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Ethnic diversity, segregation and the social cohesion of neighbourhoods in London

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The question of whether and how ethnic diversity affects the social cohesion of communities has become an increasingly prominent and contested topic of academic and political debate. In this paper we focus on a single city: London. As possibly the most ethnically diverse conurbation on the planet, London serves as a particularly suitable test-bed for theories about the effects of ethnic heterogeneity on prosocial attitudes. We find neighbourhood ethnic diversity in London to be positively related to the perceived social cohesion of neighbourhood residents, once the level of economic deprivation is accounted for. Ethnic segregation within neighbourhoods, on the other hand, is associated with lower levels of perceived social cohesion. Both effects are strongly moderated by the age of individual residents: diversity has a positive effect on social cohesion for young people but this effect dissipates in older age groups; the reverse pattern is found for ethnic segregation.

Keywords: ethnic diversity; ethnic segregation; social cohesion; neighbourhood; London; community

I do not like that city [London] at all. All sorts of men crowd together there from every country under the heavens. Each race brings its own vices and its own customs to the city. No one lives in it without falling into some sort of crimes...whatever evil or malicious thing that can be found in any part of the world, you will find it in that one city.

The Chronicle of Richard of Devizes, c.1190

Introduction

As the quote above illustrates, social commentators expressing concern about the malign effects of immigration and interethnic mixing on the character of human relations is not a novel phenomenon. And, while the prominence of immigration as a political issue has tended to ebb and flow in the post-colonial era, the past five to ten years have witnessed a confluence of events that have brought the issue of the social and economic integration of immigrant and minority ethnic groups to the forefront of public attention with renewed vigour. During the last decade, simmering interethnic tensions have exploded into rioting between white and Asian residents in former industrial towns of the English North West (Cantle 2001). During the same period, 'home-grown' terrorists – UK citizens of Pakistani descent – murdered fifty-two people in suicide bombings in the heart of London. Public services in many local communities have been put under pressure by the internal dispersal of asylum seekers, and by the unexpectedly high level of immigration into the UK from the accession states of Eastern Europe (Pollard, Latorre, and Dhananjayan 2008). And,

in what can be seen as both a symptom and a cause of public disquiet about these immigration-related tensions, a new far-right group, the English Defence League, was formed in 2009 under intense media scrutiny, with the stated objective of standing up for traditional English values and ways of life, and of opposing 'Muslim extremism' (Treadwell and Garland 2011).

These events have unfolded against the backdrop of an increasingly consensual view within academic and policy circles that ethnically diverse communities are characterized by distrust, low levels of social cohesion and disputes regarding the equitable provision of public goods (Alesina and Ferrera 2000; Costa and Kahn 2003; Goodhart 2004; Phillips 2005). A number of recent academic studies, most prominently Putnam (2007), have lent support to this perspective, showing an apparent negative link between the ethnic diversity of local communities and the extent to which residents express trust in, and a sense of cohesion with, one another. Within the policy domain, the growing belief within parties of both the left and right that there have long been systemic flaws in the UK's management of immigration led to the introduction, in 2010, of fixed annual caps on immigrant numbers. This pessimistic view of the effect of immigration on the social fabric also found high-profile expression in Prime Minister David Cameron's pronouncement that 'multi-culturalism has failed' in his first set-piece speech on terrorism and security in February 2011. And, while these political reactions come in response to what are clearly a complex set of dynamic and cross-cutting forces, a common underlying theme is the belief that racial and ethnic heterogeneity is problematic for healthy community life.

Our objective in this paper is to add to the body of research that seeks to empirically evaluate the view that ethnic diversity is deleterious to social harmony within local areas (Alesina and Ferrera 2000; Costa and Kahn 2003; Goodhart 2004; Phillips 2005). Our research makes a number of important and novel contributions to this debate. First, while existing studies have generally considered the effect of ethnic diversity across a national distribution of neighbourhoods, we make use of data drawn from a large random sample of residents of a single city: London. As possibly the most ethnically diverse conurbation on earth, we contend that London serves as a particularly suitable test-bed for theories about the influence of local ethnic composition on social-psychological outcomes. If living in an ethnically diverse neighbourhood causes people to distrust and avoid one another, then we should be certain to find evidence of the phenomenon in London. Second, we assess the effects of a segregated spatial distribution of ethnic groups within neighbour-hood boundaries, in addition to the level of diversity per se (Uslaner 2012). And third, we evaluate how effects of these ethnic composition variables are moderated by an individual's age, to account for the widely differing experiences of contact with ethnic minorities across age cohorts (Ford 2008; Stolle and Harell 2012). The remainder of the paper is set out as follows. We begin by providing a brief overview of theoretical accounts that link the ethnic composition of local neighbourhoods to interpersonal trust and community cohesion. We then review the existing empirical evidence that addresses this link before describing our data, key measures and analytical strategy. Next, we set out the results of our descriptive and multivariate analyses and conclude with a consideration of the implications of our findings for our understanding of whether and how the ethnic composition of neighbourhoods affects social cohesion.

Positive or negative effects of ethnic diversity on cohesion?

The vexed question of whether interethnic mixing results in social harmony or strife is dominated by two contrasting theoretical accounts. From one perspective, so-called 'conflict' theory (Blalock 1967), diverse social environments induce a feeling of threat and anxiety between minority and majority groups, particularly arising out of real or perceived competition over scarce resources (Bobo 1988), but also relating to social identity (Tajfel 1981) and relative positions in power and status hierarchies (Blumer 1958; Sherif 1966; Levine and Campbell 1972). Conflict theory sees such perceived threats to the status quo resulting from community ethnic diversity as giving rise to stereotypical characterization and discriminatory treatment of ethnic out-groups, an hypothesis that has garnered some support, using a variety of observational and experimental research designs (Giles and Evans 1985; Fossett and Kiecolt 1989; Giles and Buckner 1993).

In contrast to conflict theory, 'contact' theory proposes that racial and ethnic diversity can reduce stereotyping and prejudice by bringing individuals into direct contact with members of ethnic out-groups (Allport 1954; Hewstone and Brown 1986). Direct contact between different ethnic groups has been shown to substantially reduce a broad range of attitudinal and behavioural measures of negative out-group evaluation (Pettigrew and Tropp 2006). Contact has this effect because stereotypes are replaced by schema derived from direct experience, which serve to foreground the individual heterogeneity that exists within as well as between ethnic groups. Positive individual-level interactions are generalized to the ethnic out-group to which the individual belongs and, potentially, to ethnic out-groups as a whole. This results in the dissipation of negative stereotypes and, as a consequence, a reduction in inter-group prejudice and conflict.

Although the positive effects of contact appear to be greater in conditions of equal status between groups, when group identity is salient, when behaviour is oriented towards the achievement of common goals, and when contact is supported by social institutions (Allport 1954; Hewstone and Brown 1986), these have been shown to be facilitating rather than necessary conditions (Pettigrew 1998). In short, under most conditions, contact appears to 'work'. There is, furthermore, evidence that the positive effects of contact can occur, if not quite to the same extent, even when contact is experienced vicariously, via the friendship networks of friends, colleagues and family members (Wright, Mclaughlin-Volpe, and Ropps 1997). The implications of both the direct and indirect forms of contact theory are that diverse community life has the strong potential to breed tolerance and trust between ethnic groups (Hewstone 2009). And, indeed, longitudinal evidence from the UK demonstrates that negative racial attitudes are highly stratified by age, with younger cohorts who have grown up in more diverse communities considerably less likely to express racially prejudiced attitudes (Ford 2008). In Canada, the negative effect of neighbourhood ethnic diversity on generalized trust observed among older cohorts is not found within younger age groups with ethnically diverse friendship networks (Stolle and Harell 2012).

Ethnic diversity and social cohesion: existing evidence

According to Putnam's (2007, p. 142) reading of the evidence, 'it is fair to say that most (though not all) empirical studies have tended to support . . . "conflict theory".'

And one must concede that this is a reasonable summary, insofar as it relates to studies that have examined the association between ethnic heterogeneity at some level of geographical aggregation and the expressed attitudes and behaviours of individual residents. For, while some scholars have found positive (Marschall and Stolle 2004; Pendakur and Mata 2012) or non-significant (Aizlewood and Pendakur 2005; Leigh 2006; Soroka, Johnston, and Banting 2007; Sturgis et al. 2011) effects of diversity on generalized trust, the large majority of studies have found significant negative associations between diversity and measures of prosocial attitudes (Knack and Keefer 1997; Pennant 2005; Putnam 2007; Letki 2008; Fieldhouse and Cutts 2010; Becares et al. 2011). And, although the magnitude of the relationship appears to vary across ethnic groups, the basic pattern of negative association between diversity and social capital is broadly consistent across North America and the European contexts in which it has been examined (Fieldhouse and Cutts 2010; Lancee and Dronkers 2011).

However, as Hewstone (2009) points out, a flaw in the research design employed in the vast majority of these studies is the conflation of the *opportunity for* and *actual* inter-group contact. That is to say, it is entirely possible to live in a neighbourhood containing multiple ethnicities, without ever having any meaningful social contact with an individual from an ethnic out-group. And, where different ethnic groups live alongside one another without meaningful social interaction, stereotyping and prejudice may well be exacerbated rather than ameliorated (Pettigrew 1998). In studies that have included measures of social contact alongside diversity, the expectation that it enhances trust between residents of all ethnic groups has indeed been supported, with both Stolle, Soroka, and Johnston (2008) and Sturgis et al. (2011) finding a strong positive interaction between diversity, contact and trust. Thus, although contact and conflict theories are generally presented as competing or even contradictory accounts, it seems more likely that in any given neighbourhood, both mechanisms will be occurring *simultaneously.* For some individuals living in an ethnically diverse area will lead to feelings of threat and the development or exacerbation of prejudicial attitudes, while for others the opposite will be the case. A crucial determinant of whether diversity will result in positive or negative attitudes towards ethnic out-groups is the degree of meaningful social contact and interaction between residents.

Low levels of both diversity and contact are likely to be the prevailing norm in the majority of UK neighbourhoods, for which the median proportion of black and minority ethnic groups in 2001 was (depending on the areal unit employed) approximately 2.5%. In addition to the low levels of diversity in many UK neighbourhoods, the spatial distribution of ethnic groups within neighbourhoods is also likely to be important. Uslaner (2010, 2012) has argued that the predominant tendency in the existing literature to focus on measures of ethnic concentration and diversity has resulted in a failure to adequately acknowledge the effect of ethnic *segregation* within neighbourhoods (also see Rothwell 2012). An ethnically diverse area can be either highly integrated or highly segregated and it is in the latter rather than the former case that we should expect to find a negative effect on cohesion and trust. This is because segregated areas provide fewer opportunities for meaningful social contact between groups and tend to reinforce in-group identities and social networks (Rothwell 2012). For these reasons, it is perhaps unsurprising that studies based on the full national distribution of neighbourhoods and which use only ethnic

diversity as the measure of ethnic composition have tended to find weak but negative associations with interpersonal trust and social cohesion (Taylor, Twigg, and Mohan 2010; Sturgis et al. 2011).

It is because we can be certain that ethnic diversity is unusually high and, therefore, part of everyday life for its residents that we have chosen to focus our analysis on neighbourhoods in London – a city with a justifiable claim to be the most ethnically diverse, not just in the UK, but in the world. Additionally, the data to which we have access for this purpose enable us to distinguish between the level of ethnic diversity and the extent to which the spatial distribution of ethnic groups is segregated in a neighbourhood. To illustrate the extent to which the ethnic diversity of London neighbourhoods 'stands apart' from the rest of the country, Figure 1 shows small-area[1] estimates from the 2001 census of ethnic diversity for all of England and for London, respectively. For each small area, population data from the 2001 census are used to produce a measure of neighbourhood ethnic diversity (the Herfindahl concentration index, defined in the next section). It is immediately apparent from Figure 1 that the nature of ethnic diversity is qualitatively different; while the vast majority of small areas in England have low levels of diversity, the pattern for London shows a far higher degree of ethnic heterogeneity, with a near majority in the top two diversity quintiles. Although these maps provide no direct evidence that social mixing between ethnic groups is higher in London compared to the rest of the country, recent research has shown meaningful interethnic contact and friendship ties to be significantly more common in ethnically diverse neighbourhoods (Vervoort, Flap, and Dagevos 2010).

As we noted earlier, recent research has pointed to the important moderating effect of age and experience of direct contact with ethnic out-groups in determining the nature of the effect of neighbourhood context on prosocial attitudes. In particular, there is growing evidence to suggest that younger cohorts, whose formative years have been spent in more ethnically heterogeneous environments, are less likely than their forbears to express negative racial attitudes and to be less trusting of others in mixed-ethnic environments (Ford 2008; Stolle and Harell 2012). We evaluate this possibility in the case of London by including interactions between ethnic diversity and segregation with the age cohort of the respondent.

Data and measures

The data for our analysis are drawn from the Metropolitan Police Public Attitude Survey (METPAS). The METPAS is a random, personal interview survey of residents of London aged fifteen and over, funded by the Metropolitan Police Service, which covers a range of topics including public perceptions of the criminal justice system, experience of crime and contact with the police. The METPAS has a multistage sample design, with a total of 267 households randomly selected from the UK Postcode Address File within each of London's thirty-two boroughs each quarter.[2] At each eligible address an individual household member aged fifteen or above is randomly selected. We use data from the April 2007 to March 2010 rounds of the survey, with a total achieved sample of 57,345[3] and an average response rate over the three years of 60% (Cello 2009).
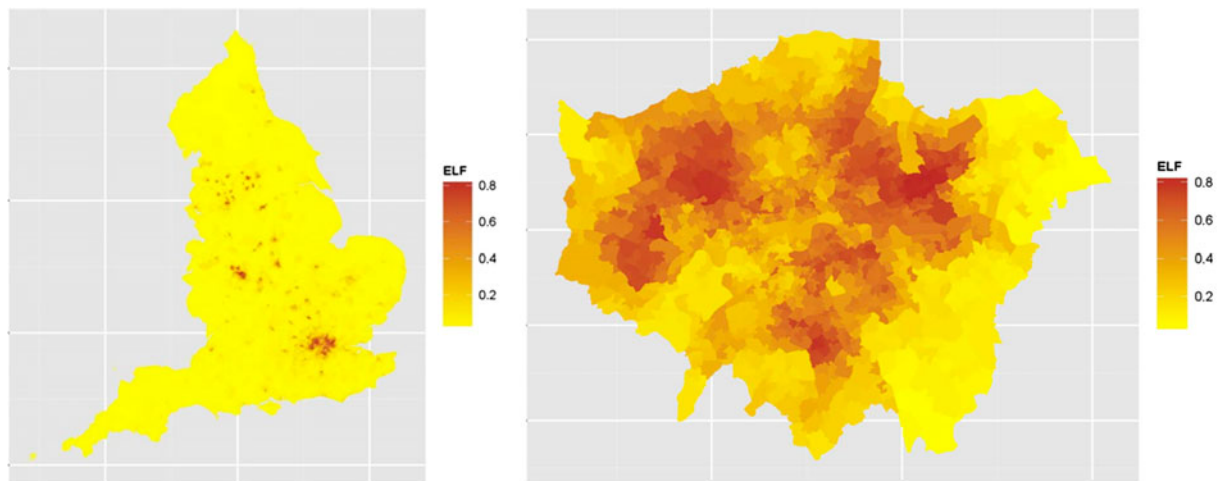
Figure 1. Map of ethnic diversity (labelled ELF) in small areas in England (left) and in London (right).

Social cohesion

Our dependent variable in this paper is the perceived level of social cohesion in neighbourhoods expressed by residents. By social cohesion we mean the social bonds that help neighbours work together to achieve shared goals (Sampson, Raudenbush, and Earls 1997), particularly the social ties that enable neighbours to achieve a stable and predictable public environment (Sampson and Groves 1989). To measure individual perceptions of neighbourhood social cohesion we use three attitude items, each measured on a five-point scale, ranging from strongly disagree (1) to strongly agree (5):

1. People in this area can be trusted.
2. People act with courtesy to each other in public space in this area.
3. You can see from the public space here in the area that people take pride in their environment.

These items were combined using factor analysis to form a single dimension of perceived neighbourhood cohesion, with higher scores representing greater levels of cohesion.[4]

Neighbourhoods

We use two definitions of neighbourhood boundary, with the first smaller units nested within the second, larger ones. For the lower-level neighbourhood boundary, we use lower super output areas (LSOA) (Martin 2001). LSOA are designed to be more stable over time and consistent in size than existing administrative and political boundaries. LSOAs comprise, on average, 600 households that are combined on the basis of spatial proximity and homogeneity of dwelling type and tenure. Across England as a whole there are 34,378 LSOAs, with 4,759 of these in Greater London. Our data contain an average of twelve respondents per LSOA across London, with a minimum of one and a maximum of forty-eight. LSOAs are agglomerated hierarchically to form the second, larger, neighbourhood areal unit, referred to as middle super output areas (MSOA). MSOAs contain between seven and nine LSOAs and comprise, on average, 5,000 households.

Neighbourhood ethnic composition

We include measures of neighbourhood ethnic diversity and segregation in our models. For diversity, we use the (Hirschman 1964) concentration index (Equation 1):

$$HI = 1 - \sum_{i=1}^{n} s_i^2 \tag{1}$$

where s_i is the share of ethnic group i, out of a total of n ethnic groups, which in our case are white, black Caribbean, black African, black (other), Indian, Pakistani, Bangladeshi, other Asian, mixed (white/black Caribbean), mixed (white/black African), mixed (white/black Asian), mixed (other), Chinese and other ethnic group. This cab be interpreted as the probability that two randomly selected individuals

from the same area are of different ethnic origin. Higher scores on the HI denote more ethnically heterogeneous populations.

To measure ethnic segregation within neighbourhoods, we use Theil's multi-group entropy index (MEI). This compares the ethnic composition of an areal unit to the ethnic composition of the areal sub-units of which it is comprised, with larger differences representing more segregated areas. For an MSOA, the MEI is calculated using the formula (Equation 2):

$$\text{MEI} = \sum\nolimits_{j=1}^{m} \left[\frac{t_j}{T} \cdot \frac{\left(E - e_j\right)}{E} \right] \tag{2}$$

where T is the population count for the whole MSOA and t_j are the population counts for m sub-areas j that form the MSOA. Here we use output areas (OA) as the areal sub-units. The OA is the smallest UK census geography, and comprises, on average, approximately 125 households (Martin 2001). In the formula for MEI, E is the entropy score for the MSOA and e_j are the entropy scores for the OAs, calculated as (Equation 3):

$$e_j = \sum\nolimits_{i=1}^{n} \left(s_{ij}\right) \ln\left(1/s_{ij}\right) \tag{3}$$

where s_{ij} is the share of ethnic group i in OA j, out of a total of n ethnic groups; E is calculated similarly, but replacing s_{ij} with s_i for the MSOA as a whole. Following Iceland (2004), when the proportion of a given group in an OA is 0, the logarithm is set to 0, ensuring that the absence of a particular group does not increase the total segregation score. The resulting MEI varies between 0 and 1, with higher scores indicating more segregation (the largest differences in the ethnic composition of each OA). The MEI for an LSOA is calculated in the same manner, replacing MSOA with LSOA. Values on the segregation index for MSOAs in England and in London are displayed in Figure 2. It is evident, when compared to Figure 1, that diversity and segregation are negatively correlated, particularly at very low values of diversity where the MEI almost inevitably obtains a high value. This occurs mostly outside London, where the majority of small areas have very low proportions of non-white residents. Within London itself, there is a wide range of values of both diversity and segregation, as defined by these measures.

Analysis

Due to the hierarchical structure of our data, with individuals nested within neighbourhoods defined at two different levels, we use a multilevel model (Goldstein 2003). The model has the following general form (Equation 4):

$$Y_{ijk} = \beta_0 + \beta_1 X_{ijk} + \alpha_2 W_{ij} + \alpha_3 W_i + \alpha_4 [XW] + \left(v_i + u_{ij} + e_{ijk}\right) \tag{4}$$

Where Y_{ijk} is perceived social cohesion for the k_{th} individual in the j_{th} LSOA within the i_{th} MSOA; β_0 is the intercept; β_1 are the regression coefficients for individual-level covariates X_{ijk} for individual k in LSOA j and MSOA i, α_2 and α_3 are the regression coefficients for area-level covariates W_i and W_{ij}, measured at MSOA and LSOA levels respectively, and α_4 are cross-level interactions between individual-level
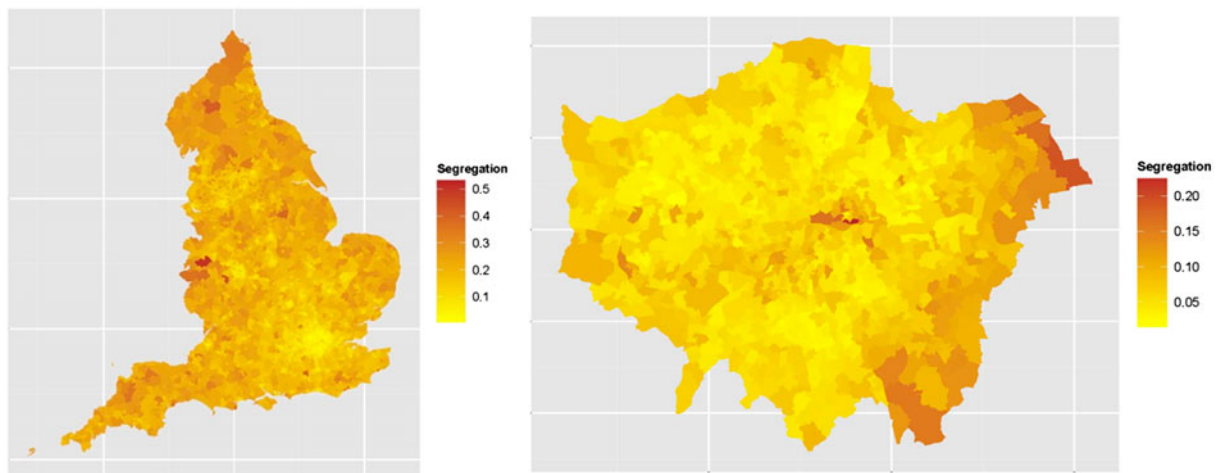
Figure 2. Map of ethnic segregation in small areas in England (left) and in London (right).

and area-level covariates (measured at either LSOA or MSOA level); here $[XW]$ stands for those products between variables in X_{ijk} and variables in W_i or W_{ij} that are included in the interactions. The part of equation 2 in parentheses shows the random effects; v_i and u_{ij} are the MSOA and LSOA level error respectively for the random intercept and e_{ijk} is a person-level error. These random effects are assumed to be normally distributed with means of zero and to be uncorrelated with each other. We include the following individual-level control variables that are plausibly related to both social cohesion and neighbourhood preference: age; sex; ethnic group; social class (using the Social Grade measure (Market Research Society 2006)); marital status; housing tenure; and the length of time that an individual has lived in the area.

Results

Table 1 shows the results from five nested models, starting with a simple variance components decomposition and progressively adding fixed and random effects at the individual and neighbourhood levels. Looking first at the variance components model (model 1), which includes no predictors at either the individual or neighbourhood level, we see that neighbourhoods defined at the MSOA level account for approximately 7.5% of the total variance in perceived social cohesion, while the corresponding figure for LSOAs is just 0.38%. Although both neighbourhood random effects are significantly greater than 0, it is clear that the majority of the variability in social cohesion across areas is partitioned at the higher (MSOA) level. This is a somewhat lower figure than has been found in previous studies[5] in the UK and likely reflects the greater homogeneity of social cohesion across neighbourhoods in London compared to the UK as a whole.

Model 2 adds the individual-level covariates. Women have a significantly lower sense of social cohesion than men, while the relationship with age is non-linear; perceived social cohesion increases with age, although the strength of this relationship declines somewhat in the older age groups. The longer an individual has lived in an area, the stronger is his/her sense of social cohesion. With regard to ethnic groups, white Londoners have the lowest sense of social cohesion in their neighbourhood, while those of Bangladeshi and of 'other black' ethnic origin have the highest. The finding that whites express the lowest levels of social cohesion in their neighbourhoods contrasts with existing studies, which mostly find minority ethnic groups to be the least trusting, although these have predominantly been undertaken in North America and our focus here is on the broader concept of social cohesion (Uslaner 2002; Putnam 2007). The effect of incorporating these covariates on the between-neighbourhood parameters is to reduce the size of the MSOA- and LSOA-level random effects somewhat. The MSOA-level random effect is reduced by approximately 9%, although it remains substantially greater than 0 and still accounts for 7.2% of the total variability in social cohesion. However, the random variance at the LSOA level is no longer significantly different from 0, which implies that, once differences in the demographic characteristics of LSOAs are taken into account, they show no variability in the perceived level of social cohesion of their residents. Because there is no residual variability to explain the outcome at the LSOA level, we do not include fixed effects at this level in the subsequent models.[6]

Model 3 incorporates the MSOA-level effects of ethnic diversity and segregation. Both are non-significant at the 95% level of confidence, suggesting that neither ethnic

Table 1. *Multi-level regression models predicting perceived neighbourhood social cohesion.*

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Estimate	S.E	Estimate	S.E	Estimate	S.E	Estimate	S.E	Estimate	S.E	Estimate	S.E
FIXED-EFFECT COEFFICIENTS												
Constant	0.017	0.014	−0.112	0.081	−0.113	0.081	−0.122	0.081	−0.051	0.072	−0.045	0.072
Female			−0.058*	0.012	−0.058*	0.012	−0.058*	0.012	−0.058*	0.012	−0.058*	0.012
Age			0.072*	0.018	0.072*	0.018	0.073*	0.018	0.068*	0.015	0.066*	0.015
Age^2			−0.004*	0.002	−0.004*	0.002	−0.004*	0.002	−0.004*	0.002	−0.004*	0.002
Years lived in area			0.013*	0.004	0.013*	0.004	0.013*	0.004	0.012*	0.004	0.012*	0.004
Ethnicity (ref: white British)												
white - Irish			−0.001	0.041	−0.001	0.041	−0.002	0.041	0.001	0.041	0.002	0.041
white - any other white background			0.149*	0.023	0.149*	0.023	0.151*	0.023	0.149*	0.023	0.149*	0.023
mixed - white and black Caribbean			0.121*	0.04	0.121*	0.04	0.122*	0.04	0.123*	0.04	0.123*	0.04
mixed - white and black African			0.131*	0.047	0.131*	0.047	0.133*	0.047	0.131*	0.047	0.132*	0.047
mixed - white and black Asian			0.111	0.067	0.111	0.067	0.108	0.067	0.104	0.067	0.105	0.067
mixed - any other mixed background			0.154*	0.042	0.155*	0.042	0.153*	0.042	0.151*	0.042	0.151*	0.042
Asian or Asian British - Indian			0.262*	0.03	0.263*	0.03	0.259*	0.03	0.257*	0.03	0.258*	0.03
Asian or Asian British - Pakistani			0.283*	0.037	0.285*	0.037	0.282*	0.037	0.279*	0.037	0.280*	0.037
Asian or Asian British - Bangladeshi			0.367*	0.038	0.370*	0.038	0.375*	0.038	0.368*	0.038	0.377*	0.038
Asian or Asian British - other Asian			0.151*	0.045	0.152*	0.045	0.148*	0.045	0.145*	0.045	0.145*	0.045
black or black British - Caribbean			0.069*	0.032	0.070*	0.032	0.072*	0.032	0.073*	0.032	0.073*	0.032
black or black British - African			0.274*	0.025	0.275*	0.025	0.277*	0.025	0.275*	0.025	0.275*	0.025
black or black British - other black			0.353*	0.062	0.353*	0.062	0.354*	0.062	0.352*	0.062	0.352*	0.062
Chinese			0.197*	0.087	0.198*	0.087	0.199*	0.087	0.198*	0.087	0.198*	0.087
other ethnic group			−0.046	0.084	−0.045	0.084	−0.045	0.084	−0.046	0.084	−0.046	0.084
Ethnic diversity					−0.077	0.078	0.191*	0.096	0.427*	0.133	0.198*	0.133
Ethnic segregation					−0.412	0.604	−0.033	0.603	−0.082	0.603	−2.557*	0.84
Index of multiple deprivation							−0.007*	0.001	−0.006*	0.001	−0.006*	0.001

Table 1 (*Continued*)

	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Estimate	S.E	Estimate	S.E	Estimate	S.E	Estimate	S.E	Estimate	S.E	Estimate	S.E
Ethnic diversity*age									−0.050*	0.0162		
Ethnic segregation*age											0.543*	0.125
Additional controls	NO		YES		YES		YES		YES		YES	
VARIANCES OF RANDOM EFFECTS												
Neighbourhood (MSOA)	0.156	0.009	0.143	0.008	0.143	0.008	0.138	0.008	0.138	0.008	0.138	0.008
Neighbourhood (LSOA)	0.008	0.004	0.007	0.004	0.007	0.004	0.007	0.004	0.006	0.004	0.006	0.004
Individual	1.926	0.012	1.846	0.012	1.846	0.012	1.846	0.012	1.843	0.012	1.843	0.012
Sample size	55308, 4759, 983		52911, 4758, 983		52911, 4758, 983		52911, 4758, 983		52911, 4758, 983		52911, 4758, 983	

*Significant at $p < 0.05$.

diversity nor segregation has any relation to social cohesion. However, when the index of multiple deprivation is added, in model 4, a more complex picture emerges. Neighbourhood deprivation is negatively related to perceived cohesion, as would be expected from existing research (Letki 2008; Laurence 2009; Taylor, Twigg, and Mohan 2010; Sturgis et al. 2011), with residents in more disadvantaged areas reporting significantly lower levels of social cohesion. The coefficient for ethnic segregation remains non-significant in model 4. However, ethnic diversity is now *positively* related to social cohesion, with significantly higher levels of cohesion evident as ethnic heterogeneity increases. The magnitude of the point estimate more than doubles from model 3 to model 4, with a coefficient of 0.191. The difference between the diversity coefficients in models 3 and 4 is a consequence of the way in which the relationship between diversity and cohesion is confounded by deprivation.[7] Diversity and deprivation are strongly intertwined in London, with ethnically diverse neighbourhoods tending to also be more deprived. Because deprivation has its own negative effect on cohesion, if only diversity is included in the prediction of cohesion its estimated effect will be a 'mixture' of the positive influence of diversity and the negative effect of deprivation. The diversity and deprivation effects cancel one another out, resulting in the near-0 coefficient for diversity in model 3. However, once deprivation is included in model 4, the diversity coefficient becomes substantial and positive because the deprivation component of its variance (in model 3) has now been partialled out. In other words, for neighbourhoods with a given level of deprivation, those that are more ethnically diverse tend to have higher levels of perceived cohesion.[8] This finding demonstrates two important points, one methodological and one substantive. Methodologically, it is clear that any analysis of the effect of ethnic diversity on social-psychological outcomes must adequately account for the social and economic conditions in which diversity is found (Letki 2004; Laurence 2009). Substantively, we find that in London, social cohesion is significantly *higher* in more ethnically diverse neighbourhoods, once we have accounted for the fact that more diverse neighbourhoods tend, predominantly, to be more socio-economically deprived.

Models 5 and 6 introduce the cross-level interactions between the two measures of neighbourhood ethnic composition and the age of the respondent. Both main-effect coefficients for diversity and segregation are now significant, though with signs in opposite directions. Due to the inclusion of the interaction terms, these main-effect coefficients should be interpreted as the expected change in perceived social cohesion for a unit increase in diversity/segregation when age takes its lowest value (0), which in this case equates to individuals who are aged fifteen to seventeen years. The interaction coefficients represent the expected change in these main effects for a unit change in age. Both interaction terms are highly significant, though with a negative sign for diversity and a positive sign for segregation. These can be interpreted as showing that as age increases, the positive effect of ethnic diversity on social cohesion declines, while for ethnic segregation the negative effect on cohesion found for younger residents reduces as age increases. Because interaction terms can be difficult to interpret in terms of the coefficients alone, Figure 3 presents these relationships in graphical form as plots of fitted values from models 5 and 6.

While there is a clear positive correlation between ethnic diversity and social cohesion for the youngest residents, this pattern flattens out by the time an individual reaches middle age (forty-five to fifty-four), although it only becomes (marginally) negative in the oldest age group (eighty-five and over). The same pattern, though in
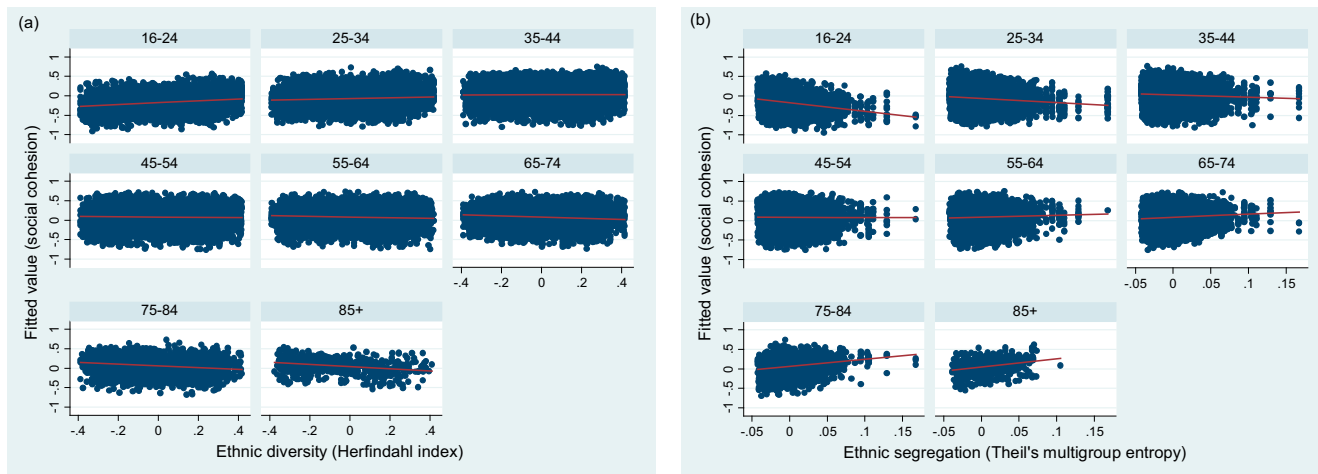
Figure 3. Fitted values from models 5 and 6 in Table 1, displaying the moderating effect of age on the association between social cohesion and ethnic diversity (plot a) and between social cohesion and ethnic segregation (plot b).

the opposite direction, is observed for ethnic segregation. For the youngest residents of a neighbourhood, segregation exhibits a quite strong negative correlation with social cohesion. However, this negative association weakens progressively across age groups, such that the direction of the relationship becomes positive in the forty-five to fifty-four age group and notably positive in the oldest age groups. For those aged sixty-five and older, the effect of ethnic segregation within neighbourhoods has a strong positive effect on social cohesion.

We can obtain an intuitive feel for the substantive importance of these coefficients by comparing fitted values with those produced from variables with a more natural and intuitively understandable metric (Brunton-Smith, Sturgis, and Williams 2012). For example, using fitted values from models 5 and 6 in Table 1, we find that for individuals aged between fifteen and seventeen, moving from the tenth to the ninetieth percentile on the neighbourhood ethnic diversity index leads to a predicted increase in social cohesion of 0.24, holding all other variables in the model constant. For those aged eighty-five or older, the corresponding figure is −0.02. For ethnic segregation, a shift from the tenth to the ninetieth percentile results in a decrease in social cohesion of 0.16 for the youngest group, while for oldest residents the equivalent figure is an increase of 0.15. These contrasts can be compared to differences between men and women (0.05); between professional or managerial occupations and skilled manual occupations (0.13); and between white British residents and Indian residents (0.26). These comparisons indicate, then, that the neighbourhood diversity and segregation effects that we have observed here are of substantive as well as statistical significance.

The models presented in Table 1 combine the effects of the neighbourhood-level variables across ethnic groups. It might be anticipated, however, that the effects of the ethnic composition variables will be experienced differentially for majority and minority ethnic groups (Vervoort 2010; Uslaner 2012). Repeating models 1–6 for white and non-white respondents separately shows the magnitude and significance of the coefficients for segregation and diversity in models 1–4 to be essentially the same in both groups. For models 5 and 6, which include the interactions between ethnic composition and age, we find no material difference in the coefficients for model 6 (segregation) between white and non-white respondents. With regard to model 5 (ethnic diversity), the coefficients and standard errors are also materially unchanged when considering white respondents only. However, although the direction of the coefficients remains the same in the non-white subsample, they are smaller in magnitude and no longer statistically significant.[9] Thus, the moderating effect of age on the association between ethnic diversity and perceived social cohesion is evident only for white Londoners.

Discussion

Recent studies in sociology and political science have, for the most part, drawn quite pessimistic conclusions about the effect of ethnic diversity on social capital, community cohesion and trust. Although the findings are far from uniformly consistent across the range of contexts in which these studies have been undertaken, it is nonetheless reasonable to characterize this body of evidence as supporting the idea that ethnic heterogeneity is, albeit weakly, damaging to harmonious community life. Conflict, it is contended, appears to trump contact (Putnam 2007). As Hewstone (2009) has argued, however, this line of research has tended to equate the *opportunity* for inter-group contact that ethnically diverse communities offer, with contact

itself. Living in a neighbourhood comprising multiple ethnic groups may raise the probability of inter-group contact but diversity cannot be considered as necessarily resulting in meaningful social contact between ethnic groups. Therefore, one need not conclude, from the negative associations frequently observed between diversity and trust, that contact 'does not work' as a means of building community cohesion, for this same evidence could equally well imply that current levels of inter-group contact have simply been insufficient, or of the wrong quality, to engender trust and other positive inter-group attitudes. Indeed, where studies have included measures of the extent of interpersonal contact within neighbourhoods, they have been found to act as important moderators of the effect of ethnic diversity on trust. In ethnically diverse neighbourhoods, those who report having frequent contact with people in their neighbourhood are considerably more trusting of people in general than those who have little or no interpersonal contact, irrespective of which ethnic group they belong to (Stolle, Soroka, and Johnston 2008; Sturgis et al. 2011).

A corollary problem that characterizes many existing studies in this tradition is the use of measures of area ethnic composition that do not distinguish between the diversity of a neighbourhood and the spatial distribution of ethnic groups within it (Rothwell 2012). However, it is clear from theoretical accounts of inter-group contact and prejudice that diversity should not be expected to have positive effects on social cohesion in neighbourhoods where ethnic groups are segregated from one another, because segregation reduces the probability of meaningful social contact between groups (Uslaner 2012). Thus, studies that appear to show a negative effect of *diversity* may, in some instances, actually be picking up the effect of minority group segregation with which diversity is correlated. Research in this area has also tended to report estimates of the association between neighbourhood diversity and trust that are aggregated over age groups to produce a single, population average, estimate. It is increasingly evident, however, that due to the relatively recent origin of contemporary immigrant communities in most western democracies, both experience of interethnic contact and the attitudes and behaviours to which this gives rise, are highly contingent upon the age cohort to which an individual belongs (Ford 2008; Stolle and Harell 2012).

Our aim in this paper has been to address these limitations by focusing attention on residents of London, a city with a justifiable claim to be the most ethnically diverse conurbation in the world. If living among people from different ethnic groups has a negative effect on prosocial attitudes, then London should surely exhibit as an exemplar case of the phenomenon. In addition to focusing on a city with unusually high numbers of minority ethnic groups, we also examined the effects of both diversity and segregation, defined at two different levels of geography, and with an allowance for effects to be moderated by the age of neighbourhood residents. Our results confirm the importance of accounting for these contingent factors. When evaluated on their own, neither diversity nor segregation appears to have any effect on community cohesion. However, when area-level economic deprivation is controlled, diversity emerges as a positive predictor of social cohesion, a finding that is in the opposite direction to the large majority of published studies. More ethnically segregated communities, on the other hand, are associated with lower

levels of expressed social cohesion, which conforms to the pattern found in the USA and Canada (Rothwell 2012; Uslaner 2012).

Moreover, these relationships are strongly moderated by age cohort: the positive effect of diversity and the negative effect of segregation among the youngest adults both weaken over successive cohorts, until the direction of the association is reversed among the oldest residents of London's neighbourhoods. The moderating effect of age on the association between diversity and social cohesion for white residents provides further evidence in support of the idea that growing up in a multicultural society in which ethnic minorities play a visible and positive role serves to shift the attitudes and behaviours of younger ethnic majority cohorts in prosocial directions (Stolle and Farell 2012). Indeed, though often overlooked, this was a core part of Putnam's (2007, p. 164) original thesis in his influential contribution to the debate, where he argued that 'in the short run there is a trade-off between diversity and community, but that over time wise policies (public and private) can ameliorate that trade-off.' Our findings here, albeit indirectly, support this expectation: ethnic diversity only appears to be problematic for majority white cohorts who grew up with less direct and indirect contact with ethnic minority groups. For younger cohorts, both white and non-white, neighbourhood ethnic diversity is positively associated with social cohesion. That the relationship between ethnic segregation and social cohesion should be so strongly negative among younger cohorts but moderately positive among older ones cannot be so clearly derived, even ex post, as an expectation from the existing theoretical or empirical literature. Why, then, does this moderating effect arise? A possible explanation is that, in older cohorts, areas of high ethnic in-group concentration act as a 'safe haven' on arrival and as a buffer against the worst forms of inter-group conflict that can arise during the early stages of settlement of new immigrant communities. But, for subsequent generations, the utility, significance and symbolism of such segregated areas changes as they become – through schooling, language, social networks and so on – more integrated in the host country. This is, of course, little more than speculation, and future research could usefully address the generality and likely causes of the effect that we have observed here.

Despite these contingent factors, our overall conclusion remains that ethnic diversity does not, in and of itself, drive down community cohesion and trust. In fact, in the highly diverse neighbourhoods that characterize modern London, the opposite appears to be the case, once adequate account is taken of the spatial distribution of immigrant groups within neighbourhoods and the degree of social and economic deprivation experienced by residents. One might, it must be conceded, object to the conclusions that we have drawn here on the very grounds with which we have sought to justify them: that London's unique immigrant and ethnic make-up renders it sui generis and, therefore, of limited utility in understanding how the quantity and distribution of immigrant groups within neighbourhoods will affect community relations in other contexts. While the argument that London's very exceptionalism makes it of questionable generality carries some weight, it also serves to foreground the coincident imperative: that the sociologist's task should not be to determine the effect that ethnic diversity has on community life in some universal sense, but to shed light on the inevitably contingent conditions that give rise to positive and negative outcomes in different contexts.

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Notes

1. The small areas are middle super output areas (MSOAs), which are described in detail in the following 'Data and measures' section.
2. The City of London is not included in the sample frame because it is covered by a separate police force.
3. The analysis sample is reduced to 54,849 due to item non-response on the variables included in the model.
4. The scale has good internal validity; the first principal component has an eigenvalue of 2.1, the second of 0.45. Factor loadings are 0.84, 0.86 and 0.82 for items 1–3, respectively.
5. Sturgis et al. (2011) report a figure of 15% for generalized trust, while Laurence (2009) finds 17% for the same outcome.
6. Models containing these coefficients show them all to be non-significant.
7. This can also be described as an instance of 'suppression' in a regression model (e.g. see Conger 1974; Cohen and Cohen 1975).
8. More formally, let Y denote perceived cohesion, X_1 ethnic diversity and X_2 deprivation. In model 3, the conditional expected value of Y is $E(Y \mid X_1, X_2) = \beta_0 + \beta_1 X_1 + \beta_2 X_2$, where $\beta_1 > 0$ and $\beta_2 < 0$. If the relationship between X_1 and X_2 is approximately $E(X_2 \mid X_1) = \alpha_0 + \alpha_1 X_1$, then this best linear approximation has $\alpha_1 = \mathrm{cov}(X_1, X_2)/\mathrm{var}(X_1)$. If, as in model 2, X_2 is omitted from the model for Y, the conditional expected value of Y given X_1 alone will then be $E(Y \mid X_1) = \gamma_0 + \gamma_1 X_1$, where $\gamma_1 = \beta_1 + \beta_2 \alpha_1$. This will be closer to 0 than β_1 if, as is the case here, $\beta_2 < 0$ and $\mathrm{cov}(X_1, X_2) > 0$.
9. These analyses are available upon request from the corresponding author.

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