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TITLE: Why do you want to move? The influence of the neighbourhood on moving intentions of residents in the Netherlands

May 2012

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Preferred journal of publication: Urban studies

Word count: 9041

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Abstract

Little attention has been paid to the role of neighbourhood characteristics as conditions for changing the place of residence. We addressed the influence of both the individual and neighbourhood characteristics on the residential intentions in the Netherlands. Using a cost/benefit approach, we formulated hypotheses on why people intend to move. We also took into account that neighbourhood characteristics will differ in their impact on moving intentions depending on the individual's characteristics. Using the Housing Research Netherlands Survey (n=61,946 and 3839 neighbourhoods) enriched with neighbourhood characteristics provided by Statistics Netherlands we estimated logistic multilevel models of moving intentions. We found that neighbourhood characteristics matter, but are mediated by individual ones. Residential satisfaction seems to be the strongest predictor of moving intentions; however other factors still play a role. The cost/benefit approach is generally supported. Disorder in the neighbourhood influences the intention to move as an individual's perception, while the average level of disorder seems not to matter.

1. Introduction

The Netherlands has one of the highest mobility rates in Europe¹ (Vandenbrande *et al.*, 2006). Residential mobility is a “definitive housing change of a person or household” (Elordui-Zapaterietxe *et al.*, 2006, p. 2). It affects structure of regions, economic growth as well as social problems, so it is scientifically interesting for geographic, economic and social studies. Studying the underlying mechanisms can contribute to further understanding of societal problems, such as, social integration, local crime and job mobility. Fischer (2002), while discussing impact of the mobility, distinguishes between individual and neighbourhood consequences. He points out that moving out of segregated neighbourhoods could be a benefit for the individual who moves, but at the same time can bear negative consequences for the neighbourhood, such as further segregation (i.e. concentration of poor households and ethnic minorities). Residential moves entail the disruption of social ties, which have potentially important influence on social integration of residents and crime

¹ High mobility rates refers to: short average duration of stay per dwelling, low median age at leaving parental home, low percentage of people who have never moved after leaving parental home and high average percentage of people who do intend to move in the next five years.

rates in the area. Fischer concludes with the observation that residential mobility is often a response to local problems rather than a cause.

Does the neighbourhood matter? While most of the residential mobility literature has been emphasizing the role of individual characteristics as a cause of mobility, few explicitly addressed the role of the neighbourhood as a reason for changing the place of residence (Clark and Ledwith, 2006). The number of studies introducing neighbourhood effects has increased rapidly over the last two decades (Dietz, 2002; Lupton, 2003; Hedman and van Ham, 2011). The neighbourhood's composition and structural characteristics have been shown to influence an individual's well-being (Aneshensel and Sucoff, 1996; Ross and Mirowsky, 2001; Caughy *et al.*, 2003; Mohnen *et al.*, 2011), socio-economic status (Hedman 2011) as well as local crime rates and youth delinquency (Sampson and Groves, 1989; Sun *et al.*, 2004; Hipp, 2010). However, the role of neighbourhood is still only partly understood in the process of residential mobility.

In the remainder of this paper, we turn to examining the influence of the neighbourhood on prospective mobility, by looking at the intention to move. The actual mobility can be seen as the final stage in a process consisting of: residential dissatisfaction, inclination to move and intention to move (Lu, 1998; Clark *et al.*, 2006). A mismatch between current and desired housing characteristics leads to so called 'residential stress', a cause of dissatisfaction. Dissatisfied household members can choose to ignore this mismatch, reduce it, or consider moving away (Permentier *et al.*, 2007). A wish to move after exceeding a certain threshold successively becomes the intention to do so. The intention to move includes those who really wish to move (as a response to residential dissatisfaction or stress) as well as those who only sometimes think about moving. Studying moving intentions is not the same as studying actual movement. Some people often don't realise their plans, and others move unexpectedly without a clear a priori intention (Lu, 1999). However, "...planned mobility is subject to the same basic demographic forces as actual mobility" (Clark and Ledwith, 2006, p. 1090). While actual moving resembles past actions, the future intention to move examines whether a further, more substantial migration of people should be anticipated. "Although such intentions or expectations cannot be taken as hard predictors of future mobility (...), they might indicate new future trends" (Vandenbrande *et al.*, 2006, p. 9).

The literature on moving intentions consists of two main streams (Clark and Ledwith, 2006). The first examines the extent to which moving intentions are being realised, and which conditions translate the intentions into actual mobility (Lu, 1998; Lu 1999; Fang, 2006; De Groot *et al.*, 2011; Coulter *et al.*, 2011). The second examines how the intentions relate to the individual and the neighbourhood characteristics (Clark and Ledwith, 2006; Clark *et al.*, 2006; van Ham and Feijten, 2008; Feijten and van Ham, 2009).

This paper contributes to the second stream of literature by addressing a number of important conditions not previously explored in detail. Firstly, household, individual and neighbourhood characteristics are considered simultaneously. Secondly, in this paper we will develop arguments based on social-physical disorganisation and the homophily assumption, on the direct influence of the neighbourhood on the moving intentions of residents. Authors who have discussed the neighbourhood and its importance for moving, found an important impact in terms of satisfaction with the neighbourhood, ethnic composition, population turnover and change over time (Feijten and van Ham, 2009; van Ham and Feijten, 2008; van Ham and Clark, 2009).

In this paper we will look not only at structural neighbourhood characteristics, but also at (1) subjective perceptions of the neighbourhood situation, (2) differing from the neighbourhood's composition as well as (3) perceived past changes and anticipated changes in the future. Finally, we will explore the interplay between the effects of neighbourhood characteristics and individual ones.

The aim of this paper is to contribute to a more comprehensive understanding of moving intentions, focusing on neighbourhood characteristics together with individual ones as well as on their interplay. Consequently, on the basis of an analysis of the *Housing Research Netherlands* survey (HRN) 2009, our research question reads as follows:

Can the intention to move be explained by individual (social demographic and household) and neighbourhood characteristics as well as by their interaction?

Subsequent sections will discuss theoretical background with the hypotheses, provide a description of the data and the methods used, followed by the presentation of the results and concluded by a discussion of the findings and directions for further research.

2. Theory and Literature Review

In line with the structure of the arguments, the theory consists of three steps i.e. individual characteristics, neighbourhood characteristics and the interaction between them.

2.1 Individual characteristics

There are two bodies of literature which enhance our understanding of individual characteristics with regard to moving intentions: 'dissatisfaction' and 'cost/benefit' approach'. The first is the literature on perceiving mobility as an outcome of dissatisfaction, while the second discusses rational calculations of the costs and benefits related to moving. The rational choice theory in general assumes that individuals seek to balance costs against benefits. In other words, the potential gains associated with moving should exceed the costs (Frank, 2005). There is, however, a substantial overlap between these two approaches (Clark *et al.*, 2006). Therefore we use both when

formulating our hypotheses. Furthermore, mobility intentions are influenced by individual preferences and constraints (Vandenbrande *et al.*, 2006). Preference for leaving or staying in a neighbourhood might coincide with various life course transitions. Firstly, two important individual factors are argued to play a role in understanding residential intention (over the life course). These are age and household composition. Elderly residents are, in general, more settled, more attached and less mobile than the young. They are also more satisfied with their dwellings, hence are expected to intend to move less frequently (Dekker *et al.*, 2011; Feijten and van Ham, 2007; Varady, 1989). Retired residents are the least mobile group (Dekker *et al.*, 2011). Probably, the costs of moving are relatively higher for the elderly, or are outweighed by the benefits of staying. The oldest people, however, with possibly decreasing health and the possibility of being widowed, might be less satisfied on their own and consider moving, especially to caring institutions (Bloem, 2008).

Also, household composition matters: getting married, expecting a child or undergoing a divorce, affect the intention to move. Each changes individual preferences, pushing the satisfaction out of equilibrium. Overcrowding and a lack of space are potential “stressors” influencing one's degree of dissatisfaction with the house (Brown and Moore, 1970). Too much space, on the other hand, also can be a potential “stressor”. For example, the cost of maintaining too large house (e.g., in terms of heating) can be decreased by moving to a smaller apartment. Particular households weight “stressors” differently (Brown and Moore, 1970). Families with children studying and playing in the neighbourhood might be more attached to the place, hence more satisfied and less often intending to move. However, findings with regard to that are mixed (Dekker *et al.*, 2011). Couples consist of two adults whose preferences may differ. They have to seek compromises for two different perspectives such as job and satisfaction, so they may not express the intention to move too often. Single and divorced persons are usually the most mobile and most inclined to express the intention to move (Feijten and van Ham, 2007). They are not constrained by the other person with potentially different residential preferences, so they can move more freely. Also their moving costs might be lower.

The third factor is income. Having a low income decreases the number of options as to where one can live (a lower possibility with regard to choosing a satisfying dwelling). Having a higher income might be related to the additional resources to cover the costs of moving, which is expected to increase the intention to move.

Related to income is educational status. Highly educated people are expected to have fewer local ties, hence moving for them would be less socially costly than for the less educated, who have invested time in establishing relations with neighbours (van Ham and Feijten, 2008).

*Hypothesis 1) **Life course:** Moving intentions depend on individual characteristics and life course situations. Specific life situations influence the transaction cost of moving. For elderly, families with children, and less highly educated persons, moving bears more costs than for younger, households without children, and more highly educated persons. Hence they are expected to have lower moving intentions. The higher the income, the lower the intention to move.*

Moving costs are both financial and social. Looking for another place to live is time consuming and costs money. The transport of furniture is also a cost which should be included in the evaluation of moving costs. Social costs of moving relate to people, for example, actual mobility interrupts social ties with neighbours and requires the establishing of new ties in the new neighbourhood. The same line of reasoning holds for additional investments in the house, which are expected to decrease the benefits of moving. This can have two theoretical explanations. Firstly, making a move after, say, rebuilding a kitchen is considered as a loss of time and finances (Frank, 2005). People might think “I invested in this house, so I want to use it, and benefit from it”. Secondly, potential investment, such as maintenance and refreshment, is expected to increase satisfaction with the house, hence decrease the benefits of moving out.

Another factor linked to the subjective costs of moving is residential satisfaction. It is a crucial determinant of residential intentions. “Residential satisfaction depends on structural variables, including household and location characteristics as well as 'social bonds' (...) acts as an intervening variable, mediating the effects of household and location characteristics on mobility” (Lu, 1998, pp. 1474-5). Similar to investment, high residential satisfaction increases the cost of moving. A potential move would carry the loss of a highly satisfying dwelling. Consequently, such a loss is a substantial part of the mobility cost calculation.

Last, but not least, is the difference between owners and renters: home owners are expected to have invested more in the house and are probably more satisfied with their dwelling. Hence they are expected to express moving intentions less frequently than will renters (van Ham and Feijten, 2008).

*Hypothesis 2) **Investment and cost:** a) The higher the investment into the current dwelling the lower the intention to move. b) The lower the cost of moving (dissatisfaction with dwelling, renting) the higher the intention to move.*

2.2 Neighbourhood characteristics

The variation in moving intentions can be partially explained by neighbourhood attributes and the perception of neighbourhood change. Living in a neighbourhood means being exposed to a specific

social and physical environment. Previous studies have mostly looked at the influence of a neighbourhood's structural characteristics in terms of disorder (Sampson and Groves, 1989; Lowenkamp *et al.*, 2003; Sun *et al.*, 2004), or the other way around (Kubrin and Weitze, 2003; Hipp, 2010). Both approaches seem to assert that mobility plays an important role in shaping the order and disorder of the neighbourhood's structure. Physical disorder is understood as damage to buildings, litter on streets, etc., while social disorder "...refers to the inability of a community to realize common goals and solve chronic problems" (Kubrin and Weitze, 2003, p. 374).

The broken windows theory, or physical disorganisation theory, states that minor acts of delinquency may lead to higher crime rates. Cues such as unrepaired windows and abandoned cars are assumed to be signals for the criminal offenders, informing them that the residents do not care for the neighbourhood (Wilson and Kelling, 1982; Sampson and Raudenbush, 2004). Although empirical evidence for the theory is mixed (Sampson and Raudenbush, 1999; Sampson and Raudenbush, 2005), it still makes sense to use it in the residential context. Physically deprived neighbourhoods and residents' perception of the neighbourhood as being unsafe (related to a subjective perception of crime) decrease satisfaction with the neighbourhood (Parkes *et al.*, 2002), which increases the intention to move (Lu, 1998).

Social disorganisation theory states that a low socioeconomic status, a high degree of racial heterogeneity, and a high rate of residential mobility, affect a neighbourhood's ability to organize itself and causes social disorder (Sampson and Groves, 1989). Though empirical tests of the theory provide mixed support (e.g. Sun *et al.*, 2004; Sampson and Groves, 1989; Lowenkamp *et al.*, 2003), they do suggest that mobility is one of the causes of social disorder. Recently, however, the assumed causality has been questioned (Kubrin and Weitze, 2003; Hipp, 2010). Empirical testing using longitudinal surveys conducted by Hipp (2010) suggest that mobility is influenced by social disorder, rather than the other way around. Socially disorganised neighbourhoods might therefore be a reason for a resident to intend to move.

Next to physical and social disorder, neighbourhood change is expected to affect moving intentions. While the current situation matters, it is still plausible that people's comparison of the present with the past and the expected future will have an independent effect on the intention to move. For example, among two different neighbourhoods with the same degree of social disorder, the one which has deteriorated compared to the previous year might experience more residential intentions. Neighbourhood changes are a result of the change in demographic characteristics, such as age, number of children, employment status, etc. Furthermore, selective residential mobility can also contribute to change in terms of socio-economic and racial composition in the neighbourhood (Hedman, 2011; Hipp, 2010). Feijten and van Ham (2009) focused their analysis explicitly on the

perception of change in the neighbourhood. Their findings support the model where change matters. Perceiving: (1) a decline in the neighbourhood, (2) an increase in the percentage of ethnic minorities and (3) a high population turnover, increase the probability of intending to leave a neighbourhood. Conversely, living in a neighbourhood with an increase in socio-economic status decreases the intention to leave.

*Hypothesis 3) **Disorganisation:** The higher the social and physical disorder in the neighbourhood, the higher the intention to move.*

*Hypotheses 4) **Deterioration:** If the neighbourhood has deteriorated or is expected to deteriorate moving intentions will increase.*

2.3 Interaction between individual and neighbourhood characteristics

It is well established that individuals prefer to interact with people similar to themselves. Interactions with similar others are rewarding (Homans, 1958). This is also stated by the homophily principle: individuals prefer to interact with similar others (McPherson *et al.*, 2001), which is widely applied in studies on networks and social relationships. One can expect that this principle is also applicable in mobility studies, that people will intend to leave a neighbourhood if the other residents are different with regard to relevant socio-demographic characteristics (van Ham and Feijten, 2008). Such important social characteristics are income, age, household composition, ownership and ethnicity. In general, the argument is that if an individual differs from dominant compositional characteristics, moving intentions increase, because “others” can have opposing preferences and realizing them can decrease the satisfaction of the individual. To illustrate this, an example of opposing household preferences. An elderly couple might prefer quiet during the evening, while a young single-person household might prefer to organise a party at the weekend. When the single household realises their preference, this could entail residential dissatisfaction on the part of the elderly couple and increase their intention to move.

Additionally, differing from other neighbours with regard to ownership is expected to matter differently for home owners and renters. Home owners have invested more in the house, bought it with an intention to stay longer in the area, and for whom moving carries potentially more costs than for renters. Selling the house is much more energy and time consuming than ending a rental contract. Moreover, home owners are the ones who tend to be more closely bound to the place in which they live, more dependent on it, hence have invested and care more for it than renters. Consequently, home owners surrounded by renters might be dissatisfied with the fact that they are the main caretakers and do not share the costs of investment in the area equally with other residents.

Finally, ethnic groups vary with the degree of how much similar neighbours they want to

have. Clark (1986) points out that in the USA, blacks preferred a 50% racial mixture in the neighbourhood, while whites preferred 0-30% blacks in the neighbourhood. In the Netherlands, ethnic minorities tend to move out of concentrated neighbourhoods² less often than the ethnic majority. Moreover, minority groups more frequently move into concentrated neighbourhoods from non-concentrated ones (Bolt and van Kempen, 2010). A study by Doff and Kleinmans (2011) aimed to trace households relocated by force out of concentrated areas. Most of the households reported improvement, but there were considerable differences between ethnic categories. “Native” Dutch experienced neighbourhood improvement significantly more often than Surinamese/Antilleans and Turks/Moroccans (Doff and Kleinmans, 2011).

*Hypothesis 5) **Homophily:** Differing from the average neighbourhood composition (with regard to age, income, ownership, ethnicity and household composition) will increase the intention to leave the neighbourhood.*

*Hypothesis 6) **Differential homophily:** a) Differing from neighbours with ownership will also increase an intention to move for home owners mostly. b) Differing from neighbours with ethnicity will also increase an intention to move, but with a different intensity, depending on the ethnicity of the focal actor.*

3. Data, Measurement and Methods

3.1 Data

To test the hypotheses, data at both individual and neighbourhood levels were used. For the individual-level, Housing Research Netherlands Survey (Dutch acronym Woon 2009)³ was employed. HRN is based on a representative sample of the population of the Netherlands, aged 18 and over not living in institutions. It contains detailed information on individuals and their housing situation; obtained both from questionnaire as well as municipal registration. The neighbourhood-level data were taken from the Dutch national statistics on districts and neighbourhoods (Dutch acronym KWB 2009)⁴. The variable used as a proxy for neighbourhood was the four-digit postal code, which is the lowest most detailed spacial variable allowing combining both datasets. Although formally defined borders of postal code do not directly represent the neighbourhood as perceived by residents (Galster 2001), in urban areas “four-digit postal codes come close to what people may perceive as their neighbourhood” (van Ham and Feijten, 2008: 1155-1156; compare: Schaake, 2009).

² Neighbourhoods with high degree of ethnic minorities.

³ *Woon Onderzoek Nederland* before 2006 known as Housing Demand Survey (*Woning Behoeftte Onderzoek* WBO). Raw data from the Dutch Ministry of Housing, Spatial Planning and the Environment (VROM) is available through the Netherlands Scientific Statistical Agency.

⁴ *Kerncijfers wijken en buurten* – Core figures districts and neighbourhoods.

In HRN 8,785 respondents did not answer crucial questions on the housing situation and were deleted, 90% of them lived in the household with children. This should be taken into account while analysing the effect of the household. For the analysis we chose respondents living: 1) in a flat or single-family dwellings, 2) with family or alone, 3) between 18 and 88 years. Following this selection, the research sample dropped from 78,071 to 64,632 respondents. KWB dataset consisted of 14,558 entries. Selecting only the neighbourhoods and aggregating them to the postcode level resulted in 3,839 unique postcodes. Merging the datasets generated 1,132 deletions in HNR. Of the remaining 63,500 respondents, 61,946 had valid outcomes on all independent variables and were included in the analysis.

3.2 Measurement

Dependent variable

Intention to move is a binary dependent variable, based on HRN dataset and addresses whether the respondents intend to move within 2 years. There were 5 possible options to choose, but the answers were very skewed (more than 50% chose “Definitely not”), so remaining categories were collapsed into one.

Some could argue that the question is a proxy for a wish rather than an intention; however from the respondents who intended to move: 56% undertook actions to look for the house and 37% plan to do it within a year. So, the time frame and actions undertaken are convincing to consider it as an intention.

Independent variables

To test the first hypothesis on the life course, five variables were constructed. *Age* and *age squared* were measured in years. *Household* composition consisted of 4 categories: Single, Couple, Couple+children, Single parent+children⁵. *Income* measured in 1,000s of Euro per year, was disposable household income divided by the amount of household members. To correct for outliers incomes below 0 euro were recoded as 0 euro (201 cases, which is 0.26% of the sample) and incomes above 68,294 euro as 68,294 euro (390 cases, which is 0.50% of the sample). *Education* was measured as the highest completed educational attainment. It counts the years spent at school, which an average person needs to complete a particular level⁶.

In order to test the second hypothesis on the investment and profit four variables were constructed. The *investment house* was an ordinal category treated as continuous. To account for this *investment squared* was added. Respondents were asked how much within last 12 months they

⁵ Categories with “Others” were excluded in the selection. Less than 5% of respondents lived with other household members than partner or children.

⁶ Levels were coded as follows: none= 0 years; special education = 8 years; LBO, VMBO, MAVO, Other = 12 years; HAVO = 13 years; VWO = 14 years; MBO = 14,5 years; HBO = 17,5 years; University = 19 years.

spent on the works related to the dwelling. Since this question addresses only those who's dwelling was maintained and who paid for it⁷ (50% of respondent), therefore two additional categories were added (in total 8: No investment, Investment not paid by the respondent⁸, Respondent paid 0euro, 0-350euro, 350-1000euro, 1000-2500euro, 2500-10000euro, 10000+euro). *Satisfaction house* allowed 5 possible options to choose, due to a skewed distribution it was treated as binary (“Not satisfied/neutral”=0, “Satisfied”=1). *Owner* was dichotomous (Renter=0).

To test the third hypothesis on the neighbourhood disorder three variables were constructed using PCA⁹. First, *social disorder* was the mean of being disturbed by: direct neighbours, other neighbours and noise (Cronbach's alpha=0.70). Second, *physical disorder* was the mean of noticing on the street: graffiti, rubbish, dog's poop and destructed telephone booths, bus or tram shelters (Cronbach's alpha=0.64). Third, *deterioration* was the mean of 2 items: weather respondent perceived or expects the neighbourhood to deteriorate (Cronbach's alpha=0.71). These three variables were recoded so the higher the value, the more disorder or deterioration in the neighbourhood. *Mean social, physical disorder* and *deterioration* are means of individuals' perceptions aggregated on the neighbourhood level.

Variables addressing the difference from the other neighbours were created to test the homophily hypothesis. *Difference-income* was measured as an absolute difference between individual's income (total household disposable income/amount of household members) and mean neighbourhood income per inhabitant of the neighbourhood. *Difference-age* was also an absolute difference between individual age and the mean in the neighbourhood; however the mean was computed from age categories rather than continuous variable¹⁰. *Difference-household, difference-ownership* and *difference-ethnicity* assigned for each category a corresponding percentage of dissimilar others in the neighbourhood. For example if 50% of the households in the neighbourhood were households with children and 20% were single households, than a particular household with children had assigned 50 and single household had 80. For ethnicity, for example, “0” means that all the neighbours have the same ethnicity and 100 means that nobody.

For the last hypothesis on cross-level interaction *Owner*Difference-ownership* was generated, for renters it equals 0, and for owners equals: 1 * “percentage of renters in the neighbourhood”. *Ethnicity(dummied) *Difference-ethnicity* was generated by multiplying dummied

⁷ In the Netherlands while renting the house from a housing corporation (Dutch: wooncooperatie) or private owner, one can expect that the needed maintenance will be done by the corporation or the owner rather than the respondent.

⁸ Ibidem.

⁹ Principal Component Analysis, Oblimin rotation. This technique was used because there was no single-direct question addressing the disorder and deterioration

¹⁰ Since information on age composition was not available as a continuous variable, mean age of the neighbourhood was calculated from an equation: $(p0014*7 + p1524*20 + p2544*35 + p4564*55 + p65eo*75) / (p0014+p1524+p2544+p4564+p65eo)$, where *p0014* stands for percentage of people in the neighbourhood aged 0-14 years, *p1524* stands for aged 15-24 etc. The values “7”, “20”, “35”, “55” and “75” are central values for each category

ethnicities with corresponding difference-ethnicity.

Control variables

Control variables for individual level *work* (No=0, Yes=1), *type-house* (Apartment=0, House=1), *rooms/person*¹¹, *gender (female=1)* and ethnicity. *Ethnicity* is a registered ethnicity (for immigrants noted on the arrival to the Netherlands) recoded into: “Dutch”, “Moroccan”, “Turkish”, “Antillean/Aruba”, “Surinamese” and “Other”¹².

Control variables for neighbourhood level are *density* (amount of residents per hectare), *satisfaction neighbourhood* (Satisfied=1) and contact with neighbours. *Contact with neighbours* was also constructed by using PCA as mean of living in an area: with solidarity, people knowing each other, respondent having contact with direct and other neighbours (Cronbach's alpha=0.77). It was coded so the higher the value the better the contact with neighbours. Table 1 presents the summary statistics of the variables used.

3.2 Methods

Because of the binary nature of the dependant variable, logistic regression is used to test the hypotheses on whether (1) or not (0) respondents intend to move. To account for potential interdependence of observations and clustering of data (many residents per one postcode) multilevel approach has been introduced. The chosen model has two levels: the postcode-neighbourhood level and the individual level. The model allows for the inclusion of cross-level interactions between individual and neighbourhood characteristics. The random slopes of interactions were omitted due to the vast amount of observations, which dramatically extended the calculation time; this should be taken into account while interpreting the effects. In addition and even more important, our hypotheses were on average effects of neighbourhood and individual characteristics, so we had no theoretical reason to allow for random slopes.

An extra set of variables is added in each consecutive model. The first model (model 0) is an intercept-only model and includes no explanatory variables; model 1 includes a set of individual (household and dwelling) characteristics; model 2 includes the neighbourhood characteristics only; model 3 includes both individual and neighbourhood level characteristics; model 4 includes additionally interactions between neighbourhood characteristics and personal characteristics.

4. Results

Table 2 shows the results of multilevel logistic regression models. Model 0 is the intercept-

¹¹ Amount of rooms (including study rooms and living room) per household member.

¹² First category, the Dutch, is the largest group from all the respondents (80%). Subsequent 4 groups are the largest minority groups in the Netherlands.

only model including the constant without variables in order to calculate the interclass correlation coefficient (ICC). It is calculated from the intercept variance (0.208) and the variance of a logistic distribution ($\pi^2/3=3.29$) (Snijders and Bosker, 1999). The ICC [$0.208/(0.208+3.29) =0.059$] indicates that around 6% of the variation in intentions to move between residents can be attributed to factors measured at the neighbourhood level (compare: van Ham and Feijten, 2008). Although this percentage is relatively low it is still reasonable to perform a multilevel analysis (Hox, 2010). Part of the variation of the dependant variable can be explained by neighbourhood characteristics.

Model 1 includes a set of individual characteristics. Compared with model 0, model 1 is significantly better (LR $\chi^2(20)=9627.76$, $p<0.001$). The variance at the neighbourhood level decreased from 0.208 to 0.068 indicating that a substantial part of the difference in the intentions between neighbourhoods can be explained by different socio-demographic compositions between them. The McKelvey's explained variance equals $R^2_{MZ} = \sigma^2_F / (\sigma^2_F + \sigma^2_{u0} + \sigma^2_R)$, where σ^2_F stands for the variance of the linear predictor from the fixed part of the model, σ^2_{u0} stands for second-level intercept variance, and σ^2_R stands for the lowest-level residual variance, which is fixed to $\pi^2/3 = 3.29$ (Snijders and Bosker, 1999; Hox, 2010). For the first model it equals 0.217. Therefore, the explained proportion of variation is .22. Personal and dwelling characteristics explain about 22% of the variation in whether the respondent intends to move (Snijders and Bosker, 1999).

The effect of age on the intention to move is negative and the effect of age square is positive. The older the person the less likely s/he is to intend to move, however the effect is U shaped, and people are slightly more likely to intend to move after reaching the age of 70 years. In contrast to single-person households, couples with children are slightly less likely to intend to move, however the difference is not significant. Couples without children are more likely to intend to move. The effect of one-parent households is largest among the households but is still small; this category is most likely to intend to move. A possible explanation can be unstable situation of single parents, who can't share parental responsibilities with a partner, have less flexible options, and have to juggle residential location between work and children's schools. With regard to income, the higher the income the higher the intention to move, the same accounts for educational attainment. People who are highly educated are more likely to have the intentions to move. The effect of investment into the house is positive and investment squared is negative. It is a surprising finding, indicating that with an increasing investment people are more likely to leave the neighbourhood, but as they invest even more they are less likely to have the intention to move. The probability that residents intend to move decreases very much with the satisfaction with the house. As expected, home owners are less likely to intend to move than renters.

The effects of most of personal and household variables are relatively small compared to the

characteristics of the dwelling, and the satisfaction with dwelling in particular. This might be due to the fact that personal propensities, such as income, education, and ethnicity are related to the housing characteristics, and the effects of personal variables are partly taken away by the dwelling characteristics (Schaake *et al.*, 2009; Feijten and van Ham; 2009).

Model 2 only includes the neighbourhood characteristics. Individual characteristics were omitted to see if they have mediating effect. Compared with model 0, model 2 is significantly better (LR $\chi^2(14)=7374.54$, $p<0.001$). For the second model McKelvey's explained proportion of variation equals 0.185. Therefore, perceiving disorder and disorganisation in the neighbourhood as well as differing from others in the neighbourhood explain about 18% of the variation in whether the respondent intends to move. However, this should be interpreted with caution because no individual variables are controlled for.

Controlling for individual opinions, an increase in social and physical disorder in the neighbourhood increases the likelihood that a resident would intend to move out. Individual opinion about social disorder also matters, the more a resident perceives social disorder, the more he is likely to intend to move. Individual perception about physical disorder is not significant. With regard to deterioration in the neighbourhood, the mean opinion doesn't matter, however an individual opinion is significant and positive, meaning that the more people perceive and expect the area to deteriorate, the more likely they are to intend to move.

The effects of differing from the neighbourhood, which seem to be significant, might be largely mediated by individual's characteristics. Differing from other neighbours with income and household composition does not seem to have any effect, differing with age seems to have a negative effect, and differing with ownership and ethnicity seems to have a positive effect. These effects are relatively small.

Model 3 includes both neighbourhood and individual characteristics. It is used to draw conclusions on the effect of neighbourhood characteristics, controlling for individual as well as calculate explained variance to compare with 2 previous models. Compared with model 1, model 3 is significantly better (LR $\chi^2(14)=2641.78$, $p<0.001$). Also compared with model 2, model 3 is significantly better (LR $\chi^2(20)=4895.00$, $p<0.001$). For the third model McKelvey's explained variance equals 0.279. Therefore, neighbourhood and individual factors included in the model explain about 28% of the variation in whether the respondent intends to move, meaning that there is still a large proportion of variation which remains unexplained.

The effects of most individual characteristics do not change after adding neighbourhood characteristics. In line with the life course hypothesis, the older the person the less probably to intend to move, which slightly decreases for the oldest people. However, with respect to household

composition, there is no significant difference between couples with children, singles, single parents with children and couples without children. Effect of income and education remains unchanged, the higher the value the higher the intention to move. The hypothesis on investment and cost on moving is partially confirmed. With an increase of investment people are more likely to leave the neighbourhood, but as they invest even more they are less likely to have the intention to move, which is against expectations. Satisfaction with the house decreases the probability that residents intend to move. Home owners are less likely to intend to move than renters.

When it comes to the neighbourhood characteristics a big part seems to be mediated by individual characteristics. This applies for social and physical disorder which loose significance, as well as differing from the other neighbours with age, ownership and ethnicity. Differing from others in terms of household composition and perceiving physical disorganisation gained significance. This might be an effect of suppression. Individual perceptions of social disorder and deterioration in the neighbourhood remain important factors increasing the probability to intend to move.

For the individual control variables, whether a person works or not is not significant. Living in a house has a negative effect compared to living in an apartment. People living in a house have a lower likelihood to intend to move out. An increase of the amount of rooms per person has no significant effect on intentions to move. The effect of gender is significant, female intend to move less often than male. A great part of the ethnic minorities do not significantly differ from the Dutch majority population with regard to the moving intentions. With an exception of Turkish, who are less likely to intend to move than Dutch.

For neighbourhood control variables, population density has no significant effect as a linear predictor. The effect of the satisfaction with neighbourhood is negative, indicating that people are less likely to intend to move when they are satisfied. The effect of the contact with neighbourhood is negative, so people are less likely to intend to move when they have good contact with neighbours.

Comparing the McKelvey's explained variance between the models it appears that neighbourhood characteristics add little information above the individual characteristics. Models with (a) individual, (b) neighbourhood and (c) both; explain respectively (a)22%, (b)18% and (c)28% of the variance of the intention to move. Small difference of 6% between a) and c) means that variables included in the model representing the impact of neighbourhood are improving the model only to a limited extend. Difference of 10% between b and c stands for a larger contribution of individual factors in explaining the intention to move.

Model 4 includes cross-level interactions with ethnicity and ownership. McKelvey's explained variance equals 0.267. Therefore, neighbourhood, individual factors and cross-level

interaction included in the model explain about 27% of the variation in whether the respondent intends to move. However, compared to model 3, model 4 is not significantly better (LR $\chi^2(6)=11.88$, $p>0.05$). Model 3 is parsimonious, based on model 3 hypotheses should be evaluated.

5. Conclusion and discussion

This study investigated the impact of neighbourhood, individual characteristics and their interplay on the residential intention to move. To our knowledge it is the first study that combines different approaches such as individual cost/benefit approach and neighbourhood social disorder, as well as homophily preferences. Furthermore we argued that for specific individuals, neighbourhood characteristics matter differently in their importance for moving intentions. The major conclusion is that neighbourhood characteristics matter, but are largely mediated by individual ones. However, on an individual level, 20%¹³ of the residents state their moving intentions are related to the neighbourhood.

The life course hypothesis is generally confirmed. Findings are as follows: the older the person, the lower their income and level of education the less likely that they intend to move. These findings are mostly in line with the findings of other researchers (Schaake, 2009; van Ham and Feijten, 2008). Furthermore, household characteristics as such seem not to play an important role. What matters is how much the individual household composition differs from the main household composition in the neighbourhood. The more the household differs from the main composition in the neighbourhood the more likely to intend to move. This is a novel finding. A great part of the ethnic minorities do not significantly differ from the Dutch majority population with regard to the moving intentions. With an exception of Turkish, who are less likely to intend to move than Dutch.

The homophily principle about differing from the neighbours, although in this study confirmed only for the household composition, still might be area worth further exploration. Differing from the neighbours with the ethnicity is not significant. In this study it was treated relatively detailed, each ethnicity was considered separately. Other studies were either treating ethnicity as binary: majority–minority (Feijten and van Ham, 2009) or treated the neighbourhood as binary: concentrated–non-concentrated (Bolt and Kempen, 2010) and they found significant results. It might be that minorities indeed differ from each other. For some, it might be not important how many people of their own ethnicity are in the neighbourhood, but how many in total minority members are in the neighbourhood. Another intriguing finding is that the absolute difference from other neighbours with income doesn't play a role for moving intentions. The possible explanation

¹³ In the HDR respondents were asked explicitly, what is the main reason for their intention.

might be that there is a difference between those whose income is below the mean and those whose income is above the neighbourhood's mean. The first one would be intending to stay while the second would prefer to intend to move; as a consequence the effects might cancel each other.

The hypothesis on investment and costs, despite surprising finding, still seems to hold. Overall, the higher the costs of moving the lower the probability of the intention to move. It seems strange at first, that we found that with an increase of investment people are more likely to leave the neighbourhood, but as they invest even more they are less likely to have an intention to move. Possible explanation can be that people are dissatisfied with their house and try to decrease the dissatisfaction by minor maintenance. By investing in the house, the situation becomes bearable, but one still intends to move. If one invests more, however, such as rebuilding something or doing major renovations, satisfaction increases and the likelihood of having moving intentions declines. Satisfaction with the house and ownership decrease the probability that residents intend to move. Hypothesis on investment and costs are valid also for the neighbourhood characteristics, the better the contact with neighbours and satisfaction the lower the probability of intending to move.

The hypotheses on disorder and deterioration hold only for individual perceptions, and not for the aggregated score, which mean that perceptions are not shared among residents. Deterioration, physical and social disorder matter only at the individual – subjective – level. Furthermore, the more deterioration or disorder a resident perceives and expects in the neighbourhood the more he is likely to intend to move. The results are in line with other studies that perception plays more important role in shaping the intentions to move than objective or mean characteristics (Andersen, 2008; Permentier *et al.*, 2007; Franzini *et al.*, 2007). This study seems to point out that individual perception is what matters before all, not the perceived average degree of disorder in the neighbourhood. On the other hand it can be that evaluation of the neighbourhood differs among groups. For example renters might be less sensitive to the disorder and deterioration than owners. This way mean effect in the neighbourhood might be insignificant, cancelled by opposing perceptions between renters and owners.

To conclude, the findings generally support the cost/benefit approach. Residents seem to seek equilibrium of costs and gains. While residential satisfaction seems to be the strongest predictor of moving intentions other factors still play a role. Disorder in the neighbourhood influences the intention to move as an individual perception rather than a concept shared by among neighbours. Differing from other neighbours although not confirmed in this study still may play an important role.

Some limitations might be related to the measurements and the statistical techniques. For example, we did not inquire into random slopes, hence we do not know whether some of the effects

found vary between neighbourhoods. Furthermore, the physical disorganisation scale had a quite low reliability; so the impact of physical disorganisation is not very well accessed. Finally, there were many missing values on a special group, i.e. households with children, and it might be that they are underrepresented.

To conclude, in this paper we tried to apply different approaches in one model. Although it seems that this is a fruitful way to go, still much is not yet explained and therefore – hopefully – subject for future research. The most important finding is that differences between an individual and his or her environment matter for intentions and behaviour. Seemingly, bonding, not bridging social capital (Woolcock and Sweetser, 2002) is it what makes people stay.

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Table 1. Descriptive statistics for variables used in analysis (N=61,946).

Variable	Number (%)	Mean (Std.Dev.)	Min / Max
Intention to move	16,616 (26.82)		
No intention	45,330 (73.18)		
<i>Life course:</i>			
Age		51 (16.3)	18 / 88
Age squared		2909 (1739.7)	324 / 7744
Household: Single	19,480 (31.45)		
Couple	20,772 (33.53)		
Couple+child	17,784 (28.70)		
Parent+child	3,895 (6.31)		
Yearly income[1000E]		17 (9.3)	0 / 68
Education[years]		14 (3.5)	0 / 19
<i>Investment and cost:</i>			
Investment house		2.40 (2.4)	0 / 7
Investment squared		11.74 (15.68)	0 / 49
Satisfaction house(satisfied=1)		0.89 (.32)	0 / 1
Owner		0.57 (.49)	0 / 1
<i>Disorder in the neighbourhood:</i>			
Social disorder		0.35 (.483)	0 / 2
Physical disorder		0.62 (.500)	0 / 2
Mean social disorder		0.35 (.145)	0 / 1.67
Mean physical disorder		0.62 (.214)	0 / 1.67
Deterioration		0.93 (.519)	1 / 3
Mean deterioration		0.93 (.144)	1 / 3
<i>Differing from neighbours:</i>			
Difference-income		7.92 (6.28)	0 / 56.16
Difference-age		15.9 (11.6)	0 / 56.98
Difference-household		36 (10.8)	0 / 86
Difference-ownership		43 (16.9)	0 / 96
Difference-ethnicity		34 (30.3)	0 / 99
<i>Cross-level interactions:</i>			
Owner*Difference-ownership		23.9 (23.9)	0 / 96
Dutch*Difference-ethnicity		17 (15.5)	0 / 90.5
Moroccan*Difference-ethnicity		1.26 (10.5)	0 / 99.2
Turkish*Difference-ethnicity		1.67 (12.0)	0 / 99.2
Antillean*Difference-ethnicity		0.85 (9.06)	0 / 99.2
Surinamese*Difference-ethnicity		2.12 (13.7)	0 / 99.2
Other*Difference-ethnicity		10.7 (29.8)	0 / 99.2
<i>Individual controls:</i>			
Work		0.50 (.50)	0 / 1
Type of house(house=1)		0.63 (.48)	0 / 1
Amount of rooms/person		2.27 (1.16)	0.1 / 23
Gender(female=1)		0.56 (.50)	0 / 1
Ethnicity:Dutch	50,758 (81.94)		
Moroccan	882 (1.42)		
Turkish	1,184 (1.91)		
Antillean/Aruba	550 (0.89)		
Surinamese	1,480 (2.39)		
Other	7,092 (11.45)		
<i>Neighbourhood controls:</i>			
Density(people/ha)		139 (138.2)	0.29 / 1413.6
Satisfaction neighbourhood		0.81 (.395)	0 / 1
Contact with neighbours		2.53(.785)	0.25 / 4.25

Table 2. Multilevel logistic regression of the intention to move (N = 61 946), * p<0.05, ** p<0.01, *** p<0.001.

	Model 0	Model 1	Model 2	Model 3	Model 4
Constant	-1.208***	2.424***	0.297	2.671***	2.534***
Age		-0.059***		-0.063***	-0.064***
Age squared		0.0002***		0.0002***	0.0003***
Household (ref=Single)		0.000		0.000	0.000
Couple		0.082*		-0.007	-0.005
Couple+child		-0.085		-0.075	-0.072
Parent+children		0.115*		0.055	0.058
Income yearly [1000E]		0.009***		0.009***	0.009***
Education [years]		0.040***		0.035***	0.035***
Investment house		0.179***		0.175***	0.175***
Investment squared		-0.036***		-0.035***	-0.035***
Satisfaction house		-1.747***		-1.385***	-1.386***
Owner		-0.341***		-0.218***	-0.008
Social disorder (indiv.)			0.530***	0.348***	0.346***
Physical disorder (indiv.)			0.035	0.055*	0.056*
Mean social disorder			0.541***	0.203	0.260*
Mean physical disorder			0.267**	0.024	0.098
Deterioration (indiv.)			0.188***	0.271***	0.271***
Mean deterioration			-0.146	0.092	0.082
Difference-income			0.002	-0.000	-0.001
Difference-age			-0.030***	0.005	0.004
Difference-household			0.001	0.004***	0.004***
Difference-ownership			0.002*	0.000	0.002
Difference-ethnicity			0.002***	-0.001	-0.001
Owner*Difference-ownership					-0.004*
Dutch*Difference-ethnicity (ref.)					0.000
Moroccan*Difference-ethnicity					-0.004
Turkish *Difference-ethnicity					0.017*
Antil./Aruba*Difference-ethnicity					-0.075
Surinamese*Difference-ethnicity					-0.002
Other*Difference-ethnicity					0.002
<i>Control variables:</i>					
Work		-0.035		-0.041	-0.042
Type (house=1)		-0.349***		-0.201***	-0.210***
Rooms/person		0.032*		0.011	0.012
Female		-0.081***		-0.112***	-0.113***
Ethnicity(ref=Dutch)		0.000		0.000	0.000
Moroccan		-0.088		0.087	0.463
Turkish		-0.320***		-0.253**	-1.783*
Antil./Aruba		-0.099		0.120	7.374
Surinamese		-0.070		0.062	0.253
Other		-0.046		0.047	-0.198
Density(people/hectare)			0.000	-0.000	-0.000
Satisfaction neighbourhood			-0.677***	-0.558***	-0.559***
Contact with neighbours			-0.493***	-0.338***	-0.337***
McKelvey's explained variance		.2168	.1850	.2791	.2794
Variance of linear predictor		.930	.763	1.294	1.296
Intercept variance	.208	.068	.071	.052	.051
Likelihood ratio test (df)	9627.76 (20)***	7374.54 (14) ¹⁴ ***	4895.00 (20) ¹⁵ ***	2641.78 (14) ¹⁶ ***	11.88(6)

¹⁴ Compared model 2 with model 0

¹⁵ Compared model 3 with model 2

¹⁶ Compared model 3 with model 1