verhuisgedrag te begrijpen is het belangrijk om te kijken naar woontevredenheid (Lu, 1999; Speare, 1974) omdat ontevredenheid leidt tot een wens om te verhuizen (Wolpert, 1965). Er is veel onderzoek gedaan naar de invloed van individuele kenmerken en buurtkenmerken op woontevredenheid, maar slechts zeer weinig onderzoek kijkt naar individuele verschillen in welke buurtkenmerken van belang zijn voor tevredenheid. Wanneer buurtkenmerken leiden tot ontevredenheid voor bepaalde mensen, terwijl deze buurtkenmerken voor anderen niet tot ontevredenheid leiden, veroorzaakt dat selectief verhuisgedrag en segregatie. In hoofdstuk 2 van dit proefschrift bestudeer ik daarom individuele verschillen in de effecten van buurtkenmerken op woontevredenheid.

In dit hoofdstuk schat ik een model waarin de tevredenheid met de woonomgeving van bewoners van stadsgewesten in het WoON (Woononderzoek Nederland 2012) wordt verklaard vanuit hun persoonlijke kenmerken, kenmerken van de buurt en interacties tussen buurtkenmerken en persoonlijke kenmerken. Met deze interactie-effecten test ik; is het effect van buurtkenmerken zoals etnische samenstelling, veiligheid of woningprijzen hetzelfde voor alle mensen of zijn er verschillen tussen groepen mensen in de grootte en of de richting van deze effecten? Bij mijn weten is in eerder onderzoek naar woontevredenheid alleen door Greif (2015) en Parkes et al. (2002) gekeken naar interacties tussen eigendomsvorm (huur of koop) en buurtkenmerken en is er nog helemaal geen eerder onderzoek naar verschillen tussen etnische groepen of huishoudenstypen in de effecten van buurtkenmerken. In ander onderzoek, onderzoek naar buurtkeuze, verhuiswensen of verhuisgedrag is wel gekeken naar verschillen tussen groepen in het effect van buurtkenmerken. Ik heb daarom deze literatuur gecombineerd met de literatuur over woontevredenheid om hypotheses op te kunnen stellen over welke buurtkenmerken van belang zijn voor wie.

Zoals verwacht op basis van de literatuur vind ik dat het aandeel niet-westerse allochtonen in de buurt een negatief effect heeft op woontevredenheid en dat dit effect sterker is voor autochtone Nederlanders dan voor niet-westerse allochtonen.

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Dit kan worden verklaard door preferenties om bij de eigen groep te wonen; niet-westerse allochtonen zijn, net als autochtone Nederlanders minder tevreden met hun woonomgeving naarmate er meer niet-westerse allochtonen in hun buurt wonen, maar meer tevreden naarmate het aandeel van hun eigen etnische groep hoger is. Daarnaast vind ik dat voor eigenaar-bewoners en gezinnen met kinderen het effect van buurtkenmerken op woontevredenheid sterker is dan voor huurders en andere huishoudenstypen. In eerder onderzoek is gevonden dat voor eigenaar-bewoners en gezinnen met kinderen de etnische samenstelling van de buurt meer van belang is dan voor andere groepen (Ellen, 2000; Goyette et al., 2014; Greif, 2015; Xie and Zhou, 2012), ik vind echter dat niet de etnische samenstelling, maar de veiligheid van de buurt, een sterkere invloed heeft op woontevredenheid voor deze groepen dan voor anderen.

In veel landen proberen beleidsmakers stabiele gemengde buurten te creëren, ook door hogere inkomens aan te trekken naar lage inkomens buurten (Bolt et al., 2010; Baum et al., 2009). Dit hoofdstuk laat zien dat er verschillen zijn tussen etnische groepen, huishoudenstypen en tussen eigenaar-bewoners en huurders in welke buurtkenmerken van belang zijn voor woontevredenheid; dus welke mensen tevreden zullen zijn in welke buurten. Dit soort inzichten zijn erg belangrijk voor effectief gemengde-buurtenbeleid (Baum et al., 2009; Ellen et al., 2013; Pinkster et al., 2015).

3 Etnische verschillen in het realiseren van wensen om de buurt te verlaten

Ontevredenheid met de woonomgeving leidt tot een verhuiswens en een verhuiswens kan leiden tot een werkelijke verhuizing (Brown and Moore, 1970; Wolpert, 1965). Of mensen er in slagen hun verhuiswens te realiseren hangt af van individuele hulpbronnen en restricties (Mulder and Hooimeijer, 1999). Er zullen daarom verschillen zijn tussen groepen in hoe succesvol ze zijn in het realiseren van hun verhuiswensen. In hoofdstuk 3 focus ik op mensen die aangeven dat ze hun buurt willen verlaten en kijk ik wie er vervolgens binnen twee jaar in slaagt om deze wens te realiseren. Daarbij kijk ik ook naar de kenmerken van de herkomstbuurt en de bestemmingsbuurt; slagen mensen met een wens om de buurt te verlaten er in om te ontsnappen uit etnische concentratiebuurten of uit armoedebuurten, of verhuizen bewoners van deze buurten, als ze er al in slagen te verhuizen, opnieuw naar etnische concentratiebuurten of armoedebuurten? Voor dit onderzoek gebruik ik een unieke combinatie van surveydata en registratiedata. In het WoON (Woononderzoek Nederland 2006 en 2009) zijn mensen gevraagd of ze hun buurt willen verlaten. Door het WoON te koppelen aan de gemeentelijke basisadministratie kan ik vervolgens de respondenten uit het WoON volgen door de tijd en bekijken of ze binnen twee jaar na de survey hun buurt hebben verlaten.

Uit eerder onderzoek komt naar voren dan allochtonen minder vaak dan autochtonen wegverhuizen uit armoedebuurten (Bolt and Van Kempen, 2003; Quillian, 2003; South et al., 2005) en uit buurten met hoge concentraties allochtonen (Bolt and Van Kempen, 2010; Pais et al., 2009; South and Crowder, 1998). De vraag is echter of dit wordt veroorzaakt doordat allochtonen in deze buurten minder vaak dan autochtonen hun buurt willen verlaten, of dat ze er minder vaak in slagen hun buurt te verlaten, ook als ze wel een wens hadden om te vertrekken. Om inzicht te krijgen in de oorzaken van segregatie en in selectie en selectiebias is het van belang te begrijpen wat de oorzaak is van etnische verschillen in verhuisgedrag. Als er etnische verschillen zijn in de wens om de buurt te verlaten, kan dit leiden tot vrijwillige segregatie. Echter, als etnische groepen niet verschillen in de wens om de buurt te verlaten, maar wel in hoe succesvol ze zijn in het realiseren van deze wens, leidt dit tot onvrijwillige segregatie.

Uit het onderzoek blijkt dat niet-westerse allochtonen minder succesvol zijn dan autochtonen in het realiseren van een wens om hun buurt te verlaten. Bovendien slagen ze er minder vaak dan autochtonen in om te ontsnappen uit armoedebuurten en buurten met hoge concentraties niet-westerse allochtonen, ook als ze wel een wens hadden om hun buurt te verlaten. In dit hoofdstuk vind ik dus etnische verschillen in het realiseren van verhuiswensen, deze verschillen kunnen leiden selectieve verhuisstromen en (onvrijwillige) etnische segregatie.

4 Buurtkeuze van niet-westerse allochtonen. Testen van eigen-groepeffecten met een conditional logit model

Mensen die er in slagen hun verhuiswens te realiseren, selecteren een nieuwe buurt die beter aansluit bij hun woonvoorkeuren. Ook in de keuze van de bestemmingsbuurt zijn er verschillen tussen groepen. Buurten verschillen in bevolkingssamenstelling, woningaanbod, woonlasten en aantrekkelijkheid en bevolkingsgroepen verschillen in hun voorkeuren, hulpbronnen en restricties (Mulder and Hooimeijer, 1999), in toegang tot informatie over buurten (Hedman, 2013) en tot informatie over beschikbare woningen (Bolt, 2001; Huff, 1986). In onderzoek naar buurtkeuze werd de buurt tot nu toe vaak gekarakteriseerd op basis van slechts een of enkele buurtkenmerken; wie verhuist er naar een armoedebuurt (Bolt and Van Kempen, 2003; Clark et al., 2006; Logan and Alba, 1993) of naar een buurt met een hoge concentratie niet-westerse allochtonen (Bråmå, 2006; Clark and Ledwith, 2007; Doff, 2010b; South and Crowder, 1998). In werkelijkheid zullen mensen bij de keuze van een buurt een beslissing nemen door verschillende buurtkenmerken tegen elkaar af te wegen (Hedman et al., 2011).

Allochtonen verhuizen vaker dan autochtonen naar buurten met een hoog aandeel allochtonen (Clark and Ledwith, 2007; Doff, 2010b; South and Crowder, 1998). Dit hoeft echter niet te betekenen dat de etnische samenstelling ook de reden is dat allochtonen vaker deze buurten selecteren, ook andere buurtkenmerken (die samenhangen met

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de etnische samenstelling) kunnen verklaren waarom juist allochtonen naar deze buurten verhuizen. In hoofdstuk 4 schat ik het effect van meerdere buurtkenmerken tegelijk op buurtselectie van niet-westerse allochtonen. Wat is het effect van woningmarktkenmerken, zoals het aandeel sociale huurwoningen en gemiddelde woningprijzen, van het aandeel van de eigen etnische groep en van het aandeel andere niet-westerse allochtonen op buurtselectie van niet-westerse allochtonen?

Ik vind dat niet-westerse allochtonen vaker dan andere etnische groepen verhuizen naar buurten met veel sociale huurwoningen en lage woningprijzen. Dit verklaart deels waarom niet-westerse allochtonen vaker naar etnische concentratiebuurten verhuizen. Ook gecontroleerd voor woningmarktkenmerken verhuizen niet-westerse allochtonen nog steeds vaker naar buurten met een hoog aandeel van hun eigen etnische groep. Waarschijnlijk hebben zij een voorkeur voor het wonen in de buurt van familie of andere leden van hun eigen etnische groep, vinden ze een woning via hun etnische netwerk of worden ze aangetrokken door voorzieningen die specifiek op hun groep zijn gericht. In aparte analyses voor Turken, Marokkanen, Surinamers en Antillianen, de vier grootste niet-westerse groepen in Nederland, blijkt dat voor Surinamers en Antillianen de combinatie van woningmarktkenmerken en eigen-groep-effecten kan verklaren waarom zij vaker kiezen voor een buurt met een hoger aandeel niet-westerse allochtonen. Turken en Marokkanen blijken echter, ook als wordt gecontroleerd voor woningmarktkenmerken en het aandeel van de eigen etnische groep in de buurt, nog steeds vaker te kiezen voor buurten met een hoger aandeel andere niet-westerse allochtonen. Mogelijk leidt discriminatie, of angst voor discriminatie, ertoe dat Turken en Marokkanen niet kunnen of willen verhuizen naar buurten met een hoger aandeel autochtone Nederlanders.

5 Gemengde buurten; effecten van herstructurering en nieuwbouw

Om de segregatie van lage inkomenshuishoudens te verminderen wordt in veel Europese landen beleid gevoerd op het gemengd bouwen van huur- en koopwoningen en goedkope en duurdere woningen. In Nederland zijn er grootschalige herstructureringsprogramma's waarin goedkope sociale huurwoningen in armoedebuurten worden gesloopt en vervangen door duurdere (koop)woningen (Kleinhans, 2004). Het doel van deze programma's is om middeninkomens naar deze buurten te trekken en sociale stijgers binnen de buurt te houden. Tegelijkertijd zijn er echter ook grootschalige nieuwbouwwijken gebouwd op uitleglocaties rondom de grote steden. Mogelijk slagen herstructureringsprojecten er minder goed in om middeninkomens naar armoedebuurten te trekken als de nieuwe, aantrekkelijke en dure woningen in deze herstructureringsbuurten moeten concurreren met vergelijkbare woningen op uitleglocaties. Daarnaast leidt grootschalige nieuwbouw van voornamelijk dure woningen op uitleglocaties tot een versterking van het proces van filtering, waarbij huishoudens met (relatief) hoge inkomens hun buurt verlaten en naar betere, duurdere buurten verhuizen. Hoe meer mogelijkheden de rijken

hebben om (naar betere buurten) te verhuizen, hoe sterker de segregatie van lage inkomenshuishoudens die achterblijven in de bestaande buurten.

In hoofdstuk 5 bestudeer ik het effect van herstructurering en nieuwbouw op uitleglocaties op selectief verhuisgedrag en inkomenssegregatie. Ik vergelijk daarbij de stadsgewesten Rotterdam, Den Haag en Utrecht, 3 stadsgewesten met zeer verschillende patronen van nieuwbouw en herstructurering. Ik gebruik longitudinale data op basis van de gemeentelijke basisadministratie, waardoor alle mensen in deze stadsgewesten kunnen worden gevolgd in hun verhuisbewegingen en inkomensontwikkeling. Ik bestudeer daarbij de inkomens en inkomensontwikkeling van verschillende verhuisstromen en vergelijk verhuizers tussen verschillende buurttypen en naar nieuwbouwwoningen in armoedebuurten of op uitleglocaties.

Uit de analyses blijkt dat nieuwbouwwoningen in armoedebuurten er in slagen middeninkomens naar deze buurten te trekken en/of voor de buurt te behouden, ook wanneer herstructureringsprogramma's moeten concurreren met grootschalige nieuwbouw op uitleglocaties. Nieuwbouw op uitleglocaties leidt tot een uitstroom van relatief hoge inkomenshuishoudens uit bestaande buurten, waardoor de concentratie van lage inkomens in armoedebuurten, en de inkomenssegregatie, verder toeneemt.

6 Segregatie en contact tussen allochtonen en autochtonen

In hoofdstuk 2 tot en met 5 heb ik gekeken naar selectief verhuisgedrag; een van de oorzaken van segregatie. In hoofdstuk 6 bestudeer de gevolgen van segregatie, ik kijk naar buurteffecten en naar de mogelijke mechanismes waardoor de buurt haar inwoners beïnvloedt. Volgens de buurteffectenliteratuur, beïnvloedt de buurt onder andere haar inwoners via sociale interacties met buurtgenoten (Ellen and Turner, 1997; Erbring and Young, 1979; Galster, 2012). Sociale interacties met autochtone Nederlanders geven allochtonen de mogelijkheid om de Nederlandse taal, normen en waarden te leren (Lazear, 1999). Daarnaast kunnen contacten met autochtonen waardevolle informatie opleveren over banen en opleidingsmogelijkheden, informatie die mogelijk niet bekend is binnen het eigen etnische netwerk. Mogelijk hebben allochtonen minder contact met autochtonen als ze in buurten met weinig autochtonen wonen, wat ertoe kan leiden dat ze minder goed integreren en minder kansen hebben in de Nederlandse maatschappij. In veel Europese landen worden concentratiebuurten van etnische minderheidsgroepen daarom als onwenselijk gezien (Bolt, 2009). Het is echter onduidelijk in hoeverre de bevolkingssamenstelling van de buurt invloed heeft op sociale interacties. Mensen hebben in toenemende mate contacten over grote afstanden en zijn dus voor hun sociale contacten niet afhankelijk van hun buurt. In hoofdstuk 6 test ik of de etnische samenstelling van de buurt effect heeft op interetnische contacten; hebben allochtonen meer contact met autochtonen naarmate ze in buurten met meer autochtonen wonen?

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In een multilevel regressiemodel verklaar ik of allochtonen contact hebben met autochtonen vanuit individuele kenmerken en buurtkenmerken. In eerder onderzoek (Gijsberts and Dagevos, 2005; Van der Laan Bouma-Doff, 2007) werd gevonden dat allochtonen minder contact hebben met autochtonen naarmate er minder autochtonen in hun buurt wonen. Ik vind echter geen significant effect van de etnische samenstelling van de buurt. Of allochtonen contact hebben met autochtonen wordt vooral verklaard door persoonlijke kenmerken zoals opleidingsniveau en huishoudenstype. Daarnaast is er een verschil tussen allochtonen in de vier grote steden, Amsterdam, Rotterdam, Den Haag en Utrecht, steden met een relatief hoog aandeel allochtonen, en allochtonen in andere Nederlandse steden. Allochtonen in de G4 hebben minder vaak contact met autochtonen dan allochtonen in andere steden, steden met een hoger aandeel autochtonen. Wanneer gecontroleerd wordt voor deze individuele verschillen en deze verschillen tussen steden heeft de etnische samenstelling van de buurt geen invloed meer op of allochtonen contact hebben met autochtonen. Het lijkt daarom onwaarschijnlijk dat het wonen in een buurt met een hoge concentratie etnische minderheden de integratie en kansen van allochtonen in Nederland belemmert *via sociale interacties*.

7 Conclusies: selectief verhuisgedrag, segregatie en buurteffecten

Het doel van dit proefschrift is om inzicht te krijgen in zowel de oorzaken als de gevolgen van segregatie door zowel te kijken naar selectief verhuisgedrag en buurtselectie als naar buurteffecten. Selectiebias wordt gezien als een van de grootste uitdagingen voor buurteffectenonderzoek (Harding, 2003; Sampson et al., 2002; Van Ham and Manley, 2012). Het is niet mogelijk om selectiebias volledig uit te schakelen, maar een beter begrip van selectie helpt bij het aanpakken en verminderen van selectiebias en geeft inzicht in de mogelijke effecten van selectiebias (Manley and Van Ham, 2012; Van Ham and Manley, 2012; Winship and Mare, 1992). Dit proefschrift geeft zowel inzicht in buurtselectie als in buurteffecten en creëert een link tussen de buurteffectenliteratuur en de literatuur over (selectief) verhuisgedrag. De toegevoegde waarde van dit proefschrift ten opzichte van eerder onderzoek ligt in het bestuderen van selectiviteit in verschillende aspecten van het verhuisproces. Ik onderzoek selectiviteit in woontevredenheid, in het realiseren van verhuiswensen en in het kiezen van een bestemmingsbuurt. Dit draagt bij aan een beter inzicht in de oorzaken van selectief verhuisgedrag en segregatie.

Een centrale bevinding van dit proefschrift is dat verhuisgedrag selectief is; verschillende mensen komen in verschillende buurten terecht. Persoonlijke kenmerken zoals etniciteit, eigendomsvorm, huishoudenstype en inkomen beïnvloeden woontevredenheid, verhuiswensen en -gedrag en buurtkeuze. Doordat de selectie van een buurt niet random is, is een correlatie tussen buurtkenmerken en persoonlijke kenmerken geen bewijs voor een buurteffect.

In dit proefschrift maak ik onderscheid tussen verschillende etnische minderheidsgroepen. Daardoor is het mogelijk de oorzaken van etnische selectiviteit in verhuisgedrag en buurtkeuze te ontrafelen. Zowel allochtonen als autochtonen zijn minder tevreden naarmate het aandeel allochtonen in hun buurt hoger ligt, maar allochtonen zijn juist meer tevreden met hun buurt naarmate het aandeel van hun eigen etnische groep hoger ligt. Allochtonen selecteren dus bij voorkeur een buurt waar veel leden van hun eigen etnische groep wonen, ze worden aangetrokken door familie of andere groepsgenoten, of door voorzieningen die specifiek op hun etnische groep gericht zijn. Deze 'eigen-groepeffecten' kunnen deels verklaren waarom allochtonen vaker dan autochtonen verhuizen naar buurten met een hoog aandeel allochtonen. Behalve 'eigen-groepeffecten' leiden ook beperkingen, door woningmarktkenmerken of door discriminatie, er toe dat allochtonen vaker verhuizen naar buurten met een hoog aandeel allochtonen. Ook vind ik dat allochtonen die hun buurt willen verlaten minder succesvol zijn dan autochtonen in het realiseren van hun verhuiswens. Etnische verschillen in verhuisgedrag en etnische segregatie worden dus zowel veroorzaakt door verschillen in voorkeuren als door verschillen in mogelijkheden; etnische segregatie is dus deels vrijwillig en deels onvrijwillig.

Ik vind niet alleen verschillen tussen etnische groepen, maar ook selectiviteit naar inkomen, huishoudenstype en eigendomsvorm (huur- of koopwoning). Mensen met hogere inkomens hebben niet per se andere woonvoorkeuren dan mensen met lagere inkomens. Wel hebben zij een sterkere positie op de woningmarkt, waardoor ze meer succesvol zijn in het realiseren van hun woonvoorkeuren. Huishoudenstype en eigendomsvorm beïnvloeden zowel de woonvoorkeuren en verhuiswensen als ook de mogelijkheden die mensen hebben om hun wensen te realiseren.

Volgens de buurteffectenliteratuur kan de buurt via verschillende mechanismes effect hebben op haar bewoners (Ellen and Turner, 1997; Erbring and Young, 1979; Galster, 2012). Om een beter inzicht te krijgen in buurteffecten, en in waar, wanneer en voor wie de buurt effect heeft op haar bewoners is het van belang om deze mechanismes te testen (zie ook Andersson and Musterd, 2010). Sociaal-interactieve mechanismes gaan er van uit dat er buurteffecten doorwerken op individuen doordat de bevolkingssamenstelling van de buurt bepaalt met wie mensen contact hebben. Dit proefschrift laat echter zien dat de etnische samenstelling van de buurt geen invloed heeft op of allochtone Nederlanders contact hebben met autochtone Nederlanders. Het is daarom onwaarschijnlijk dat het wonen in een buurt met een hoog aandeel allochtonen een negatief buurteffect heeft op integratie of levenskansen *via sociaal-interactieve mechanismes*.

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7.1 Ideeën voor vervolgonderzoek

In verder onderzoek is het, ten eerste, van belang om meer inzicht te krijgen in buurteffectenmechanismes, de mechanismes door welke de buurt effect heeft op haar inwoners. Sociaal-interactieve mechanismes gaan er van uit dat (buurteffecten werken omdat) de buurt invloed heeft op je sociale netwerk en je sociale contacten. In dit proefschrift laat ik echter zien dat de etnische segregatie op buurtniveau geen invloed heeft op of allochtonen tussen de 15 en 65 contact hebben met autochtonen. Het is daarom onwaarschijnlijk dat, voor deze leeftijdsgroep en op deze schaal, buurteffecten werken via sociaal-interactieve mechanismes. Meer onderzoek naar andere leeftijds- of bevolkingsgroepen, of op andere ruimtelijke schaalniveaus kan inzicht geven in waar, wanneer en voor wie de buurt effect heeft op sociale interacties en dus waar, wanneer en voor wie buurteffecten via sociaal-interactieve mechanismes mogelijk zijn.

Sociaal-interactieve mechanismes zijn slechts een van de mechanismes waardoor buurteffecten worden geacht te werken. Daarnaast kunnen ook toegankelijkheid van banen, stigmatisering, de kwaliteit van lokale voorzieningen en de omgevingskwaliteit van de buurt invloed uitoefenen op haar bewoners. Ook voor deze mechanismes is het van belang om hypothesen op te stellen hoe de buurt haar inwoners beïnvloedt en vervolgens deze hypothesen te toetsen. In verder onderzoek kan bijvoorbeeld worden getest of de toegankelijkheid van banen werkelijk de kansen van mensen beïnvloedt door te testen of mensen in buurten van waaruit weinig banen bereikbaar zijn vaker niet, of onder hun niveau, werken. Een ander voorbeeld is om het effect van stigmatisering te testen door te bepalen of werkgevers iemand uit een goede buurt verkiezen boven iemand die even bekwaam is uit een gestigmatiseerde buurt. Verschillende buurteffectenmechanismes zullen werken op verschillende ruimtelijke schaalniveaus, van belang zijn voor verschillende groepen mensen, na kortere of langere blootstelling aan verschillende buurtkenmerken. Onderzoek dat expliciet toetst waar, wanneer en voor wie deze mogelijke mechanismes een rol spelen geeft inzicht in waar, wanneer en voor wie de buurt *mogelijk* effect kan hebben op haar inwoners.

Ten tweede is het van belang voor buurteffectenonderzoek om selectief verhuisgedrag en buurtselectie beter te begrijpen. Zowel theoretisch als empirisch moet er een link worden gelegd tussen het buurteffectenonderzoek en het onderzoek naar (selectief) verhuisgedrag. Empirisch kan dit worden gedaan door selectiemodellen op te nemen in het onderzoek naar buurteffecten. Het opnemen van (verschillende) selectiemodellen in buurteffectenonderzoek kan selectiebias niet volledig uitschakelen, maar laat wel zien wat het effect is van (steeds beter) controleren voor selectie op de uitkomsten van buurteffectenstudies. Door te testen hoe de uitkomsten van buurteffectenstudies veranderen naarmate een meer uitgebreid selectiemodel wordt opgenomen, wordt inzicht verkregen in selectiebias en de effecten van selectiebias op buurteffectenonderzoek.

Theoretisch kan er een link worden gecreëerd tussen buurteffectenonderzoek en onderzoek naar verhuisgedrag door een selectiebiastheorie te formuleren. Zo'n theorie moet verklaren, hoe en waarom, welke factoren zowel buurtkeuze als individuele uitkomsten beïnvloeden (Van Ham and Manley, 2012). Een selectiebiastheorie kan worden gebruikt bij het ontwerpen van quasi-experimenteel onderzoek, bij het verzinnen van nieuwe manieren om te controleren voor selectiebias en op basis van zo'n theorie kun je beredeneren in hoeverre de uitkomsten van buurteffectenonderzoek vertekend zijn door selectiebias. Dit proefschrift geeft wat eerste ideeën voor hoe een selectiebiastheorie er uit zou moeten zien. Verschillen tussen bevolkingsgroepen in woonvoorkeuren, mogelijkheden op de woningmarkt en toegang tot informatie leiden tot verschillen in verhuisgedrag en daarom tot selectiebias. Verder onderzoek is nodig naar waarom groepen verschillen in woonvoorkeuren en mogelijkheden op de woningmarkt. Daarnaast is meer inzicht nodig in (verschillen tussen groepen in) zoekstrategieën en besluitvorming; hoe zoeken mensen naar een nieuwe woning en op basis van welke criteria kiezen sommige mensen ervoor een nieuwe woning te accepteren terwijl anderen nog even verder zoeken, wachtend op een betere woning of een woning in een betere buurt?

7.2 Beleidsimplicaties

Uit dit proefschrift blijkt dat segregatie deels wordt veroorzaakt door verschillen tussen groepen in voorkeuren en deels door verschillen tussen groepen in mogelijkheden en beperkingen door woningmarktkenmerken en discriminatie. Segregatie is dus deels vrijwillig en deels onvrijwillig.

Voor zover segregatie vrijwillig is, is het niet nuttig en niet mogelijk om stabiele gemengde buurten te creëren (Cheshire, 2007). Onvrijwillige segregatie kan en moet daarentegen wel worden aangepakt door beleidsmakers. Beleid dat de beperkingen op de woningmarkt aanpakt en de keuzevrijheid van mensen vergroot, vermindert de onvrijwillige segregatie en leidt tot een hogere woontevredenheid. Dit beleid zal echter niet automatisch leiden tot minder segregatie of meer gemengde buurten, aangezien mensen hun toegenomen keuzevrijheid op de woningmarkt ook kunnen gebruiken om in de buurt van hun eigen etnische of sociaaleconomische groep te gaan wonen.

Sociale interacties tussen verschillende etnische en sociaaleconomische groepen zijn belangrijk voor de emancipatie en integratie en om gescheiden werelden, die kunnen leiden tot angst en uitsluiting, te voorkomen. Ik vind in dit proefschrift dat de bevolkingssamenstelling van de buurt geen invloed heeft op sociale interacties tussen verschillen etnische groepen. Het creëren van gemengde buurten blijkt dus niet de juiste manier te zijn om sociale integratie te bevorderen. Aangezien gemengde buurten niet automatisch leiden tot gemengde sociale contacten is het van belang om met andere beleidsmaatregelen sociale contacten tussen verschillende etnische en sociaaleconomische groepen te bevorderen.

In dit proefschrift vind ik geen effect van de etnische samenstelling van de buurt op of allochtonen in de werkende leeftijd (15-65) contact hebben met autochtonen. Mensen in deze leeftijdsgroep zijn echter zeer mobiel, zij zullen dagelijks hun buurt verlaten om hun school, werk, winkels of anders voorzieningen zoals bijvoorbeeld een sportclub te bezoeken. Daarbovenop geldt dat in Nederland er maar weinig buurten zijn met echt hoge concentraties allochtonen, in de meeste 'concentratiebuurten' wonen ook nog relatief veel autochtone Nederlanders. Ook zijn de meeste concentraties van allochtonen kleinschalig; concentratiebuurten van allochtonen zijn vaak omringd door buurten met hogere aandelen autochtone Nederlanders. Deze mate van segregatie, op deze geografische schaal, blijkt geen effect te hebben op of allochtonen contact hebben met autochtonen. Wanneer echter hele stadsdelen concentratiegebieden van allochtonen of van lage inkomenshuishoudens worden, zullen mensen niet meer de kans hebben om op dagelijkse basis hun concentratiebuurt te verlaten, en buiten de buurt contact te hebben met mensen met meer sociaal kapitaal of met autochtone Nederlanders. Hoewel het niet nodig en niet nuttig is om segregatie op buurtniveau te voorkomen, blijft er wel aandacht van het beleid nodig voor segregatie; om sterkere segregatie en segregatie op hogere ruimtelijke schaalniveaus te voorkomen.

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1 Introduction: Selective mobility, segregation and neighbourhood effects

§ 1.1 Introduction

Much research has been done on residential segregation and its patterns, causes and consequences. Researchers and policymakers typically assume that segregation has negative effects on the residents of concentration neighbourhoods; especially concentrations of low income households and ethnic minorities are seen as undesirable (Friedrichs et al., 2003; Marcuse and van Kempen, 2000; Wilson, 1987). Living in concentration neighbourhoods is thought to affect residents because of presumed neighbourhood effects; the independent effects of a neighbourhood's characteristics on the life chances of its residents. Neighbourhood effects are the causal effects of neighbourhood characteristics on individual neighbourhood residents. Despite an enormous body of research on neighbourhood effects there are no clear conclusions whether independent neighbourhood effects exist (Cheshire, 2007).

Among policymakers there is a strong belief in the existence of neighbourhood effects (Van Ham and Manley, 2012). Therefore, in a large number of countries, policies are designed to create more mixed neighbourhoods (Atkinson and Kintrea, 2002; Bolt et al., 2010). If neighbourhood effects exist, that is; if living in concentrated poverty hampers individual life chances, over and above what makes people poor in the first place, neighbourhood mix policies might be an efficient strategy to improve individual economic outcomes (Galster, 2007). Cheshire (2007), however, states that mixed neighbourhood policies are belief based policies, as, he argues, there is no evidence for causal neighbourhood effects.

Many researchers have found correlations between neighbourhood characteristics such as poverty, unemployment, liveability and ethnic composition and individual outcomes such as income, work status and educational achievement. However, no research could convincingly demonstrate that the neighbourhood characteristics were the cause of the individual outcomes (Cheshire, 2007). People differ in their neighbourhood preferences and in the opportunities they have on the housing market and thus different people select into different neighbourhoods. A correlation found

between neighbourhood characteristics and individual outcomes does therefore not prove the existence of a causal neighbourhood effect; also selective residential mobility could explain this correlation. The question is; do poor neighbourhoods make people poor, or do poor people live in unattractive neighbourhoods because they cannot afford to live elsewhere (Cheshire, 2007). If a correlation is found between neighbourhood characteristics and individual characteristics, this could indicate that there is a neighbourhood effect. However, this correlation could also be found due to a selection effect in which individual characteristics determine housing market preferences and opportunities and therefore the neighbourhood where people live. Because every relation found that could possibly indicate a neighbourhood effect, can also be a selection effect, selection bias is the main problem in neighbourhood effects research.

Much research on neighbourhood effects tries to reduce or eliminate selection bias and thus to find evidence for the existence of causal neighbourhood effects. In this thesis the focus is on understanding neighbourhood selection. A better understanding of the processes of selective mobility and neighbourhood choice can help address selection bias (Winship and Mare, 1992) and therefore advance the study of neighbourhood effects. Also the segregation literature will benefit from better insights in selective residential mobility and neighbourhood choice as selective mobility is one of the main driving forces of segregation.

The aim of this thesis is to gain more insight in both the causes and the consequences of segregation. This thesis will provide a better understanding of the causes of segregation by providing insight in selective residential mobility and neighbourhood choice which is one of the main causes of segregation and in the consequences of segregation by testing neighbourhood effects. In addition, it relates selective mobility research to neighbourhood effects research, explaining how selective mobility patterns lead to biased outcomes in neighbourhood effects research.

§ 1.1.1 Outline of the chapter

In this introductory chapter, I will give an overview of relevant literature on both segregation and neighbourhood effects. In this thesis I work on the intersection of these two fields of literature and I will try to use insights from segregation literature to fill knowledge gaps in the literature on neighbourhood effects and vice versa.

Section 1.2 describes the literature on segregation. This section starts with descriptive research on what is (the level of) segregation, followed by literature on the causes or driving forces of segregation. In this thesis the focus is on selective residential mobility as driving force of segregation, therefore, the subsequent subsections are about

residential mobility theory and neighbourhood selection. In Subsection 1.2.4 I focus on the advantages and disadvantages of segregation which creates a bridge towards Section 1.3 on neighbourhood effects or the consequences of segregation.

Section 1.3 starts out with an introduction on the history of neighbourhood effects research. In Subsection1.3.1 I describe the potential causal mechanisms of neighbourhood effects, thus how neighbourhoods can affect their residents. Subsection 1.3.2 describes the various research methods that have been used to measure neighbourhood effects, their outcomes, strengths and weaknesses, and how they deal with the problem of selection bias. Although methodological advancements have been able to reduce selection bias, they cannot completely eliminate selection bias.

In Section 1.4 I describe the aim, the research questions and the further outline of the thesis. Besides this introductory chapter, the thesis will consist of five interrelated empirical chapters and a conclusion.

§ 1.2 Segregation

Research into segregation started with the Chicago School (Park et al., 1925). Park and his colleagues describe segregation as a pattern of neighbourhoods in which different population groups live. Segregation is defined as the population composition of neighbourhoods in relation to each other; that is, the concentration or underrepresentation of population groups in neighbourhoods compared to a city or national level average. Segregation is thus produced by changes in the neighbourhood population composition relative to other neighbourhoods.

Segregation can refer to the unequal distribution of every discernible population group; young people can live segregated from old people, left wing voters from right wing voters or families with children from singles. Besides residential segregation, population groups can also be separated from each other in other life domains. Recently researchers have also studied segregation at school (Hamers and Van Middelkoop, 2008), at the work place (Andersson et al., 2014) or while spending leisure time (Silm and Ahas, 2014). Most researchers and policymakers focus on residential ethnic and income segregation, and also in this research the focus is on the unequal distribution of ethnic groups and low and high income households over neighbourhoods.

Much research has been done that describes the level and development of ethnic residential segregation (Bailey, 2012; Bolt et al., 2002; Massey and Denton, 1988; Massey and Denton, 1989; Musterd and Van Kempen, 2009; Östh et al., 2014; Wilkes and Iceland, 2004). In these studies large differences are found in the level of segregation between cities and between ethnic groups. In the US, the segregation of Blacks is found to be higher than the segregation of Hispanics or Asians (Massey and Denton, 1989; Wilkes and Iceland, 2004; Rugh and Massey, 2013). Countries and cities in Europe vary largely in the main ethnic groups present and the relative size of these groups. Segregation in European cities is often found to be lower than in the US, but the differences between ethnic groups, countries and cities are very large (Musterd, 2005). Also for the same ethnic group, differences in segregation across countries and cities can be large (Musterd and Van Kempen, 2009). Within the Netherlands, ethnic residential segregation is moderate compared to other European countries and higher for Turks and Moroccans than for Surinamese and Antilleans (Van der Laan Bouma-Doff, 2007; Musterd and Ostendorf, 2009).

Also on income segregation, many studies have described the level and patterns, both in the US (Jargowsky, 1996; Massey, 1996; Massey and Eggers, 1990; Massey et al., 1991; White, 1988) and in Europe (Gullberg, 2002; Musterd, 2005). Income segregation is found to be lower in European than in American cities and to be higher in countries with more inequality (Musterd, 2005). In the Netherlands socio-economic segregation is relatively moderate compared to other countries (Musterd and Ostendorf, 2009) and the segregation level of low-income households is lower than the segregation of ethnic minorities (Musterd, 2005).

§ 1.2.1 Drivers of segregation

The first research on segregation (Park et al., 1925), explains segregation from selective mobility patterns. As a new population group starts to enter a neighbourhood (invasion), households from the population group that lived in that neighbourhood will leave the neighbourhood, thereby creating space for more invasion of the new group (succession) until the new group completely dominates the neighbourhood (Park et al., 1925). Most research on segregation focuses on selective mobility patterns as drivers of segregation. If the inflow to the neighbourhood has different population characteristics than the outflow from the neighbourhood, the population composition of the neighbourhood will change, and some groups will become over- or underrepresented.

However, besides selective residential mobility, also in situ change alters a neighbourhood population composition and thus affects segregation. Only recently more attention is paid to in situ change and its effects on segregation (see for instance

Finney and Simpson, 2009; Jivraj, 2013; Bailey, 2012). In situ change refers to the change in population characteristics of a neighbourhood population because of demographic events and changes in personal characteristics. Fertility and mortality change a neighbourhood's household, ethnic, age and income composition. Also the characteristics of individuals within neighbourhoods can change; people age, they experience changes in income, become unemployed or find a new job. Neighbourhoods with many upwardly mobile households can change from concentration areas of low income households to middle income concentration areas without many households moving.

In this thesis the focus is on selective residential mobility and its effect on segregation. People live in a certain area, because at some point they moved there, 'either freely or due to various degrees of compulsion' (Andersson, 1998: p. 418). Households can choose to live in a certain neighbourhood, but can also end up in a neighbourhood because they are constrained in their choice options. Hence, segregation can be voluntary and involuntary. In order to understand the causes of segregation it is important to understand why people move and especially which factors affect their destination choice.

§ 1.2.2 Residential mobility theory: why people move

Research on individual residential mobility decisions started with Rossi (1955). Rossi explains why people move from a lifecycle perspective; people leave the parental home, find a partner, start a family and so on and with every new phase in their lifecycle, their residential preferences change. As their old housing situation does not meet their new residential preferences, this will lead to a desire to move. Wolpert (1965) added the concept of residential dissatisfaction or residential stress to residential mobility theory; if the housing situation does not meet the residential preferences this will lead to dissatisfaction. If dissatisfaction reaches a threshold level it will lead to a desire to move (Brown and Moore, 1970).

Rossi's lifecycle approach, in which every household passes through the same phases, is adapted towards the more realistic and more modern life course approach which acknowledges that people can have different life courses and events in various life course careers, not only the family career, affect residential preferences (Mulder, 1993). In their family career people can leave the parental home, get married and have kids, but they can also return to their parents or get divorced. In their professional career people start studying and find a first job or another job. Life events in all those parallel careers affect their residential preferences and thus can lead to desires to move (Mulder, 1996).

In the households evaluation of their housing situation, both the dwelling and the neighbourhood are important (Clark et al., 2006). Neighbourhood change can create a discrepancy between the preferred and the actual housing situation and therefore trigger a desire to move (Wolpert, 1965). Moreover, impending or planned events in life course trajectories, such as changes in household composition (starting a family) or socioeconomic situation (income increase) will result in a changing evaluation of both the dwelling and the neighbourhood (Lee et al., 1994). A neighbourhood that was in line with the residential preferences of a couple might not meet their needs and standards anymore once they are planning to start a family (Pinkster et al., 2015). Hence, neighbourhood characteristics such as low school quality or nuisance, that were not considered problematic previously, can suddenly fuel a desire to leave the neighbourhood. People in different stages in their household, working or income career will therefore differ in which neighbourhood characteristics lead to dissatisfaction.

Relocation has (monetary and non-monetary) costs, therefore households will not want to move unless there is a trigger to move (Mulder and Hooimeijer, 1999) and unless triggers lead to an increase in residential stress beyond a threshold level (Brown and Moore, 1970). Households with a desire to move will search for housing opportunities that are more in line with their residential preferences (Brown and Moore, 1970; Mulder and Hooimeijer, 1999). Whether a household succeeds in moving to a dwelling and neighbourhood more in line with their preferences depends on their micro level resources such as income, wealth and knowledge of the housing market and their micro level restrictions such as an owner-occupied dwelling that first has to be sold and schools and jobs of household members that have to be accessible also from the new dwelling (Mulder and Hooimeijer, 1999). Also macro level opportunities and constraints such as local housing market supply and rents and the prices and availability of mortgage loans affect the opportunities of households to move to a dwelling and neighbourhood more in line with their preferences. As population groups differ in their resources and restrictions, there will be differences in the realisation of desires to move.

§ 1.2.3 Neighbourhood selection: where people move

Households whose neighbourhood is not in line with their residential preferences will develop a desire to move and start looking for housing options in a neighbourhood that better matches their preferences. But what neighbourhoods do people prefer? Micro-economic theories assume people will move to the place that provides them the highest utility, in which utility is determined by local wages, costs of living and amenities (Ritchey, 1976). Amenities are characteristics that make a place attractive to live (Clark and Kahn, 1988). Amenities can be natural amenities such as attractive

landscape or climate, cultural amenities such as restaurants and theatres and social amenities such as safety, low crime rates, high status or school quality (Henderson, 1982). Also accessibility, of jobs (Alonso, 1964; Kim et al., 2005), of similar people or (ethnic) group specific facilities (Bolt et al., 2008; Logan et al., 2002; Phillips, 2007) or general accessibility (Devogelaer, 2004), makes a neighbourhood attractive.

Behavioural and institutional approaches criticize the micro-economic assumption that people will always select the neighbourhood with the highest utility and will have perfect information about all available options. These approaches direct more attention to housing market constraints, selective information, networks and institutions that determine where people move. Although these concepts are very important and individuals will not always (be able to) maximise their utility, it is possible to include this *within* the micro-economic framework. Personal networks providing selective information about housing opportunities and neighbourhood reputations will, together with housing market institutions, discrimination and prejudices, determine which neighbourhoods are open to choice and which neighbourhoods are deemed most attractive. However within this bounded rationality people will still choose the neighbourhood that is most attractive to them.

Within every housing market there is a range of neighbourhoods, varying in amenities, dwelling prices and socio-economic characteristics. In general, high income households move up to new and better neighbourhoods while neighbourhoods filter down to housing lower social classes (Dwyer, 2007; Myers, 1990). However, not only the age of a neighbourhood determines its position in the neighbourhood hierarchy, also the quality of the housing stock is an important determinant. The low initial quality in some (post-war reconstruction) neighbourhoods caused them to filter down very quickly (Prak and Priemus, 1986). On the other hand, in the case of gentrification existing neighbourhoods improve their position in the neighbourhood hierarchy.

Individual differences in neighbourhood selection

According to micro-economic theory, population groups differ in which neighbourhood provides them the highest utility and these differences lead to selective mobility to and from neighbourhoods and thus segregation. Firstly, neighbourhoods with the most amenities; accessible, safe, high status neighbourhoods with good schools, will also be the most expensive neighbourhoods. For lower income households, the trade-off between housing costs and amenities will be different than for high income households. As Cheshire (2007, p. x) puts it: 'If your income is low, you may be better off living in cheap housing because there is more money available for food, clothing and other expenses'. Lower income households will receive a higher utility in inexpensive dwellings in neighbourhoods with fewer amenities, and thus select into these dwellings. According to the micro-economic theory, the selection of low income households into inexpensive

dwellings is thus seen as a rational decision. However, the segregation of these households in inexpensive *neighbourhoods* is constrained by the characteristics of the local housing market such as the clustering of social housing and inexpensive dwellings in a limited number of neighbourhoods (Phillips, 1998). Households who are dependent on the social housing sector therefore have fewer opportunities to select a neighbourhood of their preference. Similarly, households who are not eligible for social housing or for whom the rental market is relatively unattractive are constrained in their opportunities to neighbourhoods where owner-occupied dwellings are available. Ethnic minorities on average have lower incomes; therefore they will be more often constrained to inexpensive (or) social housing neighbourhoods that are (therefore) also more often concentration areas of ethnic minorities.

Another reason why there are differences between population groups in neighbourhood selection is that people prefer to live among similar people. In micro-economic terms: people derive benefits from living among other people who are similar to themselves (Cheshire, 2007). Preferences to live among similar people, or among not too many 'others' lead to selective mobility patterns. Schelling (1971) presents a model in which individuals make choices regarding their moving behaviour based on the population composition of the origin and destination neighbourhood. In this model small differences between population groups regarding the preferred population composition in the neighbourhood lead to complete segregation (see also Clark, 1991). According to relative deprivation theory, exposure to others who are more successful leads to insecurity and resentment and causes the deprived to perform even more poorly (Dietz, 2002; Galster, 2012). Therefore, low income households might be better off living among other low income households. (However, also many theories argue that living among only the underprivileged will hamper your life chances (Friedrichs et al., 2003; Galster, 2012; Wilson, 1987).) Also with regard to ethnic descent, nationality or race people receive benefits from living among similar people (Bolt et al., 2008). People prefer to have contact with others who are similar to themselves, therefore they feel more safe or more at home in neighbourhoods with higher shares of their own ethnic group (Tajfel, 1982). Especially for ethnic minorities with low incomes and for new immigrants, living in ethnic enclaves can have advantages (Beckers, 2011; Phillips, 2007; Musterd et al., 2008). Co-ethnics can provide opportunities for employment, a familiar culture (Logan et al., 2002), social support and a sense of security and belonging (Phillips, 2007). Own group preferences, the preference to live close to members of the own ethnic group, will affect residential mobility and neighbourhood choice. If households prefer to live close to people who share their language and culture or people within their ethnic support network this will lead to an increase in ethnic residential segregation.

In addition, neighbourhoods can have facilities directed to specific groups, thus increasing the attractiveness of the neighbourhood for this specific group. Low income households might receive utility from Laundromats or call shops, while

a neighbourhood with expensive coffee bars, restaurants or art galleries might be especially attractive for higher income households. Also ethnic specific facilities and shops increase the attractiveness of a neighbourhood for a specific ethnic group (Logan et al., 2002). Preferences to live among the own ethnic group or in neighbourhoods with facilities directed towards the own ethnic group can be a reason for ethnic minorities to move to minority concentration neighbourhoods.

There are thus differences between population groups in which neighbourhood is deemed most attractive or which neighbourhood provides the highest utility and these differences lead to selective mobility and segregation. However, not everybody will manage to live in the neighbourhood with for them the highest utility. Firstly, people will not have complete and objective information on all neighbourhoods or on housing opportunities in all neighbourhoods (Huff, 1986). Social networks affect people's knowledge and opinions about neighbourhoods (Hedman, 2013) and provide information about housing opportunities (Bolt, 2001) and thus affect neighbourhood selection (Logan et al., 2002). As social networks are often homogenous – in ethnicity, socio-economic status and residential neighbourhood – the dwellings people find through them are often in concentration areas of their own group (Kleit and Galvez, 2011). Besides own group preferences, also other 'own group effects' thus cause people to move close to own group members. If people receive information about housing opportunities or about neighbourhood desirability through their network of co-ethnics (Kleit and Galvez, 2011), or are attracted by facilities specifically directed towards one ethnic group (Logan et al., 2002), this will also lead to an increase in ethnic residential segregation.

A second reason why not everybody will manage to live in the neighbourhood with the highest utility is discrimination. Discrimination on the housing market limits the options for ethnic minorities to move to the neighbourhood of their preference (Alba and Logan, 1992). Lending institutions have less trust in ethnic minority groups who therefore have more problems getting a mortgage (Aalbers, 2006; Aalbers, 2013; Williams et al., 2005) or private landlords prefer households from the majority ethnic group (Phillips, 2007; Kullberg et al., 2009). Social housing accommodation systems can have discriminatory outcomes, if housing officers offer less attractive dwellings to people who they deemed undeserving or less respectable or when they match people to 'suitable' neighbourhoods based on their race or ethnicity (Kullberg, 2002; Galster, 1990). Since the 1990s, a choice based letting system has reduced this kind of discrimination in the social housing sector in the Netherlands (Kullberg, 2002). However, the housing accommodation system can still have discriminatory outcomes if groups with lower language proficiency are less likely to end up in attractive neighbourhoods (Bolt, 2001). Also the low housing quality of ethnic minorities, partly caused by discrimination in the past, decreases their ability to wait and thus their ability to get into more attractive dwellings and neighbourhoods (Bolt, 2001).

Besides actual discrimination also fear of discrimination or exclusion can prevent people from moving to certain neighbourhoods. Fear of discrimination or harassment is found to prevent ethnic and racial minorities from moving to majority concentration neighbourhoods (Bowes et al., 1997; Phillips et al., 2007; Hanhoerster, 2013). Also research in the Netherlands shows that ethnic minorities fear they will not be accepted or will not be able to get in touch with their neighbours in neighbourhoods with mainly native Dutch inhabitants and therefore choose not to move to these neighbourhoods (Kullberg et al., 2009).

To summarize: population groups differ in which neighbourhoods they select, because they differ in which neighbourhoods are most attractive to them, in which neighbourhoods dwellings are available within their personal resources and restrictions and because certain groups might not end up in optimal neighbourhoods because of discrimination or incomplete information.

§ 1.2.4 Advantages and disadvantages of segregation

Both in the US and in many European countries, policies have been designed to reduce residential segregation. Goetz (2003), for example describes numerous policies in the United States to deconcentrate the poor. In European countries, anti-segregation policies are often spatially oriented, targeting concentration areas of low income households and ethnic minorities (Bolt and Van Kempen, 2010; Musterd, 2003; Ireland, 2008). Urban restructuring policies often lead to the demolishment of inexpensive dwellings in deprived neighbourhoods and replacement by more expensive ones targeted at attracting higher income households. As ethnic minorities, more often than natives, have low incomes, urban restructuring policies might reduce both socio-economic and ethnic segregation (Bolt et al., 2008). This is, however, dependent on whether these new, more expensive, dwellings in concentration neighbourhoods of low income households and ethnic minorities are successful in attracting high income households and natives to these neighbourhoods. As urban restructuring improves housing quality and liveability in the most deprived neighbourhoods, it might counteract substandard housing conditions and liveability problems as well as segregation.

The rationale for mixed neighbourhood policies is the belief among policymakers that segregation is disadvantageous (Cheshire, 2007). Especially concentration areas of low income households and ethnic minorities are seen as undesirable (Bolt, 2009; Musterd, 2003; Van Kempen and Priemus, 1999). Also researchers, especially in the US, emphasise the negative effects of concentrations of poverty and ethnic minorities (Massey and Denton, 1993; Van Dam et al., 2010). Segregation and concentration are deemed disadvantageous because of presumed neighbourhood

effects; the independent effects of a neighbourhood's characteristics on the life chances of its residents. The next part of this introduction will discuss the literature on neighbourhood effects.

Segregation can also have advantages (Bolt et al., 1998; Bolt and Van Kempen, 2008). As said above, low income households and ethnic minorities segregate themselves from others because they experience benefits from living among similar people. Ethnic enclaves can provide a customer base for ethnic entrepreneurs (Wilson and Portes, 1980) and a safe haven from discrimination (Snel and Burgers, 2000). Ethnic enclaves can provide informal support from family members and co-ethnics and can thus function as a social safety net, especially for new immigrants, as co-ethnics provide housing and job opportunities (Bolt et al., 1998; Van Dam et al., 2010; Van der Laan Bouma-Doff, 2007). Segregation improves social contact between neighbours as people prefer to have contact with others similar to themselves (Putnam, 2007; Van Dam et al., 2010).

Both positive and negative effects of living in concentration areas are neighbourhood effects. To understand the (negative) effects of segregation on the inhabitants of concentration areas, insight is needed in neighbourhood effects. Therefore the next section will give an overview of the state-of-the-art of the neighbourhood effects literature.

§ 1.3 Neighbourhood effects

It is typically assumed in European and American urban policy and academic research that spatial concentrations of low income households or ethnic minorities have negative effects on their inhabitants (Friedrichs et al., 2003). The opportunities to improve their socio-economic status are thought to be less for inhabitants of poor neighbourhoods where amenities are worse, information about jobs is less accessible and peer groups might have negative effects (Cheshire, 2007). An enormous body of research has tried to measure neighbourhood effects; the independent effect of a neighbourhood on its residents when controlling for individual characteristics (see for a review Dietz, 2002; Ellen and Turner, 1997; Sharkey and Faber, 2014; Van Ham et al., 2012). However, no definitive answers are found whether neighbourhoods affect their residents.

Although many researchers found correlations between neighbourhood characteristics and individual outcomes, there is no clear evidence that supports a causal relation (Cheshire, 2007). Selection bias is the main problem in finding evidence for causal

neighbourhood effects. A relation found between characteristics of the neighbourhood and outcomes of individuals can be either a neighbourhood effect or a selection effect. The question is: do poor neighbourhoods make their residents poorer, or do poor people live in poor neighbourhoods because they cannot afford to live elsewhere (Cheshire, 2007; Friedrichs et al., 2003; Van Ham and Manley, 2009)? If a correlation is found between neighbourhood quality and individual income this might be explained by selection; higher income households have more opportunities on the housing market and therefore managed to move to high quality neighbourhoods. This correlation could also be a neighbourhood effect; characteristics of high quality neighbourhoods, such as accessibility of jobs or good social networks enabled residents to increase their income, while characteristics of low quality neighbourhoods such as negative peer pressure or an unsafe environment caused a decrease in income for their residents.

In the United States the interest in neighbourhood effects started with the study of Gans (1961) on the balanced community. Heterogeneous communities were thought to create resourceful social networks, increase tolerance and provide good examples for the lower class and underprivileged (see also Sarkissian, 1976). Wilson (1987) started the debate about the adverse effects of living in concentrated poverty. Anti-discrimination laws and policies in the US allowed the more advantaged Blacks to follow higher education, find better jobs and move out of the inner-city ghettos. Therefore, he argues, inner-city neighbourhoods became concentration areas of the jobless lowest class, isolated from role models, mainstream values and norms, informal job networks and social contacts with employed. With the outflow of middle class families, also basic institutions such as churches, schools and stores became difficult to sustain, and with its institutions the neighbourhood lost its sense of community and social control. Wilson argues that there is a 'concentration effect'; neighbourhoods with a concentration of the socially disadvantaged, have a negative effect on the life chances of their inhabitants. Following Wilson, many authors have investigated the negative effects of living in concentrated poverty in the US and beyond (Van Ham et al., 2012).

§ 1.3.1 How do neighbourhoods affect their residents?

Various authors have described and categorized the various potential causal mechanisms how the neighbourhood could affect individual outcomes of its residents (Ellen and Turner, 1997; Erbring and Young, 1979; Galster, 2012; Jencks and Mayer, 1990; Manski, 1995).

Both Galster (2012) and Ellen and Turner (1997) mention *geographical location* as one of the mechanisms how neighbourhood effects are transmitted. Accessibility, especially of jobs appropriate for the skill level of the residents, is thought to affect life chances (Ellwood, 1986; Kain, 1968). Individuals in neighbourhoods with little accessibility to (suitable) jobs, due to location or lack of public transport facilities, will be restricted in their employment opportunities. This spatial mismatch theory is based on the US situation where (low skilled) jobs disappeared from the inner-city to the suburbs, while the lowest skilled remained concentrated in inner-city neighbourhoods. In most European cities the spatial mismatch theory is less applicable, because of the much smaller scale of concentrations of underprivileged and the better public transport opportunities.

Secondly, neighbourhood effects can be transferred through *social interactions* with neighbours (Ellen and Turner, 1997; Erbring and Young, 1979; Galster, 2012). Through social contagion, collective socialisation and peer pressure, people's behaviour, attitudes and aspirations are thought to be affected to conform to others in the neighbourhood and to local social norms (Jencks and Mayer, 1990). Positive role models and social network contacts with individuals with more social capital are assumed to provide inspiration and practical help with an educational or working career (Ellen and Turner, 1997). For ethnic minorities it can be important to have social interactions with the native majority to have the opportunity to learn the majority language, standards and values (Lazear, 1999) and to have bridging network ties that can provide access to valuable information not present within the own ethnic network (Buck, 2001). Ethnic residential segregation might therefore impede both the integration and the social opportunities of residents of minority concentration neighbourhoods as it reduces the needs and the opportunities to interact with the native majority (Bolt et al., 1998; Van der Laan Bouma-Doff, 2007). The question, however, is how important the neighbourhood is in the social interactions of individuals. Various authors state that people increasingly have social contacts spread out over a large area (Boomkens, 2006; Van der Laan Bouma-Doff, 2007), therefore they might be less affected by social interactive neighbourhood effect mechanisms.

Thirdly, neighbourhood level *services and institutions* might affect residents' life chances. School quality is in general lower in less affluent communities (Cheshire, 2007; Jencks and Mayer, 1990), there will be less afterschool programs such as sports, music or arts (Ellen and Turner, 1997) and also access to libraries, museums and other facilities will be lower (Curley, 2010). Access to drugs dealers and liquor stores or sport accommodations and fresh food markets can encourage or enable certain types of behaviour with positive or negative effects on life chances and social opportunities (Galster, 2012; Stead et al., 2001).

Fourthly, the circumstances in the neighbourhood can have a direct effect on social, mental and physical health and life chances without transpiring via changes in individual behaviour. Galster (2012) calls these effects *environmental effects*. Exposure to crime and violence is thought to lead to stress and trauma[1] (Galster, 2012; Ellen and Turner, 1997). Crime, violence, broken windows, graffiti, litter and decayed physical conditions are thought to lead to a sense of powerlessness (Galster, 2012) and to discourage people from trying to make something of their life (Ross, 2011). Disturbance and noise can keep people from doing their (home)work or from sleeping and thereby affect their health and their life chances. Also exposure to unhealthy environmental conditions can affect individual health and life chances. Low income households with a weak position on the housing market will live in the most unhealthy or most dangerous places. Higher income households will avoid areas with soil pollution, air pollution or next to dangerous factories or power plants and will be more successful in keeping new dangerous or toxic activities out of their neighbourhood environment. Exposure to pollutants will affect people's health and thereby also their earning capacity.

Finally, neighbourhoods can be *stigmatised* (Hastings and Dean, 2003; Permentier et al., 2007), reducing the opportunities of residents because of the low expectations and perceptions of others. If a neighbourhood has a bad reputation, outsiders will hold prejudiced views about its residents. Employers may be reluctant to hire employees from stigmatised neighbourhoods because they expect them to be less capable or less trustworthy (Arthurson, 2012; Atkinson and Kintrea, 2001). Similarly, low expectations of teachers might reduce the opportunities of children from stigmatised neighbourhoods to gain access to good schools (Arthurson, 2012). Practices of redlining, in which mortgage lenders deny credit within stigmatised neighbourhoods because they perceive high risks of arrears and decreasing property values lead to an actual decrease in property values in those neighbourhoods. Prospective buyers are denied access to the neighbourhood and current home-owners cannot sell their dwelling and are therefore trapped in the neighbourhood (Aalbers, 2013). Another response among mortgage lenders to neighbourhood stigma and thus perceived higher credit risks is to issues credit at higher costs and higher interest rates. The resulting high housing costs lead to lower purchasing power and possibly financial problems (Aalbers, 2013). In addition, neighbourhood stigma can further reduce school quality, employment opportunities and amenities if good teachers are afraid to work on neighbourhood schools or businesses are afraid to locate within stigmatised neighbourhoods (Arthurson, 2012).

1 Exposure to crime and violence can also lead to changing social norms and behaviour; individuals exposed to crime and violence will be more likely to commit crimes themselves. This is a social interactive mechanism, while stress and trauma are caused by exposure to crime and violence via an environmental mechanism.

§ 1.3.2 Measuring neighbourhood effects

Many neighbourhood effect researchers, including Wilson (1987), Massey and Denton (1993) and Galster (2012) believe that living in concentrated poverty has serious consequences for individuals outcomes. The combination of this belief and the many policies to create mixed neighbourhoods makes it very relevant to find empirical evidence for neighbourhood effects and an enormous body of research has tried to test the neighbourhood effects hypothesis (Harding, 2003). Cheshire (2007: p. ix), however, states that, although "it is perfectly plausible that poor people are made poorer by the characteristics of the neighbourhoods in which they live (...) a close examination of the best research available does not reveal any clear evidence to support it".

In the United States, the neighbourhood is found to have a significant, but relatively small, effect on individual outcomes (Ellen and Turner, 1997) and in Europe, neighbourhood effects are found to be even smaller (Friedrichs et al., 2003). However, both in Europe and the US, neighbourhood effects are most likely overestimated because of selection bias (Friedrichs et al., 2003; Ellen and Turner, 1997). Poor people live in poor neighbourhoods because they cannot afford to live elsewhere, people with better career prospects or more ambitions live in better neighbourhoods. If a relation is found between neighbourhood characteristics and individual outcomes, this can be explained by the selection of individuals into specific neighbourhoods as well as by an effect of the neighbourhood on its residents. Without insight in the effects of selection bias, therefore no clear conclusions can be drawn about the independent effect of the neighbourhood on individuals (Cheshire, 2007).

Almost all neighbourhood effects studies struggle with selection bias (Harding, 2003; Sampson et al., 2002; Van Ham et al., 2012). Traditional neighbourhood effects studies estimate a regression model, predicting individual outcomes from neighbourhood characteristics (Harding, 2003). These models try to reduce selection bias by including all sorts of control variables. For instance, a model predicting changes in employment status from neighbourhood characteristics can strongly reduce selection bias by taking into account educational level as higher educated individuals will live in better neighbourhoods and be less likely to lose their job and more likely to find one. However, also other unmeasured personal characteristics, such as ambition or work ethic could affect both employment status and neighbourhood selection. As individuals with better career prospects have more opportunities to select into good neighbourhoods, a relation between neighbourhood characteristics and changes in employment status is not necessary a neighbourhood effect, it might be found due to selection bias.

Neighbourhood effect researchers have tried to further reduce or eliminate selection bias. Firstly, this has been done by using quasi-experimental study designs. In the US, housing mobility programs such as Moving to Opportunity and the Gautreaux program are used as quasi-experiments. In these programs, households from deprived neighbourhoods are enabled to move to better neighbourhoods in order to improve their life chances (De Souza Briggs et al., 2010; Mendenhall et al., 2006). The random assignment of households who wanted to participate in the project to a treatment and a control group strongly reduces selection bias, however, these studies are not entirely free of selection bias (DeLuca et al., 2012; Galster, 2011; Sampson et al., 2002). Most likely the most resourceful households among the movers will move to the best neighbourhoods, while underprivileged households might move to neighbourhoods almost as bad as the neighbourhood they were enabled to leave (DeLuca et al., 2012). Similarly, among the people enabled to move to good neighbourhoods, only the most resourceful will stay in these neighbourhoods. Selective retention can then explain a relation between neighbourhood quality and individual outcomes (Harding, 2003; Varady and Kleinhans, 2013). The results from research based on these experiments are mixed, while most studies find positive effects of moving to better neighbourhoods (Rosenbaum and Harris, 2001; Katz et al., 2001), there are also studies that find little or no effects (Clampet-Lundquist and Massey, 2008; Ludwig et al., 2008) or negative effects of moving to better neighbourhoods (Leventhal and Brooks-Gunn, 2005).

In Europe there are some quasi-experimental neighbourhood effect studies which make use of the random assignment of asylum seekers to municipalities (Beckers and Borghans, 2011; Damm, 2009; Edin et al., 2003). These studies, typically find that socio-economic outcomes of immigrants whose place of residence was determined by random assignment are better in ethnic minority concentration neighbourhoods. Therefore they conclude that the negative relation between earnings or employment and neighbourhood ethnic minority concentration as often found in non-experimental studies is most likely a selection effect.

Secondly, researchers have tried to reduce or eliminate selection bias by using advanced statistical techniques (Harding, 2003). Fixed effects models or sibling studies control for unobserved characteristics and therefore reduce selection bias (Durlauf, 2004). However, they do not control for unobserved characteristics that vary over time[2] (Harding, 2003). Also instrumental variables (IV) are used in neighbourhood

2 Fixed effects studies make use of people who move to another neighbourhood to test whether the change in neighbourhood characteristics is related to a change in individual outcomes, similarly sibling studies make use of households who moved to another neighbourhood which leads to differences between siblings in neighbourhood characteristics in their formative years. However, a move to another neighbourhood is most likely induced by changes in personal characteristics which might also affect individual outcomes. For instance a decrease in parental income can provoke a move to a deprived neighbourhood, but can also have direct adverse effects on a child's life chances.

effects studies to reduce selection bias (Cutler and Glaeser, 1997; Galster and Hedman, 2013; Sari, 2012). An instrumental variable that is uncorrelated to neighbourhood selection would eliminate selection bias, however, even if it is possible to find such an instrument, it is impossible to prove that this variable is uncorrelated to neighbourhood selection (Harding, 2003). Finally propensity score matching (PSM) and Heckman-two step models are proposed as statistical techniques to reduce selection bias in neighbourhood effects research (Harding, 2003; Hedman and van Ham, 2012; Sharkey, 2012). These techniques first model the probability of selection into a neighbourhood or neighbourhood type. Subsequently individual outcomes are estimated while taking into account the probability of selection. These models can advance neighbourhood effects research because they give more insight in selection and the possibilities of selection bias. However, also these models can only estimate selection if there is data on the personal characteristics that determine selection; unmeasured personal characteristics could still affect both selection and individual outcomes and thus bias the results. Although advances in statistical modelling have been able to reduce selection bias and provide more insight in selection, until now no technique has been found that can completely eliminate selection bias.

Finally, researchers trying to gain insight in neighbourhood effects could use qualitative or ethnographic methods. It is important to combine quantitative neighbourhood effects studies with qualitative research, to get a better understanding of how neighbourhoods affect their residents (Small and Feldman, 2012) and when, where and for whom neighbourhood effects matter (De Souza Briggs et al., 2010; Sharkey and Faber, 2014). Most ethnographic research focuses on the experiences and perceptions of individuals. These studies typically find that individuals experience negative effects of living in concentrated poverty (Van Ham et al., 2012). Pinkster (2009) for instance finds that people experience disadvantages of living in a low-income minority concentration neighbourhood; as it hampers their social network contacts and language proficiency. Atkinson and Kintrea (2001) find that residents of poor neighbourhoods experience stigmatisation. However, not all ethnographic research focuses on experiences and perceived neighbourhood effects. Harding (2010) for instance gives insight in how the neighbourhood situation affects daily lives and choices of youth and therefore there life chances. Small (2004) shows how neighbourhood perceptions of residents can affect neighbourhood attachment, neighbourhood institutions and thereby social capital.

The vast and fast growing body of literature on neighbourhood effect has still not solved the problem of selection bias, despite many interesting improvements in methodology. Many studies offer solutions for reducing selection bias, however, no studies can totally eliminate selection bias (Galster and Hedman, 2013). The relation between neighbourhood characteristics and individual outcomes is found to be stronger when individuals have more freedom in selecting their neighbourhood, which indicates that this relation is more likely explained by selection effects rather than

causal neighbourhood effects (Van Ham and Manley, 2009; Manley and Van Ham, 2012). However, also the theory about neighbourhood effects has become much more extensive; providing arguments for how neighbourhoods might affect their residents (Galster, 2012). Neighbourhoods are different in their amenities, services, social networks, job access and social norms and all these characteristics can affect the life chances of their residents. It is thus 'perfectly plausible' (Cheshire, 2007, p. ix.) that neighbourhoods affect their residents, however, until now we have not been able to provide any unbiased evidence for this.

§ 1.4 Aims, research questions and outline of the thesis

The main problem in neighbourhood effects research is selection bias; until now, neighbourhood effects researchers have not been, and probably will never be, able to eliminate selection bias from neighbourhood effects studies. To gain more insight in neighbourhood effects, whether they exist and whether we will ever be able to measure them, insight in the selection mechanisms into and out of neighbourhoods is necessary (Van Ham and Manley, 2012). A thorough insight in the selection process helps to address selection bias (Winship and Mare, 1992). It is important to combine, both theoretically and empirically neighbourhood effects research with neighbourhood selection research; thus study both the causes and the consequences of segregation in relation to each other (Doff, 2010a; Van Ham and Manley, 2012; Van Ham et al., 2012; Galster, 2003; Hedman, 2011).

The aim of this thesis is to gain more insight in both the causes and the consequences of segregation and thus to study both individual residential mobility and neighbourhood selection and neighbourhood effects.

To further the understanding of neighbourhood effects, insight in selection effects, in the processes of selective residential mobility and neighbourhood choice, is important. Also the segregation literature will benefit from better insights in selective residential mobility and neighbourhood choice. This thesis will provide a better understanding of the causes of segregation by providing insight in selective residential mobility and neighbourhood choice. In addition, it will relate selective residential mobility research to neighbourhood effects research, explaining how selective mobility leads to biased outcomes in neighbourhood effects research. Moreover it will test presumed neighbourhood effect mechanisms; does ethnic concentration hamper life chances because people in minority concentration neighbourhoods have less contact with the native majority?

§ 1.4.1 Research questions

Firstly this thesis is about neighbourhood selection and selective mobility, thus about the causes of segregation. The first main research question is where, when and why which people move. What is the effect of personal characteristics, neighbourhood characteristics and macro level housing market developments on individual neighbourhood satisfaction, moving wishes, moving behaviour and neighbourhood selection and on macro level selective mobility patterns and segregation?

Secondly this thesis is about neighbourhood effects and the consequences of segregation. Neighbourhood effects are assumed to transpire via social interactions with neighbours. Concentration areas of ethnic minorities are seen as undesirable, because their residents are thought to have less contact with the native majority which might hamper their integration and their life chances. It is, however, unclear to what extent social contact is affected by the residential neighbourhood. The second main research question asks whether the ethnic composition of the neighbourhood affects interethnic contact. Do ethnic minorities have less contact with the native majority if they live in minority concentration neighbourhoods? Chapter 2 to 5 provide answers for four different sub-questions derived from the first main research question, while Chapter 6 answers the second main research question.

§ 1.4.2 Empirical chapters

As said above, the decision to move is based on residential dissatisfaction, people who are dissatisfied with their housing situation will develop a desire to move (Wolpert, 1965). The research question of Chapter 2 is: *Which neighbourhood characteristics, personal characteristics and especially interactions between the individual and the neighbourhood affect residential satisfaction, that is; which neighbourhood characteristics are important to whom?* This paper provides insight in individual differences in residential satisfaction. Individual differences in the effect of neighbourhood characteristics on residential satisfaction can explain selective residential mobility. I find that the share of non-western minorities in the neighbourhood has a negative effect on neighbourhood satisfaction, an effect that is stronger for natives than for non-western minorities themselves. This is most likely explained by own group preferences; people are more satisfied in neighbourhoods with higher shares of their own ethnic group and when this is taken into account the differences between ethnic groups in the effect of the total neighbourhood share of non-western ethnic minorities on satisfaction disappear. There are also tenure differences and differences between household types in the effects of neighbourhood characteristics on satisfaction. Neighbourhood safety is found to be especially important for owner-occupiers and households with children.

Dissatisfaction or residential stress leads to a desire to move and households with a desire to move will search for housing opportunities more in line with their preferences (Brown and Moore, 1970). However, whether they will be able to move depends on their personal resources and restrictions (Mulder and Hooimeijer, 1999). In Chapter 3, I study people who want to leave their neighbourhood. This chapter answers the question: *Who realises a desire to leave their neighbourhood and who realises a desire to escape poverty neighbourhoods or ethnic minority concentration neighbourhoods?* This paper gives insight in the effect of personal characteristics on the ability to leave undesired neighbourhood conditions. I find that ethnic minority groups are less likely to realise a desire to leave their neighbourhood and that if they succeed in moving from an ethnic minority concentration or poverty neighbourhood, they are more likely to end up in another ethnic minority concentration or poverty neighbourhood than native Dutch residents.

Among the households who move, there are differences between population groups in the characteristics of the destination neighbourhood. Neighbourhoods differ in amenities, housing costs and population composition and population groups differ in resources, restrictions and preferences (Mulder and Hooimeijer, 1999) and in access to information about housing opportunities (Bolt, 2001; Hedman, 2013; Huff, 1986). Ethnic minority households are more likely than the native majority to move to ethnic minority concentration neighbourhoods (Clark and Ledwith, 2007; Doff, 2010b; South and Crowder, 1998). In Chapter 4, I estimate the effects of neighbourhood characteristics on neighbourhood selection. The research question is: *Which neighbourhood characteristics determine that a moving ethnic minority household selects exactly this neighbourhood from a choice set of all other neighbourhoods in the urban region?* This paper tries to explain why ethnic minority households move to minority concentration neighbourhoods. I find that housing market characteristics partly explain why ethnic minorities more often than others move to minority concentration neighbourhoods; ethnic minorities move to neighbourhoods with low dwelling values and high shares of social housing which are more often also ethnic minority concentration neighbourhoods. Also when housing market characteristics are taken into account I find that ethnic minorities, more often than others, move to concentration neighbourhoods of their own ethnic group. Thus own group preferences or other own group effects such as ethnic specific facilities and mono-ethnic networks (Kleit and Galvez, 2011) also partly explain why ethnic minorities move into minority concentration neighbourhoods. While housing market characteristics and own group effects together explain the selection of Surinamese and Antilleans into minority concentration neighbourhoods these two factors are not sufficient to explain neighbourhood selection of Turks and Moroccans. Turks and Moroccans are found to move to neighbourhoods with high shares of non-western minorities, also when housing market characteristics and own group effects are taken into account. Discrimination or fear of discrimination most likely explains why Turks and Moroccans are not willing or able to move to native majority concentration neighbourhoods.

Chapter 5 looks at the effect of new housing development on mobility patterns. In this chapter I study *(What is) the effect of new housing development in urban restructuring neighbourhoods and on greenfield locations on selective residential mobility and segregation?* Both urban restructuring and greenfield development create selective mobility patterns that affect the composition of both origin and destination neighbourhoods and thereby segregation. I show that urban restructuring in deprived neighbourhoods is successful in attracting higher income households to those neighbourhoods and thus effective in creating more mixed neighbourhoods. Greenfield development, however, attracts the highest income households from existing (deprived) neighbourhoods which leads to an increase in segregation.

Chapter 6 focuses on neighbourhood effects and the consequences of segregation. This paper answers the second main research question; *Does the ethnic composition of the neighbourhood affects contact of ethnic minorities with the native majority?* Ethnic residential segregation is presumed to have a negative effect on the integration and the life chances of ethnic minorities (Bolt, 2009) because residents of minority concentration neighbourhoods are thought to have less contact with the native majority. Therefore they will have less need and fewer opportunities to learn the majority standards and values and less access to valuable social networks. This might hamper their integration and their socio-economic advancement. In Chapter 6 I estimate the effect of the neighbourhood ethnic composition on whether ethnic minorities have contact with native Dutch. As opposed to earlier research on this topic (Gijsberts and Dagevos, 2005; Van der Laan Bouma-Doff, 2007) I find no effect of the neighbourhood ethnic composition on minority contact with the native majority. Whether ethnic minorities have contact with the native majority depends mainly on their individual characteristics. Also differences are found between people who live in the four largest cities – cities with high shares of ethnic minorities – and other cities with much lower shares of ethnic minorities. Ethnic residential segregation on neighbourhood level thus does not affect whether ethnic minorities have contact with the native majority and thus does not necessarily hamper integration and life chances of ethnic minorities.

§ 1.4.3 Outline of the thesis

The rest of this thesis consists of the five empirical chapters as summarised above, followed by a conclusion. The empirical chapters all use quantitative research methods and focus on urban regions in the Netherlands. In these chapters I use a variety of datasets; various surveys, register data and combinations of survey data and register data. Also a variety of statistical methods and techniques including (multilevel) logistic regression models, conditional logit models, ordered and multinomial logit models

are used. Each chapter contains more detailed information on the used data and methodology. Chapters 2 and 3 are submitted to international peer reviewed journals, Chapter 4, 5 and 6 have been published in Environment and Planning A, Tijdschrift voor Economische en Sociale Geografie and Urban Studies respectively. The conclusion provides a summary of the main findings and discusses the relevance and the added value of the empirical papers to the literature on neighbourhood selection and neighbourhood effects.

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TOC

2 Who cares? Individual differences in the determinants of residential satisfaction

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Submitted.

Abstract: Residential satisfaction is a key variable in understanding residential mobility. Many researchers have studied the individual level and neighbourhood level determinants of satisfaction, however, very few have studied which neighbourhood characteristics will affect satisfaction for whom. In this paper, a series of ordered logit models is estimated, explaining satisfaction from neighbourhood characteristics, personal characteristics and interactions. These interaction effects test whether neighbourhood characteristics have similar effects on all individuals, or whether individual characteristics affect the size and direction of these effects. Ethnic minorities are found to be less affected than natives by the share of ethnic minorities in the neighbourhood, because they prefer to live close to their own ethnic group. Satisfaction is found to be more dependent on neighbourhood characteristics for owner-occupiers and households with children than for other households. However, the impact of the neighbourhood ethnic composition on satisfaction does not differ with tenure or household type.

Keywords: residential satisfaction, ethnicity, racial proxy, interactions, residential mobility, segregation

§ 2.1 Introduction

Residential satisfaction is a key variable in residential mobility research (Speare, 1974). As dissatisfaction is thought to lead to mobility desires and behaviour, insight in the determinants of residential satisfaction is crucial for understanding residential mobility (Lu, 1999). People differ in which neighbourhood characteristics affect their residential satisfaction (Galster and Hesser, 1981). Declining property values, for instance, might lead to dissatisfaction among owner-occupiers, while for renters this is less likely to be the case (Ellen, 2000). High shares of minority residents are found

to lead to dissatisfaction among whites, but this effect is less strong among minorities themselves (Swaroop and Krysan, 2011).

Differences between individuals in the effects of neighbourhood characteristics on residential satisfaction lead to differences in mobility desires and thus to selective residential mobility. Selective residential mobility is one of the main driving forces of segregation. Therefore, to gain more insight in segregation and selective residential mobility it is crucial to understand which neighbourhood characteristics affect satisfaction for whom. Also for policymakers who try to create mixed, stable and attractive neighbourhoods it is important to have insight in which neighbourhood characteristics are important for whose satisfaction (Baum et al., 2009; Ellen et al., 2013; Pinkster et al., 2015).

Much research has been done on which personal characteristics affect residential satisfaction (Amérigo and Aragones, 1997; Galster and Hesser, 1981; Greif, 2015; Grogan-Kaylor et al., 2006; Lu, 1999; Parkes et al., 2002; Permentier et al., 2011). Similarly, many researchers have tested the effects of neighbourhood characteristics on satisfaction (Baum et al., 2009; Dekker, 2013; Galster and Hesser, 1981; Parkes et al., 2002). Within this field, there is a special interest in the effect of the neighbourhood ethnic or racial composition on satisfaction (Dekker, 2013; Harris, 2001; Swaroop and Krysan, 2011); does a higher share of minorities cause dissatisfaction with the neighbourhood, or is the ethnic composition a proxy for other correlated neighbourhood characteristics that lead to dissatisfaction? Much less research on satisfaction has focused on the interaction between the neighbourhood and the individual; that is, on differences between population groups in the effect of neighbourhood characteristics on satisfaction or on which neighbourhood characteristics are important to whom. To my knowledge, only Baum et al. (2009), Greif (2015), Parkes et al. (2002) and Swaroop and Krysan (2011) focus on tenure, ethnic or income differences in the effect of neighbourhood characteristics on satisfaction.

This research studies the determinants of individual satisfaction with the residential environment. Besides personal characteristics and neighbourhood characteristics, this research also includes interaction effects between personal characteristics and neighbourhood characteristics, thus testing differences between population groups in the effects of neighbourhood characteristics on satisfaction. These interaction effects test whether neighbourhood characteristics such as the neighbourhood ethnic composition, crime rates or dwelling values have similar effects on all individuals, or whether individual characteristics affect the size and direction of these effects. Based on data from the Housing Research Netherlands Survey, a series of ordered logit models is estimated in which individual satisfaction is explained from neighbourhood characteristics, personal characteristics and interactions.

§ 2.2 Residential satisfaction

Residential satisfaction is the key variable in the residential mobility model of Speare (1974). According to this model residential dissatisfaction will cause residential mobility and personal and neighbourhood characteristics will only affect mobility via satisfaction. Other authors have criticized this model, stating that people will only move beyond a certain level of dissatisfaction (Wolpert, 1965; Brown and Moore, 1970) and that also personal opportunities and constraints affect residential mobility; not all dissatisfied people will (be able to) move (Landale and Guest, 1985; Lu, 1998). However, residential satisfaction is a key variable in understanding mobility desires and behaviour (Lu, 1998). Therefore insight in residential satisfaction is crucial to understand selective residential mobility, neighbourhood change and segregation.

Residential satisfaction depends on the congruence of the residential situation with the desired residential situation (Brown and Moore, 1970; Lu, 1999a). The desired residential situation depends on a household's needs and aspiration (Grogan-Kaylor et al., 2006). Residential satisfaction is thus dependent on the congruence of the characteristics of the residential situation and the characteristics of the household (Lu, 1998). Households differ in their housing needs and aspirations and therefore will react differently to similar residential situations (Kahana et al., 2003). The next paragraphs will describe the (main) effects of personal and neighbourhood characteristics on satisfaction, while the next section will focus on the interaction effects, or on which neighbourhood characteristics are important to whom.

Individual level determinants of residential satisfaction

Personal characteristics are thought to mainly affect residential satisfaction through selection effects (Parkes et al., 2002; Permentier et al., 2011). Given the opportunity, people select environments that are in line with their residential needs (Rapoport, 1980). Therefore, people with more opportunities on the housing market are generally found to be more satisfied. A higher income (Parkes et al., 2002; Permentier et al., 2011) and a higher educational level (Harris, 2001; Lu, 1999) are found to be related to higher levels of residential satisfaction. Older people have had more time to select themselves into a neighbourhood of their preference and are therefore found to be more satisfied (Permentier et al., 2011). For households with children and owner-occupiers the neighbourhood is more important (Ellen, 2000), also because these groups generally stay longer in the same neighbourhood (Feijten, 2005). Much research has found that owner-occupiers (Dekker, 2013; Lu, 1999; Parkes et al., 2002; Swaroop and Krysan, 2011) and households with children (Dekker, 2013; Lu, 1999; Permentier et al., 2011) are more satisfied with their residential environment. Length of residence is thought to have a positive effect on satisfaction as over time residents

will have more social contacts in their neighbourhood and become more attached (Lu, 1999). However, in models taking into account other personal characteristics results are mixed. Although Parkes et al. (2002) find a positive effect of length of residence on satisfaction, other papers find insignificant (Swaroop and Krysan, 2011) or negative (Dekker, 2013; Lu, 1999) outcomes. This might be explained by the fact that in general people improve their residential situation over their housing career; most people who move, move to better dwellings and neighbourhoods (Clark et al., 2006). People with a long length of residence could be people who soon will move, or people who have been unable to move on, which are both related to lower levels of satisfaction. Also on the effect of ethnicity on residential satisfaction the results are mixed; some studies find that Whites are more satisfied than Blacks (Galster and Hesser, 1981; Lu, 1999) or non-western minorities less satisfied than native Dutch (Dekker, 2013). However, other studies find no effect of ethnicity on residential satisfaction (Harris, 2001; Parkes et al., 2002; Permentier et al., 2011). Possibly ethnic minorities are found to be less satisfied because they live in worse neighbourhoods, while the effect of ethnicity disappears when neighbourhood quality is taken into account.

Neighbourhood level determinants of residential satisfaction

Residential satisfaction also depends on the characteristics of the neighbourhood (Clark et al., 2006). Many researchers have tested the effects of neighbourhood characteristics on individual satisfaction. People are found to be more satisfied in neighbourhoods with high incomes and/or high dwelling values (Dekker, 2013; Galster and Hesser, 1981; Harris, 2001; Lu, 1999; Swaroop and Krysan, 2011). Also good schools and low crime rates (Harris, 2001; Parkes et al., 2002), accessibility (Baum et al., 2009; Parkes et al., 2002) and high shares of owner-occupied dwellings (Harris, 2001) are found to be related to higher satisfaction with the neighbourhood. Finally variables such as general appearance, noise (Baum et al., 2009; Parkes et al., 2002), dilapidated dwellings (Galster and Hesser, 1981) and deterioration (Harris, 2001) are found to affect residential satisfaction.

Many researchers have focused on the effect of the neighbourhood ethnic or racial composition on residential satisfaction. Higher shares of ethnic minorities are found to be related to lower levels of satisfaction (Dekker, 2013; Galster and Hesser, 1981; Harris, 2001; Swaroop and Krysan, 2011). However, according to the racial proxy theory, not the ethnic composition, but other neighbourhood characteristics, correlated with ethnic composition, are the cause of dissatisfaction. High shares of ethnic minorities often coincide with poverty, high crime rates or low school quality and these variables lead to dissatisfaction (Harris, 2001). To test the racial proxy hypothesis, researchers have tested whether neighbourhood ethnic composition still affects residential satisfaction (Dekker, 2013; Harris, 2001; Swaroop and Krysan, 2011), dwelling values (Harris, 1999), or neighbourhood outmobility (Ellen, 2000)

when other neighbourhood characteristics are taken into account. They find that other neighbourhood characteristics such as poverty, property values, turnover rates, school quality and disorder can only partly explain the relation between ethnic composition and dissatisfaction; also when these characteristics are taken into account people are still found to be less satisfied in neighbourhoods with higher shares of minorities (Ellen, 2000; Harris, 2001; Swaroop and Krysan, 2011).

§ 2.3 Which neighbourhood characteristics are important to whom?

Despite a very large body of research on the determinants of residential satisfaction, only very few studies have focused on differences between population groups in the effects of neighbourhood characteristics. Galster and Hesser (1981) made subsamples according to tenure, marital status, income and age and found that the effect of neighbourhood characteristics on satisfaction differed per subsample. Although they conclude that neighbourhood characteristics will have a different impact on different types of respondents, they do not draw conclusions on which neighbourhood characteristics will be more important to whom (Galster and Hesser, 1981). The next paragraphs describe earlier research on group differences in the effect of neighbourhood characteristics on residential satisfaction.

Preferences for the own ethnic group

In neighbourhoods with higher shares of ethnic minorities, people are found to be less satisfied (Dekker, 2013; Harris, 2001; Swaroop and Krysan, 2011) or more likely to want to leave the neighbourhood (Ellen, 2000; Van Ham and Feijten, 2008). This effect is often found to be stronger for natives than for ethnic minorities themselves (Harris, 2001; Swaroop and Krysan, 2011; Van Ham and Feijten, 2008) which can most likely be explained by own group preferences. People prefer to have contact with others who are similar to themselves (Putnam, 2007; Tajfel, 1982), therefore they feel more safe or more at home in neighbourhoods with higher shares of their own ethnic group (Dekker, 2013; Phillips, 2007). Living among the own ethnic group is advantageous (Bolt et al., 2008) as co-ethnics can provide opportunities for employment, housing, social security (Logan et al., 2002; Musterd et al., 2008) and a sense of security and belonging (Phillips, 2007). Both ethnic minorities and natives prefer to live among their own ethnic group (Cheshire, 2007; Clark, 1991). Therefore it can be expected that people are more satisfied with their neighbourhood if the share of their own ethnic group is higher (Dekker, 2013).

The effect of the neighbourhood ethnic composition on satisfaction will therefore differ between ethnic groups. Not only will ethnic minorities be less affected than natives by the share of ethnic minorities, also between ethnic minority groups there will be differences, since ethnic minorities will prefer to live among their own ethnic minority group and not among other ethnic minorities (Boschman and Van Ham, 2015).

Group differences in tolerance of ethnic minorities

Ellen (2000) and Goyette et al. (2014) test in the US whether there are individual differences in the effect of neighbourhood ethnic composition on mobility. Goyette et al. (2014) find that White households with young children are more likely to leave ethnic diverse neighbourhoods than other White households and Ellen (2000) finds that especially households with children and owner-occupiers avoid neighbourhoods with high or increasing shares of Blacks. Goyette et al. (2014) state that this might be explained by pure race reasons; White parents want to maintain a distance between their children and children of ethnic minorities. However, they state that also racial proxy reasons might explain these differences as minority concentration is correlated or perceived to be correlated with crime rates, school quality (Goyette et al., 2014) and declining property values (Ellen, 2000). These race-associated neighbourhood characteristics are especially important to owner-occupiers and households with children; therefore especially these groups avoid neighbourhoods with high or increasing shares of Blacks. Xie and Zhou (2012) use stated preferences research from the US to test whether there are individual differences in racial tolerance. Based on Farley-Schuman show cards (Farley et al., 1978) they test if people would want to move into neighbourhoods with increasing shares of Blacks and model the effect of personal characteristics on tolerance for Black neighbours. They find that home-owners, households with children, married couples, older people and lower educated people are less tolerant to Black neighbours. These aforementioned papers give insight in which population groups will be more sensitive to neighbourhood ethnic composition or more tolerant to ethnic minorities, however, the article by Greif (2015) on Los Angeles is the only one that focuses on individual differences in the effect of ethnic composition on satisfaction. Greif (2015) studies interaction effects between home-ownership and neighbourhood characteristics including the neighbourhood ethnic composition in models explaining satisfaction. She finds significant interaction effects, showing that home-owners are more sensitive to the neighbourhood ethnic composition than renters.

Based on the literature it can be expected that the effect of the neighbourhood ethnic composition on satisfaction differs between population groups. For home-owners and households with children the share of ethnic minorities is expected to have a stronger negative effect on satisfaction than for other households.

Group differences in the effects of other neighbourhood characteristics

Satisfaction is found to be more affected by neighbourhood characteristics for home-owners than for renters (Greif, 2015; Parkes et al., 2002). Greif (2015) models satisfaction and finds significant interactions of home-ownership with neighbourhood economic advantage, ethnic composition and the share of owner-occupied dwellings. Parkes et al. (2002) find in England that in affluent, predominantly owner-occupied neighbourhoods owner-occupiers are more satisfied than renters, while in poor neighbourhoods with high shares of rented dwellings, renters are more satisfied. Greif (2015) argues that disadvantageous neighbourhood characteristics are particularly important to home-owners as they could lead to declining property values and therefore financial problems. Home-ownership can hamper moving behaviour, especially when property values are declining. If neighbourhood characteristics are not congruent (anymore) with residential needs, dissatisfied renters can more easily than dissatisfied home-owners leave the neighbourhood Therefore neighbourhood stressors such as crime, disorder, racial segregation or poverty will have a stronger effect on satisfaction for home-owners than for renters (Greif, 2015).

Similar to home-owners, also for households with children, neighbourhood satisfaction is thought to be more affected by neighbourhood characteristics. Households with children spend more time within the neighbourhood, therefore they are more affected by neighbourhood amenities and the population composition of their neighbours (Weck and Hanhörster, 2014). Secondly, having children makes parents more conscious of neighbourhood characteristics including school quality (Boterman, 2013) and safety (Permentier et al., 2011).

People prefer to live among similar people, not only in terms of ethnicity, but also with regard to tenure and income (Van Ham and Feijten, 2008; Schelling, 1971). Baum et al. (2009) study neighbourhood satisfaction in Australia and find that the share of social housing has a stronger negative effect on satisfaction for owner-occupiers than for public tenants and the share of low income households has a stronger negative effect on satisfaction for high income households than for low income households. Van Ham and Feijten (2008) study the desire to leave the neighbourhood in the Netherlands and also find preferences to live among similar neighbours; especially people who are different from the neighbourhood population in ethnicity, tenure or income want to leave the neighbourhood.

Based on the literature, it can be expected that residential satisfaction will be higher for people who live among similar people, not only in terms of ethnicity, but also in terms of tenure and income (Baum et al., 2009; Van Ham and Feijten, 2008). Home-owners are expected to be more sensitive to neighbourhood characteristics than renters (Greif, 2015; Parkes et al., 2002). Neighbourhood characteristics that could affect property values such as crime rates, amenities, poverty or ethnic composition

will have a stronger effect on satisfaction for owner-occupiers than for renters. Also households with children will be more affected by neighbourhood characteristics than other households.

§ 2.4 Hypotheses

This paper focuses on whether there are individual differences in the effects of neighbourhood characteristics on residential satisfaction. The first hypothesis is that neighbourhood ethnic composition affects residential satisfaction, and that this is not a racial proxy effect but remains significant also when other neighbourhood characteristics are taken into account (hypothesis 1). Secondly, I expect to find that personal characteristics affect the size and direction of the effect of neighbourhood characteristics on satisfaction. The share of ethnic minorities in the neighbourhood will have a less strong effect on satisfaction for ethnic minorities themselves than for natives, because people prefer to live in neighbourhoods with high shares of their own ethnic group (hypothesis 2). For owner-occupiers and households with children residential satisfaction is more dependent on neighbourhood characteristics including neighbourhood ethnic composition than for renters or households without children (hypothesis 3). People are more satisfied if their neighbours are more similar to themselves in income or tenure status (hypothesis 4).

§ 2.5 Data and methods

This study uses the Housing Research Netherlands survey (WoON 2012), a housing survey that is representative for the Dutch population 18 year and older (not living in institutions). In the Housing Research Netherlands survey respondents are asked about their satisfaction with their residential environment and this survey contains data on many personal characteristics such as ethnicity[3], income, education, household type, tenure and length of residence. This dataset was combined with data on neighbourhood characteristics from Statistics Netherlands and the Leefbaarometer.

3 The data uses the Statistics Netherlands definitions of ethnic groups. Non-Western minorities are people of whom at least one parent is born in Africa, Latin America or Asia (except Indonesia and Japan). Western minorities are people of whom at least one parent is born in another country outside the Netherlands.

Statistics Netherlands has data on neighbourhood ethnic, household and dwelling composition and on average incomes, dwelling values and accessibility of all neighbourhoods. The Leefbaarometer has created an indicator of neighbourhood safety based on objective statistics about vandalism, disturbance, violent crime, theft and nuisance. The neighbourhood data is available on the level of administrative neighbourhoods (buurten) as defined by Netherlands Statistics. Neighbourhoods are the smallest administrative area level in the Netherlands and, more than larger areas, in line with what people perceive as their residential environment. Within urban areas, neighbourhoods are small, with an average size of 1.4 km^2 and an average number of 6,000 inhabitants. They often have natural borders such as main roads or waterways.

In total there are 69,330 respondents in the Housing Research Netherlands 2012 survey. In accordance with most other research on residential satisfaction, also in this research the focus is on urban areas. Within the Netherlands, there are large differences in ethnic composition between the four largest cities and other urban region. To be able to study the effects of neighbourhood ethnic composition, only respondents in the urban regions of the four largest cities in the Netherlands are included. Only respondents with independent housing careers are selected, because only these households are asked about their satisfaction with their residential environment. This selection includes 18,349 respondents.

To determine in which neighbourhood the respondent lives, the survey was merged with the municipal register data. However, for a small share of the respondents (53 respondents, 0.2%) the registered address did not match the address from the survey, therefore these respondents had to be excluded. For some neighbourhoods, neighbourhood characteristics such as average dwelling values, neighbourhood safety or the share of specific ethnic minority groups, is missing. To be able to include all neighbourhood characteristics in the models, respondents living in neighbourhoods with missing data (236 respondents, 1.3%) had to be excluded. All models are estimated on 18,060 respondents.

The dependent variable, satisfaction with the residential environment, is measured on a five point Likert scale. Most people are satisfied with their residential environment (Table 2.1). Only 1.8% is very dissatisfied, therefore this group was merged with dissatisfied. The dependent variable thus has 4 ordered categories. Therefore, to explain satisfaction I use ordered logit regression models. These models make use of the order of the response categories and estimate the effect of the independent variables on being in a higher category of satisfaction. In the ordered logit models, both personal and neighbourhood level variables are included. To control for the multilevel structure of the data, standard errors were clustered on neighbourhood level. The 18,060 respondents are clustered in 1,174 neighbourhoods. On average there are 15 respondents per neighbourhood (minimum = 1, maximum = 401).

	N	%
Very satisfied	4,886	27.1
Satisfied	9,385	52.0
Not satisfied/Not dissatisfied	2,408	13.3
Dissatisfied	1,054	5.8
Very dissatisfied	327	1.8

TABLE 2.1 Descriptive statistics concerning satisfaction with the residential environment (N=18,060)

Source: Own calculations based on WoON 2012, provided by Netherlands Statistics

§ 2.6 Results: Determinants of neighbourhood satisfaction

This section describes the results from a series of ordered logit models explaining satisfaction with the residential environment from neighbourhood characteristics, personal characteristics and interactions. In a first model (model 1, Table 2.2) only neighbourhood ethnic composition is taken into account. In neighbourhoods with higher shares of non-western minorities, satisfaction is lower, while in neighbourhoods with higher shares of western minorities, satisfaction is higher.

In a second model (model 2, Table 2.2), also other neighbourhood characteristics are taken into account. People are more satisfied in neighbourhoods with low crime rates, high dwelling values and good accessibility of facilities[4]. The share of owner-occupied dwellings in the neighbourhood has no effect on satisfaction. Also the share of high rise buildings and vacant dwellings, variables that could be used as indicators of general appearance or deterioration, do not affect satisfaction. When these neighbourhood characteristics are taken into account, the effect of the share of western minorities disappears. Western minorities more often live in neighbourhoods with good accessibility of facilities; not the high share of western minorities but the accessibility of facilities leads to higher satisfaction in these neighbourhoods. The negative effect of the share of non-western minorities, however, remains significant. This confirms the first hypothesis; the effect of non-western minorities on satisfaction is not a racial proxy effect, but remains significant also when other neighbourhood characteristics are taken into account. Possibly, however, this model does not accurately control for all neighbourhood characteristics correlated with ethnicity, in which case ethnicity could be a proxy for other neighbourhood characteristics not included in the model.

4 I use the distance to the closest supermarket and the number of restaurants within 3 km as indicators of accessibility of facilities.

	MODEL 1		MODEL 2	
	B	p	B	p
% non-western minorities	-0,028	0,000	-0,021	0,000
% western minorities	0,027	0,000	0,003	0,717
Safety			0,003	0,027
Dwelling values			0,003	0,000
Distance to closest supermarket			-0,158	0,000
# restaurants within 3 km			0,000	0,001
% owner-occupied dwellings			0,001	0,377
% vacant dwellings			0,005	0,517
% high-rise buildings			0,001	0,658
R^2		0,036		0,043

TABLE 2.2 Ordered logit models explaining satisfaction from neighbourhood characteristics

Source: Own calculations based on WoON 2012, provided by Netherlands Statistics

In model 3 (Table 2.3) both neighbourhood characteristics and personal characteristics are included. Similar to model 2, people are found to be more satisfied in neighbourhoods with low crime rates, high dwelling values and good accessibility. Also personal characteristics are found to affect satisfaction. Non-western minorities are less satisfied than natives or western minorities. Couples, both with and without children are less satisfied than singles, single parent families or other households. Couples generally have higher demands for their neighbourhood and are therefore found to be less satisfied when neighbourhood characteristics are taken into account. In line with the literature, older people (over 45) and households with higher incomes are found to be more satisfied with their neighbourhood. Length of residence has a negative effect on satisfaction, possibly because households with a long length of residence wanted to move on but were unable to do so. Owner-occupiers, people in single family dwellings and healthy people are more satisfied.

The second hypothesis states that the share of non-western minorities in the neighbourhood has a less strong negative effect on satisfaction for minorities themselves than for natives, because people are more satisfied in neighbourhoods with high shares of their own ethnic group. Therefore, in model 4 (Table 2.3) interaction effects are included between the share of non-western minorities and individual level ethnicity. The main effect of the share of non-western minorities remains significant negative. The interaction effect of the share of non-western minorities with being a western minority is not significant and the interaction with being a non-western minority is significant and positive.

This indicates that the negative effect of the share of non-western minorities on satisfaction is less strong for non-western minorities themselves than for natives or western minorities[5].

In model 5 (Table 2.3) an extra interaction effect is included between being a non-western minority and the share of the own ethnic group in the neighbourhood[6]. This interaction effect is significant and positive, indicating that non-western minorities are more satisfied if the share of their own ethnic group is higher. After inclusion of this interaction effect, the interaction with the total share of non-western minorities is no longer significant. This confirms hypothesis 2; model 4 shows that the negative effect of the share of non-western minorities on satisfaction is less strong for non-western minorities than for natives and western minorities. However, model 5 shows that this is explained by a preference to live among the own ethnic group. When it is taken into account that people are more satisfied in neighbourhoods with higher shares of their own ethnic group, the total share of non-western minorities in the neighbourhood has an equally strong negative effect on non-western minorities as on natives.

5 The positive interaction effect for non-western minorities is smaller than the negative main effect of the share of non-western minorities in the neighbourhood. This indicates that also for non-western minorities, the share of non-western minorities has a negative effect on satisfaction, but this effect is less strong than for natives or western minorities.

6 For Turks, Moroccans, Surinamese and Antilleans, this is the share of their own ethnic group, while for other non-western minorities it is the share of other non-western minorities.

	MODEL 3		MODEL 4		MODEL 5	
	B	p	B	p	B	p
Neighbourhood characteristics						
% Non-western minorities	-0,021	0,000	-0,025	0,000	-0,025	0,000
% Western minorities	0,008	0,229	0,010	0,130	0,010	0,136
Safety	0,002	0,139	0,001	0,299	0,001	0,309
Dwelling values	0,002	0,000	0,002	0,000	0,002	0,000
% Owner-occupied	-0,001	0,390	-0,002	0,269	-0,002	0,273
Distance to closest supermarket	-0,167	0,000	-0,160	0,000	-0,161	0,000
# Restaurants within 3 km	0,001	0,000	0,001	0,000	0,001	0,000
Personal characteristics						
Non-western minority	0,330	0,000	0,024	0,789	0,016	0,853
Western minority	-0,042	0,394	-0,108	0,158	-0,108	0,158
Household type (ref single)	0,000	0,000	0,000	0,000	0,000	0,000
couple	-0,090	0,033	-0,094	0,026	-0,098	0,021
couple with children	-0,103	0,044	-0,113	0,027	-0,120	0,020
single-parent household	-0,048	0,534	-0,055	0,475	-0,051	0,509
other household	-0,100	0,245	-0,103	0,233	-0,106	0,221
Age (ref <45)						
45-55	0,128	0,003	0,126	0,004	0,125	0,004
55-65	0,362	0,000	0,358	0,000	0,358	0,000
65-76	0,598	0,000	0,596	0,000	0,595	0,000
75+	0,946	0,000	0,944	0,000	0,944	0,000
Income	0,002	0,004	0,002	0,005	0,002	0,005
Education (ref low)						
middle	-0,053	0,168	-0,050	0,193	-0,049	0,204
high	-0,159	0,000	-0,151	0,000	-0,150	0,000
Length of residence	-0,007	0,000	-0,008	0,000	-0,008	0,000
Tenure (ref=rented)	0,274	0,000	0,272	0,000	0,271	0,000
Dwelling type (ref =multifamily)	0,248	0,000	0,251	0,000	0,253	0,000
Health status (ref=less healthy)						
healthy	0,269	0,000	0,272	0,000	0,274	0,000
very healthy	0,761	0,000	0,767	0,000	0,768	0,000
Interactions						
% non-western minorities * non-western			0,009	0,000	0,005	0,058
% non-western minorities * western			0,003	0,233	0,003	0,233
% own ethnic group * non-western					0,016	0,010
R^2		0,0578		0,0583		0,0585

TABLE 2.3 Ordered logit models explaining satisfaction from neighbourhood characteristics, personal characteristics and interactions

Source: Own calculations based on WoON 2012, provided by Netherlands Statistics

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Hypothesis 3 states that for owner-occupiers and households with children satisfaction is more dependent on neighbourhood characteristics including the neighbourhood ethnic composition than for renters and households without children. To test this, more models are estimated including interactions between these personal characteristics and neighbourhood characteristics. In Table 2.4 only the interaction effects are presented.

Based on earlier research (Greif, 2015; Xie and Zhou, 2012), home-owners are expected to be more sensitive than renters to the neighbourhood ethnic composition. To test this, firstly model 6 is estimated including (all variables included in model 3 plus) only an interaction effect between the share of non-western minorities and tenure. This interaction effect is significant and negative, indicating that indeed the share of non-western minorities has a stronger negative effect on satisfaction for home-owners than for renters.

Earlier research in the US has found that households with children are more sensitive to the neighbourhood ethnic composition (Ellen, 2000; Goyette et al., 2014; Xie and Zhou, 2012). To test this, model 8 is estimated including (all variables included in model 3 plus) only an interaction effect between the share of non-western minorities and a dummy variable for whether there are children in the household. This interaction effect is not significant; in the Netherlands there are no differences between household types in the effect of the share of non-western minorities on satisfaction. Possibly, neighbourhood ethnic composition is especially important for households with children because it is correlated or perceived to be correlated with school quality (Ellen, 2000; Goyette et al., 2014). This effect can be expected to be stronger in the US, where catchment areas determine school choice, than in the Netherlands, where parents have more freedom and can also choose a school outside the neighbourhood. This might explain why, contradictory to earlier research in the US, households with children in the Netherlands are not found to be more sensitive than other households to the neighbourhood ethnic composition.

In model 7 and 9 interaction effects of tenure and household type with the neighbourhood share of ethnic minorities as well as neighbourhood dwelling values and safety are included. Significant interaction effects are found between neighbourhood safety and tenure and between neighbourhood safety and household type. For owner-occupiers and households with children safety has a stronger effect on satisfaction than for renters and households without children. This is in line with hypothesis 3. There are no differences between household types or tenure types in the effect of dwelling values.

Similar to Greif (2015) and Xie and Zhou (2012), I found in model 6 that owner-occupiers are more sensitive than renters to the ethnic composition of the neighbourhood. However, if the interaction between tenure and safety is taken into

account, the interaction effect between tenure and the share of ethnic minorities disappears. In the Netherlands owner-occupiers are not more affected than renters by the neighbourhood ethnic composition, but more affected by neighbourhood safety, which is correlated with ethnic composition. Possibly, also in the US, Greif (2015) and Xie and Zhou (2012) might not have found tenure differences in sensitivity to neighbourhood ethnic composition if they would have taken into account tenure differences in sensitivity to other neighbourhood characteristics.

	MODEL 6		MODEL 7		MODEL 8		MODEL 9	
	Interactions with tenure				Interaction with children			
	B	p	B	p	B	p	B	p
Interaction effects with tenure or children								
% Non-western minorities	-0,004	0,028	-0,002	0,461	-0,003	0,091	0,001	0,129
Dwelling values			-0,001	0,274			0,002	0,406
Safety			0,003	0,037			0,004	0,048
R^2		0,058		0,058		0,058		0,058

TABLE 2.4 Interaction effects of tenure and children with neighbourhood characteristics

Source: Own calculations based on WoON 2012, provided by Netherlands Statistics (All models control for the same variables as included in model 3.)

Hypothesis 4 states that people are more satisfied if their neighbours are more similar to themselves in income and tenure status. People prefer to live among similar people (Schelling, 1971; Van Ham and Feijten, 2008). Earlier research in Australia (Baum et al., 2009) found that the share of social housing has a stronger negative effect on satisfaction for home-owners than for renters and the share of low income households has a stronger negative effect on satisfaction for high income households than for low income households. To test hypothesis 4, interactions are included between tenure and the share of owner-occupied dwellings in the neighbourhood and between income and the average income in the neighbourhood (these models are not shown)[7]. These interaction effects are insignificant. Neighbourhood income has a positive effect on satisfaction, however this effect does not vary with income. The share of owner-occupied dwellings in the neighbourhoods affects satisfaction neither for owner-occupiers nor for renters. Thus, hypothesis 4 has to be rejected; in the Netherlands people are not significantly more satisfied if they are similar to their neighbours in income or tenure.

7 In all other models average income in the neighbourhood is not included due to high correlation with dwelling values. However, in this model I excluded neighbourhood dwelling values and included neighbourhood average income. I also estimated a model including dwelling values and an interaction between neighbourhood dwelling values and individual income to test if high income households are especially satisfied in neighbourhoods with high dwelling values, however, also this interaction effect is not significant.

§ 2.7 Conclusions

There are individual differences in the determinants of residential satisfaction; ethnicity, tenure and household type affect the size and direction of the effect of neighbourhood characteristics on satisfaction. Residential satisfaction is a key variable in understanding residential mobility desires and behaviour. If neighbourhood characteristics lead to dissatisfaction and therefore mobility desires and outmobility for specific groups, this will increase residential segregation. Therefore, to understand selective residential mobility and segregation it is important to have insight in which neighbourhood characteristics lead to dissatisfaction for whom. Within a long tradition of research into residential satisfaction, this is one of the first studies that focuses on interactions between individual characteristics and neighbourhood characteristics in order to understand individual differences in the effect of neighbourhood characteristics on satisfaction.

This paper combines literature on residential satisfaction with literature on residential mobility (desires) and literature on neighbourhood choice, in order to derive hypotheses about which neighbourhood characteristics are important to whom. To test these hypotheses, a series of ordered logit models is estimated, explaining satisfaction from neighbourhood characteristics, personal characteristics and cross-level interaction effects.

Firstly, the effect of neighbourhood ethnic composition on residential satisfaction is tested. According to the racial proxy theory, not the ethnic composition of the neighbourhood but other neighbourhood characteristics correlated with ethnic composition lead to dissatisfaction (Harris, 2001). Based on the racial proxy theory, the effect of neighbourhood ethnic composition on satisfaction is expected to disappear when other neighbourhood characteristics are taken into account. However, most research on the racial proxy theory still finds some effect of the neighbourhood ethnic composition on satisfaction (Harris, 2001; Swaroop and Krysan, 2011), dwelling values (Harris, 1999) or outmobility (Ellen, 2000) also when other neighbourhood characteristics are taken into account. Also in this paper, I find lower satisfaction in neighbourhoods with higher shares of non-western minorities, an effect which remains significant when other neighbourhood characteristics are taken into account. Thus, ethnic composition is not a proxy for other neighbourhood characteristics but has an independent effect on satisfaction. It is, however, possible that this paper and earlier papers do not accurately control for (unmeasured) neighbourhood characteristics correlated with ethnicity such as reputation, disorder or school quality, in which case ethnicity could be a proxy for other neighbourhood characteristics that mistakenly were not included in the model.

If the ethnic composition would be a proxy for other neighbourhood characteristics such as reputation, a higher share of non-western minorities would lead to dissatisfaction for all ethnic groups. On the other hand, an independent effect of the neighbourhood ethnic composition on satisfaction is most likely explained by a preference to live among the own ethnic group, in which case there will be ethnic differences in the effect of the share of non-western minorities on satisfaction. I find that the share of non-western minorities has a stronger negative effect on satisfaction for natives than for non-western minorities. This is not because natives are more averse to 'others' than non-western minorities; non-western minorities are less affected by the share of non-western minorities in the neighbourhood because they are more satisfied in neighbourhoods with higher shares of their own ethnic group. This indicates that the relation between neighbourhood ethnic composition and satisfaction is not a racial proxy effect but a pure race effect; people are more satisfied if they live among their own ethnic group, while higher shares of 'others' lead to dissatisfaction. This shows how important it is to distinguish between different categories of non-western minorities. The total share of non-western minorities has a negative effect on satisfaction for non-western minorities as well as for natives, however the share of the own non-western minority group has a positive effect.

Based on earlier research (Boterman, 2013; Ellen, 2000; Goyette et al., 2014; Greif, 2015; Parkes et al., 2002; Weck and Hanhörster, 2014), residential satisfaction of owner-occupiers and households with children was expected to be more dependent on neighbourhood characteristics. The effect of neighbourhood safety on satisfaction was indeed found to be stronger for these groups; especially home-owners and households with children are more satisfied in neighbourhoods with low crime rates.

Satisfaction was also expected to be more dependent on the neighbourhood ethnic composition for owner-occupiers and households with children. Earlier research in the US found that home-owners and household with children are less tolerant to Black neighbours (Xie and Zhou, 2012) and their residential satisfaction (Goyette et al., 2014; Greif, 2015) and mobility behaviour (Ellen, 2000) is more dependent on the neighbourhood ethnic composition. This might be explained by pure race reasons; people want to maintain a distance between their children and ethnic minorities (Goyette et al., 2014). However, this might also be due to racial proxy reasons; people associate ethnic concentration with neighbourhood characteristics that are especially important to home-owners or households with children such as declining property values or low school quality (Ellen, 2000; Goyette et al., 2014). Also in this paper, initially satisfaction is found to be more dependent on neighbourhood ethnic composition for home-owners than for renters. Unlike Ellen (2000) and Goyette et al. (2014), I subsequently test whether this is a pure race effect or a racial proxy effect by taking into account interaction effects between tenure and other neighbourhood characteristics. When it is taken into account that for owner-occupiers satisfaction

is more dependent on neighbourhood safety, the effect of ethnic composition on satisfaction does no longer vary with tenure, indicating that the ethnic composition was a proxy for other correlated neighbourhood characteristics.

Finally, this research tested the hypothesis that people prefer to live among people similar to themselves in tenure status and income. However, this hypothesis was rejected; I did not find a different effect of the neighbourhood tenure composition on satisfaction for home-owners than for renters nor income variation in the effect of neighbourhood average income on satisfaction.

This research has thus found differences between ethnic groups, tenure groups and household types in the effect of neighbourhood characteristics on satisfaction. This indicates that within one neighbourhood, some groups will be satisfied, while for other groups certain neighbourhood characteristics lead to dissatisfaction and desires to leave the neighbourhood. This might lead to selective residential mobility, segregation and high turnover rates. Policymakers in many countries try to create stable, attractive and mixed neighbourhoods (Bolt et al., 2010; Baum et al., 2009; Cheshire, 2007), also by attracting higher income households to deprived urban restructuring neighbourhoods (Boschman et al., 2013). For effective policy design it is very important to know which households will be satisfied despite neighbourhood stressors such as high crime rates or ethnic minority concentrations; that is, to have insight in which neighbourhood characteristics are important to whom (Baum et al., 2009; Ellen et al., 2013; Pinkster et al., 2015).

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3 Ethnic differences in realising desires to leave the neighbourhood

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Submitted.

Abstract: Selective mobility into and out of neighbourhoods is one of the driving forces of segregation. Empirical research has revealed who wants to leave certain types of neighbourhoods or who leaves certain neighbourhoods. A factor which has received little attention so far is that some residents will have a desire to leave their neighbourhood, but are unable to do so. The residential mobility literature shows that the discrepancy between moving desires and actual mobility is larger for ethnic minorities than for natives. This paper uses a unique combination of register data and survey data. We combine data from a large housing survey in the Netherlands (WoON) with longitudinal register data from the Netherlands (SSD), which contains individual level information on residential mobility histories. This allows us to study which households with a wish to leave their neighbourhood are actually successful, and to which neighbourhoods they move. A more thorough insight in who wants to leave which neighbourhoods but is unable to do so will contribute to a better understanding of selective mobility and segregation. We find that ethnic minority groups are less likely than natives to realise a desire to leave their neighbourhood and that if they succeed in moving from an ethnic minority concentration or poverty neighbourhood, they are more likely to end up in another minority concentration or poverty neighbourhood than native residents.

Keywords: ethnic minorities, selective mobility, segregation,neighbourhoods, moving desires

§ 3.1 Introduction

Selective mobility into and out of neighbourhoods is one of the driving forces of ethnic and socio-economic segregation. The segregation literature gives insight in the interrelatedness of neighbourhood characteristics and residential mobility. Selective residential mobility will affect neighbourhood characteristics and, in turn, neighbourhood characteristics can be a trigger to move. As Logan and Alba (1993)

state, it is important to study (the causes of) ethnic or racial differences in residential outcomes, because of the strong effects the residential neighbourhood can have on social opportunities (Friedrichs et al., 2003; Wilson, 1987).

Much research has focussed on residents who want to leave their neighbourhood or residents actually leaving their neighbourhood. These studies give insight in which neighbourhood characteristics are a reason to leave and how this differs between population groups. People who are different from the majority population of the neighbourhood are found to be more likely to leave the neighbourhood (Bolt and Van Kempen, 2003; Schaake et al., 2010; South and Crowder, 1998; Van Ham and Clark, 2009), which may result in reproduction of segregation. Similarly, models are estimated on who wants to leave the neighbourhood (Feijten and Van Ham, 2009; Kearns and Parkes, 2003; Lee et al., 1994). Van Ham and Feijten (2008) find that people who are different from the neighbourhood population are more likely to want to leave.

However, we do neither know who actually succeed in leaving their neighbourhood if they express a desire to leave, nor what neighbourhoods they move to. Not only the desire to leave the neighbourhood may be selective, but also the probability of success. If there are differences between ethnic or racial groups in the wish to leave certain neighbourhoods, segregation might be voluntary. However, if individuals from one ethnic group are equally likely to want to leave, but less successful than others in leaving, this may indicate that segregation is involuntary. So far, segregation literature has devoted little attention to the relationship between moving desires and actual mobility.

In the residential mobility literature, several studies analyse the relationship between moving wishes and moving behaviour. These studies reveal a large discrepancy between a desire to move and actual moving behaviour. The majority of people with a desire to move do not move within one or two years (Crowder, 2001; De Groot et al., 2011; Kan, 1999; Lu, 1999). In Europe, ethnic minority groups are found to be especially unsuccessful in realising their desires to move (Boschman and De Groot, 2011) and in the United States, Blacks are found to be less successful than Whites (Crowder, 2001; Kan, 1999).

In this paper we create a link between the segregation literature and the residential mobility literature. This paper focuses on people who want to leave their neighbourhood and studies selectivity in who realises their desire to leave. Thereby we especially focus on differences between ethnic groups.

Firstly, we analyse who is successful in realising their desire to leave. In earlier research ethnic minorities have been found to be less successful in realising moving wishes. Does this also imply that they are less successful in realising a wish to leave the neighbourhood?

Secondly we study who are successful in leaving which neighbourhoods. Ethnic minorities (in Europe) as well as Blacks, Hispanics and Asians (in the American literature), have been found to be less likely than the native majority to leave poverty neighbourhoods (Bolt and Van Kempen, 2003; Quillian, 2003; South et al., 2005) or minority concentration neighbourhoods (Bolt and Van Kempen, 2010; Pais et al., 2009). An important question is whether ethnic minorities are less successful than others in leaving these neighbourhoods, also if they have expressed a wish to leave.

Thirdly, we will examine the extent to which respondents manage to escape poverty or minority concentration neighbourhoods. For individuals in poverty neighbourhoods or ethnic minority concentration neighbourhoods with a desire to leave their neighbourhood we analyse who manages to move to a more affluent or less concentrated neighbourhood.

In sum, our aim is twofold: 1) to reveal differences between population groups in realising desires to leave their neighbourhood, and 2) to reveal differences in escaping from poverty neighbourhoods or ethnic minority concentration neighbourhoods among people who state they want to leave their neighbourhood. The residential mobility and segregation literatures will benefit from more insights in the characteristics of people who are (un)able to leave undesired neighbourhoods.

This paper uses an innovative combination of register data and survey data. We use data from a large housing survey in the Netherlands (WoON) on the wish to leave the neighbourhood, and we combine these data with longitudinal register data from the Netherlands (SSD), which contains individual level information on residential mobility histories. This unique combination of complementary datasets allows us to study which households with a desire to leave their neighbourhood subsequently realise their desire and to which neighbourhoods they move.

§ 3.2 Theory

Segregation refers to the unequal distribution of population groups over space. Selective residential mobility is one of the driving forces of segregation. Starting with the Chicago School (Park et al., 1925) many researchers have described the nature of segregation and the role of selective mobility patterns in (re)producing segregation (Clark, 1991; Schelling, 1971). To understand selective mobility patterns, researchers have tried to gain insight in individual differences in mobility behaviour.

Many researchers have found ethnic or racial differences in residential mobility behaviour and outcomes. Blacks are found to be less likely than Whites to move to suburbs (Logan and Alba, 1993) and more likely to move to poverty neighbourhoods (Clark et al., 2006) or Black concentration neighbourhoods (Clark and Ledwith, 2007; South and Crowder, 1998). Also in Europe, ethnic minorities are found to be more likely than natives to move to poverty neighbourhoods (Bolt and Van Kempen, 2003) or minority concentration neighbourhoods (Bråmå, 2006; Doff, 2010). Similarly, ethnic minority groups, or Blacks, Hispanics and Asians, are found to be less likely to leave ethnic minority concentration neighbourhoods (Bolt and Van Kempen, 2010; Pais et al., 2009; South and Crowder, 1998) or poverty neighbourhoods (Bolt and Van Kempen, 2003; Quillian, 2003; South et al., 2005; South and Crowder, 1997). To understand individual mobility behaviour and the relation between moving desires and their realisation, insight is needed in the residential mobility literature.

Residential mobility

Researchers from Rossi (1955) onwards have attempted to describe and explain individual residential mobility processes. Early theorists assumed that a discrepancy between the preferred and the actual housing situation leads to residential stress or dissatisfaction (Speare et al., 1974; Wolpert, 1965) and if residential stress reaches a threshold level, it will trigger a desire to move (Brown and Moore, 1970). Households with a desire to move will search for housing opportunities that better fulfil their residential needs (Brown and Moore, 1970). However, moving desires will not always be fulfilled. Some groups will be more successful than others in realising their desire to move (Lu, 1999). Many factors compound the relation between satisfaction, moving intentions and actual moves, and thus result in behavioural inconsistencies in residential mobility (De Groot et al., 2011; Lu, 1999). Whether households will be able to translate mobility desires into an actual move depends on their personal preferences, resources and restrictions, as well as the opportunities and limitations imposed by the local housing market (Mulder and Hooimeijer, 1999).

A high income increases the opportunities to improve the housing situation, while renters can more easily move because their transaction costs related to the move are much lower than for owner-occupiers (Mulder and Hooimeijer, 1999; Murie, 1974; Priemus, 1984). Larger households have higher moving costs and have to take into account accessibility of jobs, schools and facilities for all household members when searching a new dwelling (Schwartz, 1973). Large households will thus be less successful in realising their moving wishes, also because they are more constrained in terms of the size of the dwelling. Discrimination on the housing market can limit the opportunities of ethnic minorities to improve their housing situation (South and Crowder, 1998). Also in the Netherlands, discrimination (Aalbers, 2007) and fear of discrimination (Kullberg et al., 2009) is found to affect residential mobility of ethnic minorities. Also a lower language proficiency or

lower understanding of the housing allocation system can reduce the opportunities of ethnic minorities to realise their moving desires (Bolt, 2001). Furthermore, social ties within the neighbourhood may prevent residential mobility (Dawkins, 2006; Parkes et al., 2002). A social network within the neighbourhood can provide cheap alternatives to costly services such as day-care for children, transportation and recreation (Connerly, 1986; DaVanzo, 1981). This type of social capital is location specific and difficult to redevelop after moving (DaVanzo, 1981). Especially low-income and ethnic minority households are found to rely on this type of social capital (Portes, 1998). These groups thus have higher costs of leaving the neighbourhood and will therefore be less likely to leave. Possibly, they are also less successful in leaving their neighbourhood even if they do have a desire to leave. Finally, local housing market opportunities and the macro-level economic situation affect opportunities of individuals to find a better housing situation and thus to realise their desire to move (De Groot et al., 2011; Lu, 1998).

Many studies test whether individuals actually realise their desire to move. These studies often find a large discrepancy between desires, expectations or intentions to move[8] and actual moving behaviour (Crowder, 2001; De Groot et al., 2011; Kan, 1999; Landale and Guest, 1985; Lee et al., 1994; Lu, 1999; Moore, 1986). The majority of people who stated they want to move, do not realise their moving desire within one or two years (Crowder, 2001; De Groot et al., 2011; Kan, 1999; Lu, 1999). High income households are found to be more likely to realise their desires (Boschman and De Groot, 2011; Crowder, 2001; Moore, 1986). Blacks or ethnic minorities are found to be less successful in realising their desire to move (Boschman and De Groot, 2011; Crowder, 2001; De Groot et al., 2011; Kan, 1999; Moore, 1986). The same often applies to larger households (De Groot et al., 2008; Kan, 1999). For some characteristics, findings are mixed. Older people are less likely to realise their desire to move (De Groot et al., 2008; Moore, 1986), but Kan (1999) finds no significant effect of age. Owners are found to be more successful by some researchers (De Groot et al., 2008) and less successful by others (Kan, 1999; Moore, 1986).

Linking segregation and residential mobility; the role of the neighbourhood

According to residential mobility theory, households reveal a desire to move if they are dissatisfied with their current housing situation. In the households' evaluation of their housing situation, both dwelling and neighbourhood characteristics are important

8 In residential mobility literature many studies have been done on the realisation of mobility desires, intentions or expectations. Most papers do not pay attention to the differences between these concepts, however, Coulter and colleagues (2011) show that that desires and expectations are different and have a different impact on subsequent behaviour. In our research we use the terms desires or wishes, because in our data, people are asked about their moving desires and their desires to leave the neighbourhood. We are, however, aware that other researchers have used other concepts which make their outcomes less comparable.

(Clark et al., 2006). Neighbourhood change can create a discrepancy between the preferred and the actual housing situation and therefore trigger a desire to move (Wolpert, 1965). Moreover, impending or planned events in life course trajectories, such as changes in household composition (starting a family) or socioeconomic situation (income increase) will result in a changing evaluation of both the dwelling and the neighbourhood (Lee et al., 1994). A neighbourhood that was in line with the residential preferences of a couple might not meet their needs and standards anymore once they are planning to start a family. Hence, neighbourhood characteristics such as low school quality or nuisance, which were not considered problematic previously, can suddenly fuel a desire to leave the neighbourhood.

Much research has been done on which neighbourhood characteristics are a reason to want to leave the neighbourhood, especially on the role of the ethnic or racial composition of the neighbourhood. In the United States, Schelling (1971) hypothesizes that individuals do not want to be a minority in their neighbourhood and thus move out if the share of 'others' is higher than the share of their own group. Farley and colleagues (1978) confronted White individuals with hypothetical neighbourhoods with various shares of Black households and no information on other neighbourhood characteristics. Following Farley and colleagues (1978), various researchers have shown that increasing shares of Whites describe the neighbourhood as undesirable or state they would try to move out, if the share of Black households increases (Farley et al., 1978; Krysan, 2002; Krysan et al., 2009).

Both researchers in the US and Europe have tested the effect of various neighbourhood characteristics on the desire to leave the neighbourhood (Van Ham and Feijten, 2008), neighbourhood outflow (Ellen, 2000; Van Ham and Clark, 2009), neighbourhood satisfaction (Dekker, 2013; Harris, 2001; Swaroop and Krysan, 2011) or dwelling prices (Harris, 1999). They find that in neighbourhoods with higher shares of ethnic or racial minorities, more people (want to) leave the neighbourhood and neighbourhood satisfaction is lower. However, critics state that this is not directly caused by the racial composition; they claim that race is a proxy for other unwanted neighbourhood characteristics correlated with the racial composition (Ellen, 2000; Harris, 2001).

The effect of the neighbourhood ethnic or racial composition on moving desires or outward mobility is less strong for ethnic or racial minorities than for the native majority (Pais et al., 2009; Van Ham and Clark, 2009; Van Ham and Feijten, 2008). Black households are found to have a preference for mixed neighbourhoods and to be more tolerant than whites to neighbourhoods with different racial compositions (Farley et al., 1978; Krysan et al., 2009). Also in the Netherlands, especially the native majority is found to want to leave minority concentration neighbourhoods (Bolt and Van Kempen, 2010; Van Ham and Feijten, 2008).

Ethnic minorities and low income households are found to be less likely to leave poverty neighbourhoods (Bolt and Van Kempen, 2003; South et al., 2005) and minority concentration neighbourhoods (Bolt and Van Kempen, 2010; Pais et al., 2009). Low income households are dependent on neighbourhoods where affordable dwellings are available. Most vacancies occur in neighbourhoods with large numbers of affordable dwellings, which are often also neighbourhoods with large concentrations of low-income households and ethnic minorities. In addition, people will receive information about neighbourhood desirability and housing opportunities through their social network. As social networks are often homogeneous in ethnicity and socio-economic status, people will often move to (other) concentration neighbourhoods of their own ethnic or socio-economic group. Furthermore, ethnic minorities often prefer to live among their own ethnic group (Bolt et al., 2008) or close to ethnic specific facilities (Logan et al., 2002). As a result of the above low income households will be more likely to move to (another) poverty neighbourhood and ethnic minorities will be more likely to move to (another) ethnic minority concentration neighbourhood. In this paper, we will test whether ethnic minorities are less successful than natives in leaving minority concentration neighbourhoods, and if low income households are less successful than high income households in leaving poverty neighbourhoods, even if they have expressed a desire to leave their neighbourhood.

Apart from neighbourhood ethnic or racial composition, other neighbourhood characteristics may be related to neighbourhood satisfaction or (desired) mobility out of the neighbourhood. Harris (2001) finds a negative effect on neighbourhood satisfaction of poverty, crime, deterioration and bad schools. Dekker (2013) finds lower neighbourhood satisfaction in neighbourhoods with low incomes and low dwelling values. However, Ellen (2000) and Van Ham and Clark (2009) find no significant effect of neighbourhood income on mobility out of the neighbourhood. Possibly, households in poverty neighbourhoods are less satisfied and more often want to leave the neighbourhood, but do not succeed in realising their desire to leave.

Ethnic minority groups in the Netherlands

The four largest minority groups in the Netherlands are Turks (2.4%), Moroccans (2.2%), Surinamese (2.1%) and Antilleans (0.9%). Besides these four groups we include other non-western minorities (4.2%) and western minorities (9.4%) (Percentages over 2013, source: Netherlands Statistics). The immigration of Turks and Moroccans started in the 1960 when they were recruited as guest workers. Especially unskilled labourers from the poorest rural areas were recruited, to solve the shortages of low-paid unskilled workers on the labour market (Castles, 2006). In the 1970s and 1980s the immigrant population increased further because of family reunification and family formation. This migration history explains the in general low educational level of Turks and Moroccans in the Netherlands.

Surinamese and Antilleans are immigrants from former Dutch colonies. Most Surinamese came to the Netherlands after de declaration of independence of Surinam in 1975. Until the 1990s Antilleans came mainly to the Netherlands to acquire higher education. More recently more underprivileged Antilleans came to the Netherlands to find a job. Surinamese and Antilleans in the Netherlands have a higher language proficiency because of the colonial history, are higher educated and more often have a job and a high income than Turks and Moroccans (Dagevos, 2007). Ethnic residential segregation in cities in the Netherlands is moderate to low compared to other European countries and higher for Turks and Moroccans than for Surinamese and Antilleans (Musterd and Ostendorf, 2009). While Turks, Moroccans and Surinamese generally have been in the Netherlands for a long time, among Antilleans and especially among the category of other non-western minorities there are also many more recent immigrants. Because of their short duration of stay in the Netherlands, these groups might not have established a good position on the housing market yet, and therefore might more often (want to) move (Åslund, 2005; Bolt, 2001). Antilleans are known to live in the worst quality housing (Kullberg et al., 2009) and therefore to more often (want to) move (Boschman and De Groot, 2011). Western minorities are most comparable to the native majority in their socio-economic status and their position on the housing market.

Hypotheses

Non-western ethnic minorities have been found to be less successful in realising their desires to move and to have higher costs of leaving the neighbourhood. Our first hypothesis therefore is that non-western ethnic minorities are less successful in realising their wish to leave the neighbourhood (hypothesis 1).

Secondly, we will test which groups are successful in leaving which neighbourhoods. Ethnic minorities are found to leave minority concentration neighbourhoods less often than native residents. Hence, we hypothesize that ethnic minorities are less successful in leaving minority concentration neighbourhoods, even if they expressed a desire to do so (hypothesis 2). Discrimination on the housing market or the strength of networks might prevent ethnic minorities to leave minority concentration neighbourhoods. However, for the same reasons, they might also be less likely to have a desire to leave these neighbourhoods; and might be equally successful if they do have a desire to leave.

Even those who succeed in leaving their neighbourhood might not be able to escape poverty neighbourhoods or minority concentration neighbourhoods. We expect that ethnic minorities who are successful in leaving their minority concentration neighbourhood are more likely than others to move to another minority concentration neighbourhood (hypothesis 3). Similarly we expect that low-income households who are successful in leaving a poverty neighbourhood are more likely to move to another poverty neighbourhood (hypothesis 4).

§ 3.3 Data, selections and methods

Data and selections

For our study we use a unique combination of survey data and register data. We use data from two waves of the Housing Research Netherlands survey (WoON 2006 and WoON 2009), a periodical housing survey that is representative for the Dutch population aged 18 year and older (not living in institutions). We combine this data with longitudinal register data on residential mobility histories of the complete population of the Netherlands (SSD). Thereby we can follow the survey respondents over time, and test if they leave their neighbourhood in the two years following the survey and which neighbourhoods they move to. We enriched this data set with data from Netherlands Statistics on neighbourhood characteristics such as the share of rented dwellings, the average neighbourhood income and the share of various ethnic groups.

We used administrative neighbourhoods (buurten) as defined by Netherlands Statistics. Within urban areas, neighbourhoods are small, with an average size of 1.4 km^2 and an average number of 6.000 inhabitants. They often have natural borders. These neighbourhoods are the lowest administrative area level in the Netherlands. Therefore, more people will be found successful in leaving their neighbourhood than with other, larger definitions of neighbourhoods, such as postal code areas or districts. By choosing the smallest possible neighbourhood definition, we minimise the number of people who successfully left their perceived neighbourhood, but who in our data appear as movers within the neighbourhood.

In the Housing Research Netherlands survey, respondents are asked about their personal characteristics, household situation, housing situation and moving wishes. On a five-point Likert scale, respondents are asked to agree or disagree with: 'If possible, I would leave the neighbourhood'. In total there are 142,073 respondents, 64,005 in the 2006 housing survey and 78,068 in the 2009 survey. For respondents who are included in both surveys (870 respondents) we randomly selected only one survey year to ensure independence of observations. 3,298 respondents (2%) in the survey could not be traced in the register data two years after the interview, probably because they died or emigrated, and were therefore excluded from the data. Also adult children living at the parental home, respondents residing in another households dwelling, respondents who were planning to move and already found a new dwelling and respondents with missing data on neighbourhood characteristics (17287 respondents) where excluded, which leaves 120618 respondents in our sample.

In accordance with other research on the relation between residential mobility and neighbourhood characteristics, we focus only on urban areas. In the Netherlands there are very large differences between urban regions in the share of ethnic minorities. In the four largest cities the share of ethnic minorities is much higher than in other urban areas, which would make the results incomparable. To be able to study effects of the ethnic composition, we thus only selected the urban regions of the four largest cities. We included 39,549 respondents of which 6,836 (17%) state they (totally) agree with the statement 'if possible I would leave the neighbourhood'.

Methods

Below we focus on the 6,836 respondents who stated that they want to leave their neighbourhood. We estimated a binary logistic regression model of who is successful in realising their wish to leave the neighbourhood. In this model we included both personal characteristics (e.g. ethnic background, income and household type) and neighbourhood characteristics (such as the share of rented dwellings, the ethnic composition and the average neighbourhood income). Because we included variables on both neighbourhood and individual level we used clustered standards errors on neighbourhood level[9].

Subsequently, we model who is successful in escaping ethnic concentration neighbourhoods. Therefore we selected the respondents in the most ethnically concentrated neighbourhoods who want to leave their neighbourhood and estimated a multinomial logit model on their mobility behaviour. In this model there are three different outcomes categories: 1) respondents did not move at all 2) respondents moved to another ethnic minority concentration neighbourhood, or 3) they moved to a neighbourhood with higher shares of native Dutch. Similarly, we model who is successful in leaving low income neighbourhoods. Therefore we estimated a model on the respondents who lived in and wanted to leave the lowest income neighbourhoods, to test whether they 1) did not move, 2) moved to another low-income neighbourhood or 3) moved to a higher income neighbourhood. Also in these models we used clustered standard errors on neighbourhood level.

9 For the respondents in WoON 2009 we used neighbourhood characteristics such as share of minorities and average dwelling value from 2009, for the respondents from WoON 2006 we used neighbourhood characteristics from 2006 (except average neighbourhood income which we had to use from 2009 for all respondents, because of a change in definition). A neighbourhood in 2009 thus has different neighbourhood characteristics than the same neighbourhood in 2006 and has to be considered as a different neighbourhood. The 6,836 respondents are distributed over 1,416 unique neighbourhoods, thus on average there are 5 respondents per neighbourhood.

§ 3.4 Results

Ethnic differences in leaving wishes and behaviour

In total there are 39,549 inhabitants of the four urban regions of which 6,836 (17%) (totally) agreed with the statement 'if possible I would leave the neighbourhood' (see Table 3.1). Most respondents with a desire to leave their neighbourhood do not realise this desire within two years. Only 24% of the respondents with a desire to leave have left their neighbourhood within two years and 7.5% of the respondents without a desire to leave have also left their neighbourhood in the two years after the survey.

Non-western minorities more often want to leave their neighbourhood than native Dutch respondents and western minorities. Turkish, Moroccan, Surinamese and other non-western minorities with a wish to leave their neighbourhood less often succeed in leaving their neighbourhood than western minorities and native Dutch respondents. Antilleans, however, more often than native Dutch respondents, realise their wish to leave the neighbourhood. Non-western minorities, especially Antilleans and the category of other non-western minorities, are most likely to leave their neighbourhood when they did not have a desire to leave (see Table 3.1).

	WANTS TO LEAVE	LEAVES	LEAVES (WITHIN WANTS TO LEAVE)	LEAVES (WITHIN DOES NOT WANT TO LEAVE)
Native Dutch	15.1	9.9	24.8	7.2
Moroccans	30.0	12.6	20.9	9.0
Turks	27.4	10.7	16.1	8.7
Antilleans	26.7	17.5	34.5	11.3
Surinamese	24.8	10.7	20.9	7.4
Other non-western minorities	28.4	15.7	22.7	12.9
Total non-western	27.2	12.2	21.8	9.6
Western minorities	17.7	10.2	26.2	6.8
Total	**17.3**	**10.4**	**24.2**	**7.5**

TABLE 3.1 Leaving the neighbourhood, wishes and behaviour, percentages per ethnic group (N=39,549)

Source: Own calculations based on WoON 2006 and 2009 and SSD, provided by Netherlands Statistics

These ethnic differences in moving wishes and behaviour might be (partly) explained by ethnic differences in socio-economic, housing and neighbourhood situation. Ethnic groups differ in average income, age, tenure and neighbourhood ethnic composition and all these variables are known to affect moving wishes and behaviour. To test

whether ethnicity has a separate effect on the realisation of wishes to leave the neighbourhood, we estimate multivariate models in which we take into account all sorts of personal and neighbourhood characteristics.

Who realise their desire to leave the neighbourhood?

In hypothesis 1 we stated that non-western ethnic minorities are less successful in realising their desire to leave the neighbourhood. Models 1 to 4 (see Table 3.2) are logistic regression models that estimate which personal and neighbourhood characteristics are related to realising a desire to leave. These models are estimated on the 6,836 respondents who state they want to leave their neighbourhood.

	MODEL 1	MODEL 2	MODEL 3	MODEL 4
	odds ratio	odds ratio	odds ratio	odds ratio
Personal characteristics				
Ethnicity (ref=native Dutch)				
Moroccans	0.755	0.532**	0.517**	0.607*
Turks	0.552**	0.440**	0.416**	0.479**
Surinamese	0.774*	0.772*	0.741*	0.745*
Antilleans	1.456*	1.115	1.066	1.066
Western minorities	1.056	1.009	1.006	0.997
Other non-western	0.837	0.659**	0.642**	0.662**
Year 2009	0.881	0.810**	0.781**	0.788**
Moving wish (ref=wish)				
Expect forced move	1.251	1.326	1.305	1.290
No moving wish	0.226*	0.270*	0.271*	0.271*
Age (18-24=ref)				
25-34		0.683**	0.689**	0.699**
35-44		0.393**	0.399**	0.404**
45-54		0.279**	0.282**	0.288**
55-64		0.260**	0.263**	0.268**
65-74		0.270**	0.277**	0.282**
75+		0.452**	0.461**	0.471**
Household type (ref=single)				
Couple		1.239*	1.201	1.215
Family with children		0.886	0.833	0.845
Single parent		0.697**	0.667**	0.675**
Non-family household		1.685**	1.637**	1.651**

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	MODEL 1	MODEL 2	MODEL 3	MODEL 4
	odds ratio	odds ratio	odds ratio	odds ratio
Personal characteristics				
Education level (ref=low)				
Middle		0.958	0.969	0.971
High		0.997	1.028	1.027
Income (standardised)		1.123**	1.129**	1.111*
Owner		0.709**	0.701**	0.704**
Satisfied with dwelling		0.886	0.883	0.881*
Dwelling type (ref=single family dwelling)				
Apartment		1.306**	1.266*	1.267*
Other housing unit		1.926**	2.006**	2.006**
Overcrowded		1.171	1.203*	1.214*
Undercrowded		0.988	0.960	0.963
Neighbourhood characteristics				
Average dwelling value neighbourhood			1.000	1.000
Share of rented dwellings neighbourhood			0.998	0.998
Average income neighbourhood (standardised)			1.015	1.018
% non-western minorities (standardised)			1.103	1.114
Density (ref=very high)				
High			1.174	1.179
Average			0.993	0.992
Low			0.877	0.889
Very low			0.822	0.823
Utrecht urban region			1.001	1.007
Rotterdam urban region			1.190	1.189
The Hague urban region			1.165	1.175
Interactions				
Moroccan*share of non-western minorities				0.807
Turkish*share of non-western minorities				0.850
Surinamese*share of non-western minorities				0.976
Antillean*share of non-western minorities				0.979
Western*share of non-western minorities				1.196
Other non-western*share of non-western minorities				0.891
Income*average income neighbourhood				1.031
Intercept	0.488**	1.104	1.125	1.119
R^2	0.056	0.113	0.115	0.116

TABLE 3.2 Logistic regression models: realising a wish to leave the neighbourhood (N=6,836)
* p<0.05; **p<0.01

Source: Own calculations based on WoON 2006 and 2009 and SSD, provided by Netherlands Statistics

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In the first model we only focus on differences between ethnic groups, using native Dutch respondents as a reference category. We find that Turks and Surinamese are significantly less likely to realise their desire to leave the neighbourhood and Antilleans are significantly more likely to realise their desire compared to native Dutch respondents. In model 1 we only control for the survey year and mobility expectations[10].

In the second model we take into account personal characteristics, such as age, household type, income and dwelling characteristics. When these characteristics are taken into account we find that Turks, Moroccans, Surinamese and the category of other non-western minorities are less successful than native Dutch in leaving their neighbourhood. Antilleans and western minorities are equally successful as native Dutch respondents. The ethnic differences found in model 1 and Table 3.1 thus change when the ethnic differences in personal and dwelling characteristics are taken into account.

In model 3, neighbourhood characteristics are included: average dwelling value, share of rented dwellings, average income, share of non-western minorities and density, as well as dummy variables that measure the differences between the four urban regions. However, none of these variables has significant effect on the realisation of desires to leave the neighbourhood. The effects of the personal characteristics on realisation are almost the same as in model 2. Neighbourhood characteristics thus have no effect on the realisation of desires to leave the neighbourhood. Neighbourhood characteristics affect the desire to leave the neighbourhood (Van Ham and Feijten 2008; Lee et al. 1994) and mobility out of the neighbourhood (Bolt and Van Kempen 2003; South and Crowder 1998; Van Ham and Clark 2009). However, we find that they do not affect mobility out of the neighbourhood conditional on desires to leave.

Hypothesis 1 states that non-western minorities are less successful in realising a desire to leave their neighbourhood. In model 3 we find that Turks, Moroccans, Surinamese and other non-western minorities are less successful than native Dutch in realising their desire to leave their neighbourhood. For these groups we can thus confirm hypothesis 1. However, Antilleans are equally successful as native Dutch in realising their desire to leave their neighbourhood. Antilleans live in the worst housing conditions (Kullberg et al. 2009) and most often move, also if they have no desire to move (Boschman and De Groot 2011). This might explain why they realise desires to leave the neighbourhood more often than other non-western minority groups.

10 Besides our key variable: 'if possible I would leave the neighbourhood', respondents in the housing surveys are also asked whether they want to move, or expect to be forced to move, in the two years following the interview. This variable is included in all models as a control variable.

In model 4 cross-level interactions between neighbourhood income and personal income and between the share of ethnic minorities in the neighbourhood and ethnicity on individual level are included. We use this model to test hypothesis 2, which states that ethnic minorities are especially less successful in leaving minority concentration neighbourhoods, even if they express a desire to do so. For none of the ethnic groups the share of non-western minorities has significant effect of their realisation of desires to move. Thus although Moroccans, Turks, Surinamese and other non-western minorities are less successful in realising desires to leave their neighbourhood, they are not especially unsuccessful in leaving minority concentration neighbourhoods. Also the effect of average income in the neighbourhood does not differ between high and low income households; although households with lower incomes are less successful in realising desires to leave their neighbourhood, they are not especially unsuccessful in leaving low income neighbourhoods. Based on these outcomes, hypothesis 2 can be rejected.

In the next two subsections we focus on respondents who live in ethnic minority concentration neighbourhoods and/or low-income neighbourhoods and who have expressed a desire to leave. We not only focus on whether they are successful in leaving their neighbourhood, but also on the type of neighbourhood they move to. In hypothesis 3 we state that non-western minorities, if they are successful in realising a desire to leave their minority concentration neighbourhood, will be more likely to move to another minority concentration neighbourhood. Similarly, in hypothesis 4 we state that low-income households, if they are successful in realising a desire to leave a low-income neighbourhood, will be more likely to move to another low-income neighbourhood. In the models 5 and 6 we thus test who manages to escape from minority concentration or poverty neighbourhoods. In other words, we test which personal and neighbourhood characteristics affect the probability to move to a less concentrated or higher-income neighbourhood.

Who is successful in leaving ethnic minority concentration neighbourhoods?

In model 5 we selected households who live in ethnic minority concentration neighbourhoods and who state they want to leave their neighbourhood. We defined ethnic minority concentration neighbourhoods as neighbourhoods with more than 40% non-western minorities[11]. In total 2,250 of the 6,836 respondents with a desire

11 Within the four urban regions, 7% of the neighbourhoods have more than 40% non-western minorities but 19% of the inhabitants live in these neighbourhoods. For comparative reasons we also estimated a model in which minority concentration neighbourhoods are defined as having more than 25% non-western minorities. Most outcomes are similar, except for Antilleans, who in this model are found to less often move to less concentrated neighbourhoods, while this is not significant in the presented model.

to leave live in an ethnic minority concentration neighbourhood. For this group we estimated a multinomial logit model, to test whether they did not move, moved to an ethnic minority concentration neighbourhood[12] or moved to a neighbourhood with a lower share of non-western minorities. Of the 2,250 respondents, 1,616 (72%) did not move, 220 (10%) moved to an ethnic concentration neighbourhood and 414 (18%) moved to a less concentrated neighbourhood. The reference category are respondents who did not move.

Model 5 (Table 3.3) shows that there are no significant ethnic differences in the probability to move to ethnic minority concentration neighbourhoods. However, Moroccans, Turks, Surinamese and other non-western minorities are less likely to move to a neighbourhood with a lower share of non-western ethnic minorities. For these four groups, the model thus confirms hypothesis 3. Antilleans and western minorities do not differ from native Dutch respondents in their probability to move to a neighbourhood with a lower share of non-western minorities.

Besides ethnicity also other personal characteristics affect the probability to move. People who want to move or expect to be forced to move[13] are much more likely to move, both to a minority concentration neighbourhood and to a neighbourhood with a lower share of non-western minorities compared to people without mobility expectations. Similarly, compared to the youngest age group of 18-24 years, older respondents are less likely to move and compared to renters, those who live in an owner-occupied dwelling are less likely to move, to both neighbourhood types. Respondents who are satisfied with their dwelling are less likely to move to a minority concentration neighbourhood, but equally likely as dissatisfied respondents to move to a neighbourhood with a lower share of non-western minorities. Probably respondents who are satisfied with their dwelling only move when they can significantly improve their neighbourhood situation. Respondents who live overcrowded are more likely to move to neighbourhoods with a lower share of non-western minorities. This is surprising, because overcrowding can be a reason for urgent moving desires (De Groot et al. 2008), which will leave not much choice in the selection of a neighbourhood. On the other hand, especially families with (young) children live in crowded conditions, and this is especially the group that moves from (inner-city) ethnic minority concentration neighbourhoods to (suburban) neighbourhoods with lower shares of minorities.

12 Including moves within the same neighbourhood.

13 In model 5 and 6 people who expect to be forced to move are grouped with people who want to move as this first category is very small.

Also neighbourhood characteristics affect whether people move and which neighbourhood type they move to. In neighbourhoods with high shares of rented dwellings, respondents less often move to other ethnic minority concentration neighbourhoods. Respondents in neighbourhoods with a high density are less likely to move to less concentrated neighbourhoods than respondents in lower density neighbourhoods. A high share of non-western minorities in the neighbourhood reduces the probability to move to less concentrated neighbourhoods. Hereby it is important to take into account that less concentrated neighbourhoods are defined as neighbourhoods with less than 40% non-western minorities. We also find differences between urban regions; in the Utrecht urban region, respondents are less likely to move, both to other concentration neighbourhoods and to less concentrated neighbourhoods.

	MODEL 5		MODEL 6	
	To ethnic minority concentration nbh	To nbh with lower share of minorities	To low-income nbh	To higher income nbh
	odds ratio	odds ratio	odds ratio	odds ratio
Personal characteristics				
Ethnicity (ref=native Dutch)				
Moroccans	0.932	0.351**	0.983	0.369**
Turks	1.227	0.117**	1.415	0.102**
Surinamese	1.361	0.508**	1.175	0.515**
Antilleans	1.878	0.657	1.319	0.741
Western minorities	1.055	1.215	1.070	1.087
Other non-western	0.825	0.567*	0.969	0.470**
Year 2009	0.924	0.696*	0.968	0.892
Moving wish or expect forced move	3.650**	3.938**	2.630**	4.311**
Age (18-24=ref)				
25-34	0.730**	0.755	0.565**	0.945
35-44	0.329**	0.538**	0.291**	0.639*
45-54	0.304*	0.276**	0.241**	0.319**
55-64	0.453	0.278**	0.399**	0.281**
65-74	0.407	0.377**	0.509*	0.391**
75+	0.702	0.633	0.350*	0.737
Household type (ref=single)				
Couple	0.916	1.183	0.751	1.217
Family with children	0.948	0.713	1.032	0.697
Single parent	0.666	0.744	0.620	0.612*
Non-family household	2.041	1.362	1.386	1.672*

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	MODEL 5		MODEL 6	
	To ethnic minority concentration nbh	To nbh with lower share of minorities	To low-income nbh	To higher income nbh
	odds ratio	odds ratio	odds ratio	odds ratio
Personal characteristics				
Education level (ref=low)				
Middle	0.960	1.190	0.928	1.028
High	0.840	1.215	0.783	1.299
Income (standardised)	0.934	1.186	0.972	1.029
Owner	0.552*	0.602*	0.447**	0.711
Satisfied with dwelling	0.758*	0.860	0.665**	0.992
Dwelling type (ref=single family dwelling)				
Apartment	1.200	1.050	1.108	1.019
Other housing unit	2.111	1.482	1.495	1.143
Overcrowded	1.279	1.399*	1.025	1.466*
Undercrowded	0.949	0.894	0.765	0.850
Neighbourhood characteristics				
Average dwelling value neighbourhood	0.997	1.003	0.995	1.000
Share of rented dwellings neighbourhood	0.984**	0.998	0.992	0.994
Average income neighbourhood	0.910	0.748	0.963	0.915
% non-western minorities (standardised)	1.223	0.781	1.039	0.992
Highest density	0.835	0.459**	0.910	0.667
Utrecht urban region	0.482*	0.671	1.201	0.631*
Rotterdam urban region	0.958	1.741	1.379	1.044
The Hague urban region	0.666	1.704	0.849	0.980
Intercept	0.485	0.319	0.876	0.380
R^2	0.126		0.119	

TABLE 3.3 Multinomial regression models on residents of minority concentration neighbourhoods (model 5) or low-income neighbourhoods (model 6) with a desire to leave their neighbourhood

Model 5: did not move (ref), moved to ethnic minority concentration neighbourhood, or moved to neighbourhood with a lower share of non-western ethnic minorities (N=2250).
Model 6: did not move (ref), moved to low-income neighbourhood, or moved to higher income neighbourhood (N=2780).
* p<0.05; **p<0.01

Source: Own calculations based on WoON 2006 and 2009 and SSD, provided by Netherlands Statistics

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Who is successful in leaving low-income neighbourhoods?

For this model we selected households who live in low-income neighbourhoods and who state they want to leave their neighbourhood. We defined low-income neighbourhoods as neighbourhoods where the average gross income per inhabitant is lower than €18,000 per year[14]. 2,780 of the 6,836 respondents with a desire to leave their neighbourhood live in low-income neighbourhoods. Of this group 1,983 respondents (71%) did not move, 298 respondents (11%) moved to another low-income neighbourhood and 499 respondents (18%) moved to a higher income neighbourhood. In a multinomial logit model (see Table 3.3, model 6) we test which characteristics of individuals and neighbourhoods are related to the probability to not move at all, to move to another low-income neighbourhood or to move to a higher-income neighbourhood. The reference category are the respondents who did not move. Ethnicity has no effect on the probability to move to another low-income neighbourhood. However, Moroccans, Turks, Surinamese and other non-western minorities are significantly less likely to move to a higher-income neighbourhood.

In hypothesis 4 we stated that low-income households with a desire to leave their neighbourhood will be less successful than higher income households in escaping from low income neighbourhoods. Based on the model outcomes we can reject this hypothesis. For respondents in low-income neighbourhoods who want to leave their neighbourhood, income has no significant effect on not moving, moving to a low-income neighbourhood or moving to a high income neighbourhood. This is surprising, as we find in models 2 to 4 that high income households are more successful in realising desires to leave their neighbourhood. Also, this group can be expected to have more opportunities to move to higher income neighbourhoods. High income households are thus more successful in realising desires to leave their neighbourhood (model 2-4), but high income households who live in low income neighbourhoods are equally (un)successful in leaving these neighbourhoods as lower income households (model 6). A possible explanation could be that high income households within low income neighbourhoods are different from other high income households for instance in income security or wealth and are therefore less successful.

Compared to the youngest age group of 18-24 years, all other age groups are less likely to move, both to another low-income neighbourhood and to a higher income neighbourhood. Single parent families are less likely to move to higher income

14 Approximately 30% of Dutch residents have a gross income below €18,000 in 2009. Within the four urban regions 15% of the neighbourhoods is a low-income neighbourhood according to this definition. However, 22% of the inhabitants of the four urban regions live in neighbourhoods with an average income below 18,000 euro per year. For comparative purposes, we also estimated a model in which low-income neighbourhoods are defined as neighbourhoods with an income below 16,000. Most outcomes from this model are similar.

neighbourhoods and non-family households are more likely to move to higher income neighbourhoods. Respondents who want to move or who expect to be forced to move are much more likely to move, both to low-income neighbourhoods and to higher income neighbourhoods than respondents without mobility expectations. Respondents in owner occupied dwellings and respondents who are satisfied with their dwelling are less likely to move to another low-income neighbourhood. Probably because they only leave their attractive dwelling if they can improve their neighbourhood situation. Households who live overcrowded are 1,5 times more likely to move to a higher income neighbourhood. This might be explained by a similar mechanism as why this group is most likely to leave minority concentration neighbourhoods; couples who live in low-income minority concentration neighbourhoods and who move to a larger dwelling in a wealthier and less concentrated neighbourhood after they have their first child. Respondents who live in the Utrecht urban region are less likely to move to higher income neighbourhoods.

§ 3.5 Conclusions and discussion

A substantial body of literature has analysed the characteristics of people who want to leave the neighbourhood or who actually do leave the neighbourhood. Several studies have shown that the native majority is more likely than ethnic minorities to want to leave neighbourhoods with higher shares of ethnic minorities. Residential mobility research, however, reveals that most people with a desire to move do not realise this desire. The discrepancy between moving desires and behaviour appears to be especially large for ethnic or racial minorities (Crowder 2001; De Groot et al. 2011). Both differences in desires as also differences in realisation of desires can therefore lead to selective mobility patterns.

This paper has focused on individuals with a desire to leave their neighbourhood. We investigated ethnic differences in the extent to which people are able to fulfil their desire, including whether they are successful in escaping from ethnic minority concentration or low-income neighbourhoods. In line with our hypothesis, we find that Turks, Moroccans, Surinamese and other non-western ethnic minorities are less successful than native Dutch in realising a desire to leave their neighbourhood. Antilleans and western minorities are, however, not significantly less successful than natives. Non-western minorities (except Antilleans) and low-income households who want to leave their neighbourhood are less likely to leave and thus more likely to be trapped in undesired neighbourhoods.

Many studies have found that neighbourhood conditions affect the desire to leave the neighbourhood (Lee et al. 1994; Van Ham and Feijten 2008) and actual mobility out of the neighbourhood (Bolt and Van Kempen 2003; Ellen 2000; Van Ham and Clark 2009). We, however, have found no effect of neighbourhood characteristics on the realisation of wishes to leave the neighbourhood. Although neighbourhood characteristics have been found to affect both desires to leave and mobility out of the neighbourhood, they do not affect mobility out of the neighbourhood conditional on the desire to leave. For individuals who want to leave, neighbourhood characteristics such as the share of minorities or average income do not affect their probability of success.

Many studies show that ethnic minorities less often than natives leave ethnic minority concentration neighbourhoods, or that non-Hispanic Whites are more likely than other groups to leave Black neighbourhoods. We studied whether ethnic minorities are also less successful in leaving ethnic minority concentration neighbourhoods if they have expressed a desire to leave their neighbourhood. For none of the ethnic groups the share of ethnic minorities in the neighbourhood has a significant effect on their realisation of desires to leave. Non-western minorities are equally successful if they want to leave ethnic minority concentration neighbourhoods as if they want to leave neighbourhoods with lower shares of minorities. The fact, found in earlier research, that ethnic minorities are less likely to leave ethnic minority concentration neighbourhoods is thus most likely explained by the fact they are less likely to *want to leave* these neighbourhoods.

Regardless of neighbourhood characteristics, Moroccans, Turks, Surinamese and other non-western minorities are found to be less successful in realising desires to leave. Since these groups often live in ethnic minority concentration neighbourhoods, their inability to realise their desire to leave can keep segregation at relatively high levels. This is further emphasised by our finding that Turks, Moroccans, Surinamese and other non-western minorities from ethnic minority concentration neighbourhoods are less likely to move to neighbourhoods with lower shares of non-western minorities.

Next to ethnic background, we examined the role of income. Focussing on individuals in the lowest income neighbourhoods, we hypothesize that low-income households are less likely to escape these neighbourhoods and move to higher income neighbourhoods. Contrary to our expectations, income has neither an effect on the probability to escape from the lowest income neighbourhoods, nor on the probability to escape from the most ethnically concentrated neighbourhoods. We do, however, find an effect of ethnicity on the probability to escape from low-income neighbourhoods. Turks, Moroccans, Surinamese and other non-western minorities who want to leave their neighbourhood and live in the lowest income neighbourhoods are less likely to move to higher income neighbourhoods.

This paper provides new insights in selective mobility because it shows selectivity in the discrepancy between desires to leave and actual mobility out of the neighbourhood. Ethnic minorities are found to be less successful in realising desires to leave the neighbourhood and even if they manage to leave low-income or ethnic minority concentration neighbourhoods they more often move to other low-income or ethnic minority concentration neighbourhoods.

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4 Neighbourhood selection of non-western ethnic minorities; Testing the own-group effects hypothesis using a conditional logit model

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Abstract: The selective inflow and outflow of residents by ethnicity is the main mechanism behind ethnic residential segregation. Many studies have found that ethnic minorities are more likely than others to move to ethnic minority concentration neighbourhoods. An important question which remains largely unanswered is whether this can be explained by own group effects, including own group preferences, or by other neighbourhood factors. We use unique longitudinal register data from the Netherlands, which allows us to distinguish between different ethnic minority groups and to simultaneously take into account multiple neighbourhood characteristics. This allows us to test own group effects; the effect of the share of the own ethnic group on neighbourhood selection, while also taking into account other neighbourhood characteristics such as the housing market composition. Using a conditional logit model we find that housing market constraints can partly explain the moves of ethnic minorities to minority concentration neighbourhoods. Also own-group effects are found to be important in explaining neighbourhood selection. There are, however, important differences between ethnic minority groups. While these effects together explain why Surinamese and Antilleans move to minority concentration neighbourhoods, Turks and Moroccans are still found to move to concentration neighbourhoods of minorities other than their own ethnic group.

Keywords: segregation, neighbourhood selection, ethnicity, own-group preference, conditional logit

§ 4.1 Introduction

Ethnic residential segregation is caused by the selective mobility of ethnic groups into and out of specific neighbourhoods and in-situ demographic processes regarding fertility and mortality. Selective mobility can be caused by choice but also a lack of choice can cause selective mobility patterns. There is a large body of research on selective outflow from neighbourhoods and especially 'white flight' (see, for example, Feijten and Van Ham, 2009; Pais et al., 2009; Van Ham and Clark, 2009). In this paper we study selective inflow into neighbourhoods, which has received somewhat less attention. Existing research shows that ethnic minority households are more likely than others to move to ethnic minority concentration neighbourhoods (Clark and Ledwith, 2007; Doff, 2010; South and Crowder, 1998). This might be explained by own-group effects: ethnic minorities live among others of their own group because of own group preferences, because they want to live close to ethnic specific facilities, or because of the ethnic specific networks they use to find dwellings. Interestingly, most studies investigating ethnic selective residential mobility look at ethnic minorities as one homogeneous group while in reality this group is often very heterogeneous. While ethnic minorities might have a preference to live among their own ethnic group, it is less likely that they prefer to live among other minorities.

Although many studies find that the native majority is more likely to leave minority concentration neighbourhoods, some of the literature on selective outflow from neighbourhoods is critical with regard to the influence of the ethnic composition of neighbourhoods on decisions to leave. Evidence has been found for the racial proxy hypothesis (Ellen, 2000; Harris, 1999), which states that not the ethnic composition, but correlated neighbourhood characteristics such as a low neighbourhood socio-economic status are responsible for white flight (Lee et al., 1994; South and Crowder, 1997). Also when studying selective inflow into neighbourhoods, the racial proxy hypothesis might be important: ethnic minorities might move to ethnic concentration neighbourhoods not because they prefer to live among ethnic minorities, but because of other correlated neighbourhood characteristics. Ethnic minority households differ from the native majority population in their housing market opportunities and constraints and therefore different neighbourhoods are available and attractive to them (Manley and Van Ham, 2011).

When neighbourhood selection is modelled, most studies test how a range of individual or household characteristics affect the probability to move to a certain type of neighbourhood. These studies have an important limitation; they generally characterise neighbourhoods based on a limited number of characteristics (Hedman et al., 2011). Studies typically model whether households move into a poverty neighbourhood or not (Clark et al., 2006; Logan and Alba, 1993), or into an ethnic concentration neighbourhood or not (Bråmå, 2006; Clark and Ledwith,

2007; Doff, 2010; South and Crowder, 1998). However, in reality the selection of a neighbourhood will depend on multiple neighbourhood characteristics that are assessed simultaneously and in combination (Hedman et al., 2011). This paper uses unique longitudinal register data from the Netherlands and conditional logit models, to investigate neighbourhood selection for different ethnic minority groups. This data and methodology allow us to take into account multiple neighbourhood characteristics simultaneously and thus distinguish the effect of the share of the own ethnic group, other ethnic minority groups and housing market characteristics on neighbourhood selection.

Our approach will advance the current literature in two important ways. First, because we distinguish between the share of the own ethnic group and other ethnic minority groups we can test the own group effects hypothesis; whether own group preferences, networks and facilities can explain the selection of ethnic minorities into minority concentration neighbourhoods. Second, it allows us to take into account other neighbourhood characteristics such as the neighbourhood housing market composition when modelling neighbourhood selection and thus to test for racial proxy effects. Do ethnic minority households choose minority concentration neighbourhoods because of own-group effects, or do they end up in these neighbourhoods because of a lack of choice options? Is their lack of choice explained by a dependence on affordable dwellings which are spatially clustered in ethnic concentration neighbourhoods, or do they also end up in the most concentrated neighbourhoods when housing market characteristics are taken into account? These insights are important for the development of theory on the causes of segregation. There is a fierce debate in the literature on the role of own-group effects on the one hand, and restrictions on the other hand. More insight into these mechanisms will advance our understanding of segregation.

§ 4.2 Literature review and background

Minority ethnic groups are found to be more likely than others to move to ethnic minority concentration neighbourhoods (Bråmå, 2006; Clark and Ledwith, 2007; Doff, 2010; South and Crowder, 1998) and less likely to leave these neighbourhoods (Bolt and Van Kempen, 2010; Feijten and Van Ham, 2009; Pais et al., 2009; Van Ham and Clark, 2009). These patterns of selective mobility lead to segregation. The literature offers several perspectives on the possible mechanisms behind these selective mobility patterns, which will be discussed below.

According to the *preferences perspective*, ethnic residential segregation is caused by ethnic differences in preferences regarding the ethnicity of their neighbours. It is argued that ethnic minority residents prefer to live close to their own ethnic group and therefore select ethnic minority concentration neighbourhoods (Bolt et al., 2008). There has been a lot of research on the advantages of living in an ethnic enclave, which is found to be especially advantageous for new immigrants and ethnic minorities with a low socio-economic status (Musterd et al., 2008; Phillips, 2007). It is argued that minorities move to ethnic enclaves, because they expect benefits from living among co-ethnics, such as opportunities for employment (Logan et al., 2002; Zorlu and Mulder, 2008); a familiar culture (Logan et al., 2002); family ties (Hedman, 2013); social support and a sense of security or belonging (Phillips, 2007). Besides preferences to live close to the own ethnic group, also ethnic specific facilities and shops (Logan et al., 2002) can be a reason for ethnic minorities to move to concentration neighbourhoods of the own ethnic group. Also social networks can influence neighbourhood choice (Logan et al., 2002) as these networks influence people's knowledge and opinions about neighbourhoods (Hedman, 2013) and co-ethnics can provide information about housing opportunities (Bolt, 2001). As social networks are often homogenous – in ethnicity, socio-economic status and residential neighbourhood – the dwellings people find through them are often in concentration areas of their own ethnic group (Kleit and Galvez, 2011). Because the effects of preferences with regard to neighbours or ethnic specific services, and ethnic networks can often not be separated, we group these together and use the term 'own group effects'.

According to the *human capital perspective*, ethnic residential segregation can be explained by ethnic differences in socio-economic status and other personal characteristics (Logan and Alba, 1993; Crowder, 2001). Ethnic minority households in the Netherlands have, on average, lower incomes than natives and therefore fewer opportunities on the housing market (Bolt, 2001). Households who are dependent on the social housing sector can only move to neighbourhoods where social rented dwellings are available. Neighbourhoods with high shares of social rented dwellings will therefore often also be ethnic minority concentration neighbourhoods and ethnic minorities will more often move to these neighbourhoods. This is in line with the racial proxy theory, they move to these neighbourhoods not because of the ethnic composition, but because of housing market constraints.

According to the *stratification perspective*, discrimination on the housing market limits the options for ethnic minorities to move into more desirable neighbourhoods, especially for groups who are stigmatized (Alba and Logan, 1992). Therefore the most desirable neighbourhoods will be majority concentration neighbourhoods (Phillips, 2007). Housing market institutions can have discriminatory effects, and reduce the opportunities of ethnic minorities (South and Crowder, 1998). The role of institutional discrimination in the Netherlands is more limited than in the US. However, also in the Netherlands, lending institutions are found to have less trust in those belonging

to ethnic minority groups, who as a result might have problems getting a mortgage (Aalbers, 2007) and ethnic minorities experience discrimination in the private rented sector (Kullberg et al., 2009). Also the social housing sector can have discriminatory outcomes, if groups with lower language proficiency or lower understanding of the allocation system are less likely to end up in attractive neighbourhoods (Bolt, 2001).

A final explanation why ethnic minority households might move to minority concentration neighbourhoods is because they fear discrimination in majority concentration neighbourhoods. Various researchers show that fear for discrimination or harassment prevented ethnic or racial minorities from moving to better (and 'whiter') neighbourhoods (Bowes et al., 1997; Hanhoerster, 2013; Phillips et al., 2007). Also research in the Netherlands shows that minorities do not want to live in neighbourhoods with mainly native Dutch inhabitants; because they are afraid they won't be accepted there or will not be able to get in touch with their neighbours (Kullberg et al., 2009).

Modelling neighbourhood selection

Most research modelling neighbourhood selection takes into account only one aspect of the neighbourhood, for example, whether households move into a poverty neighbourhood or not, or into an ethnic concentration neighbourhood or not, and estimate the effect of individual and household characteristics on neighbourhood selection (Hedman et al., 2011). Following Hedman and colleagues (2011), we argue that it is important to model the combined effect of multiple neighbourhood characteristics on neighbourhood selection. In our study we are interested in the effect of the share of the own ethnic group and other ethnic minority groups on neighbourhood selection, while controlling for housing market characteristics. The literature offers two alternative modelling strategies.

The first strategy is to use an aggregated model which estimates the number of households from a certain population group that moves into a neighbourhood. Zorlu and Mulder (2008) found that recent immigrants to the Netherlands move to neighbourhoods with high shares of ethnic minorities, and especially high shares of their own ethnic group, also when other neighbourhood characteristics such as the housing market composition are taken into account. The disadvantage of such models is that they do not give insight into neighbourhood selection on the individual level.

A second modelling strategy is to use discrete choice models in which a (moving) household selects one neighbourhood from a choice set of a limited number of alternatives. Discrete choice models have been used before to estimate location choices (Kleit and Galvez, 2011), but mostly on a higher geographical level than neighbourhoods. Various authors estimated the selection of immigrants into

municipalities (Åslund, 2005), metropolitan areas (Liaw and Ishikawa, 2008), provinces (Xu and Liaw, 2006) or states (Bartel, 1989). We know of only few studies which used this strategy to model neighbourhood selection. Sermons (2000), who used a survey on the San Francisco metropolitan area, Ioannides and Zabel (2008), who used data from the National American Housing Survey, and Hedman and colleagues (2011), who used register data from the city of Uppsala in Sweden, include interactions between neighbourhood characteristics and households characteristics and estimate which households are more likely to move to which neighbourhoods. These studies find evidence for neighbourhood reproduction through selective mobility: ethnic minorities move to neighbourhoods with higher shares of ethnic minorities (Hedman et al., 2011; Ioannides and Zabel, 2008) and all ethnic groups avoid neighbourhoods with higher shares of other ethnic groups (Sermons, 2000). Besides ethnic neighbourhood reproduction, these studies also find reproduction of other neighbourhood characteristics: families with children move to neighbourhoods with many families with children and low income households to neighbourhoods with a low average household income. These studies do, however, not investigate whether ethnic minorities more often than others move to neighbourhoods with low average incomes or many families with children, nor whether they still move to neighbourhoods with high shares of ethnic minorities when this would be taken into account.
The current study aims to fill this gap by using a discrete choice model to investigate in detail the neighbourhood selection of non-western ethnic minorities.

Ethnic minority groups in the Netherlands

The four largest ethnic minority groups in the Netherlands are Turks (2.4%), Moroccans (2.2%), Surinamese (2.1%) and Antilleans (0.9%). Turkish and Moroccan immigrants originally arrived in the Netherlands as guest-workers, recruited by the government in the 1960s to solve shortages on the labour market. At the time it was thought that these guest workers would return to their home countries, however, many of the guest-workers stayed, and in the 1970s and 1980s the immigrant population increased further because of immigration related to family reunification and family formation. Surinamese and Antilleans in the Netherlands are immigrants from (former) Dutch colonies. After de declaration of independence of Surinam in 1975, large scale immigration of Surinamese to the Netherlands started. Up to 1990, Antilleans came mainly to the Netherlands to follow higher education, however, in more recent years also more underprivileged Antilleans came to the Netherlands to find a job.

Turks and Moroccans have, on average, a lower socio-economic position than Surinamese and Antilleans[15]. The socio-cultural distance to the native Dutch population is larger for Turks and Moroccans than for Surinamese and Antilleans, mainly because of the colonial (including language) links of the latter two groups. Surinamese and Antilleans more often have contact with native Dutch and adhere to more similar cultural values compared to Turks and Moroccans (Dagevos et al., 2007). Research on perceived ethnic hierarchies or preferences in the Netherlands, shows that all ethnic groups are most positive about their own ethnic group, followed by native Dutch. For native Dutch and Antilleans, Surinamese are the highest valued minority out-group, while Turks and Moroccans prefer each other over Surinamese and Antilleans (Hagendoorn, 1995; Gijsberts and Vervoort, 2007).

Neighbourhood selection of ethnic minorities in the Netherlands

The main question in this study is what explains the moves of ethnic minorities to ethnic minority concentration neighbourhoods. We have discussed three competing theoretical frameworks, and most likely, a combination of these perspectives will apply, but different theoretical perspectives might be important for different ethnic groups. The three theoretical perspectives, in combination with the Dutch context as described above, have led us to formulate a number of expectations with regard of the roles of the share of the own ethnic group, the share of other ethnic groups, and housing market characteristics in explaining neighbourhood selection.

Turks, Moroccans, Surinamese and Antilleans are most positive about their own ethnic groups, but prefer native Dutch people over other minority groups. Based on the *preferences perspective*, we can therefore expect a positive effect of the share of the own ethnic group on neighbourhood selection, but no positive effect of the share of other ethnic minorities.

Turks, Moroccans, Surinamese and Antilleans have on average a lower socio-economic position than native Dutch people, and will therefore be more dependent on affordable dwellings. Based on the *human capital perspective* we expect that the ethnic composition of neighbourhoods no longer affects neighbourhood selection

15 Non-western minorities in the Netherlands have a lower average standardized net household income (17.100 euro) compared to the native Dutch population (24.100 euro). Moroccans (16.200 euro), Turks (16.400 euro) and other non-western minorities (16.700) have lower incomes than Antilleans (17.200) and especially Surinamese (19.200 euro). Also the share of unemployed is much higher among non-western minorities (12,6%) than among the native Dutch population (4,5%). Moroccans (14,6%) and other non-western minorities (13,8%) are most often unemployed, followed by Antilleans (12,5%), Turks (11,3%) and Surinamese (10,4%). (source Netherlands Statistics, numbers for 2010).

once housing market characteristics are taken into account; the neighbourhood ethnic composition is a proxy for affordable dwellings in the neighbourhood.

According to the *stratification perspective*, discrimination or fear of discrimination causes ethnic minorities to move to minority concentration neighbourhoods. Based on the stratification perspective, we expect to find a positive effect of the overall share of ethnic minorities in a neighbourhood on neighbourhood selection, even when the share of the own ethnic group and the neighbourhood housing market characteristics are taken into account. Because of their large cultural distance from the native majority and their low position in the ethnic hierarchy, we expect Turks and Moroccans to be more likely than Surinamese and Antilleans to experience or fear discrimination and therefore to move to minority concentration neighbourhoods.

The effect of neighbourhood characteristics might differ for low and high income ethnic minority households. In the models this can be made operational by including interaction effects between household income and neighbourhood characteristics. If neighbourhood selection is explained by own group preferences, high income minorities, who have more options on the housing market, will be most successful in moving to own group concentration neighbourhoods. However, especially low income minorities will benefit from living close to co-ethnics and ethnic facilities in an ethnic enclave and be dependent on co-ethnic networks in their housing search. If these mechanisms are important, especially low income minorities will move to own group concentration neighbourhoods. By including interaction effects between income and the share of the own group we can test whether own-group preferences or other own-group effects such as networks and services explain neighbourhood selection.

According to the human capital perspective, especially low income minorities will move to minority concentration neighbourhoods, but only because they more often move to neighbourhoods with affordable dwellings. We thus expect that once we take into account that low income minorities move to neighbourhoods with affordable dwellings, the interaction effect between individual income and the neighbourhood ethnic composition will disappear.

As stated above we expect that according to the stratification perspective ethnic minorities move to minority concentration neighbourhoods because of discrimination. Discrimination might especially affect neighbourhood selection of higher income ethnic minority households. Logan and Alba (1993) called this the strong version of the stratification perspective; ethnic minorities have lower location returns from a high income than the majority. Where majority households will be able to move to less ethnically concentrated neighbourhoods if their income increases, this effect is less strong for minorities. Once we take into account that low income households move to affordable neighbourhoods, we thus expect to find a positive interaction between household income and the share of ethnic minorities in the neighbourhood.

§ 4.3 Data and methods

We use longitudinal register data from the Social Statistical Database (SSD) from Statistics Netherlands. The SSD data is unique because it covers the entire 1999-2010 Netherlands population, allowing researchers to follow individuals over a long period of time and to select households who moved. The data includes geo-coded residential histories, allowing researchers to link in neighbourhood characteristics. The size of the dataset makes it possible to focus on a very specific group: ethnic minority households who moved within the Utrecht urban region, and to distinguish different ethnic groups within this larger group to test for own-group effects.

We needed a study area that functions as one housing market to ensure that in theory all neighbourhoods in this area are part of the choice set of households. We also wanted an area with a good representation of all main ethnic minority groups in the Netherlands, and with a large variation of neighbourhoods. The Utrecht urban region meets these criteria. The region consists of the city of Utrecht (the fourth largest city in the Netherlands with 322,000 inhabitants), and the surrounding suburban municipalities (adding up to a total of 647,000 inhabitants). Most residential mobility occurs within the urban region. The social housing sector in the region uses a choice based letting system which allows applicants to bid on dwellings all over the urban region. Social housing comprises 33% of the housing stock in Utrecht, 14% of the dwellings are private rented dwellings and 52% of the dwellings are owner-occupied. Within the urban region of Utrecht the demand for housing is high, which results in high dwelling prices and high rents in the private sector and long waiting times in the social rented sector. There is a large variety in neighbourhood types with regard to concentrations of various ethnic minority groups, dwelling prices, waiting times for social housing and tenure composition. The share of non-western ethnic minorities in Utrecht is with 16% somewhat lower than in the three largest cities in the Netherlands, but higher than in most other cities.

Within the Utrecht urban region we identify 252 neighbourhoods (buurten in Dutch) based on municipal definitions. Neighbourhoods defined this way are more in line with what people perceive as their neighbourhood than other types of administrative units available in the Netherlands, such as postal code areas. We had to exclude 37 neighbourhoods because of missing data[16], which left us with 215

16 These neighbourhoods had missing data on average dwelling value. Average dwelling value is not provided for neighbourhoods with very few residential dwellings such as rural areas or business parks. The excluded neighbourhoods are different from the included areas, as they are generally low density non-residential areas with a slightly lower share of non-western minorities compared to the included neighbourhoods. The exclusion of these neighbourhoods might bias the results, however, as only a very small share of the moving households moves to an excluded neighbourhood, the possible bias will be very small.

neighbourhoods which on average have 2,700 inhabitants and an average size of 1.5 square kilometre. The neighbourhood size varies from neighbourhoods with no more than 150 inhabitants to neighbourhoods with 10.000 inhabitants, and includes large low density suburban areas and dense inner-city areas of only halve a square kilometre. Neighbourhoods are generally homogeneous with regard to building period and building type.

For our analysis, we select all household heads[17] who lived in the Utrecht urban region on the first of January 2010 and who had moved within this region after the first of January 2006 [18]. This results in the selection of 80,043 household heads, of which 13,137 (16%) are non-western ethnic minorities. Because of missing data for 37 neighbourhoods we had to exclude 345 households who moved to these neighbourhoods. So we are left with 12,792 non-western ethnic minority households (2,254 Turkish, 4,231 Moroccan, 1,867 Surinamese, 791 Antillean and 3,649 other non-western ethnic minority households)[19]. For these 12,792 moving ethnic minority households, we model the selection of their destination neighbourhood (their neighbourhood on 1-1-2010). We assume that these households selected their destination neighbourhood from a choice set of all 215 neighbourhoods within the Utrecht urban region. In reality, some households might have considered moving out of the urban region, while others might only have considered a subset of neighbourhoods within the region. However, as most households have considered various neighbourhoods within the Utrecht urban region and selected their destination neighbourhood based on a comparison of these neighbourhoods, we can assume that all neighbourhoods within the urban region are part of the choice set[20].

To model neighbourhood selection we use a conditional logit model (CLM)[21]. A conditional logit model estimates the probability that household *i* selects neighbourhood *j* from a choice set of J neighbourhoods. A conditional logit model is consistent with the microeconomic theory of utility maximisation; households select

17 To determine the ethnicity of the household we only use the ethnicity of the head of the household. In the remainder of the article we use the term households although we only look at household heads. Minority-majority households will not have a strong disruptive impact on our outcomes and the number of mixed minority-minority households is very small, therefore this choice will not have a strong impact on our results.

18 The 2010 data is the most recent. We focus on households who moved between 2006 and 2010 because we need a reasonably large number of moving households per ethnic group.

19 For comparison reasons (see Figure 4.1) we also include the 57,353 native Dutch and 7,605 western minority households who moved within the Utrecht urban region between 2006 and 2010.

20 For households who moved from elsewhere to the Utrecht urban region, we cannot assume that they only considered all neighbourhoods within the Utrecht urban region, therefore we excluded these households.

21 The description of the Conditional Logit Model is adapted from Hedman et al., 2011.

the neighbourhood with for them the highest utility. The utility of a neighbourhood to a household is calculated as neighbourhood characteristics times parameters plus an error term (Hoffman and Duncan, 1988; McFadden, 1974). If we assume that this error term is identically and independently extreme value distributed across neighbourhoods, the probability that household *i* chooses neighbourhood *j*, thus that the utility of neighbourhood *j* to household *i* is higher than the utility of all other neighbourhoods, can be calculated with a conditional logit model. Thus, let P_{ij} denote the probability that household *i* will choose neighbourhood *j*, based on the characteristics of the of the j^{th} neighbourhood (N_j), and the characteristics of the other neighbourhoods in the choice set (N_k). Following Hoffman and Duncan (1988), the conditional logit model is written:

$$P_{ij} = \frac{\exp(\beta N_j)}{\sum_{k=1}^{J} \exp(\beta N_k)} \qquad (1)$$

Thus for every household *i* the probability of selecting neighbourhood *j* is estimated as a function of the characteristics of that neighbourhood in comparison with all other neighbourhoods in the choice set. Because the selection is modelled *within* a household, the household characteristics do not vary between neighbourhood options. Thus, in order to include household characteristics in the model, they must be interacted with neighbourhood characteristics. This can be included in equation 1 by letting X_i denote the characteristics of the i^{th} household.

$$P_{ij} = \frac{\exp(\beta N_j X_i)}{\sum_{k=1}^{J} \exp(\beta N_k X_i)} \qquad (2)$$

We measure neighbourhood characteristics for 2006 (denoted by t-1 in equation 3), so before the actual move took place. This is important to avoid that the characteristics of the moving household influence the neighbourhood characteristics. Household income is measured for 2010 because the characteristics of the moving household are only known after the move (for example, when two singles form a couple with two incomes, the joint income determines the selection of dwelling and neighbourhood). The probability that the i^{th} household will choose the j^{th} neighbourhood, or in other words, will live in neighbourhood *j* at time *t*, is thus written:

$$P_{ijt} = \frac{\exp(\beta N_{j\,t-1} X_{i\,t})}{\sum_{k=1}^{J} \exp(\beta N_{k\,t-1} X_{i\,t})} \qquad (3)$$

This equation represents choice probabilities under the assumption that the error terms are identically and independently extreme value distributed. It is unlikely that the error terms are independent across all neighbourhoods; adjacent neighbourhoods or neighbourhoods within the same municipality might share unobservable characteristics that have an impact on their attractiveness to ethnic minority

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households. A nested logit or generalised extreme value (GEV) model could take spatial correlation in error terms into account (Chen et al., 2009, see also Ioannides and Zabel, 2008). However, these models require researchers to specify the form of spatial correlation, while the true form of the correlation pattern is unknown (Sener et al., 2011). As we have no theoretical or empirical assumptions on the form of spatial correlation, we use a more simple conditional logit model. Although we acknowledge that spatial correlation might also occur in our data, since we only use internal neighbourhood characteristics and no neighbourhood accessibility measures that are by definition spatially correlated (Chen et al., 2009), we expect the impact of spatial correlation on our modelling outcomes to be limited.
Table 4.1 provides the summary statistics of the neighbourhood characteristics in 2006. Besides neighbourhood characteristics, we also include a dummy variable for low household income in our models to estimate if there are differences in neighbourhood sorting between high and low income households[22].

	MEAN	STD. DEVIATION	MINIMUM	MAXIMUM
Number of available dwellings*	968.4	1022.9	7	4872
Percentage of social rented dwellings	28.9	24.3	0	100
Percentage of private rental dwellings	14.3	11.8	0	92
Percentage new dwellings (built after 2000)	13.8	25.3	0	100
Average dwelling value (x1000)	251.9	123.7	123	1032
Percentage couples	27.5	6.7	10	51
Percentage households with children	32.6	13.9	4	64
Percentage non-western minorities	11.7	12.1	0	79
Percentage Turks	1.8	3.1	0	21
Percentage Moroccans	4.2	6.8	0	47
Percentage Surinamese	2.1	1.6	0	10
Percentage Antilleans	0.7	0.5	0	2
Percentage other non-western minorities	3.0	2.1	0	12
Percentage Moroccans + Turks	6.0	9.5	0	68
N = 215				

TABLE 4.1 Descriptive statistics of neighbourhoods in 2006

* This is the number of dwellings that have become available in a neighbourhood. This is calculated as the total number of household heads who moved to a neighbourhood between 1-1-2006 and 1-1-2010.

Source: Own calculations based on SSD (made available by Statistics Netherlands) and Statistics Netherlands neighbourhood data

22 Low income households are defined as the 30% lowest income households in 2010 based on the income distribution on the national level. Of the moving households, 40% of the Turks, 40% of the Moroccans, 36% of the Surinamese, 42% of the Antilleans and 48% of the other non-western minorities are classified as having a low household income.

§ 4.4 Results

In our analyses we focus on households who moved within the Utrecht urban region between 2006 and 2010. Figure 4.1 shows for all moving households and by ethnic group, the share of non-western ethnic minorities in their destination neighbourhood. Native Dutch households who moved within the Utrecht urban region selected neighbourhoods with the lowest shares of non-western ethnic minorities (15%). Also western minority households selected neighbourhoods with few non-western ethnic minorities (16%). Non-western ethnic minority households, and especially Turkish and Moroccan households, moved to neighbourhoods with higher shares of non-western minorities. Interestingly, Figure 4.1 shows that ethnic minority households do not necessarily select neighbourhoods with high shares of their own ethnic group. Turkish households moved to neighbourhoods with a relatively high share of Moroccans and Surinamese, even higher shares than in the destination neighbourhoods of Moroccan or Surinamese households themselves. Not only the share of the own ethnic group, but also the share of other non-western ethnic minorities is high in the destination neighbourhoods of non-western minorities. Therefore concentrations of ethnic minorities are reproduced through residential mobility.

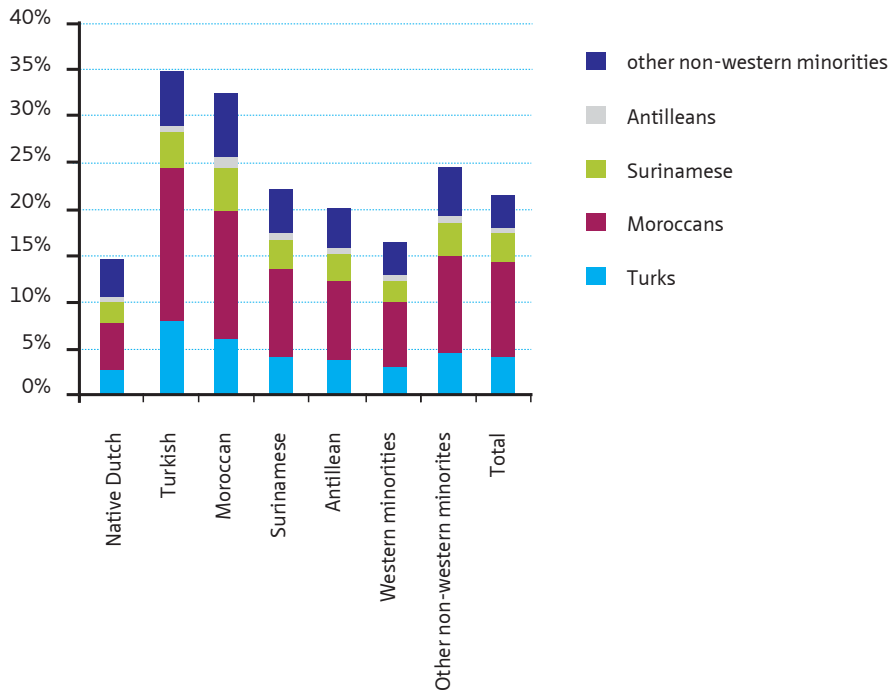

FIGURE 4.1 Share of non-western minorities in the destination neighbourhood of moving households, by ethnic group (N=77,763)

The fact that non-western minorities, and especially Turks and Moroccans, move to neighbourhoods with high shares of non-western minorities might be explained by other neighbourhood characteristics such as dwelling types or prices. Our data shows that compared to native Dutch households, all non-western minority groups, and especially Turks and Moroccans, move to neighbourhoods with higher shares of social housing and lower dwelling values. An important question is whether housing market constraints can explain why non-western ethnic minority households select minority concentration neighbourhoods. We will investigate this further using conditional logit models.

Explaining neighbourhood selection of non-western minorities

Table 4.2 shows the results of five conditional logit models which estimate which neighbourhood characteristics determine that a neighbourhood is selected out of a choice set of all neighbourhoods. Model 1 shows that non-western minorities move to neighbourhoods with high shares of non-western minorities. A 1 percent point increase in the share of non-western minorities leads to a 4% (exp(0.036)=1.04) increase in the odds of a neighbourhood being selected. This indicates that the most ethnically concentrated neighbourhoods (80% non-western minorities) are 17 times (1.04^80) more likely to be selected than neighbourhoods with no non-western minorities. Thus, although the parameters seem small, ethnic minority concentration has a substantial effect on neighbourhood selection. In model 2 we distinguish between the share of the own ethnic group and the share of all other non-western minorities in the neighbourhood. Especially the own group has a strong positive effect on neighbourhood selection (1 percent point increase in the share of the own group leads to 7% (exp(0.069)=1.07) increase in the odds of selecting the neighbourhood), but also non-western minorities other than the own group have a positive effect on neighbourhood selection (1 percent point increase in the share of other non-western minorities leads to 2% (exp(0.024)=1.02) increase in the odds). We performed an F-test based on the change in the log likelihood between the 0-model and model 1 and 2, and both model 1 and model 2 are a significant improvement compared to the 0-model[23]. In model 3 we take into account housing market and household composition variables. Non-western minorities select neighbourhoods with high shares of (social and private) rented dwellings, low dwelling values, high shares of new dwellings and many couples and families with children. The effects of housing market characteristics are much smaller than the effects of ethnic composition.

23 The F-statistic is calculated as -2 times the change in log likelihood and distributed Chi-square with the total number of added parameters as degrees of freedom. For model 1, F=17914, df=1 and p<0.001, thus model 1 is a significant improvement compared to the 0-model. For model 2, F=18000, df=2 and p<0.001, thus also model 2 is a significant improvement compared to the 0-model.

A neighbourhood with only social rented dwellings has a 4 times (exp(100*0.014)) higher odds of being selected than a neighbourhood with only owner occupied dwellings. Adding these variables to the model strongly reduces the effect of non-western minorities other than the own ethnic group on neighbourhood selection and significantly improves the model fit (F=1838, df=6, p<0.001).

	MODEL 1	MODEL 2	MODEL 3	MODEL 4	MODEL 5
	B (SE)	B(SE)	B(SE)	B(SE)	B(SE)
Neighbourhood ethnic composition					
% non-western minorities	0.036 (0.000)**				
% own group		0.069 (0.001)**	0.046 (0.001)**	0.045 (0.002)**	0.048 (0.002)**
% other non-western minorities		0.024 (0.001)**	0.004 (0.001)**	0.000 (0.001)	0.003 (0.001)**
Neighbourhood housing market & household composition					
# available dwellings	0.001 (0.000)**	0.001 (0.000)**	0.001 (0.000)**	0.001 (0.000)**	0.001 (0.000)**
% social rented dwellings			0.014 (0.001)**	0.014 (0.001)**	0.012 (0.001)**
% private rental dwellings			0.009 (0.001)**	0.009 (0.001)**	0.010 (0.001)**
% new housing development			0.003 (0.000)**	0.003 (0.000)**	0.003 (0.000)**
average dwelling value			-0.005 (0.000)**	-0.005 (0.000)**	-0.004 (0.000)**
% couples			0.018 (0.002)**	0.019 (0.002)**	0.018 (0.002)**
% households with children			0.013 (0.001)**	0.013 (0.001)**	0.013 (0.001)**
Interaction effects					
% own group*low income household				0.003 (0.002)	-0.007 (0.002)**
% other non-western minorities*low income household				0.009 (0.001)**	0.000 (0.002)
% social rented dwellings*low income household					0.003 (0.001)**
average dwelling value*low income household					-0.003 (0.000)**
Pseudo R-squared	0.1304	0.1310	0.1444	0.1447	0.1454
Log likelihood (0)	-68701				
Log likelihood (ß)	-59744	-59701	-58782	-58762	-58711

TABLE 4.2 Conditional logit models of neighbourhood selection of non-western minority households, with standard errors shown in parentheses (N=12,792)

* p<0.05; ** p<0.01

Source: Own calculations based on SSD made available by Statistics Netherlands and Statistics Netherlands neighbourhood data

In model 4 we investigate how neighbourhood selection differs between high and low income households by including interaction effects between a dummy representing low household income and neighbourhood ethnic composition. Adding the interactions significantly improves the model (F=40, df=2, p<0.001). The interaction

effect between household income and share of the own group is very small, and adding this interaction does not change the main effect of the own ethnic group. This indicates that there are almost no differences between low and high income households in the effect of the own group on neighbourhood selection. Adding the interaction effect between household income and the share of other non-western minorities causes the main effect of non-western minorities other than the own ethnic group to become very small. The interaction effect itself is larger and shows that low income non-western minorities are more likely to move to neighbourhoods with high shares of other non-western minorities.

In model 5 we add interaction effects between household income and housing stock characteristics to control for the fact that low income households more often move to neighbourhoods with many social rented dwellings and lower dwelling values. Including these interactions significantly improves the model ($F=102$, $df=2$, $p<0.001$) and causes the interaction effect between household income and the share of other ethnic minorities to disappear. This shows that housing market characteristics explain why low income households more often move to minority concentration neighbourhoods (with minorities other than their own group). Surprisingly, however, the main effect of the share of non-western minorities other than the own ethnic group increases again, indicating that both high and low income ethnic minority households are likely to move to neighbourhoods with higher shares of non-western minorities other than their own ethnic group. Discrimination or fear of discrimination in majority concentration neighbourhoods might explain this.

Once we take into account that low income households move to affordable neighbourhoods, we find that the interaction effect between household income and the share of the own group becomes significant. Low income households are less likely to move to neighbourhoods with high shares of their own ethnic group than high income minorities. As higher income households have more opportunities on the housing market and therefore more freedom in their neighbourhood choice, their stronger selection into neighbourhoods with high shares of own group members is an indicator that own group preferences are important in explaining neighbourhood selection.

Separate models for four ethnic groups

To get a better understanding of which neighbourhood characteristics explain neighbourhood selection of the different ethnic groups, we estimate separate models for the four largest ethnic minority groups in the Netherlands (see Table 4.3). For each ethnic group we show two models, one without and one with interaction effects. We first discuss the models without interaction effects.

	TURKS		MOROCCANS		SURINAMESE		ANTILLEANS	
	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13
	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)
Neighbourhood ethnic composition								
% own group	0.032 (0.002)**	0.031 (0.002)**	0.024 (0.001)**	0.025 (0.002)**	0.254 (0.016)**	0.296 (0.018)**	0.511 (0.086)**	0.318 (0.115)**
% other non-western minorities	0.081 (0.007)**	0.089 (0.009)**	0.091 (0.005)**	0.107 (0.006)**	-0.001 (0.002)	-0.003 (0.003)	0.003 (0.003)	0.002 (0.004)
Neighbourhood housing market & household composition								
# available dwellings	0.001 (0.000)**	0.001 (0.000)**	0.001 (0.000)**	0.001 (0.000)**	0.001 (0.000)**	0.001 (0.000)**	0.001 (0.000)**	0.001 (0.000)**
% social rented dwellings	0.002 (0.002)	0.004 (0.002)	0.017 (0.001)**	0.015 (0.001)**	0.007 (0.002)**	0.004 (0.002)*	0.006 (0.003)*	0.006 (0.003)
% private rental dwellings	-0.014 (0.004)**	-0.014 (0.004)**	0.013 (0.003)**	0.013 (0.003)**	0.009 (0.004)*	0.009 (0.004)*	0.006 (0.005)	0.006 (0.005)
% new housing development	0.009 (0.001)**	0.009 (0.001)**	0.001 (0.001)	0.001 (0.001)	-0.003 (0.001)**	-0.003 (0.001)**	-0.002 (0.002)	-0.002 (0.002)
average dwelling value	-0.01 (0.001)**	-0.008 (0.001)**	-0.005 (0.001)**	-0.004 (0.001)**	-0.004 (0.001)**	-0.003 (0.001)**	-0.003 (0.001)**	-0.003 (0.001)**
% couples	0.037 (0.007)**	0.036 (0.007)**	0.056 (0.004)**	0.056 (0.004)**	0.025 (0.006)**	0.025 (0.006)**	0.000 (0.008)	0.000 (0.008)
% households with children	0.000 (0.004)	0.000 (0.004)	0.013 (0.002)**	0.013 (0.002)**	0.017 (0.003)**	0.017 (0.003)**	0.005 (0.005)	0.005 (0.005)
Interaction effects								
% own group*low income		0.000 (0.003)		-0.002 (0.002)		-0.116 (0.027)**		0.436 (0.164)**
% other non-western minorities*low income		-0.023 (0.014)		-0.04 (0.009)**		0.004 (0.004)		0.002 (0.006)
% social rented dwellings*low income		-0.004 (0.003)		0.004 (0.002)		0.007 (0.003)*		-0.001 (0.004)
average dwelling value*low income		-0.006 (0.001)**		-0.003 (0.001)**		-0.003 (0.001)**		-0.001 (0.002)
Log likelihood (0)	-12105		-22723		-10027		-4248	
Log likelihood (ß)	-9395	-9381	-18444	-18428	-8819	-8791	-3859	-3853
pseudo R-squared	0.2239	0.2251	0.1883	0.1890	0.1204	0.1232	0.0915	0.0930
N	2254		4231		1867		791	

TABLE 4.3 Conditional logit models of neighbourhood selection for the four largest ethnic minority groups in the Netherlands, with standard errors shown in parentheses

* p<0.05; ** p<0.01

Source: Own calculations based on SSD made available by Statistics Netherlands and Statistics Netherlands neighbourhood data

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All ethnic groups move to neighbourhoods with high shares of their own ethnic group[24]. The effect of a 1 percent point increase of the share of the own ethnic group is largest for Antilleans; 1 extra percent Antilleans in the neighbourhood will increase the odds of selection with 67% (exp(0.511)=1.67). For Surinamese a 1 percent point increase in the share of their own group will increase the odds of selection by 29% (exp(0.254)=1.29) and for Turks and Moroccans the odds of selection increase only 3% (exp(0.032)=1.03) and 2% (exp(0.024)=1.02) respectively. However, the neighbourhoods with the highest concentration of Antilleans within the Utrecht urban region still include only 2% of Antilleans, while the maximum share of Turks and Moroccans is 68%. An Antillean household is 2.8 (1.67^2) times more likely to move to a neighbourhood with the highest concentration of Antilleans than to a neighbourhood with no Antilleans. A Turkish household is 8.6 (1.03^68) times more likely to move to a neighbourhood with the highest concentration of their own group than to a neighbourhood with no Turks or Moroccans. Besides moving to own group concentration neighbourhoods, Turks (model 6) and Moroccans (model 8) also move to neighbourhoods with high shares of other non-western ethnic minorities, but this is not the case for Surinamese and Antilleans. The effect of other non-western minorities, that is found in a model with only the ethnic composition of the neighbourhood (not shown) disappears for Surinamese and Antilleans once housing market characteristics are taken into account. Own group effects and housing market constraints are thus important in explaining neighbourhood selection for all four groups. These two together explain why Surinamese and Antilleans move to minority concentration neighbourhoods. However, for Turks and Moroccans, a third perspective is needed to explain their neighbourhood selection. Also when the share of the own group and housing market constraints are taken into account, they are still found to move to neighbourhoods with high shares of non-western minorities other than their own ethnic group. Discrimination on the housing market, or fear of discrimination in majority concentration neighbourhoods, might explain this. F tests show that model 6, 8, 10 and 12 are all significant improvement compared to their respective 0-models.

Models 7, 9, 11 and 13 test whether there are differences between high and low income ethnic minority households in neighbourhood selection by including interaction effects between neighbourhood characteristics and household income. F-tests show that for all four groups the model significantly improves when interaction effects are included. This implies that for all four ethnic minority groups there are significant differences between high and low income households in neighbourhood selection.

24 For Turks and Moroccans the correlation between the share of their own group and the share of all other non-western minorities in the neighbourhood was very high (78%), mostly because the correlation between the share of Turks and the share of Moroccans is very high (81%). Therefore it was not possible to include the share of the own ethnic group and the share of other non-western minorities in one model. Therefore we include the total share of Turks and Moroccans as 'own group' and the share of non-western minorities not being Turkish or Moroccan as 'other non-western minorities'.

The main effects of the neighbourhood characteristics do not change when these interactions are included. As could be expected, we find that low income households more often move to neighbourhoods with low dwelling values. Among Surinamese, low income households more often move to neighbourhoods with higher shares of social rented dwellings. Taking this into account, we find differences between high and low income households in the effect of the ethnic composition of the neighbourhood on neighbourhood selection.

For Moroccans and Turks we find that low income households are less likely to move to concentration neighbourhoods of other ethnic minorities than high income households. This is in line with the strong version of the stratification theory (Logan and Alba, 1993), which states that the locational returns of income are relatively low for (stigmatised) minority groups.

For Surinamese and Antilleans we find interaction effects between the share of the own group in the neighbourhood and household income. Although both Surinamese and Antilleans move to neighbourhoods with high shares of their own ethnic group, for Surinamese this effect is strongest for high income households, while for Antilleans this effect is strongest for low income households. For Surinamese this might be explained by strong preferences to live among the own ethnic group; higher income households have more opportunities on the housing market and will therefore be more successful in selecting into the neighbourhood of their preference. The stronger selection of low income Antilleans (which are more often recent immigrants) into own group concentration neighbourhoods can possibly be explained by their higher dependence on co-ethnic networks.

§ 4.5 Conclusions and discussion

This study aims to contribute to a better understanding of the mechanisms behind ethnic residential segregation. This is one of the first studies investigating neighbourhood selection that takes into account multiple neighbourhood characteristics and analyses differences between ethnic minority groups. This allows us to test whether the share of the own ethnic group, housing market characteristics or discrimination are the driving forces of segregation. The descriptive analyses show that ethnic minority households are more likely to move to minority concentration neighbourhoods than others. Using a conditional logit model we estimate if this can be explained by housing market characteristics or by own group effects. We find that housing market constraints play a role in neighbourhood selection for all ethnic minority groups. Ethnic minorities move to neighbourhoods with specific housing

market and household characteristics and this partly explains why they move to minority concentration neighbourhoods. Also the share of the own ethnic group is found to be important in neighbourhood selection for all four minority groups. They all move to own group concentration neighbourhoods, probably because they prefer to live among, or find a dwelling via, members of their own ethnic group or are attracted by facilities directed to their own ethnic group in those neighbourhoods. For Surinamese and Antilleans, neighbourhood selection can be explained by the housing market characteristics and the share of their own group. However, for Turks and Moroccans we find that they move to concentration neighbourhoods of ethnic minorities other than their own ethnic group, also after controlling for the share of their own ethnic group and housing market constraints.

An additional explanation is thus necessary to understand neighbourhood selection of Turks and Moroccans. A first possible explanation is that Turks and Moroccans are discriminated by housing market institutions. The social housing letting system could have discriminatory outcomes if Turks and Moroccans are less likely to end up in (attractive) majority concentration neighbourhoods due to, for example, their low language proficiency. Discrimination on the mortgage market (Aalbers, 2007), or on the private rented market, might also restrict ethnic minorities in their neighbourhood choice. Especially Turks and Moroccans, who have a low position in the ethnic hierarchy might experience such discrimination. A second possible explanation is that Turks and Moroccans choose not to move to majority concentration neighbourhoods because they fear discrimination or exclusion. Turks and Moroccans have a larger cultural distance from the Dutch society than Surinamese and Antilleans, therefore a fear of exclusion might prevent them from moving into majority concentration neighbourhoods. A third possible explanation might be that ethnic differences in personal characteristics affect neighbourhood selection. For example, our data did not contain information on education, but since we know that Turks and Moroccans have a lower educational level than the other ethnic groups, and education affects neighbourhood selection, this might explain why especially Turks and Moroccans end up in concentration neighbourhoods of ethnic minorities other than their own group.

An important contribution of this paper lies in the decomposition of the heterogeneous category of ethnic minorities into separate ethnic groups, which allows us to test the own-group hypothesis. While ethnic minorities might have a preference to live among their own ethnic group, literature on ethnic hierarchies shows that it is unlikely that they prefer to live among other minorities. Decomposition into separate minority groups will allow researchers to gain a better understanding of the causes of ethnic residential segregation as it allows them to distinguish own group effects from other reasons why minorities move to concentration neighbourhoods such as discrimination.

Our research has two limitations. First, because we use register data we do not have insight in the choice process or the locational preferences of households and cannot ask them why they selected their neighbourhood or which neighbourhood characteristics were most important in their decision. Second, we do not take into account personal characteristics other than income. Characteristics such as educational level, language proficiency or residential satisfaction are likely to affect neighbourhood selection but are not available in the register data we use. Also the nature of the modelling strategy we use complicates the inclusion of personal characteristics because they can only be included when interacted with a neighbourhood level characteristic.

The main finding of this study is that own group effects are important in explaining the selection of ethnic minorities into minority concentration neighbourhoods. This is important, as it could indicate that ethnic minority groups voluntarily segregate into concentration neighbourhoods, because they prefer to live among their own ethnic group or close to ethnic specific facilities. Our research also shows that the share of the own ethnic group can only partly explain selection into concentration neighbourhoods; also housing market constraints, and for some groups possibly discrimination, constrain the neighbourhood choice of ethnic minorities and cause them to move to minority concentration neighbourhoods. Although we study the case of the Utrecht urban region in the Netherlands, we expect that also in other urban areas in the Netherlands and beyond, similar effects can be found. Also in other regions ethnic minorities are found to move to minority concentration neighbourhoods. This will be (partly) explained by housing market characteristics as in most cities affordable dwellings are concentrated in neighbourhoods that are often minority concentration neighbourhoods and ethnic minorities have on average lower incomes. Also the effect of the own ethnic group might be similar in other regions as previous research shows that ethnic minorities often prefer to live among, or find a dwelling via, members of their own ethnic group. It will be interesting for future research to investigate in different urban contexts with different ethnic compositions and housing markets for which groups these two mechanisms are sufficient to explain their selection into minority concentration neighbourhoods and for which groups discrimination or fear of discrimination affect neighbourhood selection.

Acknowledgements

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5 Mixed Neighbourhoods: Effects of urban restructuring and new housing development

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Abstract: Many European countries use mixed housing policies to decrease the spatial concentration of low-income households. Also in the Netherlands, social housing in deprived neighbourhoods is demolished and replaced by more expensive dwellings. The idea is that these new dwellings attract higher-income groups to urban restructuring neighbourhoods. At the same time, however, also large numbers of relatively expensive dwellings have been built at greenfield locations. This leads to a dilemma: will higher-income households choose for housing in deprived neighbourhoods, while also attractive new housing on greenfield locations is available? This study shows that urban restructuring attracts higher-income households to mixed tenure developments in deprived neighbourhoods, even when competing with greenfield development. Nevertheless, another process is also taking place: especially in urban regions with extensive greenfield development, there is a significant outflow of higher-income households from deprived neighbourhoods. The net result is an increasing concentration of low-income households in deprived neighbourhoods.

Keywords: urban restructuring, segregation, neighbourhoods, The Netherlands, residential mobility, new housing development

§ 5.1 Introduction

Spatial concentrations of deprived households are often considered problematic, because they are perceived to coincide with problems such as low social cohesion, high unemployment and an accumulation of liveability problems (Bolt et al., 2002; Van Ham et al., 2006; Van Gent et al., 2009). Several European countries have implemented social mixing policies to reduce these spatial concentrations (Galster, 2007). In the Netherlands, these policies take the form of demolition of inexpensive socially rented dwellings in deprived neighbourhoods and replacing them with more expensive

and owner-occupied dwellings targeted at middle- and higher-income households (Kleinhans, 2004; Van Kempen and Priemus, 1999). Especially since 1997, the Dutch Government has, under the label of urban restructuring, actively promoted these mixed tenure policies in deprived social housing neighbourhoods (VROM, 1997).

During the same time period, mass production of new dwellings took place on greenfield locations around the larger cities in the Netherlands (Jókövi et al., 2006). Compared to the existing housing stock, the newly built dwellings on these greenfield locations, are more often owner-occupied, expensive and single family dwellings (De Jong et al., 2008). These dwellings were built to attract middle- and higher-income households, in order to keep these households within the boundaries of the city (Van Dam et al., 2010). Because municipalities were aware that building new neighbourhoods with only dwellings for middle- and higher-income households would increase the concentration of low-income households in the rest of the city, a limited number (to a maximum of 30%) of social rented dwellings were built in those new neighbourhoods (Van Dam et al., 2010).

The study reported in this paper has two objectives. First we focus on urban restructuring and ask whether the policy of demolition and new housing development has been successful in attracting higher-income households to deprived neighbourhoods. Second, we try to assess whether housing development in new neighbourhoods, mainly aimed at middle- and higher-income households, leads to an increased concentration of low-income households in existing neighbourhoods and reduces the success of urban restructuring.

§ 5.2 Theory

The term segregation refers to the unequal distribution of population groups over space and therefore to the existence of neighbourhoods where a group is overrepresented (concentrated) while in other areas this group is underrepresented. The availability and spatial distribution of dwellings by type, tenure and price sorts households into different parts of cities (Van Kempen and Murie, 2009). Income segregation and spatial concentrations of low-income households are the consequences of the housing market behaviour of households within a constrained choice set (Bolt et al., 2002). More affluent households will be attracted to neighbourhoods with more expensive dwellings, which offer more prestige, better amenities, larger and higher quality dwellings and fewer social problems (Harris, 1999; Cheshire, 2007). Building more expensive and owner-occupied dwellings widens the choice set of more affluent household, creating opportunities for them to move up the housing ladder (Bolt et al., 2002).

New neighbourhoods with mostly expensive dwellings create opportunities for higher-income households to move out of existing neighbourhoods, while lower-income households stay behind. This can initiate a chain of mobility in which in every neighbourhood the relatively better-off are given the opportunity to move to a better neighbourhood. New neighbourhoods thus fuel the process of income sorting and can thereby lead to increased concentrations of low-income households who are left behind. On the other hand, building new and relatively expensive dwellings within deprived neighbourhoods with an inexpensive housing stock, may attract higher-income households to those neighbourhoods and thereby reduce the concentration of low-income households (Uitermark, 2003).

Housing development in urban restructuring and new neighbourhoods, both targeted at middle- and higher-income households will compete for the same households. In a housing market where few dwellings are available, new dwellings in urban restructuring neighbourhoods are an attractive opportunity for households with high or increasing incomes. However, in housing markets with abundant housing supply, higher-income households in search of a new dwelling have more opportunities, and might be less inclined to move to deprived neighbourhoods. Therefore, urban restructuring in deprived neighbourhoods is expected to be less successful in attracting high-income households in regions with also large-scale housing developments in new neighbourhoods (Van Kempen and Priemus, 2002).

§ 5.3 Data and methods

In 2007 the newly formed Ministry of Housing, Neighbourhoods and Integration selected a number of the most deprived neighbourhoods and indicated them as 'priority neighbourhoods' (Aandachtswijken). Following the 1997 policy of urban restructuring, one of the main goals of the policy of the Ministry was to achieve a more mixed population in these neighbourhoods, especially in terms of income (VROM/WWI, 2007). In many priority neighbourhoods extensive urban restructuring programmes have been and are being executed, or have been scheduled for the near future.

In this paper we distinguish three types of neighbourhoods: priority neighbourhoods, new neighbourhoods and other neighbourhoods. New neighbourhoods are defined as greenfield locations on which new residential neighbourhoods have been built between 1999 and 2005. For priority neighbourhoods, we used the selection made by the Ministry, all other neighbourhoods are defined as other neighbourhoods[25].

We selected three large urban regions (central city and surrounding municipalities) in the Netherlands for this research: Rotterdam, The Hague and Utrecht. We chose to study large cities because concentrations of low-income households are more prominent here. We chose to study three urban regions with totally different patterns of new housing development, because we expect those different new housing development patterns to be related to differences in mobility patterns and spatial sorting. In Figure 5.1, 5.2 and 5.3 the different neighbourhood types in the urban regions of Rotterdam, The Hague and Utrecht are shown.

We used the Dutch Social Statistical Database (SSD). This database contains data on personal characteristics and residence address of all inhabitants of the Netherlands, for each year from 1999 to 2005. From this database, individuals and households can be followed over time and space. It may be used, for example, to trace how people's incomes have developed through the years, whether they have moved house, and which neighbourhood they came from and moved to.

In our analysis we describe the household incomes of individuals who moved between the three neighbourhood types. These mobility flows are based on the residential address of individuals in 1999 and 2005[26]. For example the average income of individuals who moved from priority neighbourhoods to new neighbourhoods is based on all individuals who in 1999 lived in priority neighbourhoods and in 2005 lived in new neighbourhoods.

25 We used four digit postal code areas to define neighbourhoods. Postal code areas with more than 80% or more than 1000 new dwellings (dwellings built since 1999) are defined as new neighbourhoods, postal code areas included in the priority neighbourhoods policy are defined as priority neighbourhoods, all other neighbourhoods are defined as other neighbourhoods. Postal code areas in cities in the Netherlands have an average size of 1 square kilometre and often have natural borders such as main roads or waterways.

26 Because households change, for instance when individuals start living together, we analysed the mobility patterns of individuals. However, because we know for every individual the income of the whole household and because we weighted individuals in such a way that two individuals living together count as one household, we can describe the households incomes in the mobility patterns.

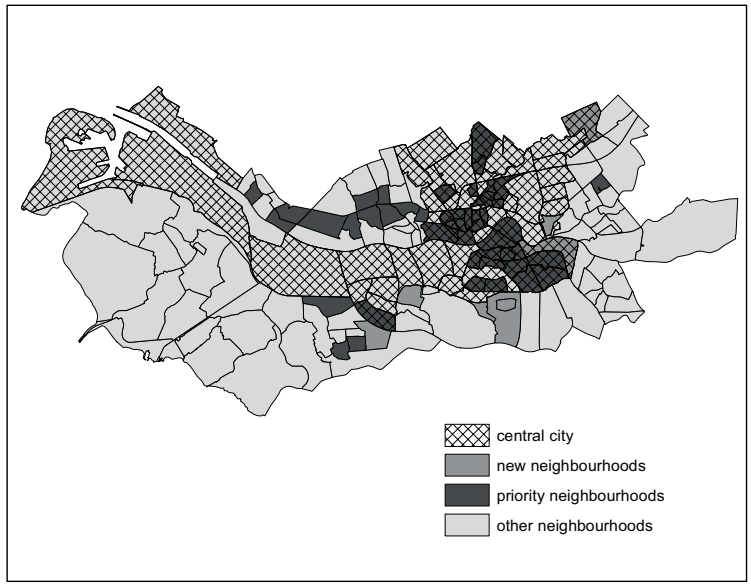

FIGURE 5.1 Rotterdam urban region

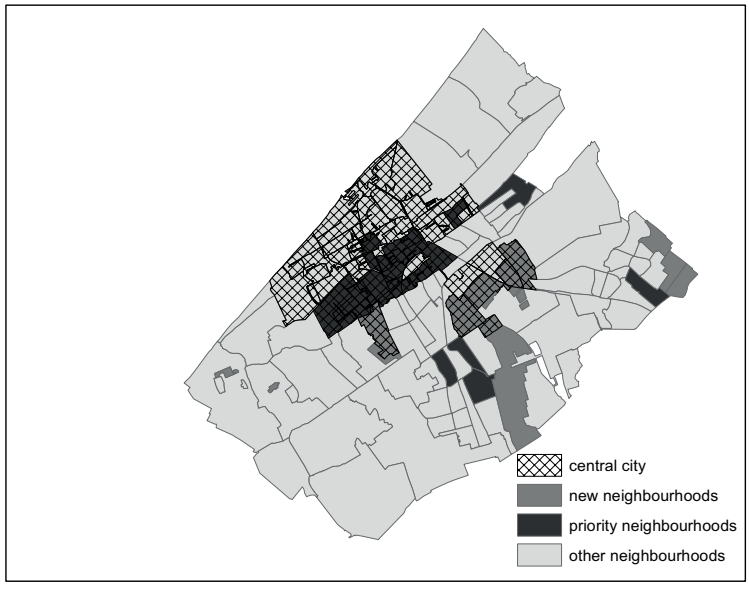

FIGURE 5.2 The Hague urban region

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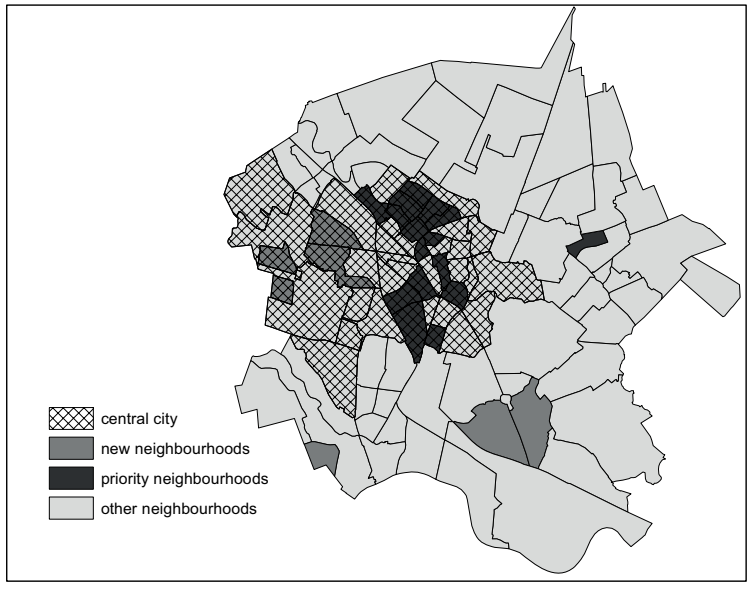

FIGURE 5.3 Utrecht urban region

§ 5.4 Results

Different spatial patterns of new housing development

There are large differences between Rotterdam, The Hague and Utrecht in the distribution of newly built dwellings over neighbourhoods (see Figure 5.4). In Rotterdam an extensive urban restructuring programme was executed: many inexpensive dwellings were demolished (20.000 demolitions) and replaced with new dwellings. On a smaller scale, also in The Hague urban restructuring programmes were executed (9.000 demolitions). In Utrecht restructuring of existing urban areas had barely started in 2005 (2.000 demolitions) and there were therefore almost no new dwellings located in priority neighbourhoods. Although in Rotterdam and The Hague large numbers of new dwellings were built in restructuring programmes, compared to the total housing stock in priority neighbourhoods and other neighbourhoods the share of new dwellings is small. In both The Hague and Utrecht large scale new neighbourhoods had been developed on greenfield locations, while in Rotterdam housing development on greenfield locations took place on a much smaller scale.

Both dwellings in urban restructuring neighbourhoods and in new neighbourhoods were aimed at middle- and higher-income households, therefore mostly relatively expensive, owner-occupied and single-family dwellings were build. Also to accommodate the increasing qualitative demand for housing, the policy was to add mainly high quality (expensive) dwellings to the market. To prevent concentrations of low-income households in existing city neighbourhoods, up to 30% of the dwellings in new neighbourhoods were targeted at low-income households (mostly social rented dwellings) (PBL 2010).

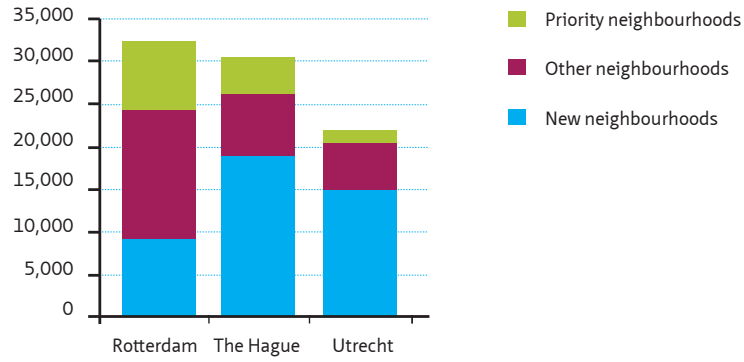

FIGURE 5.4 Newly built dwellings, per neighbourhood type and urban region, 1999-2005

Source: Statistics Netherlands (SSD 1999-2005)

Income segregation development in three urban regions

Table 5.1 shows the segregation indices of low-income households[27] in the three urban regions in 1999 and 2005. The segregation index (Duncan and Duncan, 1955) measures whether there are neighbourhoods in which low-income households are concentrated or underrepresented compared to the city level average. The index can be interpret as the share of low-income households that has to move to another neighbourhood in order to achieve an even spread of low-income households over the whole city, or the whole urban region.

27 Low-income households are defined as the 20% households with the lowest income based on the income distribution on national level.

In general the share of low-income households is higher in the central cities than in the surrounding municipalities. Therefore the segregation index in the whole urban region will be higher than in the city; in order to achieve an even spread over the whole urban region many low-income households will have to move from the central city to the surrounding municipalities.

The city of The Hague had the highest level of segregation in 1999. Here the segregation of low-income households clearly increased from 1999 to 2005. In Rotterdam and Utrecht, segregation on the regional level was much higher than on city level. On the urban regional level, Utrecht had the highest level of segregation.

		1999	2005
City	Rotterdam	13.4	14.4
	The Hague	17.3	21.3
	Utrecht	11.5	13.6
Urban region	Rotterdam	20.8	21.3
	The Hague	22.1	22.8
	Utrecht	23.3	25.9

TABLE 5.1 Segregation of low-income households, 1999 and 2005

Source: Statistics Netherlands (SSD 1999-2005)

New dwellings in priority neighbourhoods

Urban restructuring programmes are expected to attract higher-income households to deprived neighbourhoods and thereby to decrease the concentration of low-income households in restructuring neighbourhoods. The question is to what extent new dwellings in deprived urban restructuring neighbourhoods have been successful in attracting higher-income households to those neighbourhoods. Figure 5.5 shows the incomes of households moving to newly built dwellings in existing neighbourhoods.

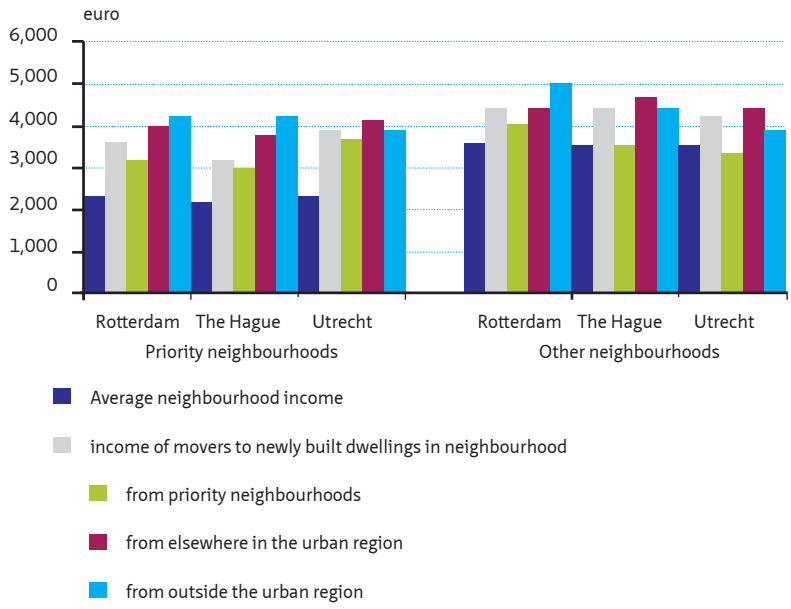

FIGURE 5.5 Average gross monthly neighbourhood income (2005) and gross monthly incomes (2005) of households moving to newly built dwelling in priority neighbourhoods and other neighbourhoods

Source: Statistics Netherlands (SSD 1999-2005)

New housing developments in priority neighbourhoods were found to attract relatively wealthy households. The households that moved within priority neighbourhoods to newly built dwellings as well as those that moved from elsewhere to these dwellings had higher incomes than the other residents of priority neighbourhoods. New housing developments in priority neighbourhoods apparently were successful both in retaining their high-income households and in attracting high-income households from elsewhere.

Compared to Rotterdam, in The Hague and Utrecht many more (mostly expensive) dwellings have been built on greenfield locations. Because of these extra alternatives on the housing market, higher-income households might have been less likely to move to priority neighbourhoods. However, we found the same pattern in all three urban regions. Also when competing with extensive greenfield development, new dwellings in priority neighbourhoods are successful in attracting higher-income households.

In The Hague and especially in Rotterdam, much more new dwellings have been built in priority neighbourhoods than in Utrecht. The pattern that building new dwellings in priority neighbourhoods attracts higher-income households to those neighbourhoods will therefore induce the social mix in priority neighbourhoods in Rotterdam and The Hague more than in Utrecht.

Selective mobility from priority neighbourhoods

New dwellings built in existing city neighbourhoods are apparently successful in attracting higher-income households to those neighbourhoods. However, the concentration of low-income households in priority neighbourhoods did not decrease. How is this possible? Figure 5.6, in which we focus on the outflow from priority neighbourhoods, shows that especially higher-income households left priority neighbourhoods, while the lower income households stayed behind.

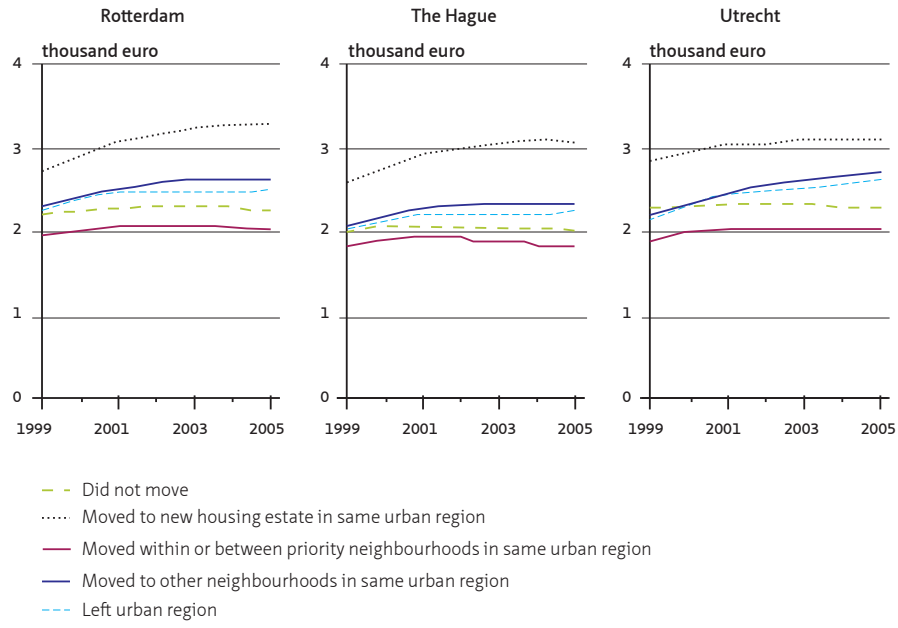

FIGURE 5.6 Average gross monthly household income of inhabitants of priority neighbourhoods in 1999; per housing status in 2005 (adjusted to 2005 price level)

Source: Statistics Netherlands (SSD 1999-2005)

Both the households that did not move and those that moved within or between priority neighbourhoods, had the lowest incomes and these incomes did not, or hardly, increase over the years. Together households that still lived in priority neighbourhoods in 2005 represent three-quarters of the population of priority neighbourhoods in 1999 in Rotterdam and almost 70% in The Hague and Utrecht.

The households that had left priority neighbourhoods had higher and/or increasing incomes. Households moving towards other neighbourhoods or leaving the urban region had relatively low incomes in 1999 but had since experienced an increase in income. The households that moved to new neighbourhoods already had the highest incomes in 1999 and experienced a further increase in income. Six per cent of the households in priority neighbourhoods had moved to new neighbourhoods in The Hague and Utrecht, while this was only three per cent in Rotterdam. New neighbourhoods attracted the households with the highest incomes from priority neighbourhoods, while households with the lowest incomes and no increase in income stayed behind.

Selective mobility: comparing inflow and outflow

What are the incomes of households moving into and out of priority neighbourhoods and other (existing) neighbourhoods? In Utrecht the people who moved to priority neighbourhoods have lower incomes than people who stayed within this neighbourhood type, while in Rotterdam and The Hague the income of people who moved to those neighbourhoods is higher than the average income of the households who stayed within these neighbourhoods (see Figure 5.7). The extensive restructuring in these cities has thus led to higher-income movers into priority neighbourhoods. However, in all three urban regions, people who move out of priority neighbourhoods have higher incomes than both movers to those neighbourhoods and stayers and therefore the concentration of low-income households in priority neighbourhoods has increased.

In Rotterdam there are almost no differences in income between the inflow and outflow of other (existing) neighbourhoods. However, in Utrecht and especially in The Hague higher-income households have left these neighbourhoods. Large-scale new housing developments, of mainly expensive owner-occupied dwellings, in these regions have attracted high-income households from existing neighbourhoods. For the outflow from priority neighbourhoods or the inflow to other city neighbourhoods we find no differences between regions with or without large-scale greenfield development.

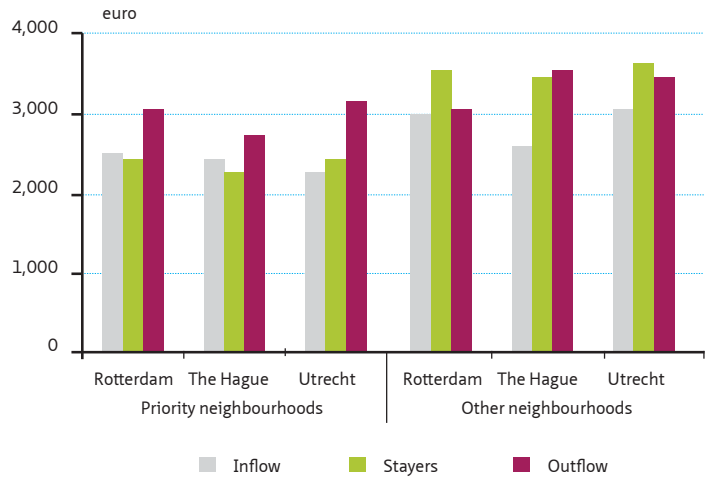

FIGURE 5.7 Average gross monthly household income (2005) of inflow, stayers and outflow, in priority neighbourhoods and other neighbourhoods

Source: Statistics Netherlands (SSD 1999-2005)

§ 5.5 Conclusions

In the Netherlands and many other European countries there is a widespread policy trust in mixed neighbourhoods (Galster, 2007). In urban restructuring programmes in the Netherlands, socially rented dwellings in deprived neighbourhoods are demolished and replaced by more expensive owner-occupied dwellings. Many studies focus on whether mixed income neighbourhoods are better places to live or create more opportunities for individuals (Andersson et al., 2007; Galster, 2007; Kleinhans, 2004). This study, however, focuses on whether mixed tenure policies indeed create mixed income neighbourhoods.

This question is especially relevant in the Netherlands, where, in the same time period, mass production of new, mostly expensive, dwellings took place on greenfield locations around the larger cities. This new housing development might interfere with the goals of urban restructuring policies.

New dwellings within priority neighbourhoods are found to be successful both in attracting higher-income households from elsewhere, and in keeping high-income households within those neighbourhoods, also when they have to compete with large-scale greenfield development within the same urban region.

At the same time, however, households with high or increasing incomes are found to move out of priority neighbourhoods, especially in urban regions with large scale greenfield development. Although new housing development within deprived priority neighbourhoods attracts higher-income households, the incomes of households moving out of those neighbourhoods are higher than the average income of households who move into those neighbourhoods. Because of these selective mobility patterns, the concentration of low-income households increased.

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TOC

6 Residential segregation and interethnic contact in the Netherlands

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Abstract: Dutch policymakers perceive high shares of ethnic minorities in neighbourhoods as a problem; it might generate fewer opportunities for minorities to have contact with the native Dutch population and thereby hinder integration. The question, however, is whether the ethnic composition of neighbourhoods influences interethnic contact. In this paper the focus is on leisure contact of people from ethnic minorities aged 15 to 65 with native Dutch people. Binary logistic multilevel analysis shows that contact with native Dutch people is mainly explained by individual characteristics. In addition, living in one of the four largest cities, cities with high shares of minorities on city level, leads to less contact with native Dutch people. The ethnic composition of the neighbourhood has no effect on contact, therefore segregation on neighbourhood level does not necessarily hinder integration.

§ 6.1 Introduction

Dutch policymakers perceive spatial segregation of ethnic minorities as a problem. Living in ethnically concentrated neighbourhoods is perceived to hamper contact with the native population, thereby hampering integration (VROM/WWI, 2009). The question, however, is whether or not there exists a neighbourhood effect on interethnic contact and integration. Do individuals from minority groups who live in neighbourhoods with a low percentage of native Dutch inhabitants indeed have less contact with native Dutch people because they live in these neighbourhoods?

The central question in the literature on neighbourhood effects is whether living in concentration neighbourhoods has (negative) effects on its residents (Friedrichs et al., 2003). Concentrations of poverty households or migrants can influence neighbourhood residents via lack of social ties or network contacts with more advantaged or native people (Buck, 2001). The question is how much independent effect a neighbourhood can have (Friedrichs et al., 2003). This paper contributes to this line of research by testing the neighbourhood effect of ethnic composition on contact of minority groups

with native Dutch people, excluding compositional effects by taking into account all sorts of background characteristics.

In segregated neighbourhoods, the chances of encounters with native Dutch people within the neighbourhood are lower, but this does not necessarily mean that minority groups also have less contact with the Dutch in other domains of life, such as work, school or leisure time. In this research, the focus is on leisure contact of minority groups with native Dutch people. In the Netherlands, minority group membership is based on migration history. Individuals are considered part of a minority group if at least one of their parents was born outside the Netherlands. Minority group members who were born in the Netherlands are called the second generation, while people who themselves have migrated to the Netherlands are referred to as the first generation. Individuals whose parents were born in the Netherlands (the large majority, including third generation migrants) are classified as native Dutch. The main research question is: To what extent do minority groups have leisure contact with native Dutch people, and how is this related to the ethnic composition of their neighbourhood, other neighbourhood characteristics and personal characteristics?

Leisure contact between ethnic groups is an important dimension of integration. Social contact creates social capital (Putnam, 2001; Putnam, 2007). Especially the 'weak ties' – contacts outside people's closest group of friends and family, are important to their educational or employment opportunities (structural integration) and (socio-cultural) integration into communities (Granovetter, 1973). Limited contact and limited social ties between ethnic groups hinder integration (Van der Laan Bouma-Doff, 2007). The other way around interethnic contact can also be an indicator of successful integration. This is especially the case for leisure contact, because, more than at work or school, people choose with whom they spend their leisure time.

Earlier research (Gijsberts and Dagevos, 2005; Van der Laan Bouma-Doff, 2007) was done on the relation between the ethnic composition of neighbourhoods and contact. Besides ethnic composition, however, these studies do not take into account other neighbourhood characteristics. These other characteristics, such as tenure or household composition, or the average income of neighbourhood inhabitants could have an effect on interethnic contact and are therefore included in this research. Contrary to earlier research, in this study also a distinction is made between the four largest Dutch cities, which have a high share of ethnic minorities, and other Dutch cities.

A multilevel regression model was estimated explaining the leisure contact of ethnic minorities with Dutch people, by neighbourhood and personal characteristics. By estimating the effect of a neighbourhood's ethnic composition on leisure contact, thereby taking into account personal characteristics, it was tested whether there is a true neighbourhood effect or if it is a compositional effect. Do individuals from segregated neighbourhoods have less interethnic leisure contact because of their

personal characteristics or because of the neighbourhood they live in? In addition to testing whether there is a neighbourhood effect on interethnic contact, this research also gives insight into individual differences.

§ 6.2 Theory

Policymakers in the Netherlands believe that residential segregation hinders integration. Ethnic minorities are required to learn the Dutch language and familiarise themselves with the Dutch standards and values, therefore, it is necessary that they have contact with native Dutch people (VROM/WWI, 2009). Ambitious restructuring policies are designed to achieve social mixing in segregated and deprived neighbourhoods. Through demolition and development, the housing stock in these neighbourhoods is being changed towards more expensive and owner-occupied housing, thereby encouraging upwardly mobile households to stay within their neighbourhood, and attracting households with a high socio-economic status (often native Dutch people) from other neighbourhoods (Uitermark, 2003). In addition to restructuring policies, experiments are being conducted to prevent more low-income households from settling in segregated and deprived neighbourhoods (Van der Laan Bouma-Doff, 2007).

The aim of establishing neighbourhoods with mixed populations is not new, nor is it limited to the Netherlands. Also in other countries, policies have been designed to disperse minority groups and deprived households (Cheshire, 2007). Goetz (2003), for example, describes numerous policies pursued in the United States to deconcentrate deprived households; offering opportunities by helping households move out of concentrated poverty neighbourhoods. Social mixing policies in European countries are often spatially oriented, targeting specific ethnically concentrated neighbourhoods and creating opportunities within these neighbourhoods (Musterd, 2003).

Why residential segregation hinders integration is described in the 'isolation thesis' (see also Van der Laan Bouma-Doff, 2007). According to this theory, residential segregation, that is, living in neighbourhoods with few individuals from the majority ethnic group, leads to less contact with the majority ethnic group. People living in these neighbourhoods, therefore, have less need and fewer opportunities to acquire the majority language, culture and standards and values. Lower language skills hinder educational attainment, and this, together with less social network ties with the majority ethnic group, hinders labour market success. Both socio-cultural integration (acquiring the native language, standards and values) and structural integration (acquiring socio-economic status), therefore, in theory, are hindered by neighbourhood segregation.

Lazear (1999) describes the relation between segregation and integration from an economic viewpoint. When individuals live in segregated neighbourhoods, they have enough opportunities to 'trade' with people from their own ethnic minority group. Therefore it is not efficient for them to invest in learning the language and culture of the majority group. When there are fewer individuals from people's own ethnic group with whom they can have contact, they are more likely to invest in learning the majority language and culture, to enable contact with the majority group. Segregation makes socio-cultural integration less necessary and less efficient, because there are enough opportunities to have contact within one's own ethnic group.

The role of the neighbourhood

Both Lazear (1999) and the isolation thesis state that living in segregated neighbourhoods leads to less contact with the ethnic majority, in this case the native Dutch population, and therefore hinders integration. The question, however, is how important the neighbourhood is for interethnic (trading) contact of individuals. Boomkens (2006) states that modern city dwellers orientate themselves to friends and facilities, spread out over a very large area. Their lives and contacts are not limited by the borders of their neighbourhood. Van der Laan Bouma-Doff (2007) (see also Dagevos, 2009) also states that processes such as globalisation and communication technology have diminished the influence of the neighbourhood on contact between individuals. In the literature on neighbourhood effects, some studies take into account area characteristics at different scales, to test what scale of 'neighbourhood' has the most influence on individual outcomes (Andersson and Musterd, 2010; Buck, 2001; Johnston et al., 2005). The importance of the neighbourhood for contact, however, differs greatly throughout the course of life. Young children are very much oriented towards their street or their neighbourhood. Working people and (secondary school) students orientate towards the city as a whole, or even towards other cities, while for the elderly, the world narrows back to their neighbourhood or street (WRR, 2005).

Besides ethnic composition, other neighbourhood characteristics also can influence interethnic contact. Physical neighbourhood characteristics, such as streets, squares, parks and shopping centres can create possibilities for interethnic contact, also by attracting people from outside the neighbourhood (Vanstiphout, 2006). However, in this research the focus is only on social neighbourhood characteristics; ethnic, housing and household composition, average income and population density. These characteristics are often highly related. A large amount of low-rent apartments attracts low-income groups, who also are often ethnic minority groups (Van Kempen and Bolt, 2003). It is therefore important to test whether interethnic contact is influenced by the ethnic composition of the neighbourhood or if other related variables are of greater influence. For instance, household composition may influence contact, because people often have more contact with people who are in a similar stage of life, and home owners

tend to have more contact with their neighbours, as they move residence less often and feel more responsible for their neighbourhood.

Putnam (2007) states that ethnic diversity in neighbourhoods has a negative influence on contact. In heterogeneous populations there is less trust and less understanding between individuals, even between individuals who are alike. The more people are surrounded by 'others', the more they tend to stick to themselves and the less they trust other people. Therefore, people that live in ethnically heterogeneous neighbourhoods will have less contact with 'others' and even less contact with people from within their own ethnic group. In the Netherlands, the neighbourhoods with the least native Dutch inhabitants are also the most heterogeneous. (There are no neighbourhoods with one dominating ethnic group other than native Dutch.) According to Putnam, in these neighbourhoods, individuals have less contact with their neighbours. Lancee and Dronkers (2008) and Gijsberts et al. (2008) replicate Putnam's (2007) research in the Netherlands. They both find a negative relation between ethnic diversity in the neighbourhood and contact with neighbours.

Earlier research by Gijsberts and Dagevos (2005) tested the influence of the ethnic composition of neighbourhoods on interethnic friendship relations. They find an effect of both ethnic composition of the neighbourhood and ethnic composition of the city as a whole, on interethnic friendship relations. Ethnic minorities in cities and in neighbourhoods with a larger share of minorities more often have friends from within their own ethnic group. Gijsberts and Dagevos (2005) also find better language skills and more contact with the Dutch among minority groups within neighbourhoods with more native Dutch inhabitants. Van der Laan Bouma-Doff (2005) tested whether leisure contact of ethnic minorities with Dutch people is dependent on the neighbourhood's ethnic composition. However, she did not take into account the ethnic composition of the city, or any differences between cities. Even when personal characteristics, language skills and cultural orientation were taken into account, she still found a significant effect from the neighbourhood's ethnic composition.

Personal characteristics and interethnic contact

Individuals from ethnic minority groups differ in the extent to which they have contact with Dutch people. Ethnic group, age, gender, migration generation, educational level and income are all highly related to interethnic contact.

There are differences between ethnic groups. For this research, the focus is on the four largest ethnic minority groups in the Netherlands: Turks, Moroccans, Surinamese and Antilleans (Antilleans in this paper also include Arubans). Surinamese and Antilleans, on average, have better Dutch language skills and their culture is less different from the Dutch culture than that of Turkish and Moroccan people. Therefore, Surinamese and

Antilleans have more contact with Dutch people (Dagevos et al., 2007; Gijsberts and Dagevos, 2005). Moreover, second-generation migrants and young people have more interethnic contact than the older, first generation, because of their better language skills (Gijsberts and Dagevos, 2005). First-generation Turkish and Moroccan migrant workers were expected to return to their country of origin, which explains why this group is less oriented towards Dutch society, and has less contact with the Dutch population (Musterd, 2003). Van den Broek and Van Ingen (2008) find, that compared to the first generation, the second generation is willing to have much more contact with people outside their own ethnic group.

Women from ethnic minority groups have less contact with Dutch people than men (Van der Laan Bouma-Doff, 2005). They tend to participate less in activities that could generate opportunities for contact with Dutch people. Because of the low labour market participation, and low sports participation, especially, by Turkish and Moroccan women (Musterd, 2003; Keune et al., 2002), these women have less contact with Dutch people.

Education level and income have a large influence on contact with native Dutch people. Higher educated people and people with higher incomes tend to be more self-confident, have more trust in other people and are therefore more open to contact (Blokland, 2008). Van der Laan Bouma-Doff (2005) states that structural integration, that is, educational and labour market success, and contact with Dutch people are interrelated. People from ethnic minorities acquire the Dutch language more easily when they have frequent (network) contacts with native Dutch people, and are more successful in their education or in finding employment. Because of such a higher education or employment level, they work or study together with Dutch people, more often (Middelkoop and Declerck, 2009). In addition, people from ethnic minorities who are successful in Dutch society tend to be more positive about Dutch people and, therefore, are more open to interethnic contact (RMO, 2005).

Employment may influence leisure contact of people from ethnic minority groups with Dutch people, in two ways. It can lead to interethnic contact 'on the job', during which people get to know more Dutch people, acquire the Dutch language, experience Dutch standards and values, acquire a more positive attitude towards Dutch people, which, in turn, leads to more contact with Dutch people outside working hours. Gijsberts and Dagevos (2005) find that people from ethnic minority groups have more contact outside their own ethnic group when they have employment. However, employed people have less leisure time, and therefore fewer opportunities to have interethnic leisure contact. Looking specifically at leisure contact, Van der Laan Bouma-Doff (2005) finds no effect of employment on contact of minority groups with native Dutch people.

Finally, household composition may influence interethnic leisure contact. Singles spend more of their leisure time outside their homes than couples and families do, and therefore they have more chances of encounters with Dutch people.

Based on theory and earlier results, individual characteristics are expected to have a large influence on interethnic contact. Surinamese and Antilleans, second-generation migrants, men, singles, higher educated ethnic minorities and minorities with higher incomes are all expected to have more contact with the Dutch population. The expected influence of work is ambiguous.

Neighbourhood segregation decreases the chances of encounters with Dutch people within the neighbourhood. Therefore, the share of Dutch people in the neighbourhood might have a positive influence on interethnic leisure contact. This depends, however, on the importance of contacts within the neighbourhood. Modern individuals, especially the most mobile age group of 15 to 65, as studied here, often have many contacts outside their neighbourhood. Therefore, contrary to earlier research, we do not expect the share of Dutch people within the neighbourhood to have a significant influence on interethnic contact.

§ 6.3 Research design

For this research the LAS 2004-2005 (Life situation of Allochthonous City dwellers in the Netherlands) survey was used. This survey was conducted among 4096 inhabitants of 50 Dutch cities, from the four largest ethnic minority groups (Turks, Moroccans, Surinamese, and Antilleans (including Arubans)) and a comparison group of native Dutch inhabitants. The survey only included people aged 15 to 65. In this survey, ethnic minority groups were asked about their leisure contact with Dutch people. The LAS survey also included information on personal characteristics, such as educational level, household situation and income. Respondents' neighbourhood was defined according to their four-digit postal code. The 50 cities included in the survey have 1111 postal code areas, with an average population of 6400. Postal code areas in cities have an average size of about one square kilometre and often have 'natural' borders such as main roads, open areas or waterways. Postal code areas do not perfectly overlap with the areas that people themselves perceive as their neighbourhood. However, much data on neighbourhood characteristics is only available for postal code areas. Information on the neighbourhood (i.e. postal code area), such as ethnic composition, tenure composition and average income, was obtained from Statistics Netherlands and is related to the respondents of the LAS survey.

In the 50 cities included in the LAS survey, the average percentage of non-western minorities was 18% and varied on city level between 35% (Rotterdam) and 4% (Emmen). On neighbourhood level this percentage varied between 0% and 87%. There are 43 neighbourhoods (of the 1111 neighbourhoods included) with more than 50% non-western minorities. Segregation indices on city level varied from moderate (46% The Hague) to low (11% Amstelveen). The segregation index of all 50 cities together was 20%; 20% of the non-western minorities in these cities would have to move in order to create an even mix of Dutch people and non-western minorities in these neighbourhoods and cities (see also Duncan and Duncan (1955) for the calculation of segregation indices, and Kantrowitz (1973) for the interpretation of segregation indices).

Much earlier research on neighbourhood segregation focused on the percentage of (non-western) minorities in neighbourhoods. In this research, the focus is on the share of native Dutch inhabitants. Thereby a clear link is made between the chances of encounters within the neighbourhood and the actual contact with native Dutch people.

The influence of the neighbourhood's ethnic composition, other neighbourhood characteristics and personal characteristics on leisure contact with native Dutch people can be tested using regression analysis. Data is measured on two different levels: individual level and neighbourhood level. Individuals from the same neighbourhood automatically have the same neighbourhood characteristics. These individuals are therefore not independent from each other. Independency of individual cases is required to perform ordinary regression analysis, this analysis therefore cannot be done on multilevel data. Multilevel regression analysis takes into account the interdependencies caused by the different levels in the data and therefore does give accurate results.

On the individual level, the variables gender, age, ethnic group, migration generation, educational level, income, household situation and whether people have a job or go to school, are included. On neighbourhood level, we include the percentage of native Dutch inhabitants and the percentage of western minorities, average household income, the percentages of rented housing, apartments, singles, couples with children, population density, and whether a neighbourhood belongs to the G4 (the four largest Dutch cities). Using correlation and VIF (Variance Inflation Factor) analysis, the independent variables were checked on multicollinearity. The results from these analyses were not a reason to exclude any of the independent variables. The distinction between neighbourhoods within and outside the G4 is made, because within the G4 on average, the share of native Dutch inhabitants was much lower than in other cities, and neighbourhoods with low shares of Dutch inhabitants were mostly within one of the G4. (Correlation between G4 and the percentage of native Dutch inhabitants in the neighbourhood is -0.56.) Therefore, if the G4 are not included, an effect found of living in neighbourhoods with few native Dutch inhabitants can also be interpret as an

effect of living in the G4. Within the G4, on average, the share of native Dutch people was not only lower on neighbourhood level, but also on city level and thereby the chances of encounters with Dutch people outside the neighbourhood were also lower. Living in these cities, therefore, is likely to influence contact of minority groups with native Dutch people.

In the LAS survey, minority groups were asked to state whether they 'often', 'sometimes' or 'never' had contact with Dutch people in their leisure time. What people consider as 'often' or 'sometimes' can differ from person to person, therefore, the variable was simplified to people who do have leisure contact (often or sometimes) with Dutch people, and people who never have contact with native Dutch people. By simplifying the variable to these two categories, it became possible to perform binary logistic regression analysis instead of ordered logit regression analysis, which made the results more easy to interpret. The regression model will predict the chance that individuals from minority groups do have leisure contact with native Dutch people.

In multilevel regression analysis, the dependent variable is explained by an intercept, neighbourhood characteristics times parameters, individual characteristics times parameters, remaining variance between neighbourhoods and remaining variance between individuals. In formula: $Y_{ij} = B_0 + B_1 N_j + B_2 P_{ij} + u_{0j} + e_{ij}$, in which u_{0j} has a mean of zero and a variance of σ^2_{u0} (Rasbash et al., 2005). When the dependent variable is a continuous variable with a normal error distribution, it can be predicted with a linear regression equation in this way. In this research, however, the dependent variable (Y_{ij}) is dichotomous (being either 1: 'contact', or 0: 'no contact'), therefore, a function is needed to link Y_{ij} to the linear regression equation (Hox, 2002). The most used link function, the logit function, is used in this research. Logit Y_{ij} = Log Y_{ij} /(1- Y_{ij})= $B_0 + B_1 N_j + B_2 P_{ij} + u_{0j} + e_{ij}$ (Rasbash et al., 2005). Therefore, Y_{ij} /(1- Y_{ij}), the odds of having contact, are proportional to the exponential of the parameters in the linear regression equation (Hox, 2002).

Multilevel analysis is necessary only if there are significant differences in contact between neighbourhoods, that is, if σ^2_{uo} is significant. This can be tested by using a Wald test. To do so, an intercept-only, multilevel model is estimated (Logit $Y_{ij} = B_0 + u_{0j} + e_{ij}$). When σ^2_{uo} is significant, this indicates that there are significant differences between neighbourhoods. If σ^2_{uo} is not significant, neighbourhood characteristics have no influence on leisure contact and can therefore be left out of the model. In such a case, a single-level model with only individual characteristics can be estimated. When there would be significant differences between neighbourhoods, more elaborate multilevel models could be estimated, including independent variables on both neighbourhood and individual level. These independent variables could partly explain the variation in contact, thereby reducing the remaining variation between neighbourhoods (σ^2_{uo}).

When it is established that there are significant differences between neighbourhoods, the next question is what share of the variance in interethnic contact can be explained by differences between neighbourhoods and what share of the variance can be explained by differences between individuals. The Variance Partition Coefficient (VPC) is the share of the variance, not explained by the model, that is on neighbourhood level. VPC=$\sigma^2_{uo}/(\sigma^2_{uo} + \sigma^2_e)$. Since in an intercept only model, the model does not explain any variance, in this model the VPC measures the actual share of variance on neighbourhood level. Because σ^2_e is not constant in binary logistics models, in these models the VPC can only be approximated. In our research, a linear threshold model is used to approximate the VPC. This approximation of the VPC can only give an indication of the share of variance that is on neighbourhood level (see also Rasbash et al., 2005).

R-square is a measure of the amount of total variance in the dependent variable that can be explained by the model. Similar to the VPC, R-square cannot be estimated in binary logistic multilevel regression models, but approximations are possible. An often used approximation of R-square is $\sigma^2_f/ (\sigma^2_f + \sigma^2_{e0} + \sigma^2_{e0})$, in which σ^2_f is the variance in the dependent variable predicted by the linear regression equation, and σ^2_{u0} and σ^2_{e0} are the remaining variance not explained by the model on neighbourhood and individual level respectively (see also Snijders and Bosker, 1999: p. 225).

§ 6.4 Results

There are large differences between ethnic minority groups and between neighbourhoods regarding leisure contact with native Dutch. Overall, 78% of people from minority groups do have contact with Dutch people. This percentage is higher for Surinamese and Antilleans (85%), while only 72% of Turkish and Moroccan people have leisure contact with Dutch people. (This percentage, is still much higher than the other way around; only 54% of Dutch people have leisure contact with ethnic minorities.) People from ethnic minorities that live in neighbourhoods with a larger share of Dutch inhabitants, also have more contact with native Dutch people in their leisure time. Chi-square analysis shows that this relationship is significant for all four ethnic minority groups.

	TURKS AND MOROCCANS			SURINAMESE AND ANTILLEANS		
	Often	Sometimes	Never	Often	Sometimes	Never
<30% native Dutch	18%	34%	47%	41%	34%	25%
30-50% native Dutch	29%	39%	32%	40%	40%	19%
50-80% native Dutch	37%	40%	23%	61%	25%	14%
>80% native Dutch	40%	44%	16%	74%	22%	4%
Total	**33%**	**40%**	**28%**	**56%**	**29%**	**15%**

TABLE 6.1 Leisure contact with native Dutch by ethnic group and ethnic composition of the neighbourhood (N=3454)

Table 6.1 shows that ethnic minority groups have more contact with Dutch people when they live in neighbourhoods with a higher percentage of native Dutch inhabitants. Multilevel regression analysis is used to test whether there is a true effect of the ethnic composition of the neighbourhood or if this effect disappears when other neighbourhood characteristics and individual characteristics are taken into account.

First, an intercept-only model is estimated (see Table 6.2). This model shows that σ^2_{u0} is significant, thereby indicating significant differences between neighbourhoods. The approximation of the Variance Partition Coefficient indicates that 11% of the variance in leisure contact is explained by differences between neighbourhoods. Although the chance of having leisure contact with Dutch people is mostly explained by individual characteristics, there are also differences between neighbourhoods.

In model 1, in addition to the intercept, the percentage of Dutch inhabitants within the neighbourhood is included. This variable has a significant positive effect on contact, indicating that, in neighbourhoods with more Dutch inhabitants, ethnic minorities also have more leisure contact with native Dutch people. The chance of having contact with native Dutch people increase by 3% with every extra percentage point of native Dutch inhabitants in the neighbourhood (Exp (0.026)=1.03). The approximated R-square indicates that 17% of the differences in leisure contact could be explained by the percentage of native Dutch people within the neighbourhood. This is partly a compositional effect; individuals who, because of their personal characteristics, have more contact with Dutch people also more often are living in neighbourhoods with a larger share of native Dutch inhabitants. Although only variables on neighbourhood level are included, the explained variance can therefore be higher than the share of variance on neighbourhood level (11%).

Subsequently, we looked at the question of whether an effect of the neighbourhood's ethnic composition on contact with Dutch inhabitants could still be seen when other neighbourhood characteristics are also taken into account. Model 2 shows that, when other neighbourhood characteristics are taken into account, the percentage of Dutch people within a neighbourhood still has a significant, positive effect. Living in one of

the G4, the four largest cities in the Netherlands, which have a relatively low percentage of Dutch inhabitants on city level, has a negative effect on contact with native Dutch people. People from ethnic minority groups who live outside the four largest cities have a 1.5 times (exp(0.405)=1.5) higher chance of having contact with native Dutch people. The R-square of 18% is just a bit higher than in model 1, indicating that the addition of other neighbourhood characteristics does not add much explanatory power.

	INTERCEPT ONLY	MODEL 1	MODEL 2
	B (SE)	B (SE)	B (SE)
Intercept	1.499 (0.055)**	-0.108 (0.149)	-0.132 (0.929)
% native Dutch		0.026 (0.003)**	0.017 (0.006)**
% western minorities			0.032 (0.021)
average household income			0.043 (0.022)
% rent			0.004 (0.005)
% apartments			-0.003 (0.004)
% singles			0.005 (0.010)
% couples			-0.035 (0.020)
Population density			-0.001 (0.001)
G4			-0.405 (0.162)*
σ^2_{u0} (SE)	0.405 (0.087)**	0.161 (0.060)*	0.134 (0.056)*
Wald test statistic	21.936	7.249	5.741
R^2 (approximated)	0%	17,2%	18,0%

TABLE 6.2 Leisure contact with native Dutch explained (2nd order PQL in MLwiN, N=3447)
* p < 0.05; ** p < 0.01

Model 3 (in Table 6.3) includes variables on individual level only. The VPC of this model is approximated at 9%. This indicates that the 11% variance on neighbourhood level found in the intercept-only model is, for a small part, due to compositional effects. Not the differences between neighbourhoods, but the differences in population composition of these neighbourhoods explains this variance. When the individual characteristics of the people within the neighbourhood are taken into account, only 9% variance in contact with Dutch people is explained by differences between neighbourhoods.

The approximated R-square of 22% of model 3 indicates that individual characteristics better explain leisure contact with Dutch people than neighbourhood characteristics do (18%). Surinamese, Antilleans and second-generation migrants have more contact with Dutch people than first-generation Moroccans and Turks. Males, higher educated people, people with higher incomes, and people that are going to school, also have more contact with Dutch people. Couples and families have less contact with Dutch people than singles and people from other types of households.

All the individual variables are dummy variables. The exponential value of the coefficient represents the change in odds, compared to the reference category. For males, for example, the odds of having contact with native Dutch people is exp(0.337)=1.4 times higher than for females. The chances of second-generation Antilleans having contact with Dutch people is exp(2.157)=8.6 times higher than for first-generation Turks.

Model 4 includes both individual and neighbourhood level variables. The effects of the individual variables are very similar to those in model 3. Compared to model 2, however, the effect of the percentage of Dutch inhabitants in the neighbourhood disappears when personal characteristics are taken into account. This was a compositional effect. The effect found in earlier models, that minority groups in neighbourhoods with more native Dutch people have more leisure contact with Dutch people, is found because minority groups that because of their personal characteristics have more leisure contact with Dutch people, also live in less segregated neighbourhoods. These people have more interethnic leisure contact because of their personal characteristics and not because of the neighbourhood they live in.

Model 4 has an R-square of 24%, while the R-square of model 3 is 22%. This indicates that including neighbourhood characteristics does add some extra explanatory power to the model. This will mostly be due to the G4, because this is the only neighbourhood variable that still has significant influence on leisure contact. When people from ethnic minority groups live in the four largest cities, they have less leisure contact with Dutch people than when they live outside these cities. In neighbourhoods in the G4, on average, the share of native Dutch inhabitants is lower. Having less contact with native Dutch when living in the G4, however, cannot be caused by the lower percentage of Dutch people in the neighbourhood, because in that case the percentage of Dutch people in the neighbourhood itself would have had significant effect. The fact that minority groups in the G4 have less contact with Dutch people, can most likely be explained by the lower share of Dutch inhabitants within these cities as a whole. Extra analyses (not shown) indicate that when the ethnic composition of the city as a whole is taken into account, the G4 no longer has an effect on contact, but the ethnic composition of the city does. This indicates that the effect of the G4 on leisure contact with Dutch people should be interpreted as the effect of living in cities where the share of Dutch people in the whole city is low.

The data set only includes individuals aged 15 to 65, which is a very mobile age group with contacts not limited to their neighbourhood but throughout the city (WRR, 2005). The share of Dutch people in the area where ethnic minorities have their social contacts defines the chances of interethnic encounters. Because these minorities have their social contacts throughout the city, these chances of encounters should be measured on city level. This explains why the share of native Dutch people on neighbourhood level has no effect on their contact with native Dutch people, but ethnic composition on a higher level does have an effect.

The last step in multilevel modelling is to test whether there are individual variables of which the influence varies between neighbourhoods. For example, if women would have contact significantly more often than men in a certain neighbourhood, while in another neighbourhood gender has no significant influence, or men would have more contact than women. None of the effects of the individual variables on contact turns out to differ significantly between neighbourhoods.

	MODEL 3	MODEL 4
	B (SE)	B (SE)
Intercept	-0.010 (0.165)	-1.167 (1.044)
Neighbourhood level		
% native Dutch		0.010 (0.006)
% western minority groups		0.028 (0.022)
Average household income		0.010 (0.023)
% rent		0.006 (0.005)
% apartments		-0.007 (0.005)
% singles		0.009 (0.010)
% couples without children		-0.003 (0.021)
Population density		0.000 (0.001)
G4		-0.401 (0.170)*
Individual level		
Male	0.337 (0.100)**	0.312 (0.099)**
Age 15-30 (ref)		
Age 30-50	0.212 (0.133)	0.211 (0.133)
Age 50-65	0.088 (0.164)	0.098 (0.163)
Turkish, 1st generation (ref)		
Turkish, 2nd generation	0.703 (0.234)**	0.640 (0.231)**
Moroccan 1st generation	0.082 (0.124)	0.137 (0.124)
Moroccan 2nd generation	1.026 (0.290)**	0.970 (0.287)**
Surinamese 1st generation	0.610 (0.160)**	0.666 (0.161)**
Surinamese 2nd generation	1.384 (0.301)**	1.353 (0.298)**
Antillean 1st generation	0.642 (0.157)**	0.560 (0.157)**
Antillean 2nd generation	2.157 (0.500)**	2.037 (0.489)**
Educational level low (ref)		
Educational level middle	0.661 (0.115)**	0.617 (0.114)**
Educational level high	1.536 (0.226)**	1.411 (0.222)**
Income low (ref)		
Income unknown	-0.098 (0. 130)	-0.046 (0.128)
Income middle	0.382 (0.137)**	0.369 (0.136)**
Income high	0.735 (0.348)*	0.651 (0.343)

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	MODEL 3	MODEL 4
	B (SE)	B (SE)
Couple with children (ref)		
Single	0.441 (0.200)*	0.476 (0.199)*
Couple	0.219 (0.157)	0.201 (0.156)
Single parent family	-0.173 (0.164)	-0.096 (0.164)
Other households	0.678 (0.184)**	0.725 (0.182)**
Work	0.214 (0.111)	0.197 (0.111)
School	0.568 (0.207)**	0.537 (0.204)**
σ^2_{u0} (intercept) (SE)	0.315 (0.082)**	0.134 (0.060)*
Wald test statistic (df)	14.855	5.007
R^2 (approximated)	22.3%	24.0%

TABLE 6.3 Leisure contact with native Dutch explained (2nd order PQL in MLwiN, N=3447)
* p < 0.05; ** p < 0.01

§ 6.5 Conclusions

According to the isolation thesis, neighbourhood segregation, that is, living in neighbourhoods with few inhabitants from the majority group, will lead to less contact with majority group members, and this will therefore hinder integration. Ambitious policies are designed to achieve ethnically mixed neighbourhoods, to enhance interethnic contact and integration. At first glance, having fewer Dutch inhabitants on neighbourhood level appears to have a negative influence on contact of ethnic minorities with Dutch people. Multilevel modelling, however, shows that differences in interethnic leisure contact are mostly explained by individual differences rather than by differences between neighbourhoods. It also shows that the ethnic composition of the neighbourhood has no effect on interethnic contact if other neighbourhood characteristics and individual characteristics are taken into account.

Although the focus of policymakers is on mixing neighbourhoods to enhance contact, this research shows that contact is mainly explained by individual differences.
In accordance with earlier research (Van der Laan Bouma-Doff, 2005; Gijsberts and Dagevos, 2005), we find more contact with native Dutch people among Surinamese and Antilleans, second-generation migrants, men, singles, individuals with a high educational level, a high income, and people who are going to school. Among all four minority groups, the second generation has more contact with native Dutch people than the first generation. Policymakers therefore can be optimistic about the future, in

which new generations are likely to have more broad social contacts and networks in Dutch society (see also Van den Broek and Van Ingen, 2008).

There are, however, differences between neighbourhoods in leisure contact of ethnic minority groups with native Dutch people. At first glance, the ethnic composition of the neighbourhood appears to have a negative influence on leisure contact. When other neighbourhood characteristics and individual characteristics are taken into account, however, the effect of the neighbourhood's ethnic composition on leisure contact is no longer significant. This indicates there is no true neighbourhood effect, but a compositional effect. People from ethnic minorities who, because of their personal characteristics, are more likely to have contact with Dutch people, more often also live in neighbourhoods with a large share of native Dutch people. The fact that they have leisure contact with Dutch people more often, however, is not due to the large share of Dutch inhabitants in their neighbourhood, but is caused by their personal characteristics.

The differences between neighbourhoods found in the research should be explained as differences between neighbourhoods within and outside the four largest cities (G4), because the G4 is the only variable on neighbourhood level of which the effect on leisure contact remains significant when all individual characteristics are taken into account. Minority groups that live in neighbourhoods within the four largest cities have less leisure contact with native Dutch people, and this cannot be explained by the smaller share of native Dutch inhabitants within these neighbourhood. Most likely, however, the smaller share of native Dutch people in the city as a whole, does explain why ethnic minority groups in the G4 have less leisure contact with native Dutch people.

Van der Laan Bouma-Doff (2005) finds a positive effect of the share of native Dutch people in the neighbourhood on leisure contact of ethnic minorities with native Dutch people. She, however, does not take into account the ethnic composition of the city or the difference between the G4 and other cities in the Netherlands. In the G4, people from minority groups have less contact with native Dutch people, not because their neighbourhood's share of Dutch people is smaller (although on average it is), but because of the small share of native Dutch people in the whole city. Therefore, a neighbourhood effect of ethnic composition is found, that in fact, is a 'city effect'. In our research, the G4 is taken into account and has a significant effect on contact. Therefore, the ethnic composition of the neighbourhood no longer has a significant influence.

One of the arguments for policymakers to reduce ethnic concentration on neighbourhood level is to enhance contact of ethnic minorities with native Dutch people, thereby increasing integration. This research, however, shows that interethnic contact, more than on ethnic concentration on neighbourhood level, depends on concentration on a larger scale. When whole cities are concentration areas of ethnic

minorities, restructuring policies not necessarily have to attract native Dutch people to the most concentrated neighbourhoods; to enhance interethnic contact, it would be sufficient to attract them to the city as a whole. Although preventing concentrations of, for example, low income households and ethnic minorities on neighbourhood level also remains important, for instance, to prevent stigmatising and accumulation of liveability problems. However, to enhance interethnic contact, policymakers should pay more attention to the ethnic composition on a larger scale instead of on neighbourhood level.

In the data set used in this research (the LAS survey), only individuals aged 15 to 65 are included. This age group is generally more mobile than younger and older people, and will therefore be less dependent on their neighbourhood for their contact with native Dutch people (WRR, 2005). For this age group, we found no effect of ethnic composition of the neighbourhood on leisure contact. However, for people outside this age group, it is possible that leisure contact with native Dutch people is dependent on one's neighbourhood's ethnic composition.

Neighbourhoods in the Netherlands are relatively small in size, therefore, people will easily have contact outside their neighbourhood and are therefore less dependent on the ethnic composition of the neighbourhood. This explains why, at least for the mobile age group of 15 to 65, no effect is found of ethnic composition of the neighbourhood on interethnic leisure contact. The question, however, is whether segregation on a larger scale does have a negative effect on interethnic contact. For example, when whole (parts of) cities have a small share of native Dutch inhabitants. This research already shows that, in the four largest cities, cities with a small share of native Dutch inhabitants, people from ethnic minority groups have less contact with Dutch people. Further research, in which segregation is measured on different scales (e.g. Andersson and Musterd, 2010), or which takes into account the contacts of different (less mobile) age groups, will give further insight into the relation between segregation, integration and interethnic contact.

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7 Conclusions: Selective mobility, segregation and neighbourhood effects

§ 7.1 Introduction

The aim of this thesis is to gain more insight in both the causes and the consequences of segregation, through studying both individual residential mobility and neighbourhood selection and neighbourhood effects. It gives insight in the consequences of segregation by studying neighbourhood effects; the independent effects of neighbourhood characteristics on individual outcomes. For neighbourhood effects research it is very important to understand selective mobility and neighbourhood selection, because selection bias is the main problem in measuring neighbourhood effects (Cheshire, 2007; Friedrichs et al., 2003; Van Ham and Manley, 2009). Any correlation found between neighbourhood characteristics and individual outcomes might be explained by selection bias and can therefore not prove the existence of a neighbourhood effect. The question is; do poor neighbourhoods make people poor, or do poor people live in unattractive neighbourhoods because they cannot afford to live elsewhere (Cheshire, 2007). Therefore the main focus of this thesis is on selectivity in the residential mobility process. It studies selectivity in neighbourhood satisfaction, in realising desires to leave the neighbourhood and in choosing a destination neighbourhood and the impact of new housing developments on selective mobility patterns and segregation. Thereby this thesis gives insight in where, when and why (which) people move. As selective residential mobility is one of the main driving forces of segregation, insight in selective residential mobility is not only very important for neighbourhood effects research but will also lead to a better understanding of the causes of segregation.

Various authors have argued that selection bias is one of the main challenges in neighbourhood effects research (Van Ham and Manley, 2012; Harding, 2003; Sampson et al., 2002) and that it is important to make a link between research into neighbourhood selection and research into neighbourhood effects (Doff, 2010a; Galster, 2003; Hedman, 2011; Hedman and van Ham, 2012; Ioannides and Zabel, 2008). While neighbourhood effects research has tried to reduce selection bias (using control variables, quasi-experimental study designs and/or econometric techniques)

(Harding, 2003; Hedman and van Ham, 2012; Sari, 2012; Sharkey, 2012), it is not possible to completely eliminate selection bias. Therefore, instead of trying to eliminate selection bias, it is better to try to understand selection and create models of selection (Manley and Van Ham, 2012; Van Ham and Manley, 2012; Winship and Mare, 1992). Similar to earlier theses (Doff, 2010a; Hedman, 2011), this thesis provides insight in both neighbourhood selection and neighbourhood effects and creates a link between these two fields of literature. This thesis adds to the previous research as it studies selectivity in various aspects of the residential mobility process, thereby providing a more thorough insight in the causes of selective residential mobility and segregation.

Since the main focus of this thesis is on selectivity in the residential mobility process, the first main research question is where, when and why which people move. I study the effect of personal characteristics, neighbourhood characteristics and macro level housing market developments on individual neighbourhood satisfaction, moving wishes, moving behaviour and neighbourhood selection and on macro level selective mobility patterns and segregation. Studying selective residential mobility will lead to a better understanding of selection bias and neighbourhood effects. Secondly this thesis also studies neighbourhood effects. Neighbourhoods are assumed to affect their residents via a number of mechanisms, one of them being social interactions with neighbours. It is, however, unclear to what extent social interactions are determined by the residential neighbourhood. The second main research question therefore asks whether the ethnic composition of the neighbourhood affects interethnic contact; do ethnic minorities have less contact with the native majority if they live in minority concentration neighbourhoods?

This thesis consists of five interrelated empirical chapters. After an introductory chapter which provided an elaborate overview of the literature on segregation and neighbourhood effects, chapters two, three and four focussed on individual level residential mobility and help to understand selectivity in various aspects of the residential mobility process. Chapter five studied selective residential mobility patterns and the influence of new housing development and urban restructuring on mobility and segregation. Chapter six studied neighbourhood effects; the effect of the residential neighbourhood on social interactions. Chapters two to five thus provide answers for the first main research question, while Chapter six answers the second research question.

This conclusion chapter will first summarize the findings of the five empirical chapters and the contributions of these chapters to the literature, followed by a synthesis of the main overall research findings. Subsequently, Section 7.4 reflects on the used data and methodology. The chapter ends with a discussion of the research findings, implications and directions for further research.

§ 7.2 Empirical chapters

Chapter 2: Who cares? Individual differences in determinants of residential satisfaction

Residential satisfaction is a key variable in understanding individual residential mobility (Lu, 1999; Speare, 1974), as dissatisfaction leads to desires to move (Wolpert, 1965). There are individual differences in the determinants of satisfaction. If neighbourhood characteristics lead to dissatisfaction and therefore to mobility desires for specific groups, this might lead to selective mobility and segregation. Therefore, in this chapter I study individual differences in the determinants of residential satisfaction.

There is a long tradition of research into residential satisfaction. However, this chapter is one of the first that includes interaction effects between individual characteristics and neighbourhood characteristics in models explaining residential satisfaction. These interaction effects give insight in individual differences in the determinants of residential satisfaction; that is, in which neighbourhood characteristics are important to whom. To my knowledge, previously only Greif (2015) and Parkes et al. (2002) have tested interaction effects between tenure and neighbourhood characteristics and there is no earlier research on ethnic or household differences in the determinants of neighbourhood satisfaction. By interacting neighbourhood characteristics with tenure, household type and ethnicity in models explaining neighbourhood satisfaction, this chapter therefore provides new insight in which neighbourhood characteristics are important to whom.

I find that people are less satisfied in neighbourhoods with higher shares of non-western minorities and that this effect is stronger for natives than for non-western minorities themselves. The models show that this difference can be explained by a preference to live among the own ethnic group; when it is taken into account that non-western minorities are more satisfied in neighbourhoods with higher shares of their own ethnic group, this difference disappears. In line with the literature, satisfaction is found to be more dependent on neighbourhood characteristics for owner-occupiers than for renters and more for households with children than for other households. However, while earlier research has found that these groups are especially sensitive to the neighbourhood ethnic composition (Ellen, 2000; Goyette et al., 2014; Greif, 2015; Xie and Zhou, 2012), I find that not the ethnic composition, but other variables correlated with ethnic composition explain why especially owner-occupiers and households with children are dissatisfied in minority concentration neighbourhoods. Individuals thus differ in determinants of residential satisfaction. Because dissatisfaction leads to desires to move and possibly to moving behaviour, insight in these differences, in which neighbourhood characteristics are important to whom, is very important to gain a better understanding of the causes of segregation.

Chapter 3: Ethnic differences in realising desires to leave the neighbourhood

Residential dissatisfaction leads to mobility desires which could lead to residential mobility (Brown and Moore, 1970; Wolpert, 1965). Personal resources and restrictions determine whether households with mobility desires will realise their desire to move (Mulder and Hooimeijer, 1999). In Chapter 2, I studied selectivity in the determinants of (dis)satisfaction; dissatisfaction leads to mobility desires and possibly to mobility behaviour. Chapter 3 focuses on selectivity in realising mobility desires. I focus on people who expressed a desire to leave their neighbourhood and study who realises this desire within two years and especially who manages to escape poverty neighbourhoods and minority concentration neighbourhoods. Earlier research has found that ethnic minorities are less likely to leave ethnic minority concentration neighbourhoods (Bolt and Van Kempen, 2010b; Pais et al., 2009; South and Crowder, 1998) and poverty neighbourhoods (Bolt and Van Kempen, 2003; Quillian, 2003; South et al., 2005; South and Crowder, 1997). It was, however, unclear whether this was explained by the fact that ethnic minorities less often want to leave these neighbourhoods, or whether they are less successful in leaving these neighbourhoods, also if they have a desire to leave. Both differences in mobility desires, and differences in the realisation of desires, can lead to selective mobility and segregation. If there are individual differences in mobility desires, this might lead to voluntary segregation. However, if certain (ethnic) groups are equally likely to want to leave, but less successful than others in realising this desire, this might indicate involuntary segregation.

This chapter uses a unique combination of survey data and register data. Cross-sectional survey data in which people are asked about their desire to leave the neighbourhood are merged with longitudinal register data on their subsequent residential mobility behaviour. Therefore it is possible to test if people with a desire to leave the neighbourhood actually do leave their neighbourhood within two years.

I find that ethnic minorities are less successful than natives in realising desires to leave the neighbourhood. In addition, they are found to be less likely than natives to leave ethnic minority concentration neighbourhoods and poverty neighbourhoods, also if they have expressed a desire to leave these neighbourhoods. Additionally, ethnic minorities who do succeed to leave these neighbourhoods, more often than natives move to other poverty or minority concentration neighbourhoods. This chapter thus finds ethnic selectivity in the realisation of mobility desires. These ethnic differences in realisation of moving desires lead to selective residential mobility and (involuntary) segregation.

Chapter 4: Neighbourhood selection of non-western ethnic minorities. Testing the own-group effects hypothesis using a conditional logit model

The next step in the residential mobility process is the selection of a destination neighbourhood. Also in this step there is selectivity; there are differences between population groups in the characteristics of their destination neighbourhood. This chapter focuses on moving ethnic minority households and estimates (in a conditional logit model) which neighbourhood characteristics determine that a households chooses exactly their destination neighbourhood from a choice set of all neighbourhoods in the urban region. Neighbourhoods differ in population composition, amenities, dwelling availability and housing costs and population groups differ in resources, restrictions and preferences (Mulder and Hooimeijer, 1999), in their access to knowledge and opinions about neighbourhoods (Hedman, 2013) and to information about housing opportunities (Bolt, 2001; Huff, 1986). Ethnic minorities have been found to be more likely than natives to move to minority concentration neighbourhoods (Clark and Ledwith, 2007; Doff, 2010b; South and Crowder, 1998). In this chapter I estimate which neighbourhood characteristics affect neighbourhood selection of ethnic minority households and why ethnic minorities more often than others move to minority concentration neighbourhoods.

Conditional logit models have a long history in economic and demographic research (Hoffman and Duncan, 1988; McFadden, 1974). However, in the residential mobility literature, only a few studies have used conditional logit models (Hedman et al., 2011; Ioannides and Zabel, 2008; Sermons, 2000). These studies include interaction effects between neighbourhood characteristics and household characteristics to estimate which households are more likely to move to which neighbourhoods. They find that ethnic minorities more often than natives move to ethnic minority concentration neighbourhoods and low income households more often than higher income households move to low income neighbourhoods. However, in reality the selection of a neighbourhood will depend on multiple neighbourhood characteristics that are assessed simultaneously and in combination (Hedman et al., 2011). These previous studies do not test whether ethnic minority households still move to neighbourhoods with high shares of ethnic minorities when other neighbourhood characteristics are taken into account. By focusing on a selection of only ethnic minorities, this study is the first that is able to estimate simultaneously the influence of various neighbourhood characteristics including housing market characteristics, the share of the own ethnic group and the share of other ethnic minorities, on neighbourhood selection of ethnic minority households.

Ethnic minorities more often than others move to neighbourhoods with low dwelling values and high shares of social housing; these areas are often also ethnic minority concentration neighbourhoods. Thus, housing market characteristics partly explain why ethnic minorities more often than others move to ethnic minority concentration

neighbourhoods. Secondly, own group effects are found to be important; ethnic minorities are found to more often move to neighbourhoods with higher shares of their own ethnic group. This is most likely because they are attracted by ethnic specific facilities, because they prefer to live among family or other own group members, and/or because they find a dwelling via their mono-ethnic network. This chapter focuses specifically on the four largest ethnic minority groups in the Netherlands. I find that for Surinamese and Antilleans the combination of housing market characteristics and own group effects can explain why they more often than natives move to ethnic minority concentration neighbourhoods. Turks and Moroccans, however, are found to move more often to concentration neighbourhoods of ethnic minorities (other than their own ethnic group), also when housing market characteristics and own group effects are taken into account. Probably, discrimination or fear of discrimination explains why these groups are not willing or able to move to native majority concentration neighbourhoods.

Chapter 5: Mixed neighbourhoods; effects of urban restructuring and new housing development

Chapter 5 focuses on the effect of housing policy on income selectivity in mobility patterns and their effects on income segregation. In many European countries policymakers try to create mixed neighbourhoods and to decrease the spatial concentration of low-income households and ethnic minorities. Within the Netherlands, large scale urban restructuring programs have been implemented in which inexpensive social rented dwellings in deprived neighbourhoods are demolished and replaced by more expensive and more often owner-occupied dwellings (Kleinhans, 2004). However, at the same time large numbers of expensive and mostly owner-occupied dwellings have been built on greenfield locations around the major cities. From 1997 onwards, urban restructuring programs have attempted to attract middle- and higher income households to deprived neighbourhoods, but these programs might be less successful if they have to compete with greenfield development. In addition, greenfield development creates opportunities for relatively high income households to leave existing neighbourhoods, which will accelerate the process of selective outflow and income sorting and thereby increase the spatial concentration of low income households who are left behind.

In this chapter I compare three urban regions in the Netherlands with different patterns of urban restructuring and greenfield development. Within these three urban regions I study income selectivity in mobility patterns. I use register data on the whole population of these three urban regions that allows to follow people over place and time. This large scale longitudinal data makes it possible to describe income and income development of people who move between various neighbourhood types, or to or from the urban region and the effects of these selective mobility patterns on segregation.

I find that urban restructuring programs within deprived neighbourhoods manage to attract middle and higher income households to those neighbourhoods, also when they have to compete with large scale greenfield development within the same urban region. Simultaneously, however, many relatively high income households leave deprived neighbourhoods, especially in regions with large scale greenfield developments. This leads to further concentration of low income households in deprived neighbourhoods and an overall increase in residential income segregation.

Chapter 6: Residential segregation and interethnic contact in the Netherlands

The last empirical chapter focuses on neighbourhood effects; on the effect of the neighbourhood ethnic composition on interethnic contact. Policymakers in many European countries perceive concentrations of ethnic minorities as undesirable (Bolt, 2009), as they might reduce the necessity and opportunity to interact with natives and thereby impede both life chances and integration of ethnic minority residents. Social interactions with natives provide ethnic minorities with the opportunity to learn the majority language, standards and values (Lazear, 1999), and with access to valuable information not present within the own ethnic network. It is, however, unclear to what extent the ethnic composition of the residential neighbourhood affects social interactions, as individuals increasingly have social contacts spread out over larger areas (Boomkens, 2006).

In this chapter I estimate a multilevel binary logistic regression model explaining whether or not ethnic minorities have contact with native Dutch people. This regression model includes both personal characteristics and neighbourhood characteristics including the share of native Dutch people in the neighbourhood. Opposed to earlier research on this topic (Gijsberts and Dagevos, 2005; Van der Laan Bouma-Doff, 2007), I find no effect of the ethnic composition of the neighbourhood on ethnic minority contact with the native majority. Whether or not ethnic minorities have contact with natives is mainly explained by individual characteristics such as educational level and household type. In addition, differences are found between people who live in the four largest cities in the Netherlands, cities with high shares of ethnic minorities, and other cities with much lower shares of ethnic minorities. When these personal and regional characteristics are taken into account, the ethnic composition of the neighbourhood does no longer affect whether ethnic minorities have contact with the native majority. In conclusion, ethnic residential segregation on neighbourhood level does not necessarily hamper the integration and life chances of ethnic minorities.

§ 7.3 Synthesis of research findings

This section presents the most important cross-cutting results of the PhD thesis. A central finding is that there is non-random selection of people into neighbourhoods. I found that individual characteristics such as ethnicity, tenure, household type and income affect residential mobility preferences and behaviour and neighbourhood selection. This non-random selection into neighbourhoods causes a bias in neighbourhood effects research.

In several empirical chapters I study ethnic selectivity in residential mobility behaviour and neighbourhood selection and thereby I find differences, not only between ethnic minorities and the native majority, but also between various ethnic minority groups. An important finding is that people prefer to live among their own ethnic group. Both ethnic minorities and natives are found to be less satisfied in neighbourhoods with higher shares of (other) ethnic minorities, however, ethnic minorities are found to be *more* satisfied in neighbourhoods with higher shares of their own ethnic group. Because of this finding it is very important to distinguish between separate ethnic minority groups in neighbourhood selection research.

Distinguishing separate ethnic minority groups allowed me to decompose the various causes of ethnic selective residential mobility. Ethnic minorities might choose to live among their own ethnic group, but will live among other ethnic minorities because of a lack of choice due to housing market constraints or discrimination. An important finding of this PhD thesis is that own group effects are important in explaining neighbourhood selection of ethnic minorities; they partly explain why ethnic minorities more often than natives move to ethnic minority concentration neighbourhoods. Also housing market constraints lead to (involuntary) ethnic segregation as ethnic minorities are more often than natives dependent on social housing or inexpensive dwellings which are often concentrated in ethnic minority concentration neighbourhoods. When own group effects and housing market constraints are taken into account, some ethnic minority groups are still found to more often than natives move to concentration areas of *other* ethnic minority groups. Possibly, discrimination or fear of discrimination explains why these groups are less successful in gaining access to native majority concentration neighbourhoods. I found that ethnic minorities are less successful than natives in realising desires to leave their neighbourhood and are less likely to escape from ethnic minority concentrations, even if they expressed a desire to leave their neighbourhood.

Besides ethnic selectivity, I also found selectivity in the residential mobility process with regard to household type, income and tenure. Residential mobility is selective with regard to income because higher income households are more successful than lower income households in realising residential preferences, not necessarily because their preferences

are different. I found that tenure and household type affect both residential preferences and the ability to realise these preferences. For owner-occupiers and households with children neighbourhood characteristics such as safety are more important than for other households. However, these groups are less successful in realising their mobility desires.

Also neighbourhood characteristics affect residential satisfaction, mobility desires, mobility behaviour and neighbourhood choice. I found neighbourhood housing market characteristics, demographic characteristics and amenities to affect which people (want to) move to or from a neighbourhood. Thereby I found also the ethnic composition of the neighbourhood to be an important determinant of selective residential mobility; also when other neighbourhood characteristics are taken into account, ethnic composition is still found to have a significant effect on residential satisfaction and neighbourhood selection. I therefore conclude that ethnic composition is not a proxy for other correlated neighbourhood characteristics but has an independent effect on selection.

The residential environment can affect individual behaviour and outcomes via various neighbourhood effects mechanisms (Ellen and Turner, 1997; Erbring and Young, 1979; Galster, 2012). Different neighbourhood effect mechanisms will work on different neighbourhood scales and be important for different groups of people (Andersson and Musterd, 2010). Social interactive mechanisms assume that neighbourhood effects transpire because the population composition of the residential neighbourhood affects with whom you interact (Ellen and Turner, 1997; Galster, 2012). However, I found no effect of the ethnic composition of the residential neighbourhood on whether non-western minorities have contact with native Dutch people. Residents of the four largest cities, cities with high shares of ethnic minorities, were, however, found to have less contact with natives than residents of other Dutch cities. While people leave their residential neighbourhood on a daily basis which enables them to interact with natives, independent of their neighbourhood ethnic composition, the larger opportunities on city level to interact with non-western minorities or own group members might explain why non-western minorities in the four largest cities have less contact with native Dutch people. Possibly, ethnic segregation, not on the scale of the neighbourhood but on the scale of the city affects interethnic social interactions.

However, if I had found that ethnic minorities in neighbourhoods with higher shares of native Dutch are more likely to have contact with native Dutch people, this might be due to selection bias. This thesis found that concentrations of ethnic minorities are partly explained by own group preferences. Especially ethnic minorities with strong own group preferences will live in minority concentration neighbourhoods and especially these ethnic minorities will be less likely to have contact with native Dutch people. Possibly, their lower likelihood of contact with native Dutch is not caused by their residential neighbourhood, but they selected that neighbourhood because of their preferences to have contact with co-ethnics.

§ 7.4 Data and methodology

Research methodology

Both in the neighbourhood effects literature and in the residential mobility literature, the large majority of research is quantitative. Neighbourhood effects research often uses large scale datasets, such as population registration data or large scale (panel) surveys. Also in this thesis I use survey data to quantitatively study possible neighbourhood effects. In the residential mobility literature, most studies use survey data in which people are asked about their personal characteristics, housing situation or housing preferences. In this thesis I use both survey data on residential preferences and population register data on actual residential mobility behaviour to study residential mobility.

Although the majority of research in the residential mobility and neighbourhood effects literature is quantitative, in both fields also qualitative research is done. In residential mobility research, ethnographic studies provide in-depth insights in the residential mobility decisions of individuals (see for instance Karsten, 2007; Pinkster et al., 2015; Pinkster, 2014). Within neighbourhood effects research, the seminal work of Wilson (1987) uses ethnographic methods to provide in-depth insight in the effects of living in concentrated poverty, isolated from job opportunities, role models, informal job networks and mainstream values and norms on individuals. Also later on, qualitative neighbourhood effects studies have been important in providing insight in how and why neighbourhoods affect their residents (see for instance Galster, 2012; Small and Feldman, 2012). For both neighbourhood effects research and residential mobility research, it is important to combine quantitative research with qualitative research; qualitative research can provide important insights in how and why neighbourhood effects transpire and how and why residential mobility decisions are made.

Most quantitative neighbourhood effects studies try to find evidence for causal neighbourhood effects by measuring correlations between neighbourhood characteristics and individual outcomes, with various degrees of statistical and econometric controls for selection bias (Van Ham et al., 2012). Any correlation found between neighbourhood characteristics and individual outcomes can be either a neighbourhood effect or a selection effect. Therefore, especially for quantitative neighbourhood effects research, it is very important to have a thorough insight in selection and thus in residential mobility and neighbourhood choice. This thesis studies selective residential mobility and neighbourhood selection in order to better understand neighbourhood effects. It also studies neighbourhood effects and links the literature on residential mobility with the neighbourhood effects literature. Studies that combine neighbourhood selection research with neighbourhood effects research are

especially relevant for quantitative neighbourhood effects research, because especially in quantitative neighbourhood effects research, insight in selection bias is crucial. Therefore, in this thesis, I use quantitative methods to study neighbourhood effects.

Various authors have argued that, to advance the study of neighbourhood effects, it is necessary to understand and explicitly model selection and selection bias (Manley and Van Ham, 2012; Van Ham and Manley, 2012; Winship and Mare, 1992) and to relate selection research to neighbourhood effects research (Doff, 2010a; Galster, 2003; Hedman, 2011). Both quantitative and qualitative methods contribute to a better understanding of selective mobility and selection, however only quantitative methods can contribute to explicit models of selection and selection bias. Also the creation of a link between neighbourhood effects research and neighbourhood selection research and the incorporation of selection into neighbourhood effects models is easier if also the research into selection is quantitative.

Focus on urban areas in the Netherlands

Both segregation research and neighbourhood effects research have traditionally focused on urban areas. Segregation research, starting with the book "The City" (Park et al., 1925), has described and explained segregation, selective mobility and neighbourhood change within urban areas. Also neighbourhood effects research has traditionally focused on urban areas and the effects of urban neighbourhoods on the life chances of city residents. Especially in urban areas there are concentrations of ethnic groups or concentrations of low or high income households. This larger variation in neighbourhood characteristics, in combination with the much higher density explains why especially in urban areas neighbourhood effects will be found. Residential mobility research has traditionally focused on both urban and rural areas. This dissertation, however, studies selective residential mobility and neighbourhood choice with the aim to better understand selectivity and selection bias in neighbourhood effects research. Therefore, this research focuses entirely on urban areas.

All empirical chapters focus on (one or more) urban areas in the Netherlands. Neighbourhood effects and neighbourhood selection will be different within the Netherlands than in other countries. Countries differ in income inequality, size and composition of ethnic minority groups, socio-economic and cultural distance of ethnic minorities to the majority population and in housing market composition, welfare state arrangements and housing allocation systems which will lead to differences in neighbourhood selection and neighbourhood effects. Compared to Anglo-Saxon countries, the Netherlands has a relatively low level of income inequality and also between neighbourhoods differences are relatively small (Musterd, 2005). Ethnic minority concentration neighbourhoods are not concentration neighbourhoods of one ethnic minority group but mixed neighbourhoods of various ethnic groups including

often large shares of native Dutch residents. If selection effects are found within the Netherlands, it can be expected that similar effects can also be found in other countries where differences between neighbourhoods are more severe (as also Hedman and colleagues (2011) argue). Similarly, neighbourhood effects found in the Netherlands can be expected to also be found in countries with larger differences between neighbourhoods, while the opposite is not necessarily true. Therefore, research in the Netherlands can provide insight in neighbourhood selection and neighbourhood effect mechanisms that are also valid in other countries. In addition, the availability of large scale datasets, including spatial register data, and the opportunity to distinguish separate ethnic minority groups makes the Netherlands an interesting country to study neighbourhood selection and neighbourhood effects.

Datasets

There are four main data sources used in this thesis. Firstly the Housing Research Netherlands (Woononderzoek Nederland, WoON) survey which is a large survey on the housing situation, housing preferences and personal characteristics of a sample representative for the Dutch population (aged 18 and older and not living in institutions) (Blije et al., 2013; Blije et al., 2010; RIGO, 2007). Secondly, I used the LAS survey (Life Situation of Non-native City Dwellers, Leefsituatie Allochtone Stedelingen,), a survey on the life situation, activities, interethnic contacts and personal characteristics of residents of the 30 largest cities in the Netherlands (Van den Broek and Keuzenkamp, 2008). Thirdly, I used municipal register data from the Netherlands Statistics, including information on personal characteristics and residential mobility histories of the whole Dutch population from 1999 onwards (CBS, 2010).

The surveys contain data on many personal characteristics including educational level, while the register data only has information on age, ethnicity, household characteristics and income. In addition the Housing Research Netherlands survey contains information on stated preferences; people themselves report whether they are satisfied, whether they want to move and whether they want to leave the neighbourhood. Contrary, the register data is revealed preferences data; people actually move to neighbourhoods and thereby reveal which neighbourhood characteristics they prefer. The surveys used in this thesis are cross-sectional; all information on personal characteristics, residential preferences and interethnic contact is measured at one point in time. The register data is longitudinal; people are followed over time and the data contains information on changes in residential address, household characteristics or income. Chapter 3 uses an unique and innovative combination of survey data and register data; I merged cross-sectional stated residential preferences data from the Housing Research Netherlands with longitudinal municipal register data on the subsequent residential mobility behaviour of the survey respondents.

Both the Housing Research Netherlands survey, the LAS survey and the population register data are geocoded; they contain information on the geographic location or the residential address of the individuals. This information allowed me to merge characteristics of the residential neighbourhood to the individual survey or register data. In all empirical chapters I make use of data on aggregate neighbourhood characteristics from Statistics Netherlands (CBS, 2015; RIGO, 2012). This data on the housing market composition, household composition, ethnic composition, average incomes, dwelling values or crime rates is merged to the individual level data to have insight in what kind of neighbourhoods people (want to) move to or from or how these neighbourhood characteristics affects individual outcomes.

§ 7.5 Discussion, directions for further research and policy implications

In the past 30 years, an enormous body of research has investigated whether causal neighbourhood effects exist; does the place where you live affect your life chances? Already a more than a decade ago, Sampson and colleagues (2002) reported on the enormous amount of studies investigating neighbourhood effects and the attention for neighbourhood effects has only increased since (Van Ham et al., 2012). One of the reasons why there is continuing interest in neighbourhood effects is that we still do not know how much (if any) effect the neighbourhood has on individuals (see also Van Ham and Manley, 2012). As Cheshire (2007: p. ix) states: 'it is perfectly plausible that poor people are made poorer by the character of the neighbourhood in which they live (...) but a close examination of the best research available does not reveal any clear evidence to support it'. One reason why it is so difficult to assess the importance of neighbourhood effects is the bias caused by non-random selection into neighbourhoods. Although advancements in data availability and methodology have been able to reduce selection bias, even the most advanced studies will not be able to completely eliminate selection bias and can therefore never provide conclusive evidence for neighbourhood effects. Instead of continuing to develop new statistical ways to (further) reduce selection bias, other directions of research might be a more valuable contribution to the field. Neighbourhood effects research would benefit from more research actually trying to understand neighbourhood selection and from research trying to understand the mechanisms through which neighbourhood effects transpire.

Neighbourhood effect mechanisms

It is important to gain a better understanding of potential neighbourhood effect mechanisms and to both add new insights to theory and empirically test presumed mechanisms. In the introduction of this thesis, I provided an overview of the potential causal mechanisms via which neighbourhoods could affect their residents based on the neighbourhood effect literature. According to theory, one of the mechanisms through which neighbourhood effects could transpire is via social interactions with neighbours. Social interactive mechanisms assume that (neighbourhood effects transpire because) the residential neighbourhood affects your social network and social contacts (Galster, 2012; Erbring and Young, 1979; Ellen and Turner, 1997). Chapter 6 of this thesis, however, shows that the ethnic composition of the residential neighbourhood does not affect whether ethnic minorities have contact with the native majority. It is therefore unlikely that living in minority concentration neighbourhoods hampers life chances and integration of minorities via social interactive mechanisms. Similarly Van Eijk (2010) finds no effect of the socio-economic composition of the neighbourhood on the socio-economic composition of social networks, however Schwartz et al. (2014) find that social housing residents have more higher socio-economic status social ties when they live in more mixed neighbourhoods.

In Chapter 6 I find that for working age people, the ethnic composition of the residential neighbourhood does not affect whether ethnic minorities have social contact with the native majority. Possibly, however, the ethnic composition of larger scale districts or cities does affect social contacts or for elderly people or small children social interactions are (more) dependent on the residential neighbourhood. Further research in this direction is necessary to give insight in, whether, for which groups and at which scale, neighbourhoods affect social interactions and thus whether neighbourhood effects can transpire via social interactive mechanisms.

Not only for social interactive mechanisms, but also for other presumed neighbourhood effect mechanisms, it is important to derive clear hypotheses about how the neighbourhood affects its residents and to subsequently test these hypotheses. If neighbourhood effects are assumed to transpire via accessibility of jobs, we need to test whether people are actually more often unemployed in neighbourhoods with lower job access (see for instance Büchel and Van Ham, 2003). If we expect neighbourhood stigma to reduce life chances of residents, we can test whether people perceive they have lower life chances because of neighbourhood stigma (as is done by Arthurson (2012) and Atkinson and Kintrea (2001)) but it is more important to test whether employers actually prefer employees from 'good' neighbourhoods over equally qualified ones from stigmatised neighbourhoods. Different neighbourhood effects mechanisms will work on different neighbourhood scales, be important for different groups of people, after different times of exposure to different neighbourhood conditions. Research that explicitly tests whether, for whom and under which

circumstance these presumed mechanisms are at work, can provide insight in how, when and for whom the residential neighbourhood can affect its residents. In addition, ethnographic research can be very important to gain a better understanding of how these neighbourhood effect mechanisms work and why there are individual differences in whether, when and under which circumstances people are affected by their neighbourhood conditions. In depth insight in individual behaviour, social networks, perceptions and social capital can provide insight in (individual differences in) the importance of various neighbourhood characteristics.

In the introduction of this thesis, I described the mechanisms through which neighbourhoods are assumed to affect their residents according to the current neighbourhood effects literature. Besides empirical tests when, where and for whom these assumed mechanism are at work, we also need to continue to develop theory on how and why neighbourhoods could affect their residents. Ethnographic research could possibly provide new insights in how, through which mechanisms, neighbourhoods might affect their residents. This could lead to a better theoretical understanding of how, why and for whom various neighbourhood effects mechanisms could work and possibly to new ideas for presumed mechanisms. This might result in an improved theoretical insight in neighbourhood effects from which clear hypotheses can be derived to be tested in qualitative and quantitative empirical research.

Addressing selection bias

An important direction in neighbourhood effects research is to gain insight in selection and selection bias. It is important to understand selective residential mobility and neighbourhood choice, to create a theory of selection, to explicitly model selection and to combine theoretical and empirical insights in selection with neighbourhood effects research (Galster, 2003; Galster, 2008; Sampson et al., 2002; Van Ham and Manley, 2012). In this thesis I study ethnic, income, household and tenure selectivity in residential satisfaction, moving wishes and behaviour and neighbourhood selection. Personal characteristics are found to both affect residential preferences and the ability to realise these preferences, thus segregation is found to be both voluntary and involuntary. Although this thesis gives insight in selectivity in residential mobility, it also raises new questions that demand more insight in how and why people select their neighbourhood or which personal and neighbourhood characteristics determine where people move.

The quantitative empirical work in this thesis finds evidence for selective mobility processes that sometimes could be explained by different competing (or complementary) theories. Further (qualitative) research is needed to investigate which (combination of) theories most likely applies. For instance, this thesis finds that ethnic minorities move to own-group concentration neighbourhoods; to better understand

this selection effect, further research should investigate whether a preference to live among the own ethnic group or a preference for ethnic specific facilities make these neighbourhoods especially attractive to ethnic minorities, or whether mono-ethnic networks through which people find housing opportunities lead to segregation in own group concentration neighbourhoods. Similarly, this thesis shows that Turks and Moroccans more often move to concentration areas of ethnic minorities other than their own group. Further research is needed to investigate why Turks and Moroccans differ from Surinamese and Antilleans and if and how discriminatory housing market institutions hamper their neighbourhood choice or whether they avoid native majority concentration neighbourhoods because they fear discrimination.

Besides a more thorough insight in how and why people select their neighbourhood, it is also important to both theoretically and empirically link neighbourhood selection research with neighbourhood effects research. Empirically, selection research can be linked to neighbourhood effects research by incorporating models of selection into neighbourhood effects studies. Propensity score matching allows researchers to incorporate selection in neighbourhood effects models (see for instance Harding, 2003; Sharkey, 2012) and also Ioannides and Zabel (2008) firstly estimate neighbourhood selection and take into account selection when subsequently estimating neighbourhood effects. It would be interesting to estimate various selection models including increasing numbers of control variables and to compare neighbourhood effects models incorporating selection based on these increasingly elaborate selection models. Although even the most elaborate selection models will not completely explain selection (they will not have 100% explained variance), such research can show how incorporating selection, based on increasingly accurate selection models, affects the outcomes of neighbourhood effects models.

Theoretically, a theory of selection bias can enable us to use insights from selective mobility research to improve insights in causal neighbourhood effects. Such a theory should explain how and why which factors affect both neighbourhood selection and individual outcomes (Van Ham and Manley, 2012). Such a theory of selection bias could, for instance, be used to invent quasi-experimental study designs, to invent new controls for selection bias, or to argue to what extent outcomes from neighbourhood effects studies are biased.

This thesis provides some first ideas of what should be included in a theory of selection bias, but further research is needed. There are various mechanisms through which individual characteristics affect residential outcomes. Firstly, this thesis shows that ethnicity, income and tenure affect (housing market) *opportunities* and thereby residential outcomes. Also other individual characteristics such as wealth, income prospects, household size or language proficiency can be expected to affect housing market opportunities and thereby residential outcomes.

Secondly, individual characteristics are found to affect residential *preferences*; ethnicity, tenure and household type are found to affect the evaluation of neighbourhood characteristics. Most likely also other personal characteristics such as educational level or ambition can affect how individuals evaluate neighbourhood characteristics such as accessibility, ethnic composition or dwelling prices.

Thirdly, individuals will differ in *access to information and opinions*. Ethnic minorities move to own group concentration neighbourhoods, possibly because they find a dwelling via their ethnic network (Chapter 4), displaced residents from urban restructuring neighbourhoods often move to adjacent neighbourhood, possibly they have no information on possible attractive housing opportunities in neighbourhoods further away (Bolt and Van Kempen, 2010a; Doff and Kleinhans, 2011). Similarly, MTO candidates are found to often move to surrounding and equally poor neighbourhoods, unless counselling provides them with information on housing opportunities in better neighbourhoods (DeLuca et al., 2012; Varady and Kleinhans, 2013). Social networks not only provide practical information about housing opportunities, but also affect subjective opinions about which neighbourhoods are attractive to live in (Hedman, 2011). As social networks are often fairly homogenous in personal characteristics such as age, educational level and income, your personal characteristics will affect which neighbourhoods are recommended to you. To better understand selection it is important to study how personal characteristics affect opinions. Permentier et al. (2011) study neighbourhood reputation, they find differences between residents and non-residents but they do not look into differences between ethnic, income or educational group in judgements about neighbourhood reputation. Information about individual differences in which neighbourhoods are thought to have good or bad reputation will be very important to create a better theory of selection bias.

Finally, a theory of selection bias needs more insight in search strategies. We need a theory of housing search, as compared to Simpson's (1980) theory of job search. Similar to job search, also housing search has cost; time costs of finding information on housing opportunities and the costs of living in dissatisfactory housing conditions. People will find housing (and job) opportunities sequentially, not knowing whether (and when) more attractive opportunities will become available in the future. Therefore they will accept if they find a satisfying dwelling. Decision rules, when to accept and when to continue searching, will depend on search costs. People who are more dissatisfied with their current housing situation or who experience more difficulties gaining access to information on housing opportunities will be more likely to accept suboptimal housing opportunities. More research is needed into group differences in search strategies; how do people find housing opportunities and when do they accept a dwelling?

Policy implications

Policymakers perceive especially involuntary segregation, segregation caused by a lack of choice, as a problem (Veldboer et al., 2002). Therefore, to design anti-segregation policies it is very important to have insight in the causes of segregation. To the extent that segregation is voluntary, that is; caused by preferences to live among similar people, it will be neither possible nor useful to create stable mixed neighbourhoods (Cheshire, 2007). However, this thesis indicated that segregation is also partly involuntary, caused by group differences in constraints induced by housing market characteristics or discrimination. Especially involuntary segregation can be, and has to be, addressed by policy-makers. For instance, mixed housing policies, building at least a certain share of affordable social rented dwellings in mostly expensive and owner-occupied new housing estates, or urban restructuring projects that create more owner-occupied dwellings in deprived neighbourhoods with mostly inexpensive social rented dwellings, enlarge the options of households to move to a neighbourhood of their preference (Van Beckhoven and Van Kempen, 2003). Also changes in the social housing allocation system that allow applicants to apply for dwellings outside their own city, as are implemented in some urban regions in the Netherlands, enlarge the neighbourhood choice options for low income households (Bolt et al., 2008). These policies reduce (group specific) housing market constraints that can lead to involuntary segregation and enlarge the options for households to move to a neighbourhood of their preference. Although this will reduce involuntary segregation, increased freedom of neighbourhood choice might increase voluntary segregation as it increases the opportunities to move close to similar people. Policymakers should continue their focus on creating equal opportunities and increasing freedom of neighbourhood choice; these policies will reduce involuntary segregation and increase overall neighbourhood satisfaction, however, they should be aware that these policies not necessarily lead to more mixed neighbourhoods.

Social interactions between people of various ethnic and socio-economic groups are important for emancipation and integration and to prevent segregated and separated worlds that can lead to fear and exclusion. This is one of the reasons why policymakers try to create mixed neighbourhoods. However, Chapter 6 of this thesis, and also the research of Van Eijk (2010) show that the social or ethnic composition of the residential neighbourhood does not determine the social or ethnic composition of social contacts or social networks. Individuals have social contacts spread out over a large area, meet people at work, at school or in various leisure time activities, and choose themselves with whom they interact (Chapter 6). Creating a social and ethnic mix on the scale of the residential neighbourhood is therefore necessary nor sufficient to promote bridging social contacts, social trust and integration. Therefore, other policy efforts that promote people of various ethnic and socio-economic group to meet, familiarize and create bridging social ties are necessary. For instance, mixed schools or community centres that provide activities that are attractive for various ethnic and socio-economic groups (Van Eijk, 2010) could lead to valuable intergroup social interactions.

Chapter 6 showed that segregation on the scale of small residential neighbourhoods does not affect interethnic contact. Residents of ethnic minority concentration neighbourhoods or poverty concentration neighbourhoods leave their neighbourhood on a daily basis for work, school, maintenance or leisure activities which enable them to interact with others outside their neighbourhood. In addition, in the Netherlands, most concentration areas of ethnic minorities contain relatively high shares of natives and poverty concentration areas contain high shares of middle class households. From Chapter 6 we should not conclude that segregation does not affect social contact and therefore cannot lead to negative neighbourhood effects; segregation *on this level and on this spatial scale* is found to have no effect whether ethnic minorities have social contact with the native majority. If, however, larger areas would become concentrations of very high shares of deprived households or ethnic minorities, residents will no longer have opportunities to meet and interact with more resourceful people or with the native majority. Although creating a social and ethnic mix on the scale of the small residential neighbourhood might be necessary nor possibly, continuing policy attention is needed to prevent high levels of segregation on larger spatial scales.

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Curriculum Vitae

Sanne Boschman (1983) was born and raised in Haarlemmermeer. In 2001 she got her high school diploma from Atheneum Hageveld in Heemstede and started her Bachelor in Environmental and Infrastructure Planning at University of Groningen. She finished her Bachelor in 2004 and started a research master Demography at the same university. In 2007 she graduated cum laude with a master thesis on the role of values in decision-making about voluntary childlessness. Directly after graduation she started her working career at The Netherlands Institute for Spatial Research (Ruimtelijk Planbureau), which later became PBL (Netherlands Environmental Assessment Agency, Planbureau voor de Leefomgeving). As a researcher at PBL, she participated in a large variety of research projects and (co)-authored a variety of reports, articles and book chapters on residential mobility, demography and economic geography. In December 2011 she started her PhD research at OTB - Research for the Built environment, Delft University of Technology. During her PhD research she also continued working for PBL on a research project on international migrants. In June 2015 she completed her PhD thesis, which resulted in this book.

TOC

Despite a large body of research on neighbourhood effects, there are no clear conclusions how much, if any, independent effect the neighbourhood has on its residents. This is largely due to selection effects. It is therefore crucial to gain more insight in selective residential mobility and neighbourhood choice. A better understanding of selectivity will help to address and reduce selection bias.

This thesis provides these insights. It shows ethnic, income and household differences in residential mobility preferences and behaviour and explains why different people move to different neighbourhoods. Segregation is found to be partly voluntary, caused by group differences in preferences, and partly involuntary, caused by group differences in constraints induced by housing market characteristics or discrimination. Additionally, it studies neighbourhood effects of ethnic minority concentration. Bringing together the literatures on residential mobility and neighbourhood effects, this thesis contributes to the knowledge on selectivity and selection bias necessary to advance neighbourhood effects research.

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