The Ethnic Composition of the Neighbourhood and Ethnic Minorities' Social Contacts: Three Unresolved Issues

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It is frequently supposed that the ethnic composition of a neighbourhood affects ethnic minorities' social contacts with natives, co-ethnics and other ethnic minorities. Research to date, however, falls short in several ways. First of all, previous studies often did not consider social contacts with co-ethnics and other ethnic minorities. Second, although different mechanisms (i.e. meeting opportunities, ethnic competition theory, 'third parties' and constrict theory) point to different dimensions of the ethnic composition of the neighbourhood (the percentage of ethnic minorities, the percentage of co-ethnics, and ethnic diversity), there is a lack of research that systematically studies these different dimensions of the ethnic composition of the neighbourhood in relation to ethnic minorities' social contacts. Third, other relevant neighbourhood characteristics (economic disadvantage and residential mobility) are often neglected. The present study sought to address these three unresolved issues. Results of multivariate multilevel analyses of survey data on ethnic minorities in the Netherlands ($N = 4{,}216$) show that both the percentage of ethnic minorities and the degree of ethnic diversity relate to less contact with natives, but more contact with co-ethnics and other ethnic minorities. The percentage of co-ethnics is only related to more contact with co-ethnics. Results and policy implications are discussed.

Introduction

Most ethnic minorities tend to settle in neighbourhoods where co-ethnics are already present in large numbers (see Bolt, Van Kempen and Van Ham, 2008), resulting in ethnic residential concentration. Recently, the phenomenon of ethnic residential concentration has received a good deal of attention from both politicians and scientists, with an emphasis on its assumed negative consequences for the integration of ethnic minorities (see e.g. Sigelman et al., 1996; Drever, 2004;

Fong and Isajiw, 2000; Mesch, 2002; Bolt, Özüekren and Philips, 2009; Gijsberts and Dagevos, 2007; Van der Laan Bouma-Doff, 2007; Smets and Den Uyl, 2008; Musterd and Ostendorf, 2009). The most significant assumption is that ethnic residential concentration hinders the social integration of ethnic minorities, i.e. the extent to which ethnic minorities have social contacts with the native population. This is seen as problematic particularly because social contacts with natives are thought to be conducive to the successful integration of ethnic minorities in the host society in

several other respects, such as economically, culturally and in terms of their acceptance (Pettigrew and Tropp, 2006; Heath, Rothon and Kilpi, 2008).

It is moreover often implicitly assumed that ethnic residential concentration also leads to more social contacts with co-ethnics, another factor which could hinder their integration in the host society. While some observers highlight the potential benefits of social contacts with co-ethnics in terms of social and emotional support and opportunities for an 'ethnic career' (e.g. Wilson and Portes, 1980), others argue that there are negative consequences for integration when members of ethnic minorities stay mainly within their own ethnic group. In general, ethnic minorities have fewer resources and less access to the resources of family and friends than natives (Völker, Pinkster and Flap, 2008), and although informal contacts with other co-ethnics in the neighbourhood can lead to work, these employment opportunities often seem to constrain social mobility (Wiley, 1967; Pinkster, 2007). Moreover, it is suggested that a high frequency of social contacts with co-ethnics and a shared experience of adversity in the host society can result in deviating norms and values with regard to work and the host society in general (Portes, 1998). Such processes are thought to present a further block to the economic and cultural integration of ethnic minorities.

Based on the assumption that ethnic residential concentration constrains the (social) integration of ethnic minorities, many Western European governments are today making widespread and large-scale investments in the physical restructuring of neighbourhoods in a bid to create more socially and ethnically mixed neighbourhoods (Veldboer, Kleinhuis and Duyvendak, 2002; Galster, 2007).

There are still several unresolved issues in this area, however. First, most of the research in this field has to date not studied the effects of ethnic residential concentration on ethnic minorities' social contacts with co-ethnics and with other ethnic minority groups. Second, earlier studies did not differentiate between different dimensions of the ethnic composition of the neighbourhood (e.g. percentage of ethnic minorities, percentage of co-ethnics, and ethnic diversity); and third, other relevant and often closely related neighbourhood characteristics (e.g. residential mobility and economic disadvantage) were neglected in most earlier studies of ethnic minorities' social contacts. If policymakers aim to improve the (social) integration of ethnic minorities through neighbourhood interventions, they will need to gain a better understanding of these issues.

The present study therefore seeks to contribute to the theory and add to previous research by being one of the first studies to investigate whether and how the ethnic composition of a neighbourhood affects ethnic minorities' social contacts with natives, co-ethnics and other ethnic minority groups, looking at different dimensions of the ethnic composition of the neighbourhood and taking other neighbourhood characteristics into account.

Theoretical Background

Ethnic Minorities' Social Contacts with Natives, Co-ethnics, and Other Ethnic Minority Groups

The first unsolved issue stems from the implicit assumption of many studies of an inverse relationship between ethnic minorities' social contacts with natives and their social contacts with co-ethnics, i.e. that someone with many social contacts with co-ethnics has few social contacts with natives. Accordingly, it is assumed that ethnic residential concentration not only results in fewer social contacts with natives, but also in more social contacts with co-ethnics.

However, some scholars (e.g. Putnam, 2000; Van Craen, Vancluysen and Ackaert, 2007; Dagevos and Gijsberts, 2008) have questioned whether in-group and out-group contacts do in reality show such an inverse relationship. Findings by Van Craen, Vancluysen and Ackaert (2007), for example, showed for Belgium that people of Turkish and Moroccan origin who had more co-ethnic friends also had more friends in the native population. Questions can also be raised as to whether neighbourhood characteristics such as ethnic concentration and ethnic diversity really are associated with less contact with natives and more contact with co-ethnics, as is often implicitly assumed; or, as recently suggested by Putnam (2007), whether ethnic concentration and diversity erode social contacts with both natives and co-ethnics.

To date, however, previous studies have often measured ethnic minorities' social contacts using a one-dimensional scale, with 'having social contacts mainly with co-ethnics' and 'having social contacts mainly with natives' as its poles (e.g. Gijsberts and Dagevos, 2007; Van der Laan Bouma-Doff, 2007). Others looked only at contacts with natives (e.g. Esser, 1986; Mesch, 2002; Drever, 2004; Martinovic and Van Tubergen en Maas, 2009) or were only concerned with social contacts in general (e.g. Putnam, 2007; Small, 2007; Letki, 2008).

Moreover, although the ethnic composition of the neighbourhood is also likely to affect ethnic minorities' social contacts with persons of a different ethnic minority background, we are not aware of any studies that have investigated the neighbourhood context in relation to these social contacts.

The first aim of the present study is to build on previous research by investigating social contacts with natives and social contacts with co-ethnics separately, in order to gain a better understanding of the extent to which social contacts with co-ethnics and with natives are indeed inversely related and whether and how the ethnic composition of the neighbourhood affects ethnic minorities' social contacts with both natives and co-ethnics. In addition, this will be one of the first studies to explore the extent to which the ethnic composition of the neighbourhood also affects ethnic minorities' social contacts with other ethnic minority groups.

Ethnic Composition of the Neighbourhood

A second unresolved issue concerns the question of which dimension of the ethnic composition of the neighbourhood is the most important in explaining ethnic minorities' social contacts with natives, co-ethnics and other ethnic minority groups. We will explore the different mechanisms suggested to explain the relationship between the ethnic composition of the neighbourhood and these contacts, and will formulate hypotheses based on them, differentiating between the percentage of ethnic minorities, the percentage of co-ethnics and the ethnic diversity in the neighbourhood.

First, a supply-side perspective (e.g. Blau, 1977; Fischer et al., 1977) stresses that the social context in which people participate influences their networks by shaping the 'pool' from which they have to select their contacts. In other words, the choice of one's social contacts is constrained by the opportunities provided by the social context to meet and interact with others. As Verbrugge (1979) stated: 'No mating without meeting'.

The ethnic composition of the neighbourhood is therefore thought to influence the opportunities for members of ethnic minorities to have social contacts with natives, co-ethnics and people from other ethnic minority groups. In neighbourhoods with a high percentage of ethnic minorities (i.e. a low percentage of natives), the statistical chance of meeting natives is lower, which may be assumed to result in fewer social contacts with natives. At the same time, in neighbourhoods with a high percentage of ethnic minorities, the chance of meeting co-ethnics and persons from other ethnic minority groups is greater, which will result in more social contact with co-ethnics and persons from other ethnic minority groups.

A second explanation for a relationship between ethnic concentration and ethnic minorities' social contacts stems from ethnic competition theory. Besides meeting opportunities, the willingness of natives to engage in social contact with ethnic minorities is also expected to influence ethnic minorities' social contacts with natives, co-ethnics and other ethnic minority groups. According to ethnic competition theory, natives feel threatened when the number of ethnic minorities is high (Blalock, 1967; Coenders, Gijsberts and Scheepers, 2004). This is likely to result in a lower willingness on the part of natives in neighbourhoods with higher percentages of ethnic minorities to engage in contact with ethnic minorities. Ethnic minorities in neighbourhoods containing high percentages of ethnic minorities are therefore thought to have fewer opportunities for social contact with natives and are more likely to have social contact mainly with co-ethnics and other ethnic minorities.

Based both on the idea of meeting opportunities and ethnic competition theory, we therefore hypothesize that:

The higher the percentage of ethnic minorities in the neighbourhood, the less social contact ethnic minorities have with natives (H1a), the more social contact ethnic minorities have with co-ethnics (H1b), and the more social contact ethnic minorities have with other ethnic minorities (H1c).

A third way in which the ethnic composition of the neighbourhood might influence ethnic minorities' social contacts is through the influence of 'third parties' (Kalmijn, 1998): others who can encourage or discourage contacts within and outside people's own ethnic group. This idea follows general collective socialization theories that are concerned with the influence of social groups on individuals' attitudes, values and behaviours (e.g. Simmel, 1971; Weber, 1978). The greater presence of people's own group can create demands for conformity and group solidarity (Portes, 1998; Galster, 2008). In neighbourhoods with high percentages of co-ethnics, these other co-ethnics, for example family members and the ethnic community are more likely to be able to impose the norms of the country of origin and discourage or even sanction contact with other ethnic groups. A higher percentage of co-ethnics in the neighbourhood is therefore thought to result in less social contact with natives

and other ethnic minority groups, but in more social contact with co-ethnics.

These notions give rise to the hypothesis that:

The higher the percentage of co-ethnics in the neighbourhood, the less social contact ethnic minorities have with natives (H2a), the more social contact ethnic minorities have with co-ethnics (H2b), and the less social contact ethnic minorities have with other ethnic minorities (H2c).

Whereas the mechanisms proposed thus far are all concerned with the *concentration* of ethnic minorities, or co-ethnics in particular, Putnam's (2007) constrict theory is mainly concerned with ethnic *diversity*. Many ethnically concentrated neighbourhoods comprise residents from several different ethnic minority groups (see Gijsberts, Van der Meer and Dagevos, 2008). According to Putnam (2007), it is not the concentration of ethnic minorities in general, but above all this great diversity in the ethnic background of residents that helps shape their social contacts. In line with ethnic competition theory, the constrict theory is concerned with feelings of insecurity and perceived threat that result in less social contact. However, according to the constrict theory it is the ethnic diversity rather than the ethnic concentration in a neighbourhood that causes residents to 'hunker down', to use Putnam's terminology. Moreover, ethnic diversity would not trigger a distinction between the in-group and out-group, but rather social isolation in general. The 'hunkering down' of residents in ethnically diverse neighbourhoods would not only result in less contact with natives, but also less contact with co-ethnics and other ethnic minority groups.

The hypothesis derived from the constrict theory reads as follows:

The more ethnically diverse the neighbourhood is, the less social contact ethnic minorities have with natives (H3a), the less social contact ethnic minorities have with co-ethnics (H3b), and the less social contact ethnic minorities have with other ethnic minorities (H3c).

As outlined above, different mechanisms are proposed to explain the relationship between the ethnic composition of the neighbourhood and ethnic minorities' social contacts. Each of these mechanisms focus on different dimensions of the ethnic composition of the neighbourhood. To date, however, no research has studied systematically whether and to what extent these different dimensions do indeed relate to ethnic minorities' social contacts. The second aim of the present study is therefore to examine both ethnic concentration (i.e. the percentage of ethnic minorities and the percentage of co-ethnics) and ethnic diversity (i.e. the Herfindahl-index) in the neighbourhood in relation to ethnic minorities' social contacts with natives, co-ethnics and other ethnic minorities.

Other Neighbourhood Characteristics

Finally, a third unresolved issue in the research on ethnic minorities' social contacts concerns the question of whether any relationship between the ethnic composition of the neighbourhood and ethnic minority residents' social contacts is a spurious one, resulting from the fact that ethnic minorities in the United States and most European countries are often concentrated in deprived areas (Heath, Rothon and Kilpi, 2008) that are economically disadvantaged and show high rates of residential mobility.

Whereas previous neighbourhood research based on the social disorganization theory has already shown that economic disadvantage and residential mobility in the neighbourhood make residents more fearful and result in fewer social contacts in general (e.g. Wilson, 1987; for reviews, see Small and Newman, 2001; Sampson, Morenoff and Gannon-Rowley, 2002), many studies concerned with the relationship between ethnic residential concentration and ethnic minorities' social contacts have to date disregarded these neighbourhood conditions (e.g. Esser, 1986; Mesch, 2002; Briggs, 2007; Gijsberts and Dagevos, 2007; Van der Laan Bouma-Doff, 2007; Martinovic, Van Tubergen and Maas, 2009). It is however necessary to take these neighbourhood conditions into account to partial out their relative effects (see also Gijsberts, Van der Meer and Dagevos, 2008; Tolsma, Van der Meer and Gesthuizen, 2009; Laurence, 2009) and study the extent to which the relationship between the ethnic composition of the neighbourhood and ethnic minorities' social contacts still exists after controlling for them; that is the third aim of our study.

To sum up, research on ethnic residential concentration and diversity and ethnic minorities' social contacts still suffers from several drawbacks. The present study aims to contribute by disentangling the relationship between ethnic minorities' social contacts with natives, co-ethnics and other ethnic minorities, and studying the extent to which the ethnic composition of the neighbourhood (i.e. percentage of ethnic minorities, percentage of co-ethnics and ethnic diversity) is related to ethnic minorities' social contacts with natives, co-ethnics and other ethnic minorities, taking relevant neighbourhood conditions into account (i.e. economic disadvantage and residential mobility).

Data and Measures

To test our hypotheses we will use a large-scale survey in the Netherlands, the 2006 Survey of the Integration Minorities (SIM2006), which focuses on the four largest non-western ethnic minority groups in the Netherlands, i.e. people of Turkish, Moroccan, Surinamese, and Antillean background. SIM2006 is the first survey that is representative of the population of these ethnic minority groups aged 15 years and older in the Netherlands. The data were collected using a two-step stratified random sampling method. First, a random sample of municipalities, proportionally allocated across three strata of municipality size, was conducted for each ethnic group separately. Subsequently, within each selected municipality a random sample of individuals was approached and asked to participate. Face-to-face interviews were used. Migrants of Turkish and Moroccan origin who were aged over 15 years when they arrived in the Netherlands were approached using bilingual interviewers as far as possible. The final sample consisted of 1,127 people of Turkish origin, 1,035 of Moroccan origin, 1,057 Surinamese migrants and 997 of Antillean origin (for more detailed information on SIM2006, see Dagevos et al., 2007).

Information at neighbourhood level was derived from record data from Statistics Netherlands (2006), which we were able to merge with the SIM2006 survey by using the neighbourhood classification adopted by Statistics Netherlands (2006). This is an improvement on most previous studies in the Netherlands, which tend to be based on the more frequently used four-digit postcode areas. While these four-digit postcode areas are regarded as useful areas for mail delivery purposes, the division of neighbourhoods we adopted is based on the neighbourhood boundaries as identified by local authorities themselves within their municipality, largely following the socio-geographical boundaries as well as the architectural style and period of the dwellings. These neighbourhoods are more likely to be perceived as neighbourhoods by their residents than the four-digit postcode area. Moreover, while there are ~4,000 four-digit postcode areas in the Netherlands, the neighbourhood division applied here enables ~10,000 neighbourhoods to be identified. Based on this division, our sample contained 1,462 neighbourhoods.

Dependent Variables: Social Contacts

For our analyses we used information about the frequency of ethnic minorities' social contacts both with co-ethnics and natives. Respondents were asked how frequently they have contact with native neighbours, co-ethnic neighbours, native friends, and co-ethnic friends.[1] The possible responses were arranged on a scale from 1 to 5, ranging from 'less than once a year', 'a couple of times a year', 'every month', 'every week' to 'every day'. These questions were analysed simultaneously using multivariate multi-level analyses, with a high score representing more frequent social contact.

We have only one measure for contact with other ethnic minority groups; respondents are asked whether they never, sometimes or often have contact during their leisure time with members of other ethnic minority groups. The responses to this question were analysed separately using normal multilevel analysis, again with a high score again representing more frequent social contact.

Independent Variables at the Neighbourhood Level

Ethnic composition of the neighbourhood

At the level of the neighbourhood, we have record information about the percentage of non-Western ethnic minorities as a whole and the percentages of each ethnic group (Turkish, Moroccan, Surinamese, and Antillean origin, other non-Western ethnic minorities, Western ethnic minorities, natives) separately. Using this information, for each respondent we calculated the percentage of co-ethnics in the neighbourhood. In addition, we used the percentages of each ethnic group to construct the Herfindahl index (i.e. 1 – Herfindahl Index) for ethnic diversity in the neighbourhood. This is a measure of the chance that two randomly chosen residents in the neighbourhood will have a different ethnic background.[2] Although we are aware of some difficulties with this measure (see Voas, Crockett and Olsen, 2002), we decided to use this measure so as to be able to compare our results with other recent studies on ethnic diversity and social cohesion (e.g. Putnam, 2007; Small, 2007; Letki, 2008; Tolsma, Van der Meer and Gesthuizen, 2009).

For the Dutch case, the measures of ethnic concentration and ethnic diversity appeared to be highly correlated; see Table 1. Owing to problems of multicollinearity, we were unable to include all the ethnic composition measures simultaneously in one model. We therefore performed separate analyses with (i) the percentage of non-Western ethnic minorities, (ii) the percentage of co-ethnics, and (iii) ethnic diversity.

Economic disadvantage

For economic disadvantage, we constructed an index by combining record data (Statistics Netherlands,

Table 1 Correlations between neighbourhood characteristics

	Percentage of non-Western ethnic minorities	Percentage of co-ethnics	Ethnic diversity	Economic disadvantage
Percentage of non-Western ethnic minorities				
Percentage of co-ethnics	0.74			
Ethnic diversity	0.91	0.64		
Economic disadvantage	0.65	0.47	0.62	
Residential mobility	0.40	0.29	0.48	0.36

Note: All correlations are significant at P < 0.001. N = 4,217.

2006) on the percentage of low-income residents, average income and the percentage of residents in the neighbourhood in receipt of social security benefit (similar to e.g. Wittebrood and Van Dijk, 2007). These indicators together formed one factor that explained 78% of variance. The scale proved to be reliable, with a Cronbach's alpha of 0.90. We standardized the indicators and reversed the distribution of the average income in order to achieve an index on which a high score means that the economic disadvantage in the neighbourhood is high. Subsequently, we calculated the mean on these indicators for each neighbourhood.

Residential mobility

Drawing on record data from Statistics Netherlands (2006), we also derived information about the residential mobility in the neighbourhood in 2006, defined as the number of home moves in the neighbourhood per 1,000 residents, calculated as the sum total of persons who moved within the neighbourhood, plus half of the number of settlers in the neighbourhood, plus half the number who moved out of the neighbourhood in 2006, divided by the total number of residents in the neighbourhood (a method also used by others, see e.g. Tolsma, Van der Meer and Gesthuizen, 2009).

Independent Variables at the Individual Level

Gender is a dichotomous variable with 0 = female and 1 = male. Age is taken into account measured in years, ranging from 15 to 87. For household composition, we differentiated between one person forming part of a couple, a parent in an intact family, a single-parent family, a child living with his/her parents, and a single-person household as reference group. Education was broken down into seven categories, from 'no education' to 'higher education' and was included as an

interval variable. Respondents who were still in education were included in this measure by assigning them to the level of education they were currently attending. We included a dummy variable for persons who were still in education. For socioeconomic position, non-actives (students, housewives, retired, and disabled) were chosen as the reference group, and in the model we included dummies for unemployed persons and persons with a low, middle and high status. Home ownership was taken into account as a dummy, with persons living in a rented home as the reference group.

We also included some migration-specific background characteristics. For migration, we included two dummies for belonging to the first generation of ethnic minorities (second generation as reference group), differentiating between ethnic minorities that came before 1980 and those that came after 1980 in order to include the length of stay in the host country as well. To measure host language acquisition, respondents were asked whether they had difficulties with (i) speaking Dutch, (ii) reading Dutch, and (iii) understanding Dutch; the available response categories were 'yes, often', 'yes, sometimes' or 'no, never'. The mean score on these three items formed a reliable scale with a Cronbach's alpha of 0.91. Scores were reversed so that a high score corresponded to better host language acquisition. Finally, we also included dummies for ethnic group. In line with most previous Dutch studies (e.g. Gijsberts and Dagevos, 2007; Martinovic, Van Tubergen and Maas, 2009), we choose the Turkish community, who are found to have the most contact within the own ethnic group (e.g. Gijsberts and Dagevos, 2007), as the reference group.

Control Variable for Reversed Causality

Unfortunately, like many other studies in this field to date, our survey contains only cross-sectional data, which makes it difficult to make statements about the

causality of the relationships. For example, ethnic minorities who prefer to live with co-ethnic friends might move to an ethnically concentrated neighbourhood, and it is then not the ethnic concentration of the neighbourhood that influences their social contacts with co-ethnics. We sought to accommodate this as far as possible by including the reason why respondents moved to their neighbourhood. The reference group consisted of respondents who did not intentionally choose their neighbourhood, but who lived there more out of necessity than anything else (e.g. they could not afford something else, the dwelling was allocated to them, or living with parents). In the model, we included one dummy for persons who moved to the neighbourhood to live near or in the same locality as family, partner and/or friends, one dummy for persons who moved to the neighbourhood because of their own preferences, not specifically related to social contacts (e.g. a preference for a specific neighbourhood or dwelling), and one dummy for persons who had come to live in a particular neighbourhood for other reasons.

Data Analysis

Multilevel analyses (see e.g. Snijders and Bosker, 1999) were used to test our hypotheses. This technique is needed to study the role of individual and contextual factors simultaneously. It controls for dependences in the data resulting from respondents living in the same neighbourhood and makes it possible to test predictors at individual level while controlling for variability related to the neighbourhood context (Snijders and Bosker, 1999). Moreover, multi-level analysis makes it possible to examine whether neighbourhood effects genuinely stand up on their own, or whether these effects can be ascribed mainly to compositional effects at the individual level. In other words, multilevel analyses are useful for examining whether it is 'who is living in a community that matters (a compositional effect), or who they are living around (a contextual effect)' (Putnam, 2007, p. 151).

To analyse our dependent variables in relation to contact with natives and co-ethnics, we performed multivariate multilevel analysis in MlwiN (e.g. Rasbash et al., 2009). Multivariate multilevel analysis accounts for the correlation between dependent variables—here, the frequency of contact by members of ethnic minorities with native neighbours, native friends, co-ethnic neighbours and co-ethnic friends. Using multivariate multilevel analyses it is possible to study the extent to which the correlations depend on the individual or the contextual level and to what extent these correlations can be explained by our model. Additional reasons for using multivariate multilevel analysis are that it allows for comparisons and joint significance tests of the effects of ethnic concentration and other covariates on more than one dependent variable, and offers a means of avoiding chance capitalization, which can occur when performing separate analyses for several dependent variables (Snijders and Bosker, 1999, p. 201).

Since our measure of contact with other ethnic minority groups differed from our measures of contact with natives and with co-ethnics, and because MlwiN appeared to be unable to run the complex multivariate multilevel analyses with the inclusion of contact with other ethnic minority groups as a dependent variable, we analysed contact with other ethnic minority groups separately. In order to be able to compare coefficients, we standardized all our dependent and independent variables.

Multicollinearity

To test our hypotheses, it is necessary to include both the ethnic composition of the neighbourhood and measures of economic disadvantage and residential mobility in our models. As pointed out earlier, however, these neighbourhood conditions are often highly correlated (see Table 1). There is a danger that this could lead to incorrect conclusions due to multicollinearity. To test whether there are indeed any multicollinearity problems involved, we performed perturbation analyses (Belsley, 1991; see also Gesthuizen, Van der Meer and Scheepers, 2009; Van der Meer, 2009; Van der Meer, Scheepers and Te Grotenhuis, 2009).[3] These analyses showed that our models are stable and that our original findings do not appear to be affected by multicollinearity.

Results

Table 2 shows the Pearson correlations between frequency of contact with native neighbours, native friends, co-ethnic neighbours, co-ethnic friends and other ethnic minority groups. At first glance, it appears that social contacts with natives and social contacts with co-ethnics are indeed not inversely related. Ethnic minorities who have frequent social contacts with natives also have more frequent social contacts with co-ethnics. In addition, ethnic minorities who often have contact with natives also more frequently have contact with other ethnic minority groups.

Table 2 Correlations between contact with native neighbours, native friends, co-ethnic neighbours and co-ethnic friends and measures of ethnic composition of the neighbourhood

	Contact native neighbours	Contact native friends	Contact co-ethnic neighbours	Contact co-ethnic friends
Contact native neighbours				
Contact native friends	0.39			
Contact co-ethnic neighbours	0.28	0.04		
Co-ethnic friends	0.14	0.21	0.43	
Other ethnic minority groups	0.15	0.31	0.06	0.17

Note. All correlations are significant at P < 0.01. N ranges between 4,166 and 3,993.

Table 3 Correlations between contact with native neighbours, native friends, co-ethnic neighbours and co-ethnic friends at the neighbourhood and individual level

	Contact native neighbours	Contact native friends	Contact co-ethnic neighbours
Neighbourhood level			
Contact native neighbours			
Contact native friends	0.62		
Contact co-ethnic neighbours	−0.09	−0.32	
Contact co-ethnic friends	−0.06	−0.21	0.92
Individual level			
Contact native neighbours			
Contact native friends	0.36		
Contact co-ethnic neighbours	0.34	0.10	
Contact co-ethnic friends	0.17	0.26	0.36

Subsequently, the multivariate multilevel approach exposes the correlations between contact with native neighbours, native friends, co-ethnic neighbours and co-ethnic friends separately at individual and at neighbourhood level (see Table 3). Once again, the correlations at the individual level show that ethnic minorities who have more frequent contact with co-ethnics also have more frequent contact with natives. There thus seems to be a category of socially active persons who have frequent contact with both co-ethnic and native neighbours and friends.

Although there is a positive correlation at the individual level between contact with natives and contact with co-ethnics, the correlations between contact with co-ethnics and contact with natives at the neighbourhood level are negative in all cases. This means that at the neighbourhood level more contact with co-ethnics is related to less contact with natives. In other words, in neighbourhoods where ethnic minority residents

have frequent contact with co-ethnics, they generally have less contact with natives. It is therefore likely that there are explanatory factors that explain contacts with natives and co-ethnics at the neighbourhood level differently, resulting in higher levels of social contacts with co-ethnics and lower levels of social contacts with natives, or vice versa.

The multilevel analyses revealed the variances at the neighbourhood and individual level (Table 4). In an empty model, the variance at the neighbourhood level is statistically significant for all social contacts with native neighbours, native friends, co-ethnic neighbours, co-ethnics friends and other ethnic minority groups, which means that there are significant differences between neighbourhoods in ethnic minorities' social contacts with natives, co-ethnics and other ethnic minority groups.

The analyses also show that a larger part of the variance in ethnic minorities' social contacts with

Table 4 Variance components of ethnic minorities' contact with native neighbours, native friends, co-ethnic neighbours, co-ethnic friends and other ethnic minorities, divided into variance at the neighbourhood level and individual level

	Native neighbours (N = 4,178)	Native friends (N = 4,183)	Co-ethnic neighbours (N = 4,092)	Co-ethnic friends (N = 4,070)	Other ethnic minorities (N = 4,203)
Variance at neighbourhood level	0.099 (0.022)	0.076 (0.014)	0.187 (0.020)	0.118 (0.017)	0.053 (0.013)
Percentage of total variance	10.0	7.7	18.5	11.7	5.3
Variance at individual level	0.890 (0.022)	0.914 (0.022)	0.824 (0.021)	0.893 (0.022)	0.947 (0.023)
Percentage of total variance	90.0	92.3	81.5	88.3	94.7

Note: All variance components are significant at P < 0.001.

co-ethnics can be ascribed to differences between neighbourhoods (18.5 and 11.7%, respectively) than of the variance in ethnic minorities' social contacts with natives (10.0 and 7.7%) and with other ethnic minority groups (5.3%). The neighbourhood is thus more important in explaining ethnic minorities' social contacts with co-ethnics than in explaining their social contacts with natives and other ethnic minority groups. In addition, the neighbourhood variance in ethnic minorities' contact with neighbours is greater than the neighbourhood variance in their contact with friends. This suggests that social contacts closer to the home of the respondent (i.e. neighbours and neighbourhood residents) are more strongly influenced by the neighbourhood context than social contact with others who not necessarily live very close to their homes (i.e. acquaintances and friends).

Percentage of Ethnic Minorities in the Neighbourhood

According to our first model (Table 5), the percentage of ethnic minorities in the neighbourhood is a factor that relates differently to social contacts with co-ethnics than to social contacts with natives: without taking other neighbourhood and individual characteristics into account, the percentage of ethnic minorities is related to *more* social contact with co-ethnic neighbours and co-ethnic friends, whereas it is related to *less* social contact with native neighbours and native friends. The effects are higher for social contacts with co-ethnics than for social contacts with natives. With regard to contact with other ethnic minority groups, the results show that a higher percentage of ethnic minorities relates to more frequent contact with other ethnic minority groups.

In the final model (Table 6) we also included the other neighbourhood characteristics and the individual characteristics. Although the effects of the percentage

of ethnic minorities decrease substantially, for contact with natives and co-ethnics they remain statistically highly significant. Thus, even after controlling for these factors, ethnic minority residents in more ethnically concentrated neighbourhoods are found to have less social contact with natives and more social contact with co-ethnics. The relationship between ethnic concentration and ethnic minorities' social contact with other ethnic minority groups becomes insignificant.

The findings for social contact with natives and co-ethnics are in line with hypotheses H1a and H1b, derived from both the idea of meeting opportunities and ethnic competition theory. On the one hand, the results are in line with the idea that in neighbourhoods where there are fewer opportunities to meet natives (i.e. high percentage of ethnic minorities), ethnic minority residents have less social contact with natives, whereas a higher likelihood of meeting co-ethnics results in more contact with co-ethnics. On the other hand, our results also support the expectations based on ethnic competition theory, suggesting that ethnic minorities in more ethnically concentrated neighbourhoods have less contact with natives and are more likely to have contact with co-ethnics, because natives in these neighbourhoods, due to perceived ethnic threat, are less willing to engage in contact with ethnic minorities.

However, because we did not directly measure perceived threat and natives' willingness to engage in social contacts with ethnic minorities, we are not able to determine the extent to which the relationships found are the result of meeting opportunities and to what extent processes of ethnic competition and perceived threat did indeed play a role.

Our results for social contact with other ethnic minority groups were not in line with hypothesis (H1c), derived from the ideas on meeting opportunities and ethnic competition theory. Ethnic

Table 5 Results of (multivariate) multilevel analysis with only percentage of non-Western ethnic minorities in the neighbourhood in the model

	Native neighbours (n = 4,178)	Native friends (n = 4,183)	Co-ethnic neighbours (n = 4,092)	Co-ethnic friends (n = 4,070)	Other ethnic minorities (n = 4,203)
Percentage of non-Western ethnic minorities	−0.137 (0.020)***	−0.169 (0.019)***	0.308 (0.022)***	0.231 (0.020)***	0.044 (0.019)*
Intercept	0.007 (0.018)	0.008 (0.017)	0.006 (0.020)	0.001 (0.019)	−0.001 (0.018)
Variance at neighbourhood level	0.078 (0.015)***	0.050 (0.013)***	0.123 (0.017)***	0.085 (0.015)***	0.052 (0.013)***
Per cent explained	21.2	34.2	34.2	28.0	1.9
Variance at individual level	0.894 (0.022)***	0.916 (0.022)***	0.822 (0.021)***	0.890 (0.022)***	0.946 (0.023)***
Per cent explained	0.0	0.0	0.2	0.3	0.0

Note: *P < 0.05; **P < 0.01; ***P < 0.001.

concentration in the neighbourhood has no independent effect on ethnic minorities' social contact with other ethnic minorities in leisure time.

With regard to the other neighbourhood characteristics, we surprisingly found that economic disadvantage in the neighbourhood is related to more social contact with native neighbours and native friends. We will return to discuss this finding more in detail in the conclusion and discussion section.

The results for the individual characteristics show that males more often have contact with native neighbours, native friends, co-ethnic friends and other ethnic minorities than females.[4] Older persons less often have contact both with native and co-ethnic friends and with other ethnic minorities than younger persons. Children who live with their parents and persons who are still in education have more contact with natives, co-ethnics and other ethnic minorities.[5] Education level and having a middle-class job are related to more contact with native friends but less contact with co-ethnic neighbours. Persons who own their home have more social contact with natives but less social contact with co-ethnics and other ethnic minorities. People of Turkish origin generally have more contact with co-ethnics and less contact with other ethnic minorities than do people of Moroccan, Surinamese and Antillean origin, and ethnic minorities from the first generation have more contact with co-ethnics than ethnic minorities from the second generation. Dutch language proficiency is related to more social contact with natives and other ethnic minorities.

Finally, including the control variable for the reason why persons moved to their present neighbourhood appears to be relevant. Ethnic minority residents who moved to their neighbourhood because of their own preferences have more often contact with natives than ethnic minority residents who live in their neighbourhood out of necessity. Ethnic minority residents who choose to live in their neighbourhood because of their social contacts were found to have more social contact with co-ethnic neighbours and other ethnic minorities.

Percentage of Co-ethnics in the Neighbourhood

The same analyses were repeated by examining the effect of the percentage of co-ethnics in the neighbourhood. The results (Table 7) show clearly that there is a significant relationship between the percentage of co-ethnics and ethnic minority residents' social contacts with co-ethnics. This effect is stronger than that of the percentage of ethnic minorities in general

Table 6 Results of (multivariate) multilevel analyses of ethnic minorities' social contacts with native neighbours, native friends, co-ethnic neighbours, co-ethnic friends and other ethnic minorities with percentage of ethnic minorities (standardized coefficients)

	Native neighbours (N = 4,178)	Native friends (N = 4,183)	Co-ethnic neighbours (N = 4,092)	Co-ethnic friends (N = 4,070)	Other ethnic minorities (N = 4,203)
Contextual level					
Percentage of non-Western ethnic minorities	−0.128 (0.026)***	−0.140 (0.022)***	0.202 (0.023)***	0.128 (0.023)***	0.035 (0.023)
Economic disadvantage	0.052 (0.023)*	0.064 (0.020)**	0.001 (0.021)	0.027 (0.021)	0.081 (0.021)***
Residential mobility	−0.028 (0.018)	−0.007 (0.016)	−0.007 (0.017)	0.009 (0.017)	0.000 (0.017)
Individual level					
Age	0.042 (0.026)	−0.111 (0.024)***	0.007 (0.024)	−0.070 (0.025)**	−0.132 (0.025)***
Male (ref. = female)	0.052 (0.016)**	0.062 (0.015)***	0.014 (0.015)	0.040 (0.016)*	0.067 (0.015)***
Household composition (ref. = single-person household)					
With partner	0.044 (0.020)*	−0.035 (0.018)*	0.006 (0.018)	−0.053 (0.019)**	−0.003 (0.019)
With partner and children	0.113 (0.024)***	−0.054 (0.022)*	0.079 (0.022)***	−0.022 (0.023)	−0.014 (0.023)
Child living with parents	0.075 (0.026)**	0.071 (0.024)**	0.071 (0.024)**	0.099 (0.025)***	0.103 (0.025)***
Single parent	0.026 (0.019)	−0.013 (0.017)	0.022 (0.017)	−0.002 (0.018)	−0.004 (0.018)
Education level	0.011 (0.020)	0.092 (0.018)***	−0.053 (0.019)**	−0.019 (0.020)	0.061 (0.019)**
At school	0.061 (0.024)*	0.109 (0.022)***	0.056 (0.022)*	0.100 (0.023)***	0.099 (0.023)***
Socioeconomic position (ref. = non-actives)					
Unemployed	0.018 (0.017)	0.012 (0.016)	−0.014 (0.016)	0.017 (0.017)	0.030 (0.016)
Low status job	0.002 (0.019)	0.046 (0.017)**	−0.033 (0.017)	−0.006 (0.018)	0.029 (0.018)
Middle status job	−0.012 (0.019)	0.030 (0.017)*	−0.061 (0.018)**	0.003 (0.018)	0.025 (0.018)
High status job	−0.004 (0.018)	0.009 (0.017)	−0.037 (0.017)*	0.018 (0.018)	0.055 (0.018)**
Home ownership (ref. = rented home)	0.052 (0.018)**	0.015 (0.016)	−0.087 (0.017)***	−0.070 (0.017)***	−0.035 (0.017)*
Ethnic group (ref. = Turkish)					
Moroccan	0.041 (0.019)*	0.031 (0.017)	−0.128 (0.017)***	−0.100 (0.018)***	0.064 (0.018)***
Surinamese	−0.050 (0.021)*	0.027 (0.019)	−0.264 (0.020)***	−0.207 (0.020)***	0.079 (0.020)***
Antillean	−0.069 (0.021)**	0.044 (0.019)*	−0.304 (0.020)***	−0.281 (0.020)***	0.114 (0.020)***
Migration background (ref. = second generation)					
First generation, came after 1980	0.039 (0.023)	−0.048 (0.021)*	0.067 0.021)**	0.109 (0.022)***	−0.038 (0.022)
First generation, came before 1980	0.045 (0.026)	−0.001 (0.024)	0.056 (0.024)*	0.104 (0.025)***	0.010 (0.025)
Dutch language proficiency	0.173 (0.021)***	0.153 (0.019)***	−0.014 (0.019)	0.017 (0.020)	0.071 (0.020)***
Reason for neighbourhood (ref. = necessity)					
For neighbourhood/dwelling	0.038 (0.017)*	0.050 (0.016)**	0.009 (0.016)	0.013 (0.017)	0.032 (0.017)
For social contacts	0.012 (0.016)	0.025 (0.015)	0.033 (0.015)*	0.017 (0.015)	0.048 (0.015)**
Other reasons	0.001 (0.016)	0.005 (0.014)	−0.030 (0.015)*	−0.048 (0.015)**	0.005 (0.015)
Intercept	0.005 (0.018)	0.006 (0.016)	−0.007 (0.016)	−0.012 (0.016)	−0.003 (0.016)
Variance at neighbourhood level	0.075 (0.014)***	0.038 (0.010)***	0.050 (0.011)***	0.037 (0.011)***	0.039 (0.011)***
Per cent explained	24.2	50.0	73.3	68.6	26.4
Variance at individual level	0.851 (0.021)***	0.744 (0.018)***	0.742 (0.018)***	0.814 (0.020)***	0.815 (0.020)***
Per cent explained	4.3	18.6	10.0	8.8	13.9

Note: *P < 0.05; **P < 0.01; ***P < 0.001.

Table 7 Results of (multivariate) multilevel analyses of ethnic minorities' social contacts with native neighbours, native friends, co-ethnic neighbours, co-ethnic friends and other ethnic minorities with percentage of co-ethnics (standardized coefficients)[a]

	Native neighbours (N = 4,178)	Native friends (N = 4,183)	Co-ethnic neighbours (N = 4,092)	Co-ethnic friends (N = 4,070)	Other ethnic minorities (N = 4,203)
Contextual level					
Percentage of co-ethnics	−0.021 (0.021)	−0.035 (0.019)	0.203 (0.019)***	0.107 (0.019)***	−0.039 (0.019)[b,]*
Economic disadvantage	0.001 (0.021)	0.007 (0.019)	0.031 (0.019)	0.054 (0.019)**	0.110 (0.019)***
Residential mobility	−0.049 (0.018)*	−0.029 (0.016)	0.003 (0.016)	0.019 (0.017)	0.012 (0.017)
Intercept	0.028 (0.018)	0.023 (0.016)	−0.016 (0.016)	−0.018 (0.016)	−0.010 (0.016)
Variance at neighbourhood level	0.088 (0.015)***	0.048 (0.011)***	0.045 (0.011)***	0.035 (0.010)***	0.041 (0.011)***
Per cent explained	11.1	36.8	75.9	70.3	22.6
Variance at individual level	0.847 (0.021)***	0.743 (0.018)***	0.739 (0.018)***	0.816 (0.020)***	0.813 (0.020)***
Per cent explained	4.8	18.7	10.3	8.6	14.1

[a]*Analyses were repeated for each ethnic group separately, but this did not reveal a different pattern from that presented; after controlling for ethnic group, age, gender, migration background, household composition, home ownership, attending school, education level, socioeconomic position, Dutch language proficiency, reason for neighbourhood.*
[b]*Perturbation analyses showed that this effect is highly unstable and analyses for each ethnic group separately show that this effect is insignificant for each ethnic group. Great caution is therefore required in interpreting this effect.*
*P < 0.05; **P < 0.01; ***P < 0.001.

(see Table 6). This finding thus further supports the meeting opportunity hypothesis (H1b), in that a higher statistical chance of meeting co-ethnics results in more frequent contact with co-ethnics.

Table 7 also shows that there is no significant relationship between the percentage of co-ethnics in the neighbourhood and ethnic minority residents' social contacts with natives. On the other hand, our results show that ethnic minorities in neighbourhoods with a higher percentage of co-ethnics have significantly less social contact with other ethnic minority groups. However, perturbation checks showed that this effect is very unstable and analyses for each ethnic group separately revealed that this effect was not significant for any of the ethnic groups. The 'third parties' hypotheses (H2a, H2b, and H2c) therefore appear to be largely refuted. It might be true that in a neighbourhoods with a high percentage of co-ethnics the family and ethnic community do indeed create demands for conformity and group solidarity, and encourage contact within ethnic minorities' own ethnic group, thus resulting in more social contact with co-ethnics (H2b), but we do not find strong support for the idea that in neighbourhoods with higher percentages of co-ethnics social contact with natives and other ethnic minority groups is discouraged, leading to less social contact with natives (H2a) and with other ethnic minority groups (H2c).

Different explanations for these findings are possible. For example, family and the ethnic community might simply not discourage social contact with natives and other ethnic minority groups, or at least not with regard to neighbours and friends. It is also possible that the influence of 'third parties' such as family and the ethnic community only becomes apparent when the percentage of co-ethnics in the neighbourhood reaches a certain threshold (see Galster, 2008). Since almost all neighbourhoods in the Netherlands with high numbers of ethnic minority residents are multi-ethnic (Gijsberts, Van der Meer and Dagevos, 2008), the likelihood of such a threshold of co-ethnics in the neighbourhood being reached is low.

With regard to the other neighbourhood characteristics, a positive relationship was found between economic disadvantage in the neighbourhood and social contact with co-ethnic friends. Residential mobility is negatively related to contact with native neighbours. The pattern for the individual characteristics was similar to the results of the analyses involving the percentage of ethnic minorities as discussed earlier.

Ethnic Diversity

Subsequently, we performed the same analyses examining ethnic diversity as a measure of the ethnic

Table 8 Results of (multivariate) multilevel analyses of ethnic minorities' social contacts with native neighbours, native friends, co-ethnic neighbours, co-ethnic friends and other ethnic minorities with ethnic diversity (standardized coefficients)

	Native neighbours (N = 4,178)	Native friends (N = 4,183)	Co-ethnic neighbours (N = 4,092)	Co-ethnic friends (N = 4,070)	Other ethnic minorities (N = 4,203)
Contextual level					
Ethnic diversity	−0.107 (0.024)***	−0.144 (0.021)***	0.200 (0.022)***	0.154 (0.022)***	0.062 (0.022)**
Economic disadvantage	0.040 (0.022)	0.059 (0.019)**	0.009 (0.020)	0.020 (0.021)	0.070 (0.020)***
Residential mobility	−0.021 (0.019)	0.008 (0.017)	−0.026 (0.017)	−0.012 (0.018)	−0.011 (0.018)
Intercept	0.011 (0.018)	0.007 (0.015)	−0.010 (0.016)	−0.012 (0.016)	−0.001 (0.016)
Variance at neighbourhood level	0.081 (0.014)***	0.035 (0.010)***	0.050 (0.011)***	0.034 (0.010)***	0.038 (0.011)***
Per cent explained	18.2	53.9	73.3	71.2	28.3
Variance at individual level	0.848 (0.021)***	0.746 (0.018)***	0.741 (0.018)***	0.812 (0.020)***	0.815 (0.020)***
Per cent explained	4.7	18.4	10.1	9.1	13.9

Note: After controlling for ethnic group, age, gender, migration background, household composition, home ownership, attending school, education level, socioeconomic position, Dutch language proficiency, reason for neighbourhood.
*$P < 0.05$; **$P < 0.01$; ***$P < 0.001$.

composition of the neighbourhood. Here, the same pattern emerged as for the percentage of ethnic minorities in the neighbourhoods (Table 8): ethnic diversity is related to less social contact with native neighbours and native friends and more social contact with co-ethnic neighbours, co-ethnic friends and other ethnic minority groups. Our results thus do not support Putnam's (2007) constrict theory. Although ethnic diversity is related to less social contact with natives (H3a), we did not find evidence that ethnic diversity is related to less social contact with co-ethnics (H3b) and also less social contact with other ethnic minorities (H3c). On the contrary, we found that ethnic minorities living in ethnically more diverse neighbourhoods have even more social contact with co-ethnics and other ethnic minority groups. Whereas some studies found a negative relationship between ethnic diversity and social contacts with neighbours and/or friends in general (e.g. Putnam, 2007; Gijsberts, Van der Meer and Dagevos, 2008; Tolsma, Van der Meer and Gesthuizen, 2009), our study showed that for ethnic minority residents' only their social contacts with natives are negatively affected by ethnic diversity.

We did not find evidence that ethnic diversity is differently or more strongly related to ethnic minority residents' social contacts than ethnic concentration in the neighbourhood. Our findings for the percentage of ethnic minorities and for ethnic diversity in the neighbourhood are very similar. Given that in the current situation in the Netherlands ethnic concentration and ethnic diversity are highly correlated

($r = 0.91$), it is difficult to determine from our data whether ethnic concentration or ethnic diversity is more important, and to what extent the observed effects of ethnic concentration and ethnic diversity on ethnic minorities' social contacts with natives are the result of meeting opportunities or processes of ethnic competition and perceived threat.

However, the correlation between the percentage of co-ethnics and ethnic diversity was 'only' 0.64, which made it possible to study the extent to which ethnic diversity, beyond the statistical chance of meeting co-ethnics in the neighbourhood, has an additional effect on ethnic minorities' social contact with co-ethnics. The results (see Appendix Table A1) show that, after controlling for the opportunities to meet co-ethnics in the neighbourhood, ethnic diversity is still significantly related to ethnic minorities' social contact with co-ethnics. In contrast to the constrict theory (H3b), it was found that ethnic diversity is related to *more* rather than *less* social contact with co-ethnics, including when the percentage of co-ethnics in the neighbourhood is taken into account. In other words, we again find no evidence that ethnic diversity results in social isolation in general. In addition, these analyses show that apart from meeting opportunities, other mechanisms are at work, for example a lower willingness of natives due to perceived threat, which prompts ethnic minorities stay more within their own ethnic group. However, because ethnic concentration and ethnic diversity are highly correlated, it remains hard to identify whether it is

ethnic concentration in general or ethnic diversity that is causing this additional effect.

Economic disadvantage in the neighbourhood was again found to be related to more social contact with native friends. Furthermore, the estimates found for the individual characteristics were similar to those in the previous analyses.

The Importance of the Neighbourhood

Finally, an interesting finding emerges from the examination of the neighbourhood variances. Our full models (Tables 6–8) explain much more of the neighbourhood variance in ethnic minority residents' social contacts with co-ethnics (ranging from 68.6 to 75.9%) than of the neighbourhood variance in their contacts with natives (ranging from 11.1 to 53.9%) and other ethnic minority groups (ranging from 1.9 to 28.3%). Together with the finding that a greater proportion of the total variance in contact with co-ethnics than in contact with natives and other ethnic minority groups can be ascribed to the neighbourhood (see Table 4), and that the effects of the ethnic composition measures are all stronger for contacts with co-ethnics than for contact with natives and other ethnic minority groups (Tables 5–8), this indicates that the neighbourhood and its ethnic composition is more important for ethnic minority residents' social contacts with co-ethnics than for their social contacts with natives and other ethnic minority groups.

Conclusions and Discussion

The aim of the present study was to examine the relationship between contact with natives, co-ethnics and other ethnic minorities and study whether and to what extent different dimensions of the ethnic composition of the neighbourhood affect these social contacts, taking relevant neighbourhood conditions into account.

First, our results show that it is important to study ethnic minority residents' social contacts with natives and with co-ethnics separately: whereas many studies often implicitly assume that more contact with natives is related to less social contact with co-ethnics, our results show that at the individual level, social contacts with natives and with co-ethnics are not inversely related. In line with Van Craen and colleagues (2007), we found that ethnic minority residents who have frequent contact with co-ethnics also have more frequent contact with natives.

Moreover, analysing social contacts with natives and with co-ethnics separately revealed that the neighbourhood context is more important for ethnic minority residents' social contacts with co-ethnics than for their social contacts with natives, which further highlights the need to differentiate between contact with natives and with co-ethnics when studying the effect of the ethnic composition of the neighbourhood on ethnic minorities' social contacts.

Our second aim was to study whether and how different dimensions of the ethnic composition of the neighbourhood are related to ethnic minorities' social contacts with natives, co-ethnics and other ethnic minorities. From our multivariate multilevel analyses it became clear that in contrast to what was found at the individual level, social contacts with co-ethnics and with natives are inversely related at the neighbourhood level. In neighbourhoods where ethnic minority residents have more frequent contact with co-ethnics, they generally have less frequent contact with natives. This was found to be due in large part to the ethnic composition of the neighbourhood. In addition to previous studies which found that ethnic concentration in the neighbourhood was related to less social contact with natives (e.g. Gijsberts and Dagevos, 2007; Van der Laan Bouma-Doff, 2007; Martinovic, Van Tubergen and Maas, 2009), our results showed that ethnic concentration (i.e. the percentage of ethnic minorities) and ethnic diversity in the neighbourhood are not only related to *less* social contact with natives, but also to *more* social contact with co-ethnics. The percentage of co-ethnics in the neighbourhood is related to more social contact with co-ethnics, but is not related to ethnic minorities' contact with natives. The ethnic composition of the neighbourhood proved to be less important for ethnic minorities' contact with persons from other ethnic minority groups. Only a small amount of variance can be ascribed to differences between neighbourhoods and only a small effect of ethnic diversity was found: more ethnic diversity is related to more social contact with other ethnic minorities.

Taken together, these results refute Putnam's constrict theory, which suggested that ethnic diversity would not only result in less contact with natives, but also in less contact with co-ethnics and other ethnic minority groups. Our findings were largely in line with the idea of meeting opportunities and ethnic competition theories, in that ethnic concentration was found to be related to *less* contact with natives but to *more* contact with co-ethnics. However, although additional analyses suggest that both processes are at work, it is not possible on the basis of our study to determine to

what extent meeting opportunities and ethnic competition each influence ethnic minorities' social contacts. Moreover, because ethnic concentration and ethnic diversity are highly correlated in the Dutch case, we were not able to investigate whether it is the concentration or the diversity that primarily explains the relationships found. Research in other countries where ethnic concentration and ethnic diversity are less highly correlated would therefore be informative. In addition, more in-depth research is needed in order to gain a better understanding of the underlying mechanisms of the relationships found, as well as possible differences between ethnic groups and people of different gender and age.

Finally, the third aim of our study was to improve on previous studies by taking into account economic disadvantage and residential mobility to partial out their relative effects and study to what extent the relationship between the ethnic composition of the neighbourhood and ethnic minorities' social contacts remains after controlling for these neighbourhood characteristics. The present study showed convincingly that the relationship between dimensions of the ethnic composition of the neighbourhood and ethnic minorities' social contacts with natives, co-ethnics and other ethnic minority groups is not a spurious one; the effects of the ethnic composition of the neighbourhood proved to be consistent, substantial and highly significant, including when taking into account economic disadvantage and residential mobility.

Moreover, studying the ethnic composition, economic disadvantage, and residential mobility of a neighbourhood in relation to ethnic minority residents' social contacts at the same time produced some interesting results. Although not the main focus of the present study, the significant and *positive* relationship between economic disadvantage in the neighbourhood and ethnic minorities' social contacts with natives and other ethnic minority groups is striking. Whereas most studies have found a negative effect of economic disadvantage in the neighbourhood on residents' social contacts in general (e.g. Putnam, 2007; Small, 2007; Wittebrood and Van Dijk, 2007; Letki, 2008), we found that, after controlling for the ethnic composition and other characteristics of the neighbourhood, ethnic minorities who live in more economically disadvantaged neighbourhoods *more* often have social contact with natives and other ethnic minorities than ethnic minorities who live in neighbourhoods with a higher socioeconomic status.

A possible explanation might follow from the idea that persons with a lower education level and a lower socioeconomic position have a more localistic orientation (see Merton, 1968), being geographically relatively immobile and being involved in small social networks of persons who live within a short distance from their home. Gesthuizen, Van der Meer and Scheepers (2008) showed for example that persons from lower social classes more often have contact with their neighbours. Similar indications emerge from the study by Pinkster (2007), who found that most residents of a poor neighbourhood are locally oriented in their social network. Natives in economically disadvantaged neighbourhoods are therefore more likely to be locally oriented in their social contacts than natives in neighbourhoods with a higher socioeconomic status. As a result, ethnic minorities probably have more opportunities to meet natives in more economically disadvantaged neighbourhoods than in neighbourhoods with a higher socioeconomic status.

In addition, ethnic minorities in economically disadvantaged neighbourhoods are probably more likely to meet natives who are more similar to themselves as regards their education level and social class than in more affluent neighbourhoods. In general, ethnic minorities have a lower education level and socioeconomic position than natives. At the same time, there are probably more natives with a low education level and socioeconomic position living in economically disadvantaged neighbourhoods than in neighbourhoods with a higher socioeconomic status. Since most people prefer to have contact with persons who are similar to themselves, not only with regard to ethnicity but also in terms of education level and socioeconomic position (see e.g. McPherson, Smith-Lovin and Cook, 2001), this might result in a higher likelihood of coming into contact with natives for ethnic minorities who live in more economically disadvantaged neighbourhoods. Future research is needed to study this in more depth and to disentangle the relative effect of both the ethnic composition and economic disadvantage of the neighbourhood and their interplay in the formation of ethnic minority residents' social contacts with natives and other ethnic minority groups.

Policy Implications

Our findings have important implications for policy. We found that ethnic concentration and diversity in the neighbourhood not only constrain ethnic minorities' social contacts with natives, but also promote social contacts with co-ethnics. This is problematic, as social contacts with natives are thought to be helpful for ethnic minorities' further integration (Heath, Rothon and Kilpi, 2008), whereas social contacts with

co-ethnics can have negative consequences for ethnic minorities' further integration (see e.g. Portes, 1998; Pinkster, 2007).

To what extent our findings give cause for concern depends on how 'social contact' is interpreted. Our measure of 'social contact' is somewhat broad. Whether it entails greeting, chatting, visiting or lending each other assistance depends on the perception of the respondents. For the implications of our results, however, it makes probably a difference whether it entails only greeting, or whether it includes providing each other with useful support and advice. For example, a study of two ethnically concentrated neighbourhoods in Amsterdam showed that many of the residents' contacts are (very) superficial (Smets and Kreuk, 2008). At the same time, this study showed that different types of interethnic contact can be distinguished. Further research is therefore needed to study the extent to which the ethnic composition of the neighbourhood affects different types of social contact (see Gijsberts et al., 2010) and their quality (see Vervoort, 2010).

Nevertheless, the relationship we found between the ethnic composition of the neighbourhood and ethnic minorities' social contacts in general should not be depreciated. Earlier research which made use of similar measures for social contacts showed, for example, that ethnic minorities' social contacts affect their language proficiency (Martinovic, Van Tubergen, and Maas, 2009) and are related to their identification with the host country, attitudes towards natives and perceived acceptance (Dagevos and Gijsberts, 2008).

Our findings thus provide reason to believe that policies focused on the neighbourhood can help to stimulate social contacts between ethnic minorities and natives and improve ethnic minorities' integration. One widely used instrument in this regard is diversification of the housing stock in order to achieve more socially and also more ethnically mixed neighbourhoods (Veldboer, Kleinhans and Duyvendak, 2002).

Although such policies are likely to increase the opportunities for ethnic minorities and natives to meet each other, it remains difficult to indicate to what extent this will affect ethnic minorities' social contact with natives and co-ethnics (see also Van Kempen and Priemus, 1999). First, besides meeting opportunities, other mechanisms also seem to play a role in explaining the relationship between the ethnic composition of the neighbourhood and ethnic minorities' social contacts. Without more knowledge about these mechanisms, it is hard to predict to what extent changing the ethnic composition of the neighbourhood will affect their social contacts. Second, it is important to note

that a large amount of the neighbourhood variance in contact with natives (>50%) remained unexplained. The ethnic composition of the neighbourhood, and the other characteristics that we took into account, are unable to explain much of the difference between neighbourhoods in the frequency of ethnic minority residents' social contact with natives. Instead of the ethnic composition of the neighbourhood, other neighbourhood conditions such as the availability of meeting places, e.g. a playground, cultural centre or school, may therefore also be important—and perhaps even more important—for contact between ethnic minorities and natives (see Völker, Flap and Lindenberg, 2007). This might offer scope for alternative neighbourhood interventions in addition to changing the ethnic composition of the neighbourhood. Finally, it is important to realize that in these and other studies the neighbourhood effects found are relatively small compared to individual characteristics. Although the neighbourhood and its ethnic composition significantly affect ethnic minorities' social contacts with natives and co-ethnics, individual characteristics such as age, ethnic group and native language proficiency are still more important. Besides focusing on the neighbourhood context, it is therefore also necessary to invest in projects that stimulate language development, education and work.

Taken together, our findings indicate that the neighbourhood does indeed play a role in ethnic minorities' social contacts with natives and co-ethnics. The neighbourhood context can therefore be expected to offer possibilities for policy to improve ethnic minorities' integration. However, without knowing more about the mechanisms underlying the relationship between the ethnic composition of the neighbourhood and ethnic minorities' social contacts, and the significance and consequences of those social contacts for their integration in other areas, it remains difficult to indicate how and to what extent neighbourhood interventions can improve ethnic minorities' integration.

Notes

1. This measure leaves it up to respondents to decide who they perceive as 'friends'. The meaning of friendship could however be different in different ethnic groups. More research is needed to study the extent to which this might be the case.
2. The index we used is calculated using the formula $(1 - \sum p_i^2)$, where p is the proportion of

neighbourhood residents in ethnic group *i*. We distinguished between the proportion of natives, persons of Turkish, Moroccan, Surinamese, and Antillean background, other non-Western ethnic minorities and Western ethnic minorities in the neighbourhood. The index ranges from 0 to 1, with 1 representing perfect ethnic diversity.

3. Following this procedure, we reran the statistical models one hundred times, each time introducing different small random errors in our measures at the neighbourhood level. The software randomly assigned a score from a uniform distribution (from −1 SD to +1 SD), which was added to the observed value. If the coefficients found in our analyses are the result of multicollinearity, we would expect that the introduction of random errors simultaneously in all our measures at the neighbourhood level would strongly affect the coefficients. For each of the hundred perturbation analyses, we tested the coefficients and calculated how many times the coefficients were significant and how many times the coefficients operated in the same direction as that found in the original analyses. We thus repeated each analysis one hundred times while introducing different random error terms each time. Subsequently, we compared the resulting coefficients with the coefficients found in the original analyses to see whether our results were stable or were likely to be affected by multicollinearity. From these analyses it emerged that our models were stable and that our original findings did not seem to be affected by multicollinearity. The results of the perturbation analyses are available on request.

4. Additional analyses show that the effect of gender is different for the Moroccan group. Whereas for the other ethnic groups, males have more contact with native neighbours than females, this effect is less strong for the Moroccan group. In other words, Moroccan males and females differ less from each other with regard to their contact with native neighbours than the other ethnic groups. With regard to social contact with other ethnic minorities it was found that the effect of gender is stronger for people of Surinamese origin, suggesting that the difference between Surinamese males and females is greater than for the other groups.

5. Additional analyses show that these effects are not significantly different between ethnic groups.

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Appendix

Table A1 Results of (multivariate) multilevel analyses of ethnic minorities' social contacts with native neighbours, native friends, co-ethnic neighbours, co-ethnic friends and other ethnic minorities with ethnic diversity and percentage of co-ethnics (standardized coefficients)

	Native neighbours ($N = 4{,}178$)	Native friends ($N = 4{,}183$)	Co-ethnic neighbours ($N = 4{,}092$)	Co-ethnic friends ($N = 4{,}070$)	Other ethnic minorities ($N = 4{,}203$)
Contextual level					
Percentage of co-ethnics	0.027 (0.024)	0.033 (0.021)	0.156 (0.021)***	0.055 (0.022)*	−0.085 (0.022)[a],***
Ethnic diversity	−0.122 (0.027)***	−0.162 (0.024)***	0.115 (0.024)***	0.125 (0.025)***	0.108 (0.025)***
Economic disadvantage	0.038 (0.022)	0.056 (0.020)**	−0.005 (0.020)	0.016 (0.021)	0.077 (0.021)***
Residential mobility	−0.020 (0.019)	0.009 (0.017)	−0.023 (0.017)	−0.010 (0.018)	−0.013 (0.018)
Intercept	0.012 (0.018)	0.008 (0.015)	−0.006 (0.016)	−0.009 (0.016)	−0.003 (0.016)
Variance at neighbourhood level	0.081 (0.014)***	0.034 (0.010)***	0.043 (0.010)***	0.034 (0.010)***	0.040 (0.011)***
Per cent explained	18.2	55.3	77.0	71.2	24.5
Variance at individual level	0.848 (0.021)***	0.746 (0.018)***	0.736 (0.018)***	0.811 (0.020)***	0.810 (0.020)***
Per cent explained	4.7	18.4	12.0	9.2	14.5

Note: After controlling for ethnic group, age, gender, migration background, household composition, home ownership, attending school, education level, socioeconomic position, Dutch language proficiency, reason for neighbourhood.
[a]*Perturbation analyses showed that this effect is highly unstable and analyses for each ethnic group separately show that this effect is only significant for Antilleans. Great caution is therefore required in interpreting this effect.*
*P < 0.05; **P < 0.01; ***P < 0.001.