

Perceived Diversity and Acceptance of Minority Ethnic Groups in Two Urban Contexts

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Submitted August 2014; revised February 2016; accepted February 2016

Abstract

This paper investigates the relationship between perceived ethnic diversity at the neighbourhood level and acceptance of minority ethnic groups. We draw on a representative survey conducted in two dissimilar diversity contexts—Leeds, UK and Warsaw, Poland. The results of multilevel models demonstrate that in both cities, an increase in perceived ethnic diversity in the neighbourhood is related to an increase in ethnic prejudice of White-British and Polish people. However, the negative association of subjective perceptions of diversity with attitudes depends on the level of actual diversity in the neighbourhood. In Leeds, perceived diversity is more strongly negatively related with attitudes of residents living in more ethnically diverse neighbourhoods, while in Warsaw, in more homogenous neighbourhoods. We also find that in Leeds, the relationship between acceptance of minority ethnic groups and perceptions of diversity is moderated by the recent change in neighbourhood actual diversity (especially inflow of minorities of ‘other White’ and ‘Mixed’ ethnicity) and change in neighbourhood deprivation (increase in council housing). The findings testify to the importance of conducting comparative studies of the diversity of effects in various settings across Europe and the potential of using subjective measures of diversity in future research.

Introduction

Recent scholarly debates have brought a new narrative of ethnic diversity and the emergence of the ‘diversity discourse’ as a result of a minority rights revolution and the rise of identity politics (Vertovec, 2012). ‘Diversity’ has become an object of both qualitative and quantitative studies in social sciences. This paper investigates whether people perceive their surroundings as ‘diverse’ and how these perceptions interplay with social attitudes. Perceptions of ethnic diversity have been recognized as important indicators of the quality of social relations and acceptance of minority ethnic groups, yet there are mixed results regarding the direction of their effect. Thus, the conceptual status of such

perceptions should be further investigated (Kuovo and Lockmer, 2013; Schaeffer, 2014; Hooghe and de Vroome, 2015; Koopmans and Schaeffer, 2016). We explore whether the effect of perceived level of neighbourhood diversity (the perceived proportion of residents of different ethnic background) on attitudes towards ethnic minorities is moderated by contextual variables: level of actual ethnic diversity (share of non-native residents), change in the actual diversity level, and change in neighbourhood socioeconomic disadvantage.

We draw on original empirical data gathered through a representative survey in two dissimilar socio-cultural urban contexts: Leeds, UK and Warsaw, Poland (N = 3,021) conducted within a larger comparative study ‘Living with Difference in Europe: Making communities

out of strangers in an era of super mobility and super diversity”, 2010–2014 (see *Piekut et al., 2012*). Both cities have witnessed a recent influx of migrants from other European countries, although international migration to Leeds has a longer history after the Second World War, and in both cities, the manufacturing industry has recently declined, while financial and business services have grown. In Leeds, the proportion of minority ethnic groups is close to the UK national average (17.5 per cent, 2011 census). Warsaw is the most socially diverse Polish big city, offering more opportunities for encounters with minority ethnic groups than other Polish cities, although it is still much less ethnically diverse than Leeds (1 per cent, 2002 census). By comparing these two dissimilar contexts, we aim to better understand ethnic prejudice and its relations with different levels of awareness of ‘diversity’ (*Vertovec, 2012*).

Diversity, Perceptions, and the Two Diversity Contexts

Actual diversity is a function of the number and proportions of social categories defined in terms of a common attribute, e.g. ethnicity (*Harrison and Klein, 2007*). The influence of such compositional ethnic diversity on social relations and tolerance has been extensively investigated in North America and selected Western European countries. *Putnam’s (2007)* results on the negative effects of actual ethnic diversity on social capital and solidarity at the neighbourhood level were corroborated by some studies (*Stolle, Soroka and Johnston, 2008*), but in other studies, the ‘hunkering down’ hypothesis has been rejected or results were inconclusive (*Tolsma, Van der Meer and Gesthuizen, 2009; Lancee and Dronkers, 2011; Laurence, 2011*). For within-neighbourhood indicators, results across Western Europe point to a negative effect of contextual heterogeneity (*Van der Meer and Tolsma, 2014*). No prior research has investigated contextual effects of actual diversity in Eastern Europe, except a study by *Górny and Toruńczyk-Ruiz (2014)*, where data from six European cities were aggregated.

Perceived diversity is the degree to which people subjectively recognize that an area or a group is composed of different social categories and of people who are different from themselves. Perceptions have been recognized as important predictors of social behaviour and can be partially independent of statistical diversity; thus, some studies indicate that factors that moderate the effect of perceived diversity should be investigated (*Schaeffer, 2014: p. 93; Newman et al., 2015*). Yet, there is mixed evidence in the literature regarding how perceptions of

diversity operate—some claim a positive and some a negative impact on attitudes towards outgroups.

Perceived Diversity and Acceptance of Minority Ethnic Groups

Attitudes towards outgroups can be improved through individual experiences, such as regular, equal-status contacts (*Hewstone, 2009; Schlueter and Scheepers, 2010*), but are also affected by contextual factors, like ethnic composition of an area (*Van der Meer and Tolsma, 2014*). Perceived level of ethnic diversity is, in turn, associated with the level of actual ethnic diversity of the neighbourhood, and related higher opportunities of interethnic contact (*Petermann, 2014; Schaeffer, 2014*).¹ While some studies understand perceptions as a mechanism through which actual diversity operates (*Semyonov et al., 2004; Strabac, 2011*), we propose that perceived diversity might not merely be a function of actual diversity, but also might have its own effect on attitudes (*Kuovo and Lockmer, 2013; Koopmans and Schaeffer, 2016; see also Hooghe and de Vroome, 2015*). Figure 1 summarizes our theoretical framework.

Yet, it could be that rather than perceived diversity affecting attitudes towards minorities, attitudes could shape our perceptions of diversity too. The causal order used by us follows research in this field, where outgroup attitudes were predicted by various objective and subjective diversity measures (*Kuovo and Lockmer, 2013; Hooghe and de Vroome, 2015*). Evidence of such an explanatory order from perceived diversity to attitudes was also supplied in other studies. For example, *Newman et al. (2015, footnote 6)* replicated their results adding a ‘causality loop’ between perceptions of immigration size and anti-immigrant sentiments, and found the same results. *Koopmans and Schaeffer (2016: p. 868)* also argued—regarding the results of a priming experiment from another study—that perceptions of diversity causally affect trust in neighbours. Similarly to these authors, we assume that perceptions of diversity impact attitudes towards minorities and not the opposite. Moreover, in our study, the question on perceived diversity was asked first during the interview to avoid the bias stemming from placing the attitudinal questions first. However, owing to the cross-sectional nature of our survey, we cannot confirm the causal direction of the relationship between perceived diversity and attitudes.

Competing Conceptualizations of Perceived Diversity

According to some literature, perceptions of ethnic diversity are related to different levels of awareness of

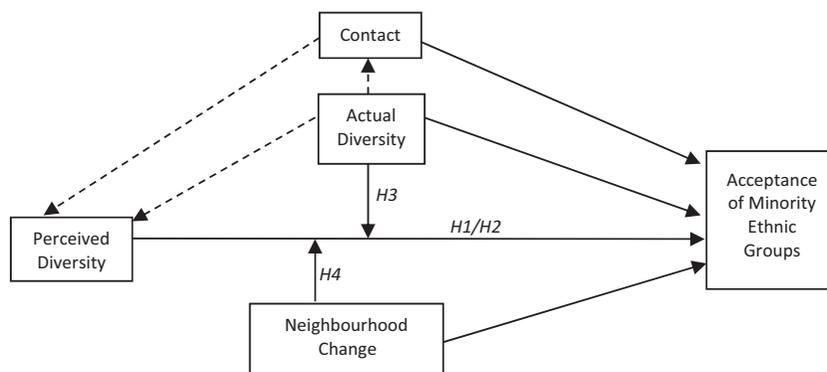


Figure 1. Causal ordering of the argument. *Note:* Solid lines represent tested relationships

neighbourhood diversity (Kuovo and Lockmer, 2013), and in some studies, they are used as an alternative measure of actual diversity (Petermann, 2014; Stolle *et al.*, 2008). People living in more ethnically heterogeneous areas have more opportunities to meet minority ethnic groups and, in line with the contact hypothesis (Allport, 1954), they should develop more favourable attitudes towards them (Van der Meer and Tolsma, 2014). If perceptions of diversity reflect these real day-to-day experiences and more interethnic contact (Petermann, 2014; Schmid, Al Ramiah and Hewstne, 2014), they should positively impact attitudes towards outgroups. It could be thus argued that people who perceive their neighbourhoods as more diverse are more accepting of minority ethnic groups, because they have more opportunities for inter-ethnic contact (H1).

Another strand of research argues that perceptions of diversity do not mirror actual diversity. Opportunities for encountering people of different ethnic background may be associated with selective cognition and mechanisms related to feelings of threat (Semyonov *et al.*, 2004; Kuovo and Lockmer, 2013). Prejudice is higher among populations who provide higher estimates of minority populations (e.g. Hooghe and de Vroome, 2015 in Belgium, and Strabac, 2011 in Germany). Thus, perceived diversity and outgroup size would work through perceived group threat and not through contact, as more diverse surrounding means more competitors for real and symbolic resources, which poses a threat to one's own group's privileges (Blalock, 1967; Schlueter and Scheepers, 2010). We could then alternatively hypothesize that the higher the perceived diversity at the neighbourhood level, the more negative the attitudes towards ethnic minorities (H2).

We therefore have two competing hypotheses: one stating that the level of perceived diversity in the neighbourhoods is associated with more contact

opportunities, and the other one claiming that it is linked with perceptions of threat that ethnic diversity could represent. If the first hypothesis is valid, the positive effect of perceptions (if existent) should be reduced if we control for the opportunities to encounter people of different ethnicity and/or the individual experience of contact, as even high levels of actual diversity do not necessarily lead to contact (Hewstone, 2009). If the second is true, even after controlling for both variables, the negative effect of perceptions will remain.

If perceived diversity partially represents a different phenomenon from actual diversity, its effect may differ across neighbourhoods, depending on the level of actual diversity. We should further investigate whether people perceive diversity similarly in homogenous and heterogeneous neighbourhoods. The level of overestimation of the minority group size is more strongly negatively related to the acceptance of ethnic minorities than perceptions (Gallagher, 2003; Alba, Rumbaut and Marotz, 2005). It could be argued that people who perceive their neighbourhoods as more diverse than they are in 'reality' would express more negative attitudes towards ethnic minorities, because their perceptions would more likely reflect the fears towards 'imagined other' than perceptions of people living in actually heterogeneous settings. Meanwhile, high perceptions of residents of diverse neighbourhoods would more likely be a result of 'real' contact opportunities. We therefore hypothesize that the relationship between acceptance of minority ethnic groups and perceived diversity is conditional on the actual diversity level, such that the relationship will be negative in homogenous neighbourhoods and positive or zero in heterogeneous neighbourhoods (H3). We expect that the most prejudiced will be people living in homogenous neighbourhoods but perceiving them as diverse.

Finally, studies using a 'dynamic' version of the conflict group theory demonstrated that the contextual

effects of actual diversity might operate differently in different periods (Hopkins, 2010; Meuleman, Davidov and Billiet, 2009; Legewie, 2013). As such, perceptions can be also affected by the recent change in the share of minority ethnic population in the neighbourhood (*H4a*) and a recent change in neighbourhood deprivation (*H4b*), which will make the presence of minority ethnic groups more perceptible.

Situating Perceptions in the Two Diversity Contexts

This study compares two dissimilar diversity contexts. In Leeds, the proportion of minority ethnic residents is close to the UK national average (17.5 per cent, 2011 Census), but it has a longer experience with ethnic diversity in past decades than Warsaw. Meanwhile, Warsaw has a history of ethnic diversity interrupted by the Second World War and the communism era and only after 1989 is it slowly becoming more multicultural again (Piekut *et al.*, 2014; Valentine *et al.*, 2015). Foreign residents comprise a small fraction of the Warsaw population and it was about 1 per cent according to the 2002 census and 1.5 per cent according to 2004 Office for Foreigners data (2011 census data are not yet available for Warsaw²). In Leeds, the most numerous minority ethnic groups are Asian (mostly Indian, Pakistani, and Bangladeshi), and Black minority groups, but the ‘other White’ category has also increased recently (ONS, 2011). In Warsaw, the biggest immigrant groups originate from other Eastern European countries (mostly Ukraine and Belarus, although often they are temporary migrants; Toruńczyk-Ruiz, 2014), Asia (Vietnam, China, Turkey), and Western Europe. The Vietnamese constitute the most established ethnic minority in Warsaw with origins of immigration dating back to 1950s (Grzymała-Kazłowska, 2002), and a growing second generation that is visible in local schools (Halik, Nowicka and Poleć, 2006). In the UK, refugees and asylum seekers mostly come from Asian and African countries (e.g. Pakistan, Iran, Sri Lanka, and Eritrea), while in Poland, the majority of them are of Chechen ethnicity, from Russia. So in both countries, some refugees are of Muslim religion. Four of the 12 refugee centres in Poland are situated in Warsaw or its vicinity, which makes refugees in Warsaw quite visible.

The dominant narratives on ethnic diversity are different in both national settings. According to the European Social Survey, the percentage of Polish people stating that immigration is bad for the economy fell from 39 per cent in 2002 to 28 per cent in 2012, while British respondents remained consistently sceptical

towards immigration, with 44 and 45 per cent respondents holding this view, respectively. Moreover, after the economic crisis of 2007–2008, the debate on immigration in British media has changed and it is now often framed around ‘domestic social justice’ and access to public services, including benefits (Balch and Balabanova, 2014). Meanwhile, immigration in Poland had not been mobilized in political debates at the time of the research in 2012.

Methods

Survey Methodology

The survey on attitudes was conducted in February–April 2012, with a computer-assisted personal interviews method with 1,522 adult respondents in Leeds and 1,499 in Warsaw, in their homes. For Leeds, the sampling frame was based on the ONS Mid-Year estimates 2009 for gender and age and on the 2001 census for working status, while for Warsaw, on 2009 Central Statistical Office statistics and the 2002 census, respectively. We applied a random location quota sampling design. This approach mixes a random selection of respondents with purposive sampling across different demographic profiles, with quotas for gender, age (18–34, 35–54, and 55+), and work status at the level of Output Areas (OAs) in Leeds and Statistical Regions (SRs) in Warsaw, representative of the population of that unit. To avoid ‘in-group favouritism/bias’ (Hewstone, Rubin and Willis, 2002), we excluded people of minority ethnic background in the UK and non-Polish nationality in Poland from the analyses and the final samples’ sizes were 1,036 for Leeds and 1,179 for Warsaw.³

Dependent Variable: Acceptance of Ethnic Minority Groups

We used an attitudinal measure of social distance describing a hypothetical form of contact (Dovidio *et al.*, 2010), i.e. acceptance of including minority ethnic groups in the ‘majority’ society. Respondents were asked to agree or disagree with the following statements (5-point scale): (i) *refugees and asylum seekers should have the right to work*; (ii) *I would be comfortable if my child’s teacher was Asian*; (iii) *a country’s culture is damaged by immigrants*; and (iv) *minority groups have too many rights nowadays*. The scales are reliable at Cronbach’s alpha of 0.74 in Leeds and 0.66 in Warsaw.⁴ Values were normalized on a scale from 0 to 100 (no acceptance–high acceptance).

Modelling Procedure and Neighbourhood Independent Variables

We used multilevel random intercepts models⁵ to conduct the analyses. The respondents were nested within spatial areas: OAs in Leeds (approximately 300 residents and 0.22 km²) and SRs in Warsaw (approximately 1,200 residents and 0.36 km²)—the lowest levels of census geographies in both cities. Research has demonstrated that subjective perceptions are more responsive to smaller geo-units representing a more immediate context (Newman *et al.*, 2015)—both OAs and SRs are the closest spatial scales to the neighbourhoods that we asked about in the survey. Sample size at the second level of analysis varies from 1 to 9 in Leeds (188 OAs, on average of 5.5 people per area) and 1 to 12 in Warsaw (155 SRs, on average 7.6 people per area). Models were fitted with maximum likelihood estimation using the ‘xtmixed’ command in Stata 12. The sample was weighted at the individual and OA/SR levels.

At the OAs/SRs level, we included a set of contextual variables based on data from the 2011 and 2001 censuses in the UK and the 2002 census in Poland. Actual (objective) ethnic diversity was measured as the percentage of the non-White British (Leeds) or non-Polish (Warsaw) population.⁶ We also used measures of ‘visible’ and ‘invisible’ diversity (the percentage of selected minority ethnic groups) and change in the size of ethnic minorities for Leeds between 2001 and 2011 censuses, to check whether the effect of perceptions depends on the composition or change in diversity in both cities. [Supplementary Material 3](#) discusses the limitations of available measures of actual diversity from the Polish census.

Ethnic diversity is more likely to negatively affect contact with neighbours for people living in deprived and disadvantaged communities (Laurence, 2011). We use share of council housing as a measure of deprivation (and change in 2001–2011 for Leeds), as this was the only comparable variable between both cities.⁷ Also, residential populations are not static and more mobility could lead to less opportunity for social interaction with people who are different (Tolsma *et al.*, 2009). We control for residential mobility at the neighbourhood level too. The contextual variables are described in [Table A2](#).

Independent Individual-Level Variables

Perceived (subjective) ethnic diversity

Most studies, including the European Social Survey Waves 2–6, measure perceived group size of a minority group at the national level (Gallagher, 2003; Semyonov

et al., 2004; Alba *et al.*, 2005; Strabac, 2011). We wanted to measure perceptions of ethnic diversity in residents’ more immediate setting, which is related to individual experiences. Different versions of the question were tested in a cognitive pilot study; interestingly respondents found the question directly asking about the diversity level and percentage of non-indigenous population in their neighbourhood to be too difficult. This follows observations from other studies that ordinal scales may better speak to subjective perceptions (Newman *et al.*, 2015). We therefore asked the respondents: *In your neighbourhood, roughly what proportion of the people are of a different ethnic background than you?* Responses were given on a 5-point scale: 1 = ‘none or almost none’, 2 = ‘less than a half’, 3 = ‘about a half’, 4 = ‘more than a half’, and 5 = ‘all or almost all’. Neighbourhood was defined as an area within walking distance from home. The variable was skewed, so it was log transformed (see [Supplement Material 1](#) for an alternative analysis with perceptions as a categorical variable).

We acknowledge that diversity perceptions are socially constructed and who is considered to be ‘of different ethnic background’ varies between both cities. So, the diversity question might have mobilized different associations in both contexts.

Contact

Interethnic contact involving social interaction was measured as follows: *We’d like to know about the people you come into contact with in your day-to-day life. By coming into contact, we mean talking to people or doing something together, not just happening to be in the same place and passing each other by. In your day-to-day life, where, if at all, do you usually come into contact with people who have an ethnic background that is different from yours?* Respondents could indicate more than one place choosing from a list of public (e.g. street, park, public transport) and quasi-public (e.g. workplace, social club, bar) spaces. The final measure is a binary variable indicating no contact in any of these places, or contact in at least one of these places.

The Polish version of the key questions is provided in [Supplement Material 2](#).

Control variables

In line with other studies, we include basic sociodemographic variables in the model: gender, age, marital status, ethnicity/nationality and religion, education level (which is correlated with occupational level), work status, and having a family member of different ethnicity.

All independent variables, except dummy variables, were centred around grand-means. [Table A1](#) contains a summary of all variables before centring.

Analytical Strategy

We conduct our analysis in a few steps. First, to test *H1* and *H2*, we explore whether perceived diversity has a positive or a negative effect on acceptance of ethnic minorities. We introduce the measures of perceived and actual diversity in separate models, without the contact variable at first, to see the effect of perceived diversity before controlling for the contextual opportunities of encountering people of different ethnic background and individual interactions with them. Next, the contact measure is introduced to see whether it influences perceived diversity. As we are interested in finding whether the relationship between acceptance of ethnic minorities and perceptions of difference depends on some contextual factors, a moderation analysis was done. A few interaction terms were included in the models. *H3* is investigated by introducing an interaction term between the perceived and actual diversity measures to check whether the impact of perceptions of ethnic diversity is conditional upon the level of objective diversity. To further explore differences between the two cities, we replicated this model using two different measures of actual diversity—percentage of ‘visible’ and ‘invisible’ minorities (classified by ethnicity) in the neighbourhood. For Leeds, we then test whether the relationship is moderated by the recent change in the level of diversity and share of council housing (as a measure of neighbourhood deprivation), to verify *H4*.

Results

In Leeds, 45 per cent of the respondents stated that they live in ethnically homogenous neighbourhoods, compared with two-thirds in Warsaw. In both cities, the distribution of perceptions is skewed, with only 2 per cent of the respondents in Leeds and 1 per cent in Warsaw assessing that all or almost all their neighbours are of different ethnic background than them. Subjective perceptions of ethnic diversity are moderately and positively correlated with objective diversity indicators in Leeds, while in Warsaw, no correlations are observed (see [Tables A3](#) and [A4](#)). The lack of association between actual and perceived diversity in Warsaw could be explained by the fact that some categories of immigrants were not included in the resident population in the 2002 census ([Okólski, 2010](#)) and owing to its lower variability. Only in Warsaw are diversity perceptions

significantly (negatively) correlated with acceptance of minority ethnic groups. In the next section, we check whether any of these relationships (or lack of them) hold true when we simultaneously control for all neighbourhood and individual variables.

Predicting Attitudes with Perceptions of Diversity

The model results are displayed in [Table 1](#) for Leeds and [Table 2](#) for Warsaw. We observe similarities and differences between both cities. In Leeds, when the diversity variables are introduced separately, perceived diversity is not significantly related to acceptance (Model L1, [Table 1](#)), but actual diversity is positively related to attitudes towards ethnic minorities (L2). However, when both are added to the model together, the positive effect of objective diversity increases, and the negative effect of subjective perceptions becomes significant (L3). In Warsaw, differently than in Leeds, there is a significant relationship between perceived diversity and attitudes, before accounting for actual diversity, and it is negative (Model W1 in [Table 2](#)). Actual diversity either in the model when it is introduced separately (W2) or with perceived diversity (W3) does not have a statistically significant effect. The effect of perceived diversity becomes slightly more negative after the actual diversity measure is added (W3). Therefore, in Leeds only, when the actual diversity, which contributes to perceptions, is ‘filtered out’, the relationship between attitudes and perceived diversity becomes significant and negative. Meanwhile in Warsaw, which is more ethnically homogenous, actual diversity in the neighbourhood does not have any statistically significant impact on attitudes, but perceived diversity does.

The results are similar in Leeds and Warsaw with the contact measure present. In both cities, contact significantly increases the acceptance of ethnic minorities, and the inclusion of contact to the model with perceived diversity only increases the apparent negative impact of perceived diversity on attitudes (L4/W4 vs. L1/W1). When added to the model with actual diversity, it ‘strips out’ some of the positive effect of actual diversity, at least in Leeds (L5). After adding the contact measure and controlling for both actual and perceived diversity (L6), the relationship between perceived diversity and attitudes becomes even more negative and more significant in comparison with the no-contact model (L3). In Warsaw, a similar dynamic is observed—the negative effect of perceived diversity becomes more negative in the model where all three key variables are added (W6), though the actual diversity coefficient remains insignificant ($p = 0.129$).

Table 1. Multilevel regression analysis of acceptance of minority ethnic groups in Leeds, unstandardized scores ($N_{\text{indiv}} = 1,036$, $N_{\text{neigh}} = 188$)

Independent variables	Model L1		Model L2		Model L3		Model L4		Model L5		Model L6		Model L7	
	b	SE												
Intercept	55.998	(1.875)***	55.960	(1.844)***	55.543	(1.883)***	50.109	(2.159)**	50.536	(2.063)***	49.605	(2.148)***	51.034	(2.112)***
Contextual level (OAs)														
Percentage of non-White British residents	0.090	(0.048)*	0.090	(0.048)*	0.142	(0.055)***			0.082	(0.049)*	0.143	(0.056)**	0.246	(0.062)***
Percentage of council housing	-0.120	(0.046)***	-0.126	(0.047)***	-0.121	(0.047)**	-0.112	(0.046)**	-0.120	(0.047)***	-0.113	(0.08)**	-0.107	(0.047)**
Percentage of mobile residents	0.129	(0.051)**	0.114	(0.049)**	0.094	(0.048)*	0.130	(0.052)**	0.114	(0.050)**	0.094	(0.05)*	0.091	(0.049)*
Individual level														
Perceived diversity in neighbourhood (log)	-0.678	(1.595)			-2.914	(1.743)*	-1.237	(1.613)			-3.509	(1.769)**	-4.652	(1.731)***
Contact with people of different ethnic background outside home							6.847	(1.832)***	6.374	(1.775)***	6.894	(1.807)***	6.945	(1.774)***
Interaction term														
Perceived diversity in neighbourhood (log) × Percentage of non-White British													-0.269	(0.095)***
Variance at OA level	75.50		67.88		66.51		64.25		66.79		66.22		62.75	
Per cent explained	56.57		60.96		61.75		63.04		61.59		61.91		63.91	
Variance at individual level	385.94		386.36		383.44		380.48		384.67		382.50		378.93	
Per cent explained	12.66		12.57		13.23		13.90		12.95		13.44		14.25	

*** $P < 0.05$, ** $P < 0.01$ (2-tailed), robust standard errors in brackets.
 Note. Model controls for other individual-level variables.

Table 2. Multilevel regression analysis of acceptance of minority ethnic groups in Warsaw, unstandardized scores ($N_{\text{indiv}} = 1,179$, $N_{\text{neigh}} = 155$)

Independent variables	Model W1			Model W2			Model W3			Model W4			Model W5			Model W6			Model W7				
	Perceived diversity only	Actual diversity only	SE	Perceived diversity only	Actual diversity only	SE	Perceived diversity only + contact	Actual diversity only + contact	SE	Perceived diversity only + contact	Actual diversity only + contact	SE	Perceived diversity only + contact	Actual diversity only + contact	SE	Perceived diversity only + contact	Actual diversity only + contact	SE	Perceived diversity only + contact	Actual diversity only + contact	SE		
Intercept	56.580	(1.719)***		56.909	(1.722)***		56.657	(1.721)***		54.313	(1.849)***		54.883	(1.844)***		54.394	(1.853)***		54.309	(1.866)***			
Contextual level (SRs)																							
Percentage of non-Polish residents			1.467	(0.955)		1.477	(0.952)		1.420	(0.944)		1.428	(0.942)		1.480	(0.957)		1.480	(0.957)				
Percentage of council housing	0.000	(0.044)		-0.012	(0.045)		-0.006	(0.045)		-0.002	(0.044)		-0.014	(0.045)		-0.007	(0.045)		-0.009	(0.045)			
Percentage of mobile residents	0.101	(0.089)		0.101	(0.090)		0.099	(0.089)		0.104	(0.089)		0.104	(0.090)		0.102	(0.089)		0.102	(0.089)			
Individual level																							
Perceived diversity in neighbourhood (log)	-3.045	(1.541)**					-3.053	(1.538)**		-3.793	(1.558)**		-3.793	(1.558)**		-3.799	(1.555)**		-3.969	(1.567)***			
Contact with people of different ethnic background outside home																							
Interaction term																							
Perceived diversity in neighbourhood (log) × Percentage of non-Polish residents																							
Variance at SR-level	83.01			82.01			81.50			82.29			81.62			80.78			81.22				
Per cent explained	29.88			30.72			31.16			30.48			31.05			31.76			31.39				
Variance at individual level	302.48			303.52			302.58			298.53			300.07			298.66			298.05				
Per cent explained	6.28			5.95			6.24			7.50			7.02			7.46			7.65				

* $P < 0.1$, ** $P < 0.05$, *** $P < 0.01$ (2-tailed), robust standard errors in brackets.

Note. Model controls for other individual-level variables.

In sum, when actual diversity and contact are taken into account, in both cities, the subjective diversity variable is significantly and negatively associated with social acceptance of ethnic minorities, supporting *H2* over *H1*. This means that people who report higher diversity in their residential surroundings are less accepting of ethnic minorities. Yet, in Leeds, actual diversity is positively related to attitudes, and in Warsaw, it is not statistically significant, probably owing to its lower variability. Hence, contextual diversity in Leeds leads to improvement of outgroup attitudes, indicating the importance of daily coexistence with ethnic difference in the immediate residential setting for prejudice reduction.

In Models L7 and W7, we introduce interaction terms between perceptions of diversity and actual diversity to explore whether the effect of perceptions is different among people living in more and less diverse neighbourhoods. The interaction term between subjective diversity and actual diversity is significant in Leeds only and it is negative, while in Warsaw, it is positive, but outside the significance level ($p = 0.122$). In Leeds, the relationship is different than hypothesized in *H3*. People living in comparatively diverse neighbourhoods, but perceiving them as not diverse, are the most accepting of minority ethnic groups. However, an increase in perceived diversity has a negative effect only on acceptance of people living in areas with a high level of actual ethnic diversity. Residents with high subjective perceptions of diversity and who live in homogenous neighbourhoods are the most prejudiced, but their attitudes are at a similar low level as attitudes of residents living in high-diversity areas who also perceive their neighbourhoods as very diverse.

Results for Warsaw do not provide evidence to support *H3* either. After experimenting with different measures of actual diversity, we found that there was a significant interaction effect on attitudes, only when instead of percentage of non-Polish people, we used a dichotomous variable of presence of foreign residents in the neighbourhood (see results in the [Supplementary Material 3](#)). People living in areas with no foreign residents and with high perceptions of diversity are the most prejudiced, but if they live in neighbourhoods with some diversity, the negative impact of their perceptions ‘cancels out’. This relationship is significant only for a small number of extreme cases, so the results should be interpreted cautiously.

The Role of Neighbourhood Context for Shaping Perceptions

We now explore factors that could influence the perceptions of diversity in both cities. It could be argued that

perceived and actual diversities interact differently in both cities owing to dissimilar composition of the diverse neighbourhoods. For example, minority ethnic groups could be more visible in one city than in another. Hence, we replicated the final model using two different measures of actual diversity—percentage of ‘visible’ and ‘invisible’ minorities in the neighbourhood. The interaction term between both diversities remains significant only in models for Leeds, so we focus on this city in the further analysis (for Warsaw see [Supplementary Material 3](#)).

Both models with ‘visible’ and ‘invisible’ minority used as a measure of actual diversity replicate the pattern observed previously; however, the coefficient of the interaction term is significantly more negative when we use the ‘invisible’ diversity measure. This means that the effect of perceptions on attitudes is more negative among residents living in areas with more ‘invisible’ minorities than in neighbourhoods with less ‘invisible’ minorities in Leeds.

Given recent increases in migrants from Eastern Europe to the UK, it could be that more attention to ethnic difference is brought by recent change in the size of the minority population (Hopkins, 2010). Controlling for actual diversity, we run three separate models: with the change in the percentage of non-White British residents, change in ‘visible’ diversity, and change in ‘invisible’ diversity in the period 2001–2011, and interaction between perceptions and a respective measure of the change in actual diversity.⁸ The relationship between perceptions and acceptance is the most negative in neighbourhoods with higher inflow of ‘invisible’ minorities. The difference in the effect of perceptions on attitudes is not significant between neighbourhoods with low and high inflow of ‘visible’ minorities. These results indicate that perceived diversity has a more harmful effect on the acceptance of minority ethnic groups in neighbourhoods that have recently experienced a more substantial influx of minority ethnic residents—supporting *H4a*, especially if they were of ‘other White’ or ‘Mixed’ ethnicity.

To explore the importance of worsening of the neighbourhood socioeconomic condition (Meuleman *et al.*, 2009; Legewie, 2013), we swapped the percentage of council housing, with the change in the percentage of council housing between the years 2001 and 2011 (they were too highly correlated), and interacted it with perceptions of diversity. We kept the previous interaction term in the model (perceptions \times change in ‘invisible’ minorities). The negative role of perceptions is stronger among people living in areas where the share of council housing has recently increased, confirming *H4b*.

Importantly, the interaction between perceived diversity and the change in ‘invisible’ actual diversity remains significant, although its coefficient reduced.

The marginal effects for the conditional relationships between perceptions of diversity and acceptance are plotted in Figure 2. Graph A displays the results of the model with the percentage of the non-White British, Graph B with the percentage of ‘invisible’ minorities used instead of percentage of all minorities, Graph C with the change in percentage of ‘invisible’ minorities added, and Graph D with the change in council housing added. The Supplementary Material 4 presents the corresponding statistics.

Discussion and Conclusions

To date, research on the effect of ethnic diversity has extensively focused on the impact of actual diversity measures at the neighbourhood level and its implications for social capital formation, trust, and outgroup attitudes, as well as the quality of social interactions. Findings

from previous work demonstrated that actual ethnic diversity increases opportunities to encounter ethnic minorities and such contact has positive effects on prejudice reduction (Stolle *et al.*, 2008; Laurence, 2014). At the same time, other processes are at work that could contribute to the feeling of threat, such as recent increases of minority population size negatively impacting acceptance of otherness (Meuleman *et al.*, 2009; Hopkins, 2010; Schlueter and Scheepers, 2010). Therefore, perceived diversity has been operationalized in previous studies either as a level of familiarization with local actual diversity or as a phenomenon reflecting perceived group threat (Alba *et al.*, 2005; Semyonov *et al.*, 2004; Kuovo and Lockmer, 2013; Hooghe and de Vroome, 2015).

In this paper, we have investigated the relationship between subjective perceptions of diversity (measured at a very local level as a proportion of non-White British/Polish residents) and acceptance of minority ethnic groups in Leeds and Warsaw. As illustrated by our research, perceived ethnic diversity is an important

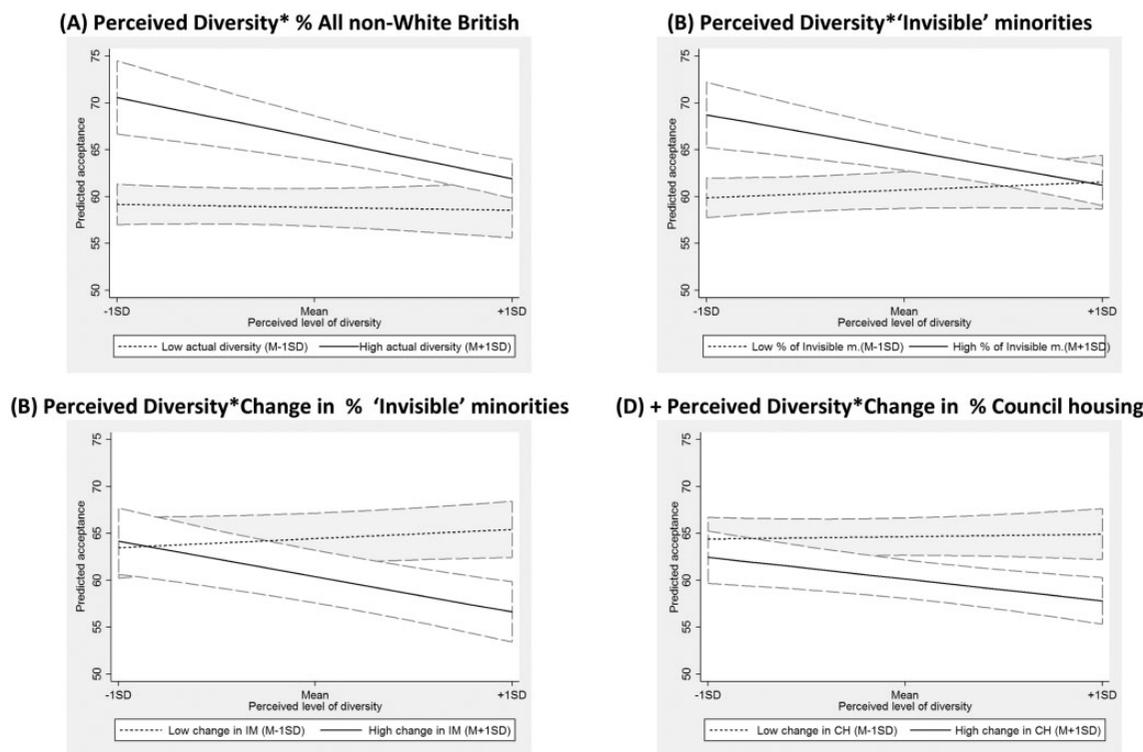


Figure 2. The effect of perceptions of diversity on social acceptance of minority ethnic groups (0-100) among individuals in Leeds living in neighbourhoods with different contextual characteristics. *Notes:* Effects predicted for models controlling for individual and contextual variables, and they were set to mean. Predictions are made for values of ± 1 SD from the means of perceived (log) variable and interacted contextual variables (see Tables A1 and A5). 90 percent confidence interval applied. Results of models for presented effects are available in the Supplementary Material 4.

predictor of social acceptance of minority ethnic groups. The higher the perceived share of ethnic minorities living in the neighbourhood, the less likely residents of both cities are to approve of their inclusion in the country's social life, such as labour market, education, culture, or giving equal rights. So, perceived diversity could be associated with a perception of threat to own group privileges (Semyonov *et al.*, 2004), and in both cities, it reflects the fears about shifting access to resources (Blalock, 1967). In Leeds, perceived diversity to some extent reflects daily opportunities to encounter people of different ethnic background (both diversities are correlated), but when actual diversity and contact opportunities are controlled for, perceptions are negatively related with attitudes. In Warsaw, owing to much lower ethnic diversity, perceptions do not reflect objective diversity; yet, the negative effects of perceived diversity become stronger after including actual diversity and contact measures in the model.

The interaction between the objective and subjective measures of diversity provides evidence that perceptions have a different impact on attitudes depending on actual/objective diversity of the residential area. In Leeds, the most socially open towards minority ethnic groups are people living in ethnically diverse settings, but who do not perceive their neighbourhoods as diverse. So in Leeds, the processes of internalization and 'normalization' of the ethnic diversity in the immediate residential areas translate into acceptance. For Warsaw, the results were inconclusive. We found some weak evidence that the least accepting of ethnic minorities are residents of homogenous neighbourhoods who perceive them as very diverse. So in the case of the Polish city we could suspect, that owing to the lower level of familiarization and everyday experience with ethnic diversity, people lack information about minority groups and despite living in non-diverse settings, they overestimate the size of ethnic minorities. The British case is different, as both people who overestimate and do not overestimate ethnic diversity express low acceptance of ethnic minorities when they perceive their neighbourhoods as highly diverse. Thus in Leeds, contextual diversity and more contact opportunities improve inter-ethnic attitudes, but they do not lower prejudice if the neighbourhood is perceived as highly diverse.

We investigated other neighbourhood characteristics that may shape the relationship between perceptions of diversity and attitudes, for Leeds only owing to data limitations. We experimented with different measures of actual diversity ('visible' vs. 'invisible' diversity, change in the percentage of minority group in 2001–2011) and neighbourhood deprivation (change in the percentage of

council housing). We found that people living in neighbourhoods that have recently become more diverse or more deprived are likely to be more prejudiced owing to holding higher perceptions of diversity. The perceptions have a more negative effect on attitudes of residents living in neighbourhoods with more 'invisible' minorities ('White other' and 'Mixed' ethnicity). This finding resonates with the recent increase in immigration from Central and Eastern Europe to the UK and more (often negative) media attention given to inflows from this region (Balch and Balabanova, 2014), and 'when immigration is a high-profile issue nationally, living in a changing local context is more strongly related to anti-immigrant attitudes' (Hopkins, 2010: p. 48). As such, perceived diversity does not have to reflect the visibility of difference measured in relation to ethnic/racial dissimilarity. Depending on the change in the neighbourhood, some minorities that by ethnicity are marked as 'invisible' become in fact visible through other attributes, such as location in the socioeconomic structures. The influx of new, Eastern European migrants may mobilize the fear that existing power relations between the majority and minority groups, including the proportion of resources each group is thought to deserve, have been changing in Leeds (Gallagher, 2003).

In sum, our analysis for Leeds demonstrates that perceptions of diversity do not have the same negative effect for all residents, but they are moderated by contextual characteristics, including recent change in the residential context. Hence, future longitudinal studies could examine how this 'geography of perceptions' fluctuates over time. Related to this, many studies have made efforts to deal with the issue of self-selection of residents into areas populated by people similar to them (Hedman, 2011). Meanwhile, people do not perceive diversity equally and the perceived diversity measure could be a useful tool in addressing the spatial sorting issues in future studies of diversity effects. Moreover, subjective measures of diversity have a potential to be further developed in countries with lower levels of actual diversity, e.g. Central and Eastern Europe, where objective diversity has lower variability. The negative role of perceptions on ethnic attitudes in still homogenous Warsaw indicates that in countries where immigration is not high, it still may be perceived as problematic by some people.

Finally, contrary to findings of some research, our research demonstrates that higher objective diversity of the immediate residential area is not related to lower approval of minority ethnic groups. It is not actual ethnic diversity that divides societies along ethnic lines, but how it is perceived. Research should pay more attention

to the way the perceptions of diversity are shaped in particular national contexts, and how the popularization of ‘diversity talk’ in public discourse (Bell and Hartman, 2007) across Europe works in societies that are more aware (truly or not) that they are becoming diverse.

Notes

- 1 Schlueter and Scheepers (2010) assume that higher perceptions of outgroup size contribute to more interethnic contact. However, owing to correlational nature of their research, they could not confirm the assumed causal sequence between the individual-level constructs.
- 2 According to 2002 census, 34.1 thousand foreign immigrants lived in Poland, and according to 2011 census, 56.3 thousand.
- 3 In Leeds, the highest percentage of missing data was recorded for religion (4 per cent) and education (3 per cent), and in Warsaw, contact question (3 per cent). Missing religion was coded as ‘unspecified religion’; missing contact as ‘no contact’, assuming that if it was not recalled, it was not a meaningful experience; missing education, replaced with mean education level, i.e. 3 on a 5-point educational scale; and missing marital status coded as ‘other’.
- 4 Factor analyses indicate that all items load on one factor (loadings 0.56–0.86 in Leeds and 0.51–0.83 in Warsaw).
- 5 Models with random slopes were tested for the main variable under investigation—perceived diversity, but the addition of random slopes into the models did not improve the explained variance.
- 6 We also run the analysis with the Diversity Index, but owing to low shares of minority groups in Warsaw, the index reflected hardly any variation.
- 7 Approximately 17 per cent of housing in Leeds and 10 per cent in Warsaw is owned/rented from the City Council. In both contexts, eligibility criteria are based on household income and other related life circumstances (e.g. health conditions of a person or family member). An analysis with the percentage of people with the highest level of education as a measure of neighbourhood socioeconomic status brought similar results.
- 8 No multicollinearity was detected between the particular static measures of actual diversity and measures of change.

Acknowledgements

Special thanks to Sabina Toruńczyk-Ruiz, Andrew J.D. Bell, and Todd Hartman and four anonymous reviewers for giving us useful comments on previous versions of the manuscript.

Funding

This work was supported by European Research Council [grant number 249658].

Supplementary Data

Supplementary data are available at *ESR* online.

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Appendix

Table A1. Descriptive statistics, weighted data (range, means or %, SD)

Variable	Leeds			Warsaw		
	Range	Mean or per cent	SD	Range	Mean or per cent	SD
Dependent variable						
Social acceptance of minority ethnic groups	0–100	60.5	24.9	0–100	58.7	21.0
Individual independent variables						
Gender, women (ref. = men) (per cent)	0/1	52.0		0/1	55.0	
Age	18–94	49.3	19.1	18–89	47.3	17.1
Single (ref.) (per cent)	0/1	34.1		0/1	28.0	
Married (per cent)	0/1	44.5		0/1	46.9	
Other marital status (per cent)	0/1	21.4		0/1	25.1	
Christian religion (ref.) (per cent)	0/1	72.3		0/1	91.0	
Non-Christian religion (per cent)	0/1	1.9		0/1	0.6	
No religion ^a (per cent)	0/1	20.8		0/1	6.7	
Religion not specified ^a (per cent)	0/1	5.0		0/1	1.7	
Qualification/education level	1–5	3.2	1.5	1–5	4.1	0.8
Employed (ref.) (per cent)	0/1	49.5		0/1	49.3	
In full-time education (per cent)	0/1	6.9		0/1	6.9	
Unemployed (per cent)	0/1	8.3		0/1	7.8	
Permanently sick/disabled (per cent)	0/1	3.8		0/1	3.3	
Retired (per cent)	0/1	26.4		0/1	26.9	
Other (e.g. looking after home or sick family member) (per cent)	0/1	5.4		0/1	5.8	
Family member of different ethnic background (per cent)	0/1	19.3		0/1	5.7	
Contact with people of different ethnic background outside home (per cent)	0/1	85.5		0/1	48.1	
Perceived ethnic diversity	1–5	1.85	0.99	1–5	1.37	0.66
Perceived ethnic diversity (log)	0–1.6	0.49	0.49	0–1.6	0.23	0.38
Context variables (OAs/SRs)						
Percentage of non-WB/PL residents (per cent)	0.8–94.9	14.8	14.2	0–5.8	0.3	0.8
Change in percentage of non-WB residents (per cent)	–6.3–51.9	5.9	7.6	–	–	–
Percentage of ‘visible’ ethnic minorities (per cent)	0–84.8	7.9	10.0	0–1.4	0.07	0.22
Change in percentage of ‘visible’ ethnic minorities	–9.6–33.4	3.6	5.6	–	–	–
Percentage of ‘invisible’ ethnic minorities (per cent)	0.4–28.6	6.9	5.2	0–1.6	0.07	0.22
Change in percentage of ‘invisible’ ethnic minorities	–4.4–23.5	3.0	4.0	–	–	–
Percentage of council housing (per cent)	0–85.0	17.0	21.7	0–96.7	16.8	21.8
Change in percentage of council housing	–6.6–47.8	7.7	10.8	–	–	–
Residential mobility	–51.5–92.2	–0.5	14.7	0.8–63.1	5.7	5.5
Total	1,036	100.0	–	1,179	100.0	–

Table A2. Overview of the contextual-level variables in Leeds and Warsaw

Indicator	Leeds	Warsaw
Actual diversity	Percentage of non-White British residents	Percentage of non-Polish residents ^a
'Visible' diversity	Percentage of residents of 'Black' and 'Asian' ethnicity	Percentage of temporary immigrants originating from Vietnam and Africa ^{b,c}
'Invisible' diversity	Percentage of residents of 'other White' and 'Mixed' ethnicity	Percentage of temporary immigrants of selected East European citizenship ^d
Change in the actual diversity	Change in the percentage of the above categories between 2001 and 2011	–
Neighbourhood deprivation	Percentage of housing rented from the City Council	Percentage of housing owned by the City Council in Warsaw
Change in the neighbourhood deprivation	Change in the percentage of the council housing between 2001 and 2011 for Leeds	–
Residential mobility	Percentage of residents who moved in/out between 2001 and 2011 census ^e	Percentage of residents who moved into the area after 1996

^aResident population was defined as people holding permanent residency in Poland, meaning that they have to live in the country for at least five years or be born here. Foreigners without the residency card were not included in this category.

^bForeign temporary immigrants are people who lived in Poland for two months, but do not hold permanent residency.

^cOwing to low numbers per neighbourhood, Polish census data include information only about the most numerous groups by country or continent of origin.

^dFrom Belarus, Ukraine, Russia, and Armenia.

^eCalculated as a difference between 2001 and 2011 residents in relation to 2011 residents of an area.

Table A3. Correlations between neighbourhood characteristics, perceived diversity, and outgroup ethnic attitudes in Leeds

Variable	Per cent of non-White British	Per cent of 'visible' minorities	Per cent of 'invisible' minorities	Change in per cent of non-White British	Change in per cent of council housing	Per cent of council housing	Per cent of mobile population	Perception of diversity
Per cent of 'Visible' minorities (Black and Chinese)	0.965***							
Per cent of 'Invisible' minorities (White Other and Mixed)	0.862***	0.699***						
Change in per cent of non-White British	0.735***	0.671***	0.708***					
Per cent of council housing	0.075*	0.028	0.152***	0.253***				
Change in per cent of council housing	0.062*	0.012	0.147***	0.194***	0.961***			
Per cent of mobile population	0.212***	0.189***	0.214***	0.159***	–0.042	–0.063*		
Perception of neighbourhood diversity	0.634***	0.601***	0.572***	0.500***	0.127***	0.107***	0.138***	
Social acceptance	0.098**	0.098**	0.077**	–0.060^	–0.187***	–0.181***	0.113***	0.025

Table A4. Correlations between neighbourhood characteristics, perceived diversity, and outgroup ethnic attitudes in Warsaw

Variable	Per cent of non-polish residents	Per cent of 'visible' immigrants	Per cent of 'invisible' immigrants	Per cent of council housing	Per cent of mobile population	Perception of diversity
Per cent of 'visible' minorities (Vietnam and African)	0.715***					
Per cent of 'invisible' minorities (selected post-USSR)	0.622***	0.854***				
Per cent of council housing	0.189***	0.193*	0.177***			
Per cent of mobile population	0.094**	0.148***	0.133***	-0.102***		
Perception of neighbourhood diversity	0.036	-0.008	0.015	0.171***	-0.055^	
Social acceptance	0.093**	0.064	0.011	0.006	0.074*	-0.076**

Correlation significant at ^ $P < 0.1$; * $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$ (2-tailed).

Note. Neighbourhood characteristics based on 2002 census data. Weighted sample.

Table A5. Distribution of respondents in Leeds

Actual diversity	Perceived diversity		
	Low (per cent)	Medium (per cent)	High (per cent)
Low	35	25	2
Medium	2	19	4
High	1	6	6

Note. $N = 1,036$ (100 per cent); Low: $< \bar{x} - 1SD$, Medium: $> \bar{x} - 1SD < \bar{x} + 1SD$; High: $> \bar{x} + 1SD$. Weighted sample.