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Urban, suburban or rural? Understanding preferences for the residential environment

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ABSTRACT

There are two ongoing trends that lead to changing preferences for the built environment. One concerns a demographic transition into more but smaller, and older, households. The other concerns greater possibilities to satisfy residential preferences due to rising incomes and technological advances. The current study explores the preference for the type of residential environment and the underlying motivations. The smaller municipality is most preferred (36%), followed by the city edge (32%), a rural area (13%), the city centre (11%) and no preference (7%). The city centre is preferred because of amenities, ambiance, liveliness and activities. The city edge is preferred because of peace and quiet and easy access to the dwelling. Social contact was rarely mentioned. In contrast, respondents who preferred a smaller municipality frequently mentioned social contact. Furthermore, feeling safe/secure and wellbeing were important items. Finally, respondents with a rural preference mentioned freedom and peace and quiet.

KEYWORDS

Residential environment; housing preference; urban; suburban; rural

Introduction

Traditionally, economic and demographic factors have been regarded to be the most important factors determining residential migration (Sabagh, Vanarsdol, and Butler 1969; Deurloo, Clark, and Dieleman 1990). Well-known in this context is the classical housing life-cycle model by Rossi (1955), in which changes in the composition of the household can lead to changes in housing needs. This might cause residential dissatisfaction in the case when the dwelling (environment) no longer meet the needs or preferences of the family. Eventually, households might decide to move house. For example, singles and other small, childless, households mostly reside in the city whereas households with children frequently exchange the city for a suburban or rural location (Karsten 2007). Some of the underlying motivations for young families to move out of the city is the need for more housing space, the presence of a garden and direct eye contact with the street (Dieleman and Mulder 2002). However, the influence of socio-demographic characteristics on housing preference is prone to change. First, because the composition of the population is changing in most Western countries. This transition concerns an increase in the number of

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households, combined with a decrease in the size of the household (Buzar et al. 2007; Berndgen-Kaiser et al. 2018). Second, there is a broader variety in household arrangements combined with a declining relevance of traditional family models (Buzar et al. 2007; Berndgen-Kaiser et al. 2018). These effects are caused by factors such as the aging population, the postponement of childbearing and an increasing number of divorces (Buzar et al. 2007). The trends in socio-demographics are responsible for an increase in the quantitative housing demand but also for a change in the type of housing demand (Buzar et al. 2007). For example, older residents are more likely to prefer smaller homes with easy access to services, which results in a preference for denser housing in a more walkable neighbourhood (Yang and O'Neill 2014; Berndgen-Kaiser et al. 2018). Third, next to these demographic trends, researchers argue that other types of motivations, such as quality of life issues and housing preferences, have become more important for the prediction of mobility patterns (Barcus 2004; Howley, Scott, and Redmond 2009). Moreover, residents have much greater possibilities to satisfy their residential preferences because of rising incomes, increased transport opportunities, advancement in communication technologies (e.g., telecommute) and self-employment opportunities. For example, "millennials" in the United States delay or reject marriage and parenthood at higher rates than previous generations and remain in the lifecycle phase of "emerging adulthood" (Pfeiffer, Pearthree, and Ehlenz 2019). They prefer to live in walkable, transit-accessible, amenity-rich and socially diverse neighbourhoods in central city downtowns where they can have new experiences and meet new people (Pfeiffer, Pearthree, and Ehlenz 2019). In order to keep up with the ongoing change in the quantitative and qualitative housing demand, it is important to examine which housing preferences consumers have and also to explore which motivations are underlying these housing preferences.

Housing preference has an important relationship with residential satisfaction. Residential satisfaction is determined by personal characteristics and objective and subjective characteristics of the residential environment (see, e.g., the model by Amerigo and Aragones (1997)). Subjective aspects (e.g., "satisfaction with the size of the dwelling") are usually more important for residential satisfaction than objective ones (e.g., a dwelling of 140 m^2). This is because objective aspects may be appreciated differently by different residents, depending on their preferences. One couple may live in a dwelling with only two rooms and be perfectly happy because of the relatively small effort required in terms of upkeep, while another couple may be very dissatisfied because of the limited space. Neighbourhood satisfaction [as well as other types of residential satisfaction] can be regarded as a reflection of residents' residential preferences (De Vos, Van Acker, and Witlox 2016a). It has been shown that residents who live in accordance to their residential preferences experience higher residential satisfaction than residents who experience a mismatch between their actual and preferred housing situation (Jansen 2014; Cao and Wang 2016). Residential satisfaction is a predictor of quality of life and enhancing quality of life is an important objective in urban planning (Mouratidis 2018). Therefore, the ultimate reason for why it is important to examine housing consumers' residential preferences as well as the factors underlying these preferences is to maintain and enhance housing-related quality of life.

As housing fulfils many different goals, housing preferences can be elicited for many different aspects. Preferences can be directed towards the attributes of the dwelling (e.g., the presence of a garden), the attributes of the dwelling environment (e.g., contact with the neighbours) and the attributes of the wider area (e.g., recreational facilities). The

current study focuses on the preference for the type of residential environment (urban/suburban/rural). This is an important topic as preferences for attributes of the neighbourhood influence locational choice; a choice that has environmental, economic and social consequences (Lovejoy, Handy, and Mokhtarian 2010). For example, the topic is relevant for the ongoing discussion of whether to let the city expand into the surrounding green areas (urban sprawl) or to preserve rural open space by redeveloping inner cities and promote densification by infill in existing urban districts, as discussed in, for example, Mohamed (2008) and De Vos, Van Acker, and Witlox (2016a). Restricting urban sprawl is beneficial for a more sustainable travel behaviour, a higher ecological sustainability and a better public health (De Vos, Van Acker, and Witlox 2016a). The current study also focuses on the motivations underlying the residential preferences. More insight into these motivations could help in planning decisions, for example by exploring whether some motivations could also be fulfilled in other types of residential environment. As an example, in the case when privacy would turn out to be an important motivation for residents to prefer to live in a rural area, than perhaps it would be possible to build in such a way that this value could also be fulfilled in an urban or suburban residential environment (e.g., thicker walls, smaller windows, living room at the backside of the house).

A number of previous studies touch upon the issue of preferred residential environment and the factors that influence these preferences. Lindberg et al. (1992) have explored how socio-demographic characteristics and beliefs about value fulfilment based on housing-attribute evaluation can influence preferences for the residential location. The researchers found that families preferred to live further away from the city centre and that both younger and older age groups preferred to live close to the city centre. Furthermore, the values of freedom, well-being and togetherness were believed to increase with increasing distance from the city centre. In contrast, the value comfort was thought to decrease with increasing distance. Brun and Fagnani (1994) found that the preference for homeownership was related to a suburban preference. Sigelman and Henig (2001) performed a study into the preferences for living into the city or in the suburbs. The suburbs were rated as better for shopping, public education, the crime situation, good affordable housing and recreation. In contrast, the city was preferred because of the opportunities for restaurants and entertainment. The city and suburbs were about equally rated with regard to the possibilities for health care, the treatment of different racial and ethnic groups and the chances for individual people to affect local politics. Talen (2001) explored whether the preference towards a traditional urban environment could be explained by attachment to the current suburban residential environment, socio-demographic characteristics and opinions about physical characteristics of the residential environment and social and environmental factors. Talen (2001) concluded that the acceptance of an urban residential environment was primarily based on physical planning-related problems of the suburban residential environment, especially the relatively long non-commuting travelling time in the suburbs. Jansen (2012) found that families with children more frequently preferred to live outside the city centre and that respondents aged 65 and older more frequently preferred to live inside the city. Furthermore, residents who preferred to live in the city centre placed more importance on leading an exciting life and on having security in the dwelling environment. In contrast, residents who preferred to live outside the city placed a higher value on a peaceful environment and on self-respect. Finally, De Vos et al. (2016b) concluded

that men and highly educated people prefer a rural residential environment whereas women and people with a high income more frequently have an urban preference. The authors also found that urban residents find a peaceful and safe neighbourhood, the residents' composition and neighbouring aspects more important than rural residents. In contrast, rural residents found proximity (to shops, public transport) more important. As becomes clear from the studies described above, residential location preferences can be influenced by personal characteristics (e.g., age, household type), by preferred attributes of the dwelling and its environment (e.g. proximity to shops or recreational facilities) and by the fulfilment of values (purposes) that are believed to be attained through these attributes (e.g., freedom, comfort).

In summary, the factors that determine residential location preferences might have changed in time due to changes in the composition of the population and because of the greater opportunities for consumers to satisfy their residential preferences. Examining these preferences is important as residents that live in accordance to their preferences have higher residential satisfaction than those who perceive a mismatch between what they have and what they want. The aim of the current study is to examine what nowadays drives housing consumers to prefer certain residential environments. This is done by predicting the preference for the residential location based on the three factors described above: 1) personal characteristics, 2) preferences for attributes of the dwelling and the dwelling environment and 3) underlying motivations (values, purposes and goals). The following research questions are examined:

(1) Which type of residential environment (city centre, city edge, smaller municipality, rural) do residents prefer?
(2) Is the preferred type of residential environment related to personal characteristics?
(3) Is the preferred type of residential environment related to the preference for attributes of the dwelling (environment)?
(4) Is the preferred type of residential environment related to underlying motivations (i.e., values, purposes, and goals)?
(5) Can the preferred residential environment be predicted based on personal characteristics, preferred attributes of the dwelling (environment) and underlying motivations?

Methods

The respondents

The data for the study were collected through Computer Assisted Telephone Interviewing (CATI) in 2012. The questions could only be answered by homeowners, tenants or their partners. Data on the actual housing situation and housing preferences are collected from respondents who – theoretically – have at least a standard income; this applies to approximately 72% of all Dutch households. This selection is made because these respondents have more opportunity to actually realize their housing preferences in practice. A sample of 9104 Dutch residents was obtained from a commercial bureau specialized in collecting and selling consumer addresses. After sending an introductory letter that explained the study and stated that residents could be invited, 8009 residents

were actually approached to participate in the study. The remaining 1095 had not been contacted because the desired number of respondents had been reached. Of the 8009 potential respondents, 3107 (39%) agreed to cooperate in the telephone interview and 2717 (34%) declined participation. The remainder could not be contacted within the interview schedule (n = 2185; 27%) for multiple reasons: they did not pick up the phone after multiple calls (n = 840), the telephone number turned out to be disconnected (n = 610), an answering machine or voicemail responded (n = 358), the telephone was "busy" (n = 23) or for another reason (n = 354), e.g., non-Dutch speaking or requested person unknown. The questions with regard to the preferred residential environment and preferred attributes of the dwelling (environment) have only been asked from respondents who had indicated that they would be willing to move if they would find a dwelling that could fulfil all their needs with regard to housing. This applied to almost a quarter of the respondents (n = 738). Seventy-five percent (n = 2338) of respondents were not willing to move, 26 respondents were unsure and five did not answer the question.

The variables used in the current study

The variables that are used in the study are reported in more detail in the appendix. The following personal characteristics were collected from the respondents: age, number of persons in the household, education, gender, household type, having paid work, monthly net income, current tenure and current and preferred residential environment: city centre, city edge, a smaller municipality or rural. Note that this classification is somewhat more detailed than the one based on a division into urban, suburban and rural that is commonly described in the literature (e.g., Feijten, Hooimeijer, and Mulder 2008). Living in the city centre can be assumed to reflect an urban residential lifestyle and living at the city edge or in a smaller municipality can be classified as living in a suburban environment. The more detailed categorization was used in this study as it provides more information with regard to potential differences between these two groups.

The respondents were asked about their preferences with regard to characteristics of the dwelling and the dwelling environment, i.e., tenure, various types of houses, the presence of a garden, the size of the living room, total living space, the number of rooms, the proximity of various facilities at walking distance, the composition of residents in the neighbourhood with regard to behaviour, income and age, the liveliness of the neighbourhood and the composition of the neighbourhood in terms of housing and other activities.

After the preferred residential environment had been determined, respondents were asked about the most important motivations underlying their preference. Each respondent could provide up to three motivations. The motivations were based on previous research by Coolen (2008), Meesters (2009) and Lindberg et al. (1992). The question was formulated as an open question, but the interviewers had a precoded list of 12 possible motivations at their disposal and they could select the appropriate option (see Table A3 for a description of the motivations). Before the start of the fieldwork, the interviewers had been trained and made familiar with the options. If the respondent's answer was not among the precoded options, or when there was doubt, the interviewer selected "another reason" and typed in the respondent's answer. After the fieldwork, the results showed that 125 motivations (12%) had been coded as "other reason" by the interviewers. These

motivations were carefully examined and 16 additional categories were formulated. Next, the author and three colleagues each individually coded the 125 other reasons according to 29 precoded categories (the 12 precoded categories plus the 16 additionally coded categories and one "other reason" category). If at least three of four researchers agreed on a particular answering category, then the item was placed into this category. This occurred for 92 of the 125 motivations (74%), leaving 33 motivations in the category "other reason".

Statistical methods

The Chi^2 test (for categorical variables) and an analysis of variance (for numerical variables) are used to examine bivariate relationships between the preferred residential environment and various personal characteristics, preferences for attributes of the dwelling (environment) and motivations.

The correlation between the various motivations was examined because multicollinearity could cause a problem in the logistic regression analysis. For two dichotomous variables the Pearson correlation can be used. The results show that the correlations are rather weak. The strongest correlation is the one between "peace and quiet" and "easy access to amenities" (-0.27, $p < 0.01$), indicating that "peace and quiet" is negatively related to "easy access to amenities" and that the strength of this relationship is moderate. Thus, multicollinearity between the motivations was not a problem for the analysis.

For each type of preferred residential environment, a binary logistic regression is used to examine whether it can be predicted based on personal characteristics, preferences with regard to the dwelling (environment) and motivations. The current residential environment was not included because the underlying predictors might influence both the preferred and the current residential environment and the inclusion of the current residential environment could conceal the effects of the other predictors. Thus, in total four logistic regression analyses are performed. In each of the four analyses, a specific group (for example, the respondents that prefer to live in the city centre) is compared against all other respondents (either preferring city edge, smaller municipality or rural). This procedure differs from a multinomial regression analysis, which would only provide information on the comparison of one specific type of residential environment (the reference category) against each of the other three types of residential environment. In the logistic regression models, the backward-elimination-by-hand procedure is used to obtain a final model with only statistically significant predictors. This means that the predictor with the highest, non-significant p-value, is removed from the analysis. The analysis is then repeated again and again until all non-significant predictors have been removed.

Results

Which type of residential environment do residents prefer?

The smaller municipality is the most preferred type of residential environment (39% of respondents; n = 257). Another 34% of respondents (n = 224) prefers to live at the city edge. These environments combined, the large majority of respondents (73%) prefer to

live in a suburban residential environment. A minority of respondents wants to live rural (14%; n = 92) and another 12% (n = 81) prefers the city centre. Seven percent of respondents (n = 51) had no particular preference with regard to the residential environment. These respondents have been omitted from further analyses because they could not be asked for the motivations underlying their preference.

Is the preferred type of residential environment related to personal characteristics?

The personal characteristics of the four groups are shown in Table A1. The groups do not differ with regard to gender, household type, having paid work and current tenure. However, the groups do differ with regard to age, the number of persons in the household, educational level, income and the current residential environment. The respondents with a preference to live in the city centre are generally older than the respondents in the other groups and they have on average fewer persons in their household. With regard to education, respondents who prefer to live rural more frequently have a higher education and respondents with a preference for the city centre more often have an "other" education. With regard to income, residents with a preference for the city centre or the smaller municipality more frequently have a low income. Respondents with a preference for the city centre also less frequently have a very high income.

The results with regard to the current residential environment show that all groups more frequently live in the type of residential environment that they prefer than in the type of residential environment that they do not prefer. Overall, 422 (65%) respondents perceive a match between their actual and preferred residential environment and 232 respondents (35%) show a mismatch. Residents with a preference for the city edge or a smaller municipality (both suburban) generally live in the residential environment that they prefer (city edge: 71%; smaller municipality: 78%). This percentage is lower for respondents who prefer to live in the city centre (44%) and quite low for respondent who prefer to live rural (28%). The latter indicates that more than seventy percent of respondents with a preference for living in a rural area have not (yet) had the opportunity to make their dream come true.

Is the preferred type of residential environment related to the preference for attributes of the dwelling (environment)?

Respondents' preferences were elicited for ten attributes of the dwelling and seven attributes of the dwelling environment (see Table A2). The analyses show a statistically significant relationship between the preferred residential environment and all attributes, except two (the preferred size of the living room and the preference for having a park at walking distance). The most striking difference is found between respondents who prefer the city centre and respondents who prefer the other extreme, i.e., living in a rural area. Respondents with a preference for the city centre more frequently prefer a rental dwelling, an apartment, shops for daily goods and a railway station at walking distance, a neighbourhood with various types of residents, a lively or very lively neighbourhood and a neighbourhood with both housing and other activities. Furthermore, these respondents less frequently prefer a (semi-)detached dwelling, a dwelling with a garden, a single-

family dwelling and schools at walking distance. Respondents with a preference for rural living show the reverse of these preferences, except for the fact that they also have a somewhat more than average preference for a neighbourhood with various types of residents and also less frequently prefer a semi-detached dwelling and schools at walking distance. In addition, they somewhat less frequently prefer a terraced dwelling. With regard to the numerical attributes (size living room, living space, number of rooms), the results show that the respondents with an urban preference on average have the most modest preferences for space whereas the respondents with a rural preference require the most space. Residents with a preference for the city edge more frequently than the other groups prefer a terraced dwelling and a semi-detached dwelling, schools at walking distance and a neighbourhood with a similar type of residents with regard to behaviour, income and age. Respondents with a preference for a smaller municipality are somewhat more likely than average to prefer schools at walking distance and a neighbourhood with mainly housing.

Is the preferred type of residential environment related to underlying motivations?

Six hundred forty-six respondents provided one or more motivations and the total number of motivations is 1014 (mean = 1.6). The motivations are presented in Table 1.

Overall, the motivation provided most frequently is "Peace and quiet" (n = 290; mentioned by 45% of respondents). This motivation was provided almost two times more often than the second most frequently mentioned motivation, which is "Easy access to amenities" (23%). Other relatively important motivations are "Social contact", "The ambiance outside", and "Easy access to the dwelling". There are also many motivations that are mentioned by only a small number of respondents. This shows that residents have many different reasons for why they prefer a certain residential environment.

The bivariate relationship between the preferred residential environment and the various motivations was examined using the Chi^2 test, but only for motivations that were indicated by at least 20 respondents. Of the 10 motivations for which this criterion applies, eight reach statistical significance (see Table A3). Here again the contrast between respondents with a preference for the city centre and those with a rural preference stands out. Respondents who prefer the city centre more frequently mention the easy access to amenities, the ambiance outside and the possibilities of performing activities. They less frequently indicate peace and quiet and a sense of freedom. For respondents who have a preference for rural living this is just the other way around. Respondents with a preference for living at the city edge more frequently mention the easy access to the dwelling and less frequently mention social contact and the ambiance outside. Finally, respondents with a preference for a smaller municipality more frequently mention social contact and wellbeing.

Can the preferred residential environment be predicted based on personal characteristics, preferred attributes of the dwelling (environment) and underlying motivations?

Finally, all predictors, i.e., personal characteristics, preferences for attributes of the dwelling (environment) and motivations, have been combined in a logistic regression analysis. The results of the logistic regression analyses are shown in Table 2. The value of

Table 1. Underlying motivations for the preference for the residential environment.

	Number of times mentioned	Mentioned by % of respondents
Because …		
Precoded categories		
Of peace and quiet	290	45%
Of easy access to amenities	148	23%
Of social contact	113	17%
Of the ambiance outside	106	16%
Of easy access to the dwelling	68	11%
Of a sense of freedom	47	7%
Of feeling safe/secure	32	5%
Of enjoying life	26	4%
Of performing activities	25	4%
Of well-being	21	3%
Of feeling comfortable	19	3%
Of an exciting life	8	1%
Post-coded categories		
Of another reason	33	5%
Of green/water/space	16	2%
Of being raised in this type of nbh	12	2%
Of currently living in this type of neighbourhood	11	2%
The environment is good for raising (grand) children	8	1%
It not too quiet and not too lively	4	1%
There is few traffic/good opportunities for parking	4	1%
Of work-related reasons	3	0%
Of keeping pets and other animals	3	0%
Of being familiar with the nbh	3	0%
Of privacy	2	0%
Of pleasantness/cosiness	2	0%
Of easy access to exit roads	2	0%
Of financial reasons	2	0%
It is close to the city centre	2	0%
Of the possibilities for doing sports	2	0%
Of easy access to public transport	1	0%
Of easy access to cultural facilities	1	0%
Total	1014	

Nagelkerke R^2 ranges between 0.21 for the city edge to 0.48 for the rural residential environment. The respondents who prefer to live in the city centre differ from other respondents in the sense that they more frequently prefer the proximity of shops for daily goods and more frequently want to live in a neighbourhood with a mix of housing and other activities. This result also agrees with their underlying motivations; they more frequently mention the easy access to amenities, the ambiance outside and the possibilities of performing activities. These respondents less frequently prefer a school at walking distance and they hardly mention peace and quiet. Note that the effect for peace and quiet is quite large; this is due to the fact that only one respondent who prefers to live in the city centre mentions peace and quiet.

Respondents who prefer to live at the city edge more frequently than the other groups prefer a terraced dwelling and a neighbourhood consisting of similar residents with regard to behaviour, income and age. They more frequently mention peace and quiet and easy access to the dwelling. Furthermore, they less frequently prefer a very quiet neighbourhood and less frequently mention social contact and the ambiance outside. Respondents with a preference for a smaller municipality more frequently have a secondary education. Furthermore, they more frequently prefer more rooms and more frequently mention social contact, feeling safe/secure and wellbeing. They less

Table 2. Predictors of the preferred residential environment.

	Preference for city centre (n = 79) versus other groups (n = 566)		Preference for city edge (n = 218) versus other groups (n = 418)		Preference for smaller municipality (n = 251) versus other groups (n = 385)		Preference for rural area (n = 91) versus other groups (n = 555)	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Personal characteristics								
Education								
Primary/lower vocational					ref.			
Secondary					2.15**	1.22–3.80		
Higher vocational/university					1.23	0.69–2.17		
Other					1.69	0.55–5.17		
Housing preferences								
Preference for terraced dwelling								
Yes, definitely			Ref.					Ref.
Maybe			0.69	0.39–1.21			1.99	0.73–5.44
Definitely not			0.53**	0.35–0.80			2.83**	1.35–5.97
Preference for apartment								
Yes, definitely							Ref.	
Maybe							0.92	0.22–3.80
Definitely not							5.13**	2.08–12.64
Preferred number of rooms					1.18*	1.01–1.38		
Proximity of shops for daily goods	2.80*	1.14–6.86						
Proximity of schools	0.35**	0.19–0.66					0.41**	0.22–0.77
Proximity of railway station							0.49[a]	0.23–1.03
Preferred liveliness neighbourhood								
Very quiet			Ref.		Ref.		Ref.	
Quiet			2.14*	1.20–3.82	1.23	0.73–2.08	0.20**	0.10–0.41
(Very) lively			2.72**	1.45–5.09	0.67	0.38–1.18	0.21**	0.09–0.49
Mix of housing and other activities								
Mainly housing	Ref.							
Housing mixed with other activities	3.75**	2.03–6.93						
No preference	1.27	0.50–3.23						
Mix of residents with regard to behaviour, income and age								
Similar residents			Ref.				Ref.	
Mix of residents			0.49**	0.31–0.76			2.80*	1.24–6.34
No preference			0.46*	0.26–0.83			3.86**	1.46–10.19
Motivations								
Peace and quiet	0.02**	0.00–0.15	1.57*	1.08–2.31			3.01**	1.55–5.86

(*Continued*)

Table 2. (Continued).

	Preference for city centre (n = 79) versus other groups (n = 566)		Preference for city edge (n = 218) versus other groups (n = 418)		Preference for smaller municipality (n = 251) versus other groups (n = 385)		Preference for rural area (n = 91) versus other groups (n = 555)	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Easy access to amenities	3.23**	1.80–5.77					0.04**	0.01–0.32
Social contact			0.15**	0.07–0.30	9.52**	5.65–16.04	0.02**	0.00–0.18
Ambiance outside	2.66**	1.38–5.12	0.43**	0.24–0.75				
Easy access to the dwelling			2.17**	1.23–3.82			0.13	0.02–1.08
A sense of freedom					0.36*	0.16–0.81	4.19**	1.88–9.34
Feeling safe/secure					2.34*	1.01–5.43		
Performing activities	4.33**	1.54–12.2						
Wellbeing					6.44**	2.16–19.25		
Nagelkerke R^2	0.43		0.21		0.25		0.48	

a = p = 0.06; * = p < 0.05; ** = p < 0.01.

frequently prefer a very quiet neighbourhood or mention a sense of freedom. Finally, respondents with a preference to live rural more frequently prefer a very quiet neighbourhood and more frequently mention peace and quiet and a sense of freedom. They less frequently prefer an apartment and a terraced dwelling, schools and a railway station at walking distance and a neighbourhood consisting of similar residents with regard to behaviour, income and age. Finally, they less frequently mention the easy access to amenities, social contact and easy access to the dwelling.

Discussion

This paper predicts the preference for the residential environment based on personal characteristics, preferences for attributes of the dwelling (environment) and motivations (i.e. values, purposes, goals). The first research question explored which residential environment respondents prefer. The suburban residential environment is most frequently preferred, i.e., the smaller municipality (39%) and the city edge (34%). A dwelling located in a rural area is preferred by 14% of respondents and living in the city centre is the least preferred option (12%). This finding agrees with other studies that have observed an overwhelming preference for a suburban residential environment (73–83%) and a smaller preference for an urban residential style (17–33%) (see, for example Myers and Gearin (2001) for an overview).

Furthermore, the overall results (thus not divided into subgroups based on residential preference), shows that the majority of respondents prefer an owner-occupied, single-family dwelling, preferably semi-detached, with 4–5 rooms and with a garden. This preferred dwelling is situated in a quiet neighbourhood with shops for daily goods and a park at walking distance. The neighbourhood should mainly consist of housing and a mix of residents with regard to behaviour, income and age is preferred. This description reflects the preference for a high-quality traditional suburban neighbourhood. This result might be influenced by the (above) average income of the sample as well as the fact that the respondents are in their middle ages (on average 49 years) and 48% of respondents are part of a couple with children < 18 living at home.

The second research question explored whether the preferred type of residential environment was related to personal characteristics. The bivariate results show that respondents with a preference to live in the city centre are generally somewhat older, have smaller households and a lower income. These results agree with those found in other studies (e.g., Lindberg et al. 1992; Jansen 2012; Yang and O'Neill 2014). The results also show that respondents who prefer to live rural more frequently have a higher education. De Vos et al. (2016b) found similar results. Finally, respondents with a preference for the smaller municipality somewhat more frequently have a low income. The current study shows that 65% of respondents (n = 422) report to live in the residential environment that they prefer. Previous research has shown that people's residential preferences generally tend to be consistent with their current place of residence (Talen 2001; Yang and O'Neill 2014). Apparently, residents tend to self-select into neighbourhoods that match their residential preferences (Lovejoy, Handy, and Mokhtarian 2010; Cao and Wang 2016). However, due to constraints such as income and distance to work or to varying preferences within one household the chosen residential environment can differ from the preferred one (De Vos et al. 2012). It is also possible that a previously

preferred residential environment no longer satisfies the changed needs and wishes of the household, for example after the birth of a child. In the current study, 35% of the respondents show a residential mismatch, meaning that they live in a non-preferred residential environment. Note that quite a lot of studies have analysed to which extent people live in a neighbourhood that is consonant with the use of their preferred travel mode(s). When the current residential environment does not support the use of the preferred travel mode, than this is called "residential dissonance" (see, for example, studies by De Vos et al. 2012; Kamruzzaman et al. 2013; Cho and Rodriquez 2014; Kumar, Sekhar, and Parida 2018; Kajosaari, Hasanzadeh, and Kytta 2019). Studies conducted by Feldman (1990), Schwanen and Mokhtarian (2004) and Vasanen (2012) found that about 25% of respondents experience a residential mismatch. The percentage found by De Vos et al. (2012) is much higher, namely 51%. In our study, respondents who experience a mismatch mostly report that they live in an "adjacent" type of residential environment, for example, they report to live at the city edge but prefer to live at the city centre. These findings agree with results found in a study by Muhammad et al. (2007), who reported that respondents who planned to relocate preferred to find their new residence in the same residential environment where they were currently living (thus, a match), followed by a preference for a spatially "adjacent" type. The most striking mismatch in our study was found for respondents who prefer to live rural. Only 28% of respondents with such a preference actually lived in a rural residential environment. De Vos et al. (2012) found a similar large discrepancy between respondents with a rural preference (57%) and respondents who actually live in rural residential neighbourhoods (26%). The preference for living in a rural area is sometimes explained with the use of the "rural idyll": a pure and simple style of living, close to green and natural amenities and with good quality of life (Barcus 2004; Heins 2004). This overly positive picture might possibly result in a desire for living in the countryside, even if this is not actually possible due to other aspects that play a role in the locational choice, such as the distance to work, a tight housing market and the preferences of other members of the household. Van Dam, Heins, and Elbersen (2002) found that people like the idea of living in a rural environment but at the same time prefer to live close to work and facilities offered in urban areas. Because this ideal might be unattainable, the rural preference might be more of a wish than an intention. Besides from that, the possibilities to live in rural areas are limited due to needs for nature conservation, recreation and agriculture (van Oostrom 2001).

For the third research question the relationship between the preferred residential environment and the preference for various attributes of the dwelling (environment) was examined. The results showed that the largest differences were found between respondents with an urban and those with a rural preference. The results are all in the expected direction with a preference for more density, more amenities nearby and more liveliness for respondents with an urban preference and a preference for more space, less amenities and more peace and quiet for those with a rural preference. In general, 52% of respondents preferred a park at walking distance. This is one of the few attributes for which no statistically significant difference was observed between the groups. Apparently, there is a need for an open space in the form of a park in a residential neighbourhood independent of the structure of the residential environment. Other researchers have also found the substantial importance of a park in the neighbourhood (e.g., Yang and O'Neill 2014; Cao and Wang 2016).

It is important to realize that the choice of any one residential feature is often bundled in certain stereotypical combinations (Lovejoy, Handy, and Mokhtarian 2010). The choice for a particular residential environment implies an implicit choice for particular attributes of the dwelling and its environment, due to social, economic and political aspects of society. For example, detached dwellings can rarely be found in the city centre and a very lively neighbourhood seems less likely to be found in a rural area. When looking at the results in Table 2 and in Table A2, it seems that the respondents generally have realistic needs and wishes. For example, the preference for an apartment is highest among respondents who prefer the city centre and the preference for a detached dwelling is highest among respondents with a rural preference. Many respondents prefer a garden with their dwelling but the lowest percentage can be found among respondents who prefer to live in the city centre (63%). The preferred size of the living room, living space and the number of rooms increase when moving from respondents with a preference for the city centre to respondents with a rural preference. However, there also seem to be some less realistic choices. For example, quite a number of respondents seem to prefer a semi-detached dwelling, irrespective of the preferred type of residential environment. The strong preference for a semi-detached dwelling in the city centre seems rather optimistic, just like the strong preference for a garden, even in a sample with above-average income. One has to keep in mind that stated preference research, like the study presented in the current paper, concerns temporary wants and ideals that can be internally inconsistent and that cannot always be realized in the actual housing market (Myers and Gearin 2001; Jansen, Coolen, and Goetgeluk 2011; Luckey et al. 2018).

The fourth research question explores which underlying motivations drive residential preferences. The study shows that respondents provide a wide variety of motivations. Nevertheless, "Peace and quiet" (45%) and "The easy access to amenities" (24%) are mentioned by quite a lot of respondents, indicating that there are also some similarities present. The importance of these two motivations for deciding where to live agrees with studies by Yang and O'Neill (2014) and Luckey et al. (2018). However, these authors also mention "easy parking" as an important motivation, a topic that did not emerge in the current study; only four respondents mentioned parking. In the Netherlands, owning one or more cars might not be that important, due to the relatively short travelling distances, good public transport and the importance of the bike as a means of transport.

Lindberg et al. (1992) found that the fulfilment of freedom and well-being increases with distance from the city centre. We find some support for this conclusion. The percentage of respondents who mention freedom does increase from city centre to rural, but it is lower for respondents who prefer the smaller municipality. Wellbeing also shows an increase from the city centre to the smaller municipality, but it is not mentioned at all by respondents with a rural preference.

Some respondents mention experience-related motivations: "Being raised in this type of neighbourhood", "Currently living in this type of neighbourhood" and "Being familiar with the neighbourhood". Other studies have also shown that the residential environment of origin, which is also known as "location-specific capital", positively influences the preference for the current residential environment (Deurloo, Clark, and Dieleman 1990; Barcus 2004; Feijten, Hooimeijer, and Mulder 2008). Aero (2006) argues that people prefer a neighbourhood that is similar to the neighbourhood in which they grew up due to disposition or personal tradition.

For the fifth research question, the preferred residential environment is predicted based on the combination of personal characteristics, housing preferences and motivations. Note that many statistically significant differences that are reported for the bivariate analyses were not apparent in the multivariate logistic regression. Such a result points to an interaction between personal characteristics, motivations and housing preferences in the prediction of residential preference. For example, older people more frequently mention the presence of shops for daily goods at walking distance. The inclusion of this latter motivation in the analysis disguises the relationship between age and the preference for the city centre.

The preference for the city centre turned out to be related to the preference for the presence of shops for daily goods at walking distance and a neighbourhood that consists of both housing and other activities. Underlying motivations were the easy access to amenities, the ambiance outside and the possibilities for performing activities. These results agree with other studies in the literature. For example, McCrea, Shyy, and Stimson (2014) argue that households migrate to inner areas of metropolitan regions because of higher end consumption opportunities. Sigelman and Henig (2001) found that the city was preferred because of the opportunities for restaurants and entertainment.

The preference for the city edge could be explained by the preference for a terraced dwelling and for a moderately quiet neighbourhood and by the motivations of peace and quiet and easy access to the dwelling. In addition, the preference for a neighbourhood with a similar type of residents with regard to behaviour, income and age was somewhat higher in this group than in other groups. The ambiance outside and social contact were less frequently mentioned in this group. The preference for the smaller municipality is related to the preference for a larger number of rooms and the need for social contact, safety and security and wellbeing. These respondents have a lesser need for freedom. The lack of need for social contact in the group of respondents that prefer to live at the city edge is striking, 4% of respondents with a preference for the city edge has mentioned this motivation, compared to 17% overall. In contrast, 35% of respondents with a preference for the smaller municipality provide the need for social contact as their underlying motivation. Thus, a large difference is shown between respondents who prefer to live at the city edge and those who prefer to live in a smaller municipality with regard to the need for social contact. Table 2 shows that these two groups differ on quite a lot of aspects, besides social contact. This is an important finding as it shows that the two expressions of the suburban living environment are influenced by entirely different preferences, values and goals.

Finally, the preference for a rural residential environment is related to the preference for a very quiet neighbourhood and for a neighbourhood with various types of residents with regard to behaviour, income and age. Furthermore, peace and quiet and a sense of freedom are mentioned more frequently. Social contact and the easy access to amenities and the dwelling are less important, as well as the presence of schools and a railway station at walking distance, an apartment and a terraced dwelling. Thus, living in a rural residential environment means having access to fewer services and facilities and being further away from employment and education. However, it also implies having more space and experiencing peace and quiet, freedom, nature and green space (Van Dam, Heins, and Elbersen 2002; Heins 2004; Feijten, Hooimeijer, and Mulder 2008).

A limitation of the current study is that the sample is not entirely representative for residents with at least a standard income in the Netherlands. This is because the

preselection of respondents by a specialized bureau based on the income criterion did not always match the actual information provided by the respondents during the interviews. These respondents were nevertheless retained in the current analyses because it is unknown whether these respondents accidentally provided their individual income instead of the household income, or made other mistakes in recalling the net monthly household income. In the official research report (Rietdijk et al. 2012), residents with too few resources have been omitted from the analyses and the sample is weighted based on household size and age to make it representative for the Dutch population with at least an average income. The results presented in that report (city centre: 9%, city edge: 35%, smaller municipality: 33%, rural: 16%, no preference: 7%) resemble the preferences presented above. Therefore, the results seem quite robust.

Another limitation of the current study is that respondents were divided according to their own subjective preference and not according to some objective measure of urbanization, such as density. However, as Davoudi and Stead (2002) note, nowadays there is no clear physical boundary between urban and rural areas. By taking a subjective preference, we can be sure that respondents' motivations apply to what they perceive of being an urban, suburban or rural residential environment.

Despite these limitations, this study provides insight into what residents want and why they want it. This is important information in times with increasing opportunities for residents to act on their residential preferences. Because of a demographic transition the number of households will increase and households will become older and smaller (Buzar et al. 2007). This means that the preference for the city centre might increase as older and smaller households more frequently prefer to live in the city centre. As was also shown in the current study, older residents are more likely to prefer easy access to services, which results in a preference for denser housing in more walkable neighbourhoods (Yang and O'Neill 2014). Based on this information, planners can provide meaningful recommendations for planning practices that contribute to residents' wellbeing.

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No potential conflict of interest was reported by the author.

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Appendices

Table A1. The relationship between the preference for the residential environment and personal characteristics.

	City centre		City edge		Smaller municipality		Rural area		Total		
	Mean	Std	Mean	Std	Mean	Std	Mean	Std	Mean	Std	Effect
Age (n = 705)	54.0	12.3	48.1	12.3	48.3	13.8	47.8	10.2	48.6	12.7	$F_{(3, 650)} = 5.04$, $p < 0.01$
Nr of persons in household (n = 706)	2.7	1.3	3.2	1.3	3.0	1.2	3.2	1.5	3.1	1.3	$F_{(3, 651)} = 2.76$, $p = 0.04$
	Count	%	Count	%	Count	%	Count	%	Count	%	
Education											$\chi^2_{(9)} = 22.06$, $p < 0.01$
Primary/lower vocational	13	16%	43	19%	33	13%	14	15%	103	16%	
Secondary	27	33%	76	34%	116	45%	28	30%	247	38%	
Higher vocational/univ.	34	42%	101	45%	99	39%	49	53%	283	43%	
Other	7	9%	5	2%	9	4%	1	1%	22	3%	
Gender											$\chi^2_{(3)} = 6.60$, $p = 0.09$
Male	34	44%	78	35%	114	45%	44	48%	270	42%	
Female	43	56%	143	65%	140	55%	47	52%	373	58%	
Household type											$\chi^2_{(9)} = 12.69$, $p = 0.18$
Single	12	15%	16	7%	20	8%	9	10%	57	9%	
Couple, no kids <18 at home	30	37%	67	30%	79	31%	25	27%	201	31%	
Couple, kids <18 at home	26	32%	117	52%	129	50%	46	50%	318	48%	
Other composition	13	16%	25	11%	29	11%	12	13%	79	12%	
Having paid work											$\chi^2_{(3)} = 5.52$, $p = 0.13$
Yes	55	68%	172	76%	185	72%	75	81%	487	74%	
No	26	32%	53	24%	72	28%	17	18%	168	26%	
Monthly net income											$\chi^2_{(9)} = 17.04$, $p < 0.05$
Average (€1950) or lower	12	15%	15	7%	39	15%	5	5%	71	11%	
1–2 times average	44	56%	112	50%	117	46%	48	53%	321	50%	
> 2 times average	7	9%	34	15%	40	16%	15	16%	96	15%	
Unknown	16	20%	61	27%	59	23%	23	25%	159	25%	
Current tenure											$\chi^2_{(3)} = 1.65$, $p = 0.65$
Owner-occupied	63	78%	179	80%	204	79%	78	85%	524	80%	
Rental	18	22%	46	20%	53	21%	14	15%	131	20%	
Current res. environment											$\chi^2_{(9)} = 399.90$, $p < 0.01$
City centre	36	44%	19	8%	8	3%	3	3%	66	10%	
City edge	25	31%	160	71%	39	15%	21	23%	245	37%	
Smaller municipality	17	21%	38	17%	200	78%	42	46%	297	45%	
Rural area	3	4%	7	3%	10	4%	26	28%	46	7%	

Table A2. The relationship between the preference for the residential environment and preferences for the dwelling (environment).

	Preference for city centre		Preference for city edge		Preference for smaller municipality		Preference for rural area		Total		
	Count	%	Count	%	Count	%	Count	%	Count	%	Effect
Attributes of the dwelling											
Preferred tenure											$\chi^2_{(6)} = 16.76$, $p = 0.01$
Owner-occupied	39	48%	149	66%	163	63%	69	75%	420	64%	
Rental	21	26%	39	17%	48	19%	7	8%	115	18%	
No preference	21	26%	37	16%	46	18%	16	17%	120	18%	
An appartment?											$\chi^2_{(6)} = 36.82$, $p < 0.01$
Yes	34	42%	47	21%	52	20%	9	10%	142	22%	
Maybe	10	12%	27	12%	23	9%	4	4%	64	10%	
No	37	46%	151	67%	182	71%	79	86%	449	68%	
A terraced dwelling?											$\chi^2_{(6)} = 23.36$, $p < 0.01$
Yes	23	28%	87	39%	78	30%	13	14%	201	31%	
Maybe	12	15%	32	14%	44	17%	11	12%	99	15%	
No	46	57%	106	47%	135	53%	68	74%	355	54%	
A semi-detached dwelling?											$\chi^2_{(6)} = 16.23$, $p = 0.01$
Yes	33	41%	123	55%	133	52%	32	35%	321	49%	
Maybe	13	16%	37	16%	36	14%	15	16%	101	15%	
No	35	43%	65	29%	88	34%	45	49%	233	36%	
A detached dwelling											$\chi^2_{(6)} = 22.01$, $p < 0.01$
Yes	18	22%	73	32%	83	32%	42	46%	216	33%	
Maybe	4	5%	19	8%	21	8%	14	15%	58	9%	
No	59	73%	133	59%	153	60%	36	39%	381	58%	
A single-family dwelling											$\chi^2_{(6)} = 21.68$, $p < 0.01$
Yes	52	65%	182	83%	216	85%	78	90%	528	83%	
No	28	35%	37	17%	37	15%	9	10%	111	17%	
Want a garden?											$\chi^2_{(6)} = 23.95$, $p < 0.01$
Yes	51	63%	187	83%	206	80%	84	91%	528	81%	
No	18	22%	22	10%	29	11%	5	5%	74	11%	
Maybe	12	15%	16	7%	22	9%	3	3%	53	8%	
	Mean	Std	Mean	Std	Mean	Std	Mean	Std	Mean	Std	
Preferred living room in m^2	39.8	14.4	40.9	12.1	40.6	12.1	44.3	14.4	41.1	12.8	$F_{(3,633)} = 2.36$, $p = 0.07$
Preferred living space in m^2	135.5	36.6	146.6	37.9	147.8	40.3	167.3	49.3	148.8	41.3	$F_{(3,569)} = 8.39$, $p < 0.01$
Preferred number of rooms	4.2	1.1	4.6	1.1	4.7	1.1	4.8	1.3	4.6	1.2	$F_{(3,650)} = 4.34$, $p < 0.01$
Attributes of the dwelling environment											

(*Continued*)

Table A2. (Continued).

	Preference for city centre		Preference for city edge		Preference for smaller municipality		Preference for rural area		Total		
	Count	%	Count	%	Count	%	Count	%	Count	%	Effect
Shops for daily goods											$\chi^2_{(3)} = 54.82$, $p < 0.01$
Yes	74	91%	167	74%	199	77%	41	45%	481	73%	
No	7	9%	58	26%	58	23%	51	55%	174	27%	
A park											$\chi^2_{(3)} = 6.65$, $p = 0.08$
Yes	44	54%	130	58%	124	48%	41	45%	339	52%	
No	37	46%	95	42%	133	52%	51	55%	316	48%	
Schools											$\chi^2_{(3)} = 20.85$, $p < 0.01$
Yes	20	25%	108	48%	120	47%	28	30%	276	42%	
No	61	75%	116	52%	137	53%	64	70%	378	58%	
A railway station											$\chi^2_{(3)} = 12.98$, $p < 0.01$
Yes	32	40%	60	27%	69	27%	14	15%	175	27%	
No	49	60%	165	73%	188	73%	78	85%	480	73%	
Mix of residents with regard to behaviour, income and age											$\chi^2_{(3)} = 15.49$, $p = 0.02$
Similar residents	10	12%	62	28%	48	19%	12	13%	132	20%	
Mix of residents	58	72%	127	57%	167	65%	60	65%	412	63%	
No preference	13	16%	35	16%	42	16%	20	22%	110	17%	
Preferred liveliness of the neighbourhood											$\chi^2_{(6)} = 77.14$, $p < 0.01$
Very quiet	4	5%	19	9%	34	13%	34	37%	91	14%	
Quiet	26	33%	118	53%	139	55%	42	46%	325	50%	
Lively or very lively	49	62%	85	38%	81	32%	15	16%	230	36%	
Mix of housing and other activities											$\chi^2_{(6)} = 43.49$, $p < 0.01$
Mainly housing	36	44%	160	71%	188	73%	64	70%	448	68%	
Housing mixed with other activities	37	46%	41	18%	44	17%	11	12%	133	20%	
No preference	8	10%	24	11%	25	10%	17	18%	74	11%	

Table A3. The relationship between the preference for the residential environment and motivations.

	Preference for city centre		Preference for city edge		Preference for smaller municipality		Preference for rural area		Total group		
Because …	n	%	n	%	n	%	n	%	n	%	Effect
Of peace and quiet	1	1%	118	53%	96	38%	72	79%	290	45%	$\chi^2_{(3)} = 115.34$, $p < 0.01$
Of easy access to amenities	40	51%	57	26%	48	19%	1	1%	148	23%	$\chi^2_{(3)} = 62.73$, $p < 0.01$
Of social contact	14	18%	9	4%	88	35%	2	2%	113	17%	$\chi^2_{(3)} = 94.31$, $p < 0.01$
Of the ambiance outside	26	33%	20	9%	52	20%	8	9%	106	16%	$\chi^2_{(3)} = 31.46$, $p < 0.01$
Of easy access to the dwelling	7	9%	36	16%	24	9%	1	1%	68	11%	$\chi^2_{(3)} = 16.76$, $p < 0.01$
Of a sense of freedom	1	1%	19	9%	9	4%	18	20%	47	7%	$\chi^2_{(3)} = 31.11$, $p < 0.01$
Of feeling safe/secure	2	3%	9	4%	18	7%	3	3%	32	5%	$\chi^2_{(3)} = 4.35$, $p = 0.23$
Of enjoying life	5	6%	8	4%	8	3%	5	5%	26	4%	$\chi^2_{(3)} = 2.20$, $p = 0.53$
Of performing activities	10	13%	9	4%	5	2%	1	1%	25	4%	$\chi^2_{(3)} = 20.77$, $p < 0.01$
Of well-being	1	1%	4	2%	16	6%	–	–	21	3%	$\chi^2_{(3)} = 13.03$, $p < 0.01$