

# Residential segregation and interethnic leisure contact

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## Abstract

There are neighbourhoods in Dutch cities where the share of ethnic minorities is very high. Dutch policymakers perceive this as a problem because it might generate fewer opportunities for these minorities to have contact with native Dutch and thereby hinder their integration. The question, however, is whether the ethnic composition of the neighbourhood influences interethnic contact. In this paper we focus on leisure contact of minority groups aged 15 to 65 with native Dutch. Binary logistic multilevel analysis shows that contact with native Dutch is mainly explained by individual characteristics. In addition living in the four largest cities in the Netherlands with a high concentration of ethnic minorities leads to less contact with native Dutch. The ethnic composition of the neighbourhood has no influence on contact of minority groups with native Dutch when other neighbourhood characteristics and individual characteristics are taken into account. Minority groups aged 15 to 65 have contact with native Dutch independent of their neighbourhood's ethnic composition, therefore residential segregation on neighbourhood level does not necessarily hinder integration.

Keywords: residential segregation, multilevel analysis, neighbourhood effect, contact, minority groups, integration.

## Introduction

Dutch policymakers perceive spatial segregation of ethnic minorities as a problem. Living in ethnically concentrated neighbourhoods is perceived to hamper contact with native Dutch and thereby integration. The question, however, is whether or not there exists a neighbourhood effect on interethnic contact and integration. Do minority groups from neighbourhoods with a low percentage of native Dutch indeed have less contact with native Dutch *because* they live in these neighbourhoods?

In segregated neighbourhoods, the chances of encounters with native Dutch within the neighbourhood are lower, but this does not necessarily mean that minority groups also have less contact with native Dutch in other domains of life, like work, school or leisure time (see also Van Middelkoop and Declerck's paper presented during this workshop). In this research, we focus on leisure contact of minority groups with native Dutch. (Individuals are part of a minority group if at least one parent is born outside the Netherlands. Minority group members who themselves are born in the Netherlands are the second generation, while people who migrated to the Netherlands are the first generation. Individuals whose parents are born in the Netherlands are native Dutch.) The main research question is: To what extent do minority groups have leisure contact with native Dutch and how is this related to the ethnic composition of the neighbourhood, other neighbourhood characteristics and personal characteristics?

Earlier research (Gijsberts and Dagevos 2005, Van der Laan Bouma-Doff 2005) was done on the relation between the ethnic composition of the neighbourhood and contact. Besides the

ethnic composition, however, these studies do not take into account other neighbourhood characteristics. Other neighbourhood characteristics like the tenure or household composition or the average income of the neighbourhood can have an effect on contact and are therefore included in this research.

A multilevel regression analysis was estimated explaining leisure contact with native Dutch by neighbourhood characteristics and personal characteristics. By estimating the effect of the ethnic composition of the neighbourhood on leisure contact, thereby taking into account personal characteristics, it was tested whether there is a true neighbourhood effect or whether this is a compositional effect. Do individuals from segregated neighbourhoods have less interethnic leisure contact because of their personal characteristics or because of the neighbourhood they live in? In addition to testing whether there is a neighbourhood effect on interethnic contact, the research also gives insight into the individuals differences.

## **Theory**

Policymakers in the Netherlands believe that residential segregation hinders integration. Ambitious restructuring policies are designed to achieve social mixing in segregated and deprived neighbourhoods. By demolition and development, the housing stock in these neighbourhoods is being changed, thereby encouraging upward mobile households to stay in the neighbourhood and attracting households with a high socio-economic status (often native Dutch) from other neighbourhoods (Uitermark 2003). In addition to restructuring policies, experiments are being conducted to keep out low-income households from segregated and deprived neighbourhoods (Van der Laan Bouma-Doff 2007).

The desire for neighbourhoods to be mixed is not new and not limited to the Netherlands. Also in other countries, policies have been designed to mix minority groups and deprived households (Cheshire 2009). Goetz (2003), for example, describes numerous policies pursued in the United States to deconcentrate deprived households; offering opportunities by helping households move out of concentrated poverty neighbourhoods. Social mixing policies in European countries are often spatially oriented, targeting specific ethnically concentrated neighbourhoods and creating opportunities within these neighbourhoods (Musterd 2003).

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

Lazear (1999) describes the relation between segregation and integration from an economic viewpoint. When individuals live in segregated neighbourhoods, they have enough opportunities to ‘trade’ with people from their own ethnic minority group, therefore it is not efficient to invest in learning the language and culture of the majority group. When there are fewer individuals from their own ethnic group whom they can have contact with, they will be more likely to invest in learning the majority language and culture to be able to also have

contact with the majority group. Segregation makes social cultural integration less necessary and less efficient, because there are enough opportunities to have contact within one's own ethnic group.

### **The role of the neighbourhood**

Both Lazear (1999) and the isolation thesis state that living in segregated neighbourhoods will lead to less contact with the majority ethnic group, i.e. native Dutch, and therefore hinder integration. The question, however, is how important the neighbourhood is for interethnic (trading) contact of individuals. Boomkens (2006) states that modern city dwellers orientate towards friends and facilities over a very large area. Their lives and thereby their contacts are not limited by the borders of their neighbourhood. Also Van der Laan Bouma-Doff (2007) states that processes like globalisation and communication technology have diminished the influence of the neighbourhood on contact of individuals. The importance of the neighbourhood for contact, however, differs greatly through the course of life. Young children are very much oriented towards their street or their neighbourhood. Working people and (secondary school) students orientate towards the city as a whole or even towards other cities, while for the elderly, the world narrows back to their neighbourhood or street (WRR 2005).

Besides the ethnic composition of the neighbourhood, other neighbourhood characteristics can also influence interethnic contact. Physical neighbourhood characteristics like streets, squares, parks and shopping malls can create possibilities for interethnic contact, also by attracting individuals from outside the neighbourhood (Vanstiphout 2006). However, in this research we focus only on social neighbourhood characteristics; the ethnic, housing and household composition, average income and population density. These characteristics are often highly related. A large amount of low rent dwelling attracts low income groups, that are often also ethnic minority groups (Van Kempen & Bolt 2003). By taking into account other social neighbourhood characteristics, we can determine whether it is due to the ethnic composition of the neighbourhood that people have less interethnic contact or that, for example, the low average income or high percentage of rented dwellings in these neighbourhoods are a better explanation for the lack of interethnic contact.

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

Earlier research by Gijsberts and Dagevos (2005) tested the influence of the ethnic composition of neighbourhoods on interethnic friendship relations. They find an effect of both the ethnic composition of the neighbourhood and the ethnic composition of the city as a whole on interethnic friendship relations. Minority groups in cities and in neighbourhoods with a higher share of minorities more often have friends from within the own ethnic group. Gijsberts and Dagevos (2005) also find higher language skills and more contact with native

Dutch among minority groups in neighbourhoods with more native Dutch. Van der Laan Bouma-Doff (2005) tests whether leisure contact of minority groups with native Dutch is dependent on the ethnic composition of the neighbourhood. When personal characteristics, language skills and cultural orientation are taken into account, she still finds a significant effect of the ethnic composition of the neighbourhood.

### **Personal characteristics and interethnic contact**

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

Primarily there are differences between ethnic groups. In this research we focus on the four largest minority groups in the Netherlands: Turks, Moroccans, Surinamese and Antilleans (Antilleans are in this paper Antilleans including Arubans). Surinamese and Antilleans, on average, have better Dutch language skills and fewer cultural differences with native Dutch than Turks and Moroccans. Therefore they have more contact with native Dutch (Dagevos et al. 2007, Gijsberts & Dagevos 2005). Second generation migrants and younger people also have more interethnic contact than the older first generation because of their better language skills (Gijsberts & Dagevos 2005). The first generation Turkish and Moroccan guest workers were expected to return to their country of origin, this explains why this group is less oriented towards the Dutch society, and will have less contact with native Dutch (Musterd 2003). Van den Broek and Van Ingen (2008) find, that compared to the first generation, the second generation is willing to have much more contact outside their own ethnic group.

Women from minority groups have less contact with native Dutch than men (Van der Laan Bouma-Doff 2005). Women from minority groups participate less in activities that can generate opportunities for contact with native Dutch. Especially Turkish and Moroccan women have a low labour participation, and also participate less in sports (Musterd 2003; Keune et al. 2002). Therefore these women have less contact with native Dutch.

Educational level and income have a large influence on contact with native Dutch. Higher educated people and people with higher incomes have more trust in other people and are therefore more open to contact (Blokland 2008). RMO (2005) also finds that higher educated minority groups have a more positive attitude towards native Dutch. Van der Laan Bouma-Doff (2005) finds in her research a positive influence of educational level on contact of minority groups with native Dutch.

Work can influence leisure contact of minority groups with native Dutch in two ways. Work can lead to contact on the job, thereby people get to know more native Dutch people, acquire the Dutch language, values and norms, acquire a more positive attitude towards native Dutch and therefore have more contact with native Dutch. Gijsberts and Dagevos (2005) find that minority groups have more contact with people from outside their own ethnic group when they have a job. On the other hand working people have less leisure time, and therefore fewer opportunities to have interethnic leisure contact. Looking specifically at leisure contact, Van der Laan Bouma-Doff (2005) finds no effect of work on contact of minority groups with native Dutch.

Finally the household composition can influence interethnic leisure contact. Singles spent more leisure time outside the house than couples and families and therefore will have more chances of encounters with native Dutch.

## Research Design

For this research the LAS 2004-2005 (Life situation of Allochthonous City dwellers in the Netherlands) survey was used. This survey was conducted among 4096 inhabitants of 50 cities in the Netherlands from the four largest minority groups (Turks, Moroccans, Surinamese, and Antilleans (including Arubans)) and a comparison group of native Dutch. The survey only includes people aged 15 to 65. In this survey minority groups are asked about their leisure contact with native Dutch. The LAS survey also includes information on personal characteristics like educational level, household situation and income. The neighbourhood of the respondents is defined as their 4-digit postal code area. Postal code areas do not perfectly overlap with the areas that people themselves perceive as their neighbourhood. However, much data on neighbourhood characteristics is only available for postal code areas. Information on the neighbourhood (i.e. postal code area), like ethnic composition, tenure composition and average income is provided by Statistics Netherlands and is related to the respondents of the LAS survey.

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

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

On the individual level, the variables gender, age, ethnic group, migration generation, educational level, income, household situation and if people have a job or go to school, are included. On the neighbourhood level we include the percentage of native Dutch, the percentage of western allochthonous minority groups, the average household income, the percentage of rented dwellings, apartments, singles and couples with children, population density and the G4. Using correlation and VIF analysis the independent variables were checked on multicollinearity. The results of these analyses were not a reason to exclude any of the independent variables. The variable G4 indicates whether a neighbourhood is part of the four largest cities in the Netherlands or not. In these four largest cities, the share of native Dutch is, on average, much lower than in the other cities in the Netherlands. Living in these cities, will therefore be likely to influence contact with native Dutch, as well as the relation between the ethnic composition of the neighbourhood and contact with native Dutch.

Minority groups are asked in the LAS survey whether they 'often', 'sometimes' or 'never' have contact with native Dutch in their leisure time. In the regression analysis, this is simplified to people that do have leisure contact (often or sometimes) and people that never have contact with native Dutch. Because there are only two groups, the regression analysis will be binary logistic, predicting the chance that minority groups do have leisure contact with native Dutch.

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

Multilevel analysis is necessary only if there are significant differences in contact between neighbourhoods, i.e. if  $\sigma^2_{u0}$  is significant. This can be tested with a Wald test. To do this, an intercept only multilevel model is estimated ( $\text{Logit } Y_{ij} = B_0 + u_{0j} + e_{jj}$ ). When  $\sigma^2_{u0}$  is significant, this indicates that there are significant differences between neighbourhoods. If  $\sigma^2_{u0}$  is not significant, neighbourhood characteristics have no influence on leisure contact and can therefore be left out of the model. In that case a single level model with only individual characteristics can be estimated. When there are significant differences between neighbourhoods, more elaborate multilevel models can be estimated, including independent variables on both neighbourhood and individual level. These independent variables will explain the variation in contact partly, thereby reducing the remaining variation between neighbourhoods ( $\sigma^2_{u0}$ ).

When it is established that there are significant differences between neighbourhoods, the next question is what share of the variance in interethnic contact can be explained by differences between neighbourhoods and what share of the variance can be explained by differences between individuals. The Variance Partition Coefficient (VPC) is the share of the variance, not explained by the model, that is on neighbourhood level.  $VPC = \sigma^2_{u0} / (\sigma^2_{u0} + \sigma^2_e)$ . Because in an intercept only model, there is no variance explained by the model, in this model the VPC measures the actual share of variance on neighbourhood level. Because  $\sigma^2_e$  is not constant in binary logistics models, in these models the VPC can only be approximated. In our research a linear threshold model is used to approximate the VPC. This approximation of the VPC can only give an indication of the share of variance that is on neighbourhood level (see further Rasbash et al. 2005).

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

## Results

There are large differences between minority groups and between neighbourhoods regarding leisure contact with native Dutch. Overall, 78% of people from minority groups do have leisure contact with native Dutch. This is higher among Surinamese and Antilleans (85%), while only 72% of Turkish and Moroccan people have leisure contact with native Dutch. In neighbourhoods with a higher share of native Dutch, minority groups also have more contact with native Dutch in their leisure time. Chi-square analysis shows that this relationship is significant for all four minority groups.

Table 1: Leisure contact with native Dutch by ethnic group and ethnic composition of the neighbourhood (N=3454)

	Turks and Moroccans			Surinamese and Antilleans		
	Often	Sometimes	Never	Often	Sometimes	Never
<30% native Dutch	18%	34%	47%	41%	34%	25%
30-50% native Dutch	29%	39%	32%	40%	40%	19%
50-80% native Dutch	37%	40%	23%	61%	25%	14%
>80% native Dutch	40%	44%	16%	74%	22%	4%
Total	33%	40%	28%	56%	29%	15%

From table 1 it appears that minority groups have more contact with native Dutch when they live in neighbourhoods with a higher percentage of native Dutch. Multilevel regression analysis tests whether there is a true effect of the ethnic composition of the neighbourhood or if this effect disappears when other neighbourhood characteristics and individual characteristics are taken into account.

First an intercept only model is estimated (see table 2). This model shows that  $\sigma^2_{uo}$  is significant, thereby indicating that there are significant differences between neighbourhoods. The approximation of the Variance Partition Coefficient indicates that 11% of the variance in leisure contact is explained by differences between neighbourhoods. Although the chance to have leisure contact with native Dutch is mostly explained by individual characteristics, there are also differences between neighbourhoods.

In model 1, in addition to the intercept, the percentage of native Dutch in the neighbourhood is included. This variable has a significant positive effect on contact. This indicates that minority groups in neighbourhoods with more native Dutch also have more leisure contact with native Dutch. The approximated R-square indicates that 17% of differences in leisure contact can be explained by the percentage of native Dutch in the neighbourhood.

The next question is whether there still is an effect of the ethnic composition of the neighbourhood on contact with native Dutch when other neighbourhood characteristics are taken into account. Model 2 shows that when other neighbourhood characteristics are taken into account, the percentage of native Dutch still has a significant positive effect. Living in the G4, the four largest cities in the Netherlands in which the percentage of native Dutch is relatively low, has a negative effect on contact with native Dutch. Minority groups that live outside the four largest cities have a higher chance of having contact with native Dutch. Minority groups in neighbourhoods with a high average income have more contact, while in neighbourhoods with many couples without children, minority groups have less contact with native Dutch. The R-square of 18% is just a bit higher than in model 1, indicating that the addition of other neighbourhood characteristics does not add much explaining power.

Table 2: Leisure contact with native Dutch explained (2nd order PQL in MLwiN, N=3447)

	Intercept only	Model 1	Model 2
	B (SE)	B (SE)	B (SE)
intercept	1.499 (0.055)***	-0.108 (0.149)	-0.132 (0.929)
% native Dutch		0.026 (0.003)***	0.017 (0.006)***
% western minority groups			0.032 (0.021)
average household income			0.043 (0.022)*
% rent			0.004 (0.005)
% apartments			-0.003 (0.004)
% singles			0.005 (0.010)
% couples without children			-0.035 (0.020)*
Population density			-0.001 (0.001)
G4			-0.405 (0.162)**
$\sigma^2_{u0}$ (SE)	0.405 (0.087)***	0.161 (0.060)	0.134 (0.056)**
Wald test statistic	21.936	7.249	5.741
R-square	0%	17,2%	18,0%

\* p < 0.10; \*\* p < 0.05; \*\*\* p < 0.01

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

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

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

Model 4 has a R-square of 24%, while the R-square of model 3 is 22%. This indicates that including neighbourhood characteristics does add some extra explaining power to the model. This will be mostly due to the G4, because that is the only neighbourhood variable that has significant influence on leisure contact. When minority groups live in neighbourhoods in the

four largest cities, they have less leisure contact with native Dutch than when they live outside these cities. In neighbourhoods in the G4, on average the share of native Dutch is lower. Having less contact with native Dutch when living in the G4, however, is not caused by the lower percentage of native Dutch in the neighbourhood, because in that case the percentage of native Dutch in the neighbourhood itself would have had significant effect. The fact that minority groups in the G4 have less contact with native Dutch, can however, most likely be explained by the lower share of native Dutch in these cities as a whole. Extra analyses (not shown) indicate that when the ethnic composition of the city as a whole is taken into account, the G4 no longer has an effect on contact, but the ethnic composition of the city does. This indicates that the effect of the G4 on leisure contact with native Dutch should be interpreted as the effect of living in cities where the share of native Dutch in the whole city is low.

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

The main interest of this study is whether leisure contact of minority groups depends on the percentage of native Dutch in the neighbourhood. Model 4 shows that, for all minority groups together, there is no influence of the ethnic composition of the neighbourhood on leisure contact. In model 5, interactions between different ethnic groups, generations and the ethnic composition of the neighbourhood are included. With these interactions, it is being tested per ethnic group and generation if there is an effect of the ethnic composition of the neighbourhood on leisure contact. The main effect of the percentage of native Dutch is still insignificant and also most interaction effects are insignificant. The interaction with second generation Antilleans, however, is significant. This indicates that this group has more leisure contact with native Dutch when they live in neighbourhoods with more native Dutch. For all other groups, leisure contact is independent of the ethnic composition of the neighbourhood.

$\sigma^2_{u0}$  is significant in all five models. This indicates that there are significant differences in leisure contact with native Dutch between neighbourhoods and these differences do not disappear when independent variables are included in the models. The differences between neighbourhoods can not be explained by the independent variables.

Table 3: Leisure contact with native Dutch explained (2nd order PQL in MLwiN, N=3447)

	Model 3	Model 4	Model 5
	B (SE)	B (SE)	B (SE)
Intercept	-0.010 (0.165)	-1.167 (1.044)	-1.010 (1.045)
<i>Neighbourhood level</i>			
% native Dutch		0.010 (0.006)	0.008 (0.008)
% western minority groups		0.028 (0.022)	0.029 (0.022)
Average Household income		0.010 (0.023)	0.010 (0.022)
% rent		0.006 (0.005)	0.006 (0.005)
% apartments		-0.007 (0.005)	-0.007 (0.005)
% singles		0.009 (0.010)	0.008 (0.011)
% couples without children		-0.003 (0.021)	-0.003 (0.022)
Population density		0.000 (0.001)	-0.001 (0.001)
G4		-0.401 (0.170)**	-0.391 (0.172)**

<i>Individual level</i>			
Male	0.337 (0.100)***	0.312 (0.099)***	0.318 (0.100)***
Age 15-30 (ref)			
Age 30-50	0.212 (0.133)	0.211 (0.133)	0.196 (0.134)
Age 50-65	0.088 (0.164)	0.098 (0.163)	0.073 (0.164)
Turkish, 1 <sup>st</sup> generation (ref)			
Turkish, 2 <sup>nd</sup> generation	0.703 (0.234)***	0.640 (0.231)***	0.760 (0.626)
Moroccan 1 <sup>st</sup> generation	0.082 (0.124)	0.137 (0.124)	-0.255 (0.340)
Moroccan 2 <sup>nd</sup> generation	1.026 (0.290)***	0.970 (0.287)***	1.445 (0.721)**
Surinamese 1 <sup>st</sup> generation	0.610 (0.160)***	0.666 (0.161)***	1.061 (0.408)***
Surinamese 2 <sup>nd</sup> generation	1.384 (0.301)***	1.353 (0.298)***	0.666 (0.719)
Antillean 1 <sup>st</sup> generation	0.642 (0.157)***	0.560 (0.157)***	0.439 (0.437)
Antillean 2 <sup>nd</sup> generation	2.157 (0.500)***	2.037 (0.489)***	-0.658 (1.204)
Educational level low (ref)			
Educational level middle	0.661 (0.115)***	0.617 (0.114)***	0.613 (0.114)***
Educational level high	1.536 (0.226)***	1.411 (0.222)***	1.439 (0.223)***
Income low (ref)			
Income unknown	-0.098 (0.130)	-0.046 (0.128)	-0.045 (0.129)
Income middle	0.382 (0.137)***	0.369 (0.136)***	0.369 (0.137)***
Income high	0.735 (0.348)**	0.651 (0.343)*	0.693 (0.346)**
Couple with children (ref)			
Single	0.441 (0.200)**	0.476 (0.199)**	0.484 (0.201)**
Couple	0.219 (0.157)	0.201 (0.156)	0.200 (0.157)
Single parent family	-0.173 (0.164)	-0.096 (0.164)	-0.107 (0.164)
Other households	0.678 (0.184)***	0.725 (0.182)***	0.709 (0.182)***
Work	0.214 (0.111)*	0.197 (0.111)*	0.199 (0.111)*
School	0.568 (0.207)***	0.537 (0.204)***	0.536 (0.205)***
<i>Interactions with % native Dutch</i>			
Turkish, 1 <sup>st</sup> generation (ref)			
Turkish, 2 <sup>nd</sup> generation			-0.002 (0.011)
Moroccan 1 <sup>st</sup> generation			0.008 (0.006)
Moroccan 2 <sup>nd</sup> generation			-0.009 (0.013)
Surinamese 1 <sup>st</sup> generation			-0.008 (0.007)
Surinamese 2 <sup>nd</sup> generation			0.013 (0.013)
Antillean 1 <sup>st</sup> generation			0.0020 (0.007)
Antillean 2 <sup>nd</sup> generation			0.057 (0.028)**
$\sigma^2_{u0}$ (intercept) (SE)	0.315 (0.082)***	0.134 (0.060)**	0.145 (0.061)**
Wald test statistic (df)	14.855	5.007	5.576
R-square	22.3%	24.0%	24.1%

\* p < 0.10; \*\* p < 0.05; \*\*\* p < 0.01

## Conclusions

According to the isolation thesis, neighbourhood segregation, i.e. living in neighbourhoods with few members from the majority group, will lead to less contact with majority group members, and will therefore hinder integration. Ambitious policies are designed to achieve

ethnically mixed neighbourhoods to thereby enhance interethnic contact and integration. Multilevel modelling, however, shows that differences in interethnic leisure contact are mainly explained by individual differences rather than by differences between neighbourhoods. It also shows that the ethnic composition of the neighbourhood has no effect on interethnic contact if other neighbourhood characteristics and individual characteristics are taken into account.

Although the focus of policymakers is on mixing neighbourhoods to enhance contact, we find that contact is mainly explained by individual differences. In accordance with earlier research (Van der Laan Bouma-Doff 2005; Gijsberts and Dagevos 2005) we find more contact with native Dutch among Surinamese and Antilleans, second generation migrants, men, singles, individuals with a high educational level, a high income, who have a job or go to school. Among all four minority groups the second generation has more contact with native Dutch than the first. This gives an optimistic view into the future, in which new generations will have more broad social contacts and networks in Dutch society (see also Van den Broek & Van Ingen, 2008).

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

The differences between neighbourhoods found in the research should be explained as differences between neighbourhoods within and outside the G4, because the G4 is the only variable on the neighbourhood level of which the effect on leisure contact remains significant throughout all of the models. Minority groups that live in neighbourhoods within the four largest cities have less leisure contact with native Dutch and this cannot be explained by the lower share of native Dutch in their neighbourhood. Most likely, however, the lower share of native Dutch in the city as a whole does explain why minority groups in the G4 have less leisure contact with native Dutch.

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

In the dataset used in this research, the LAS-survey, only individuals aged 15 to 65 are included. This age group is more mobile than younger and older people and therefore will be less dependent on the neighbourhood for their contact with native Dutch (WRR, 2005). For

this age group, no effect of the ethnic composition of the neighbourhood on leisure contact is found. It is, however, possible that leisure contact with native Dutch of young children or elderly people is dependent on the neighbourhood's ethnic composition.

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

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