

6 Residential segregation and interethnic contact in the Netherlands

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Published in *Urban Studies* 49 (2), p. 353-367

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

§ 6.1 Introduction

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

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

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

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

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

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

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

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

§ 6.2 Theory

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

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

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

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

The role of the neighbourhood

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

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

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

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

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

Personal characteristics and interethnic contact

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

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

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

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

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

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

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

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

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

§ 6.3 Research design

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

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

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

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

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

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

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

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

Multilevel analysis is necessary only if there are significant differences in contact between neighbourhoods, that is, if σ^2_{u0} is significant. This can be tested by using a Wald test. To do so, an intercept-only, multilevel model is estimated ($\text{Logit } Y_{ij} = B_0 + u_{0j} + e_{ij}$). When σ^2_{u0} is significant, this indicates that there are significant differences between neighbourhoods. If σ^2_{u0} is not significant, neighbourhood characteristics have no influence on leisure contact and can therefore be left out of the model. In such a case, a single-level model with only individual characteristics can be estimated. When there would be significant differences between neighbourhoods, more elaborate multilevel models could be estimated, including independent variables on both neighbourhood and individual level. These independent variables could partly explain the variation in contact, thereby reducing the remaining variation between neighbourhoods (σ^2_{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. $VPC = \sigma_{u_0}^2 / (\sigma_{u_0}^2 + \sigma_e^2)$. Since in an intercept only model, the model does not explain any variance, in this model the VPC measures the actual share of variance on neighbourhood level. Because σ_e^2 is not constant in binary logistics models, in these models the VPC can only be approximated. In our research, a linear threshold model is used to approximate the VPC. This approximation of the VPC can only give an indication of the share of variance that is on neighbourhood level (see also Rasbash et al., 2005).

R-square is a measure of the amount of total variance in the dependent variable that can be explained by the model. Similar to the VPC, R-square cannot be estimated in binary logistic multilevel regression models, but approximations are possible. An often used approximation of R-square is $\sigma_f^2 / (\sigma_f^2 + \sigma_{e_0}^2 + \sigma_{e_0}^2)$, in which σ_f^2 is the variance in the dependent variable predicted by the linear regression equation, and $\sigma_{u_0}^2$ and $\sigma_{e_0}^2$ are the remaining variance not explained by the model on neighbourhood and individual level respectively (see also Snijders and Bosker, 1999: p. 225).

§ 6.4 Results

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

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

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

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

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

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

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

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

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

TABLE 6.2 Leisure contact with native Dutch explained (2nd order PQL in MLwiN, N=3447)

* $p < 0.05$; ** $p < 0.01$

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

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

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

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

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

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

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

| | MODEL 3 | MODEL 4 |
|---|-----------------|-----------------|
| | B (SE) | B (SE) |
| Intercept | -0.010 (0.165) | -1.167 (1.044) |
| Neighbourhood level | | |
| % native Dutch | | 0.010 (0.006) |
| % western minority groups | | 0.028 (0.022) |
| Average household income | | 0.010 (0.023) |
| % rent | | 0.006 (0.005) |
| % apartments | | -0.007 (0.005) |
| % singles | | 0.009 (0.010) |
| % couples without children | | -0.003 (0.021) |
| Population density | | 0.000 (0.001) |
| G4 | | -0.401 (0.170)* |
| Individual level | | |
| Male | 0.337 (0.100)** | 0.312 (0.099)** |
| Age 15-30 (ref) | | |
| Age 30-50 | 0.212 (0.133) | 0.211 (0.133) |
| Age 50-65 | 0.088 (0.164) | 0.098 (0.163) |
| Turkish, 1 st generation (ref) | | |
| Turkish, 2 nd generation | 0.703 (0.234)** | 0.640 (0.231)** |
| Moroccan 1 st generation | 0.082 (0.124) | 0.137 (0.124) |
| Moroccan 2 nd generation | 1.026 (0.290)** | 0.970 (0.287)** |
| Surinamese 1 st generation | 0.610 (0.160)** | 0.666 (0.161)** |
| Surinamese 2 nd generation | 1.384 (0.301)** | 1.353 (0.298)** |
| Antillean 1 st generation | 0.642 (0.157)** | 0.560 (0.157)** |
| Antillean 2 nd generation | 2.157 (0.500)** | 2.037 (0.489)** |
| Educational level low (ref) | | |
| Educational level middle | 0.661 (0.115)** | 0.617 (0.114)** |
| Educational level high | 1.536 (0.226)** | 1.411 (0.222)** |
| Income low (ref) | | |
| Income unknown | -0.098 (0.130) | -0.046 (0.128) |
| Income middle | 0.382 (0.137)** | 0.369 (0.136)** |
| Income high | 0.735 (0.348)* | 0.651 (0.343) |

>>>

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

TABLE 6.3 Leisure contact with native Dutch explained (2nd order PQL in MLwiN, N=3447)

* p < 0.05; ** p < 0.01

§ 6.5 Conclusions

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

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

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

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

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

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

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

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

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

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

Acknowledgements

The author would like to thank Manon van Middelkoop, Frank van Dam, Gideon Bolt, four anonymous referees and the Editors of Urban Studies for their helpful comments on earlier versions of this paper.

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