Place attachment in deprived neighbourhoods: the impacts of population turnover and social mix

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Abstract

This paper examines the determinants of individual place attachment, focussing in particular on differences between deprived and others neighbourhoods, and on the impacts of population turnover and social mix. It uses a multi-level modelling approach to take account of both individual- and neighbourhood-level determinants. Data are drawn from a large sample government survey, the Citizenship Survey 2005, to which a variety of neighbourhood-level data have been attached. The paper argues that attachment is significantly lower in more deprived neighbourhoods primarily because these areas have weaker social cohesion but that, in other respects, the drivers of attachment are the same. Turnover has modest direct impacts on attachment through its effect on social cohesion. Social mix has very limited impacts on attachment and the effects vary between social groups. In general, higher status or more dominant groups appear less tolerant of social mix.

Key words

Place attachment; neighbourhood deprivation; population turnover; social mix; multilevel modelling.

Introduction

Place attachment refers to "a positive affective bond or association between individuals and their residential environment" (Shumaker and Taylor 1983, p.233). It is generally viewed as good for people and for places, providing a source of security and identity for the former, and cohesion and stability for the latter. It survived the transition to modern, urbanised society because individuals are able to form attachments to new places over time as they become familiar with them, develop practical routines embedded within those places and, crucially, build local social networks (Kasarda and Janowitz, 1974). Recent social changes arising from or accompanying 'globalisation', however, are seen as threatening to undermine place attachment. These include rising levels of residential mobility, increasing ethnic diversity, growing spatial uniformity or loss of the unique identity of places, and an increasingly instrumental orientation to place (Hay 1998; Meyrowitz 1985).

Place attachment in the most deprived neighbourhoods looks particularly vulnerable. It has long been argued that levels of attachment tend to be lower in these neighbourhoods as a result of both compositional and contextual factors: they are home to groups such as young adults who tend to have lower levels of attachment wherever they live, but they are also places where people find it more difficult to form attachments (Kasarda and Janowitz 1974; Woolever 1992; Sampson 1988). As spatial inequalities have risen and concentrations of deprivation have become more acute (Dorling and Rees, 2003), we might expect a growing number of neighbourhoods to suffer low levels of attachment. More worrying, however, are the suggestions that social and community relations within deprived areas have deteriorated to such an extent that they no longer function in the same ways as other neighbourhoods (Wilson 1996; Wacquant 2008).

This paper aims to identify whether place attachment is lower in more deprived neighbourhoods and, if so, to explain why this is the case. It explores whether the factors that promote attachment in most neighbourhoods have the same effects in the most deprived places or whether different factors are at work in these areas. In particular, it examines the impacts of population turnover and social mix on attachment in deprived neighbourhoods. These factors are generally seen as undermining attachments but might be particularly damaging in more deprived contexts. The paper is based on an analysis of data from a large-scale Government survey, the Citizenship Survey 2005, covering a representative sample of almost 9000 adults in England. The analysis takes advantage of the clustered sampling which that survey employs. In addition, individual data are linked to data on neighbourhood context from the Census 2001 and the Government's Indices of Deprivation 2004.

The next section of the paper provides a discussion of the concept of place attachment before reviewing existing research on the relationships between neighbourhood context and attachment. The third section provides details on data sources and methods. In the fourth, we explore the individual determinants of place attachment. The fifth section reports the results of the analyses of neighbourhood-level influences.

Place attachment and its determinants

The importance of place attachment

Some have seen place attachment as a fundamental human need (Relph, 1976). In less essentialist terms, others have argued that its importance may vary over the life course but that, in general, it has benefits for individual well-being and health (especially mental health) through the relationship with social identity and self-esteem (Giuliani, 2003; Proshansky et.al. 1983; Uzzell et.al. 2002). More broadly, it is seen as helping to enrich people's lives with meaning, value and significance (Giuliani, 2003). Though less often discussed, the advantages of place attachment for individuals have to be weighed against the alternative advantages of spatial mobility. Place attachment may have detrimental effects for individuals if it prevents them seeking out new experiences and new opportunities for employment and personal development, or simply moving to improve housing or neighbourhood conditions (Fried 2000; Smith 2009).

For communities or neighbourhoods, attachment also tends to be seen in positive terms. High levels of attachment may be associated with citizens who are more likely to invest money, time and effort in their area, and to exercise 'voice' rather than 'exit' when faced with changes they do not like (Lyons and Lowery, 1989). High levels of attachment have been associated with more 'organised communities', better able to respond collectively to incidences of anti-social behaviour or criminal activity (Sampson and Groves 1989). It should be noted, however, that the direction of causality is not always clear. Attachment may be seen as the basis for engagement and the formation of social capital or as being shaped by the extent of existing relationships or engagements (Kleinhans et al 2007). Indeed, in some conceptions, engagement is seen as one dimension of attachment (Bolan 1997). In this paper, we restrict the concept of attachment to affective or emotional ties.

Recently, some urban sociologists have questioned whether place attachment continues to be an important phenomenon or whether the nature of attachment has changed. 'Globalisation' has been accompanied by higher levels of migration and residential mobility, rising ethnic diversity, a loss of local identity, and the displacement of local ties with both non-local socialising and the maintenance of distant connections enabled by technology (Lash and Urry 1987; Savage et al 2005). In some views, these changes may result in individuals who pursue lives without deep connections to particular places, valuing the freedoms associated with mobility – an emphasis on 'routes' rather than 'roots' (Gustafson 2001). Others have suggested that mobility may give rise to new ways of forming attachments which do not depend on long periods of residence in a particular place. Savage et al (2005) argue that places can give rise to a sense of 'elective belonging' where localities are valued less for providing a sense of familiarity, security or community and more for the ways in which they support an individual's identity, or sense of personal history or social status. The latter is consistent with arguments about the rise of meritocracy in society (de Botton, 2004). In a similar argument, Feldman (1990) claims that highly mobile individuals may build a sense of 'settlement-identity' through continuity in the *kinds* of place in which they live rather than through long-term residence in a *specific* location. The extent to which these new forms of attachment displace old forms or co-exist with them, or even depend upon them has been little studied (Gustafson 2001).

Drivers of attachment for individuals

As people attach to places, there is a concern within the literature to identify the influence of both individual and neighbourhood characteristics upon this process. On the individual side, it has long been argued that length of residence in a neighbourhood is the key influence. Early

urban sociologists such as Tönnies (1955/1887) argued that place attachments would be lost in the mobile world of modern cities. Kasarda and Janowitz (1974) demonstrated, however, that affective attachments were continually being reformed in those places where individuals settled for a period. The finding that length of residence in an area is a key explanatory factor for attachment has been consistently replicated thereafter for a number of suggested reasons (Giuliani 2003). First, long residence may support attachment through the development of familiarity and a sense of predictability, and hence feelings of safety and security (Altman and Low 1992; Kearns and Parkinson 2001). Second, it may lead to the development of spatial routines or established patterns of movement connecting home, school, work and social or leisure activities. Third, and more directly, length of residence is associated with the development of social ties or networks within an area (Altman and Low, 1992). Both the first two may in turn support the third.

Other individual-level characteristics that have been identified as important for attachment include age or life stage. Older people report higher levels of attachment even after controlling for length of residence; younger adults, by contrast, may have a stronger sense of attachment to their city than their neighbourhood (Scharf et al 2003; Hidalgo and Hernandez 1992; Woolever 1992). Larger households (couples rather than single, and those with children) are likely to have more ties to a neighbourhood and more complex patterns of functional attachments, and hence higher emotional attachments (Mincer 1978). Women tend to be more attached than men reflecting the higher levels of domestic responsibility they tend to bear and hence stronger connections to neighbourhood networks (Hidalgo and Hernandez 2001). An individual's socio-economic status may also be important with higher status associated with more extensive local networks and hence higher attachment, although findings here are not always consistent (Woolever, 1992; Hidalgo and Hernandez, 2001). People who are civically active also tend to report higher attachment (Sampson 1988; Woolever 1992).

Place attachment in deprived neighbourhoods

Three neighbourhood characteristics are regularly seen as affecting attachment: deprivation or socio-economic status, population turnover and social mix. Lower socio-economic status for the neighbourhood (higher deprivation) is consistently associated with lower levels of attachment. In early studies, measures tended to capture physical characteristics (urban scale, density or quality of housing) but these were seen as proxies for socio-economic status (Kasarda and Janowitz 1974). More recently, a wider range of measures of social status have been included in analyses. Some studies have found a positive relationship between individual attachment and the average levels of educational attainment in an area rather than income (Woolever 1992), suggesting that it may be cultural rather than financial capital that is the key factor. Neighbourhood deprivation appears to matter because deprived neighbourhoods suffer from lower levels of social connection and weaker social networks (Sampson 1988). Higher levels of crime are also a factor, both for their direct impacts on attachment and possibly also indirectly as they promote withdrawal from social interaction (Woolever 1992; Sampson 1988).

In recent decades, deprived neighbourhoods are argued to have undergone fundamental changes under the joint influences of economic restructuring and associated changes in welfare states (Wilson 1996; Wacquant 2008). While the processes have been more far-reaching in the US than in Europe, there is certainly a concern that social conditions in the most deprived neighbourhoods have deteriorated in the UK. This has been a major theme of Government policy over the last decade (SEU, 2001; PMSU/ODPM, 2005). One question then is whether the individual-level factors that promote attachment in general continue to operate in the same way in the most deprived places. Length of residence within a deprived

neighbourhood may not have the same positive influence on attachment as it does in more affluent places. For many people, moving into a deprived neighbourhood is the result of a highly constrained choice (or no choice). This lack of control can have a negative influence on attachment in the short term (Bahi-Fleury 1996, cited in Giuliani 2003; Livingston et al 2010). Arrival processes more generally have also been shown to impact on attachment in the longer term (Bolan 1997). A related question is whether the impacts of neighbourhood deprivation are the same for different groups. More vulnerable groups (for example, those with the lowest socio-economic status or incomes) may be more sensitive to neighbourhood conditions as they are likely spend a greater proportion of their time there. Hence they may see attachment eroded more rapidly by rising neighbourhood deprivation (Laurence and Heath 2008).

High levels of population turnover are seen as eroding attachment on the basis that they reduce the opportunities for people to form social connections. High turnover neighbourhoods have fewer long-term residents (a compositional factor) but they also have weaker social networks for new residents to find connections within (a contextual effect). Sampson (1988) shows that residential mobility affects the level of local friendship ties across the community, and that this in turn affects an individual's local friendship ties and hence their attachment. Studies are not unanimous in this area, however, and Giuliani (2003) cautions that the link is not yet proven.

The impacts of turnover may also depend on neighbourhood deprivation. In a study of psychological well-being rather than place attachment, Ross et al (2000) argued that, whilst turnover was harmful to well-being in more affluent neighbourhoods, it was potentially beneficial in more deprived places. Making reference to Wilson's (1996) work, they argued that the most psychologically-damaging places were those where high deprivation combined with low turnover to produce frustration and isolation. The same argument might also be applied to place attachment. On the other hand, a recent qualitative study of attachment suggested that higher turnover may be *more* damaging in more deprived neighbourhoods (Livingston et al 2010). In these places, turnover seems to be particularly unsettling because of the fear amongst some that, in such low-demand neighbourhoods, new residents are much more likely to be disruptive.

Levels of social mix within the neighbourhood have also long been argued to affect attachment, although most of the work has related to ethnic mix rather than to class or income mix. High levels of mix are seen as creating impediments to social interaction, integration and cohesion (Shaw and McKay 1942; Gans 1962). Looking at ethnic mix, Putnam argues that people who live in more mixed communities "tend to withdraw from collective life [and] to distrust their neighbours" (2007, p.150). However, recent UK research indicates that trust in neighbours is much more sensitive to levels of economic deprivation and of social contact than it is to ethnic diversity (Sturgis et al 2011). Evidence also suggests that the effects of mix may be contingent on individual characteristics. In the US and Europe, on average, all ethnic groups express some preference for living with co-ethnics but people from minority ethnic communities are more comfortable with mixed communities (Charles 2003; Dekker and Bolt 2007).

As with turnover, we might anticipate that the impacts of social mix might be *particularly damaging* for attachment in more deprived neighbourhoods. In general, those living in more mixed neighbourhoods will tend to be people who are more positive about (or indifferent to) such mix. As noted above, however, many residents of more deprived neighbourhoods have much less control over neighbourhood selection, so the same assumption may not apply in their case. There are parallel findings within studies on community cohesion. These show that

tensions between ethnic groups often tend to occur where there are rapid increases in levels of ethnic mix; in other words, these are places where (existing) residents have not chosen to live in mixed communities but find their community changing around them (Amin 2002; CIC 2007). Furthermore, it has been argued that "gentrification-induced… social mix within declining neighbourhoods" can erode quality of life for existing residents by "threatening the welfare benefits and supportive networks … accrued from social segregation" (Lees 2008; see also Cheshire 2006).

Summary

In general terms, the characteristics of people and places that impact on attachment are fairly well-established but less has been done to understand the drivers of attachment in more deprived neighbourhoods in particular. There are good reasons to question whether the individual characteristics that promote attachment in general also do so in deprived locations or do so to the same extent. Similarly, there is a need to identify whether the impacts of turnover and of mix are the same in these kinds of place. In this paper, we therefore seek to do the following:

- establish whether deprived neighbourhoods in England continue to experience lower levels of attachment than other areas, and identify the factors that may explain this;
- identify the individual and neighbourhood influences on place attachment, focussing on the differences between deprived and other neighbourhoods in this respect; and
- examine whether the impacts of social mix are also contingent on individual characteristics.

Data and methods

Survey and sample

The analysis presented here is based on data from the Citizenship Survey 2005. This was a biennial (now annual) Government survey in England and Wales where the core sample was a representative cross-section of approximately 10,000 adults 16 and over (Michaelson et al, 2006). The survey collects data on a range of community and neighbouring issues as well as individual characteristics. The core sample is constructed through a two-stage clustered design; 633 Primary Sampling Units based on wards are selected first with a random sample of households selected within each. This gives an average of 14 surveys per ward. We remove a small number of wards with fewer than 8 cases since we are interested in modelling interdependencies within neighbourhoods. We limit our analysis to those aged 21 and above to remove people most likely to be in full-time education and living with their parents. For reasons noted below, we also restrict the analysis to England, leaving a core sample of around 8600.

Measures used

Our main dependent variable is a measure of an individual's attachment to their neighbourhood, derived by combining answers from two questions: "How strongly do you feel you belong to your immediate neighbourhood?" (responses: very; fairly; not very; not at all strongly); and "Would you say that this is a neighbourhood you enjoy living in?" (responses: yes, definitely; yes, to some extent; no). On its own, each question might be regarded as a rather limited measure of attachment. Belonging to an area need not be a positive statement while enjoying an area need not indicate any sense of attachment to it. Taken together, the combination strongly suggests a positive sense of attachment (correlation 0.42). The relationship between answers to these questions and a general sense of place attachment among respondents was also verified in a parallel qualitative study involving 39 depth interviews in four relatively deprived neighbourhoods in England (see Livingston et al

2010 for details of that work). The combined attachment variable can range in value from 0 to 6, with a weighted average in our sample of 4.49 (standard deviation 1.32) indicating quite positive assessments by the majority. This variable is treated as a continuous measure. (In spite of the negative skew in the dependent, residuals in the models below were very close to a normal distribution.)

For neighbourhood characteristics, there are two sources of information. First, respondents provide subjective judgements about a number of aspects of their immediate neighbourhood. Eight questions were reduced to three groups after an examination of correlation coefficients and exploratory factor analysis, as follows:

- S*ocial cohesion*: people who scored highly felt that their immediate neighbourhood was one where people pulled together, would participate to solve problems and were willing to help neighbours, and they felt that it was close-knit.
- V*alues and trust*: people with high scores felt that people in their immediate neighbourhood shared the same values and could be trusted.
- S*afety and crime*: people with high scores felt safe walking alone after dark in the immediate neighbourhood and were not worried about being a victim of crime (all types of crime in general, not place specific).

Each of the individual questions was scored on a four-point scale. The combined measures were simple sums of the individual answers, re-scaled to run from 0 to 1. They have means of 0.65, 0.66 and 0.58 respectively and correlations with each other of 0.3 or below. As well as using individuals' own perceptions to measure neighbourhood characteristics, in some analyses we also used the average scores for all residents in each neighbourhood.

Second, objective measures of neighbourhood characteristics were provided by attaching area data to the individual data. Matching was carried out at the level of the Lower Super Output Area (LSOA). These are units designed for the reporting of 'neighbourhood' data in England, and have a population averaging 1500. They are therefore significantly smaller than wards (population typically 5-6000) but do not necessarily nest within them. Cases were matched by the data custodians using individuals' unit postcode. To preserve anonymity, individual data was supplied to us with the area measures converted to banded values. Although it is not possible to know precisely what area respondents had in mind when thinking about their 'immediate neighbourhood', LSOAs should provide a reasonable fit and certainly better than wards.

The area data was drawn from the 2001 Census and from the Government's official measure of area deprivation, the Indices of Deprivation 2004 (Noble et al, 2006). Data for the latter comes mainly from 2001-3. The neighbourhood data is therefore collected between one and four years before the survey data. This is likely to have limited impact on our analyses as most neighbourhoods change only slowly. As some neighbourhood data is not directly comparable between England and Wales, we limit the analysis to the English cases. From the Indices of Deprivation, we attached the overall deprivation decile for the LSOA. This measure combines indicators from a wide range of sources but is heavily weighted to reflect the proportion of low income households and those out of work in an area. From the Census, we included measures for the LSOA of ethnic composition (proportions White; Asian; Black; and Other), housing tenure (proportions Owner-Occupiers; Social Renters; Private Renters) and socio-economic status (proportions Professional/Managerial; Intermediate; Semi-Routine/Routine; Unemployed/Never Worked/Other). We also included a measure of population turnover (measured as the total number of in- and out-migrants plus within-area migrants, divided by the population one year before the Census).

Social mix is assessed along three dimensions, namely ethnic mix, tenure mix and socio-economic mix. For each dimension, we use the Census variables for the three or four constituent groups to calculate measures of social mix based on entropy scores (Reardon and Firebaugh 2002). These range from '0' where neighbourhoods are entirely composed of a single group to '1' where the neighbourhood has equal proportions from each group. The most mixed neighbourhoods all have the same composition but less mixed neighbourhoods may have quite different compositions; for ethnicity, for example, they might be White- or Asian-dominated. To capture this diversity, we also measure mix using cluster analysis to create typologies of neighbourhoods that distinguish different kinds of mix (or lack of mix) along each dimension. For simplicity, four clusters are identified for each dimension; details below.

Analysis

We analyse the data by constructing multilevel linear regression models using the MLwiN software (Rasbash et al 2010) employing Iterative Generalised Least Squares estimation. All results are based on weighted cases. It should be noted that the weights facility in MLwiN has not been fully validated as yet but we prefer to use them here to give a more representative sample. Omitting weights changes results at the margin but overall findings stand. For all analyses, we estimate three-level hierarchical models as follows: first level containing individual characteristics; second level containing neighbourhood characteristics measured at the LSOA level (deprivation, turnover and social mix); and third level to allow for the design effects arising from the clustered sampling at ward level. On occasion, we also include measures of neighbourhood characteristics which are aggregate measures of individual characteristics and these are also measured at ward level as the number of cases is too small at LSOA level. These hierarchical models also allow us to explore more complex patterns of variance even when we include only individual-level explanatory factors. We refer to both second and third levels as "neighbourhood" but always try to be clear which we are talking about.

Individual determinants of attachment

We begin by examining the impacts of individual characteristics on place attachment, largely as a preliminary stage to allow us to explore the impacts of neighbourhood. In these initial models, we include a range of characteristics that previous studies have suggested may be important: demographic characteristics (gender, age, number of children in household and ethnicity); length of residence in the neighbourhood; socio-economic characteristics (employed or not, educational attainment, and occupational status given by NSSec); housing tenure; and whether the respondent is civically active or not. Age and length of residence are continuous variables, entered initially as polynomials to allow for non-linear relationships although only significant terms are retained. Qualifications and occupational status are both ordinal variables but treated here as linear terms after exploring potential non-linearities. Other variables are captured through dummies, including civic activity which is based on whether individuals have been involved in the previous year in formal roles (local councillor, school governor, etc.) or have participated in consultative processes (e.g. concerning public services, or the neighbourhood or community).

Age and length of residence in the neighbourhood appear to have the strongest impacts on attachment, confirming many previous findings (Table 1). Although the (unstandardised) regression coefficients are small, the variables have wide ranges (over 80 years in each case). The two factors appear to operate independently and additively. With length of residence, the

relationship is non-linear. Attachment rises more steeply in the early years of living in a neighbourhood but also again in the later years. In addition, older people have significantly higher levels of attachment, even after we control for length of residence. (Estimates are robust for older age groups as there are over 1000 cases 75 or over.) Taken together, we would expect older people with long residence to have particularly high levels of attachment.

With a single cross-sectional study, it is possible that the age effect reflects cohort differences rather than age per se but that is not a question which can be resolved here; comparisons with results from earlier or later years would help, provided an identical set of controls were available. Similarly, it is possible that the impact of length of stay is overstated by selection effects; if those with less attachment are more likely to leave (as theory would predict), average levels of attachment will tend to rise over time. Longitudinal research would be needed to resolve that question with certainty but this data does provide some indirect evidence that selection effects are not a major issue. If selection effects were substantial, the impact would be greatest on groups with higher mobility rates. Specifically, we would expect the relationship between length of stay and attachment to be stronger for groups with higher mobility. Young adults are much more mobile than older ones (Bailey and Livingston 2007) yet the relationship between length of stay and attachment is very stable across the age groups in our study. We have some confidence, therefore, that what we are measuring is at least predominantly a length of stay effect rather than a selection effect.

Women report higher levels of attachment than men as previous studies have also shown. In terms of family status, respondents in households with two dependent children tended to have higher attachment than those with one or no children and those with three or more children; Table 1 shows only the final result, comparing families with two children with all others. Having some children may lead to greater functional connections or social networks within the neighbourhood which in turn promote attachment but having more children may lead to more constrained incomes and hence restricted neighbourhood choices combined with greater concern about the neighbourhood as a potential influence on children's development. Ethnicity has modest impacts with only those describing themselves as Asian having significantly higher attachment once other individual factors have been taken into account; again, Table 1 shows only the final significant distinction, so contrasts Asian respondents with all others, although the latter are predominantly White. This may reflect ethnicity but it may equally reflect other individual or neighbourhood characteristics not otherwise controlled for at this stage, and we return to this point below.

Table 1: Individual determinants of place attachment

		Model 1			Model 2		
Fixed Part		***Regression coefficient***	***S.E.***		***Regression coefficient***	***S.E.***	
Constant		4.48	0.02	***	4.24	0.05	***
Gender (Male)	Female				0.07	0.03	*
Age	Years				0.01	0.00	***
No. children (Other)	2 child				0.18	0.04	***
Ethnicity (Other)	Asian				0.35	0.07	***
Length of residence	Years				1.48E-02	1.24E-03	***
	Years squared				-4.62E-04	8.23E-05	***
	Years cubed				5.32E-06	1.54E-06	***
Employed (No)	Yes				0.11	0.03	**
Tenure (Social)	Private rented				0.18	0.06	**
	Owner occupier				0.27	0.04	***
Civically active (Not)	Active				0.28	0.05	***
Random Part		***Variance component***	***S.E.***		***Variance component***	***S.E.***	
Variance (level 3)		0.14	0.02		0.10	0.01	
Variance (level 2)		0.16	0.02		0.13	0.02	
Variances (level 1)		1.37	0.02		1.27	0.02	
Deviance		29369.1			28359.1		
No. PSUs/Wards (Level 3)		599			599		
No. LSOAs (Level 2)		3102			3097		
No. Individuals (Level 1)		8575			8511		
Change in deviance					1010.0		
d.f.					11		
Signif.					0.000		

Source: Citizenship Survey (2005) – authors' analysis. Weighted cases, IGLS estimation.
Notes: *** - <.001; ** - <.01; * -<.1. Based on z-scores.

Contrary to some earlier studies, we find that the factors measuring individual socio-economic status have only a weak relationship with attachment. Socio-economic position (measured through NSSec) is initially significant but the effects disappear once we control for employment status, housing tenure and civic activity. People in employment, those not in social rented housing and those civically active tend to have higher levels of attachment, as expected. People with the highest levels of qualifications or the highest occupational status (and thus likely to be higher on NSSec) are much more likely to be in work or civically active, and much less likely to be social housing tenants. In subsequent models where we begin to control for aspects of the neighbourhood context (see below), employment status and housing tenure also lose their significance.

We carried out an extensive search for interaction effects but found very few that were statistically significant and none that added significantly to the overall fit of the model. As noted above, the impacts of length of residence are consistent across age groups. With gender,

women reported slightly higher levels of attachment than men but the determinants of attachment were the same for both; a minor exception is that women's attachment to place appears to be marginally less affected by age than men's. With ethnicity similarly, the overall determinants are the same for the groups examined although there was a very slightly stronger age effect for Asian respondents than others. As the impacts on the overall fit of the models were very modest, we ignore these effects in subsequent models.

We tried extending the modelling at this stage by allowing characteristics to have a different relationship with attachment in different neighbourhoods, i.e. by permitting the effect of a given characteristic to vary randomly between the highest level neighbourhoods (wards). Allowing for these additional random effects improves the fit of the models but, again, only to a limited extent. In neighbourhoods which had higher-than-expected levels of attachment (a positive residual for the neighbourhood), the effects of gender, age and ethnicity on attachment tended to be weaker. The relationships between individual characteristics and attachment already noted do not alter. As we have no strong theoretical reason for using random effects, we revert to the simpler specification with fixed individual effects when we explore neighbourhood influences.

Neighbourhood influences on attachment

In this section, we explore the impacts of a range of neighbourhood characteristics on attachment. In the models that follow, we include individuals' subjective views of the neighbourhood. A quarter of cases do not provide complete answers to the relevant questions. On the one hand, very recent arrivals were less likely to provide full answers to questions about whether neighbourbours could be trusted or would pull together. On the other hand, very elderly respondents were less likely to answer the question about whether they felt safe walking alone after dark, perhaps because relatively few did. Removing these cases from the individual-level model above has some impact on the estimated parameters but the overall structure remains very much the same (as can be seen by comparing Table 1, model 2 with Table 2, model 1). The remainder of the paper is based on these 6300 cases.

Neighbourhood deprivation

We first explore the relationships between the objective neighbourhood deprivation measure and attachment. Previous research leads us to expect that attachment will be lower in more deprived neighbourhoods, after controlling for compositional differences, and that the impact of neighbourhood deprivation will be largely explained by its relationship with social cohesion (Sampson 1988). We also explore whether the relationships between individual characteristics and attachment are affected by levels of deprivation. Key questions are whether a long period of residence in a deprived neighbourhood has the same positive impact on attachment as elsewhere, and whether deprivation has more negative impacts on attachment for groups with lower socio-economic status.

In our dataset, residents in more deprived neighbourhoods do tend to report lower levels of attachment. Average attachment scores were 4.8 in the least deprived decile of neighbourhoods, compared with 3.9 in the most deprived – a range of 0.9. In part this may reflect compositional effects. More deprived neighbourhoods tend to have younger demographic profiles and much higher levels of social housing on average, and both of these would tend to reduce attachment levels. On the other hand, another strong influence on attachment – average length of residence — is quite consistent across the range of neighbourhoods. Although it is sometimes assumed that deprived neighbourhoods are

'unstable', levels of population turnover are only marginally higher there (Bailey and Livingston 2007).

Neighbourhood deprivation decile is added into the model as an LSOA-level (level two) characteristic (Table 2 – model 2). We control for the same set of socio-demographic characteristics as previously although employment and housing tenure are dropped as they are no longer significant. Including deprivation improves the overall fit of the model (the reduction in deviance is significant), and the regression coefficients are also significant. Rising neighbourhood deprivation is associated with falling levels of attachment and at an accelerating rate (as the quadratic term shows). Figure 1 (left-hand pane – dashed line) shows levels of attachment predicted by neighbourhood deprivation (holding individual socio-demographic characteristics constant). These run from 4.9 in the least deprived decile of neighbourhoods to 4.1 in the most deprived decile – a range of 0.8. Very little of the variation in attachment levels by deprivation is therefore explained by compositional factors.

We explored whether the drivers of attachment were different in more deprived neighbourhoods by examining cross-level interaction effects between individual characteristics and neighbourhood deprivation. We found almost no significant relationships. In particular, length of residence has the same relationship with place attachment across the spectrum of neighbourhoods. For more deprived neighbourhoods, this tells us that people are able to form attachments over time in just the same way as they do in other kinds of place. There do not appear to be general barriers to attachment in these areas. For more affluent (less deprived) neighbourhoods, the result also suggests that length of residence remains important. Place attachment persists as a phenomenon in these places. Social class has a very modest interaction with neighbourhood deprivation but not in the way anticipated. Rather than lower socio-economic groups being particularly sensitive to neighbourhood conditions, it is higher socio-economic groups which see their attachment eroded more quickly by rising deprivation. We return to this point below when we look at the influence of neighbourhood social mix.

Sampson (1988) argues that one of the key means by which deprivation shapes attachment is through its impact on social relationships, networks and trust, and this appears to be the case with our data as well. If we include individuals' subjective views of their neighbourhood (Table 2 – model 3), these add significantly to the model's explanatory power as shown by the reduction in deviance. All three factors matter for attachment and, in each case, the relationship is non-linear; attachment falls increasingly rapidly as judgements about the neighbourhood deteriorate (although with one variable, there is a slight easing off for the very lowest scores). Figure 1 (right-hand pane) shows levels of attachment predicted by each of the three subjective views (holding all other factors constant). An individual's sense of social cohesion has by far the greatest influence on attachment.

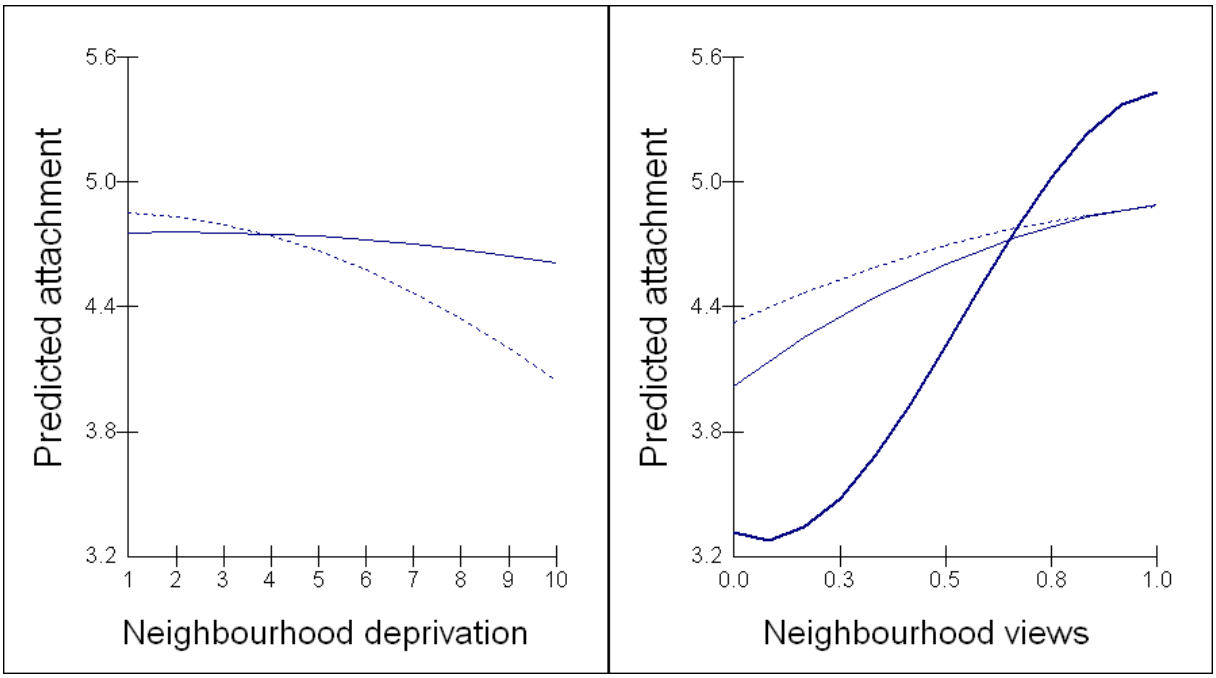
Once these factors are taken into account, the influence of neighbourhood deprivation is greatly diminished. When attachment is predicted on the basis of neighbourhood deprivation after controlling for subjective views of the neighbourhood (Figure 1, left-hand pane – solid line), scores run from 4.8 to 4.6 – a range of just 0.2. Hence, a significant part of the problem of low attachment in deprived neighbourhoods appears to arise from the poor ratings of these neighbourhoods, especially in terms of social cohesion. When we control for both neighbourhood deprivation and subjective views of the neighbourhood, we explain a large proportion of the variation between neighbourhoods; in model 3, there is relatively little unexplained variation at the two neighbourhood levels.

Table 2: Neighbourhood determinants of place attachment

		Model 1			Model 2			Model 3		
Fixed Part		***Regrssn coeff.***	***S.E.***		***Regrssn coeff.***	***S.E.***		***Regrssn coeff.***	***S.E.***	
Constant		4.58	0.03	***	4.65	0.04	***	4.74	0.04	***
Gender (Male)	Female	0.04	0.03		0.05	0.03	*	0.07	0.03	**
Age	Years	0.01	0.00	***	0.01	0.00	***	0.01	0.00	***
No. children (Other)	2 child	0.18	0.05	***	0.16	0.05	***	0.12	0.04	**
Ethnicity (Other)	Asian	0.27	0.08	**	0.34	0.08	***	0.23	0.07	***
Length of residence	Yrs	1.3E-02	1.5E-03	***	1.4E-02	1.4E-03	***	1.5E-02	1.2E-03	***
	Yrs sqrd	-3.2E-04	9.6E-05	***	-2.8E-04	9.5E-05	**	-4.1E-04	8.1E-05	***
	Yrs cbd	2.3E-06	1.9E-06		1.8E-06	1.9E-06		4.4E-06	1.6E-06	**
Civically active (Not)	Active	0.26	0.05	***	0.25	0.05	***	0.18	0.04	***
Nhd deprivation	Decile				-0.08	0.01	***	-0.01	0.01	*
	Decile sqrd				-0.01	0.00	***	0.00	0.00	
Social cohesion	Unit							3.24	0.12	***
	Squared							-1.77	0.32	***
	Cubed							-5.19	0.84	***
Trust/valude	Unit							0.66	0.09	***
	Squared							-0.61	0.30	*
Safety/crime	Unit							0.50	0.06	***
	Squared							-0.35	0.18	*
Random Part		***Variance compo-nent***	***S.E.***		***Variance compo-nent***	***S.E.***		***Variance compo-nent***	***S.E.***	
Variance (level 3)		0.12	0.02		0.07	0.01		0.03	0.01	
Variance (level 2)		0.17	0.02		0.16	0.02		0.09	0.02	
Variances (level 1)		1.20	0.03		1.19	0.03		0.89	0.02	
Deviance		20805.0			20637.2			18537.7		
No. PSUs/Wards (Level 3)		598			598			598		
No. LSOAs (Level 2)		2763			2763			2763		
No. Individuals (Level 1)		6303			6303			6303		
Change in deviance					167.8			2099.5		
d.f.					2			7		
Signif.					0.000			0.000		

Source: Citizenship Survey (2005) – authors' analysis. Weighted cases, IGLS estimation.
Notes: *** - <.001; ** - <.01; * -<.1. Based on z-scores.

Figure 1: Predicted attachment based on neighbourhood characteristics



Source: Citizenship Survey (2005) – authors' analysis. Weighted cases.
Notes:
Left hand figure: Dashed line – predicted attachment based on neighbourhood deprivation controlling only for individual socio-demographic characteristics. Solid line – predicted based on neighbourhood deprivation after controlling for subjective neighbourhood views in addition.
Right hand figure: Thick line – predicted based on social cohesion. Thin line – predicted based on trust/values. Dashed line – predicted based on safety/crime.

The impact of neighbourhood views on attachment appears to be consistent across social groups. For example, while women are more likely to rate their neighbourhood poorly in relation to safety and crime, any such concerns have the same impact on levels of attachment for women and men. The impacts of subjective judgements about the neighbourhood also appear consistent across places with different levels of (objective) deprivation. The only statistically significant interaction was with respondents' views about safety/crime. In more deprived neighbourhoods, place attachment levels are slightly more sensitive to subjective ratings of safety/crime but this was a very small effect overall (barely significant for the model as a whole). Again, our general conclusion is that the factors that shape place attachment in more deprived neighbourhoods are *the same* as in other places and that lower levels of attachment in more deprived areas result from worse ratings from residents for social cohesion (especially), and trust and safety.

With models which include individuals' subjective views as the basis for independent variables as well as the dependent, there is a risk that relationships will be distorted by unobserved personal characteristics (Halpern 2005); for example, it might be argued that aspects of individual personality may make people both more likely to believe their neighbours are close-knit or willing to help and more likely to feel that they belong to their area or are satisfied with it (the basis for our attachment measure). One response is to replace individual judgements about cohesion, trust and safety with the collective judgements of all residents in the area. Unfortunately, we do not have sufficient cases to do this at the lower

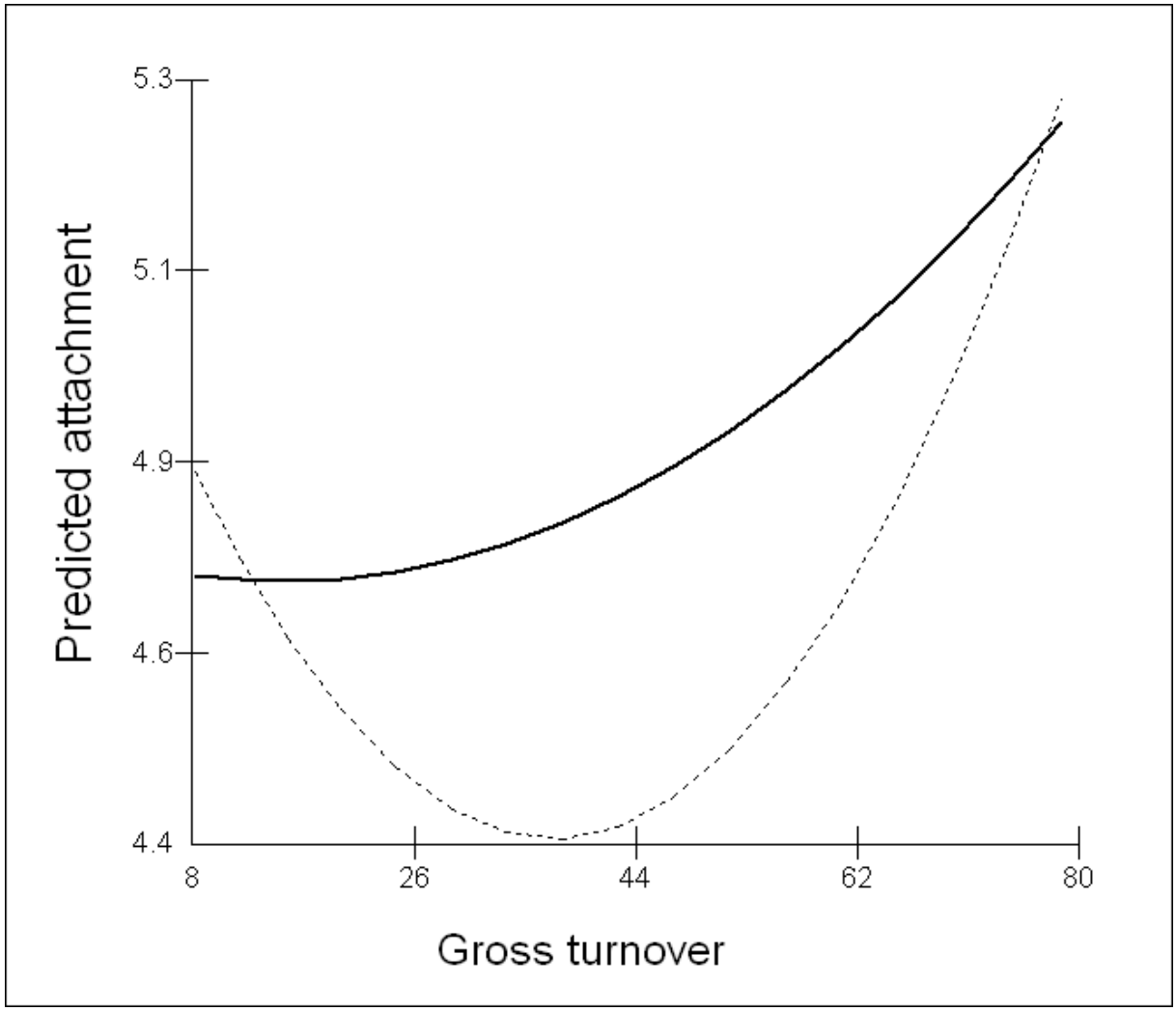
(LSOA) level. We can do this for the upper (ward) level although we believe this is rather a broad scale at which to make judgements about neighbourhood characteristics. When we do this, we obtain similar results to the individual level models although the reduction in deviance is not nearly as great. Attachment is higher where collective views of the neighbourhood are more positive, especially in terms of cohesion but also safety; with trust, the relationship is positive but not significant. Controlling for collective views again reduces the impact that deprivation has on attachment. For the remaining models, we revert to individuals' own views.

Population turnover

Our hypothesis is that turnover will erode attachment, even after controlling for individual length of stay as it hinders the development of social networks. We also explore whether turnover has more damaging impacts on respondents in more deprived neighbourhoods. For these analyses, we exclude a very small number of cases in neighbourhoods with very high turnover (above 80 per cent) or with a net change in total population greater than 25 per cent. Such areas are likely to have been subject to major development activity (new housing or possibly managed clearances) and hence unusual kinds of disruption to community relationships. For the remaining cases, average turnover is 21 per cent with the 90th centile being 29 per cent, although the maximum is 78 per cent.

At the neighbourhood (LSOA) level, population turnover has a negative correlation with average place attachment that is significant but weak (correlation coefficient -.12). Turnover has similar levels of negative correlation with average length of residence in the neighbourhood and with average subjective ratings of social cohesion, values and trust, and safety and crime. When we control only for individual socio-demographic factors (including age and length of residence), population turnover has a U-shaped relationship with attachment, with a minimum value when turnover is around 36 per cent – well above the 90th percentile (Figure 2 – dashed line). Thus for the great majority of neighbourhoods, rising turnover is associated with *falling* attachment as expected. When turnover is very high (well beyond the 90th percentile), further increases appear to be associated with rapidly rising attachment. We have no obvious explanation for this but note that the result persists even when we limit the data to cases with population turnover below 50 per cent so it is not simply the result of a few cases in extremely high turnover neighbourhoods. It would be interesting to explore the situation in these kinds of area in more detail, perhaps through more qualitative research. It is possible that they are the kinds of location where mobile populations feel able to form attachments without deep local connections, as hypothesised by Savage et al (2005) or by Feldman (1990); mobile people may feel a positive sense of belonging when surrounded by other similarly mobile people.

Figure 2: Predicted attachment by population turnover



Source: Citizenship Survey (2005) – authors' analysis. Weighted cases.
Notes:
Dashed line – controlling only for individual socio-demographic factors.
Solid line – controlling for subjective views of the neighbourhood in addition.

As expected, turnover appears to impact on attachment largely through the disruption of community relationships. Once we control for people's subjective views about their neighbourhood (social cohesion and, to a lesser extent, trust and safety), population turnover appears to have little or no additional effect on attachment for the great majority of neighbourhoods (Figure 2 – solid line); in those neighbourhoods with very high turnover (about the 90th centile), attachment still appears to rise. Once again, we tested for an interaction between turnover and deprivation to assess whether turnover is more damaging for attachment in more deprived neighbourhoods but again there was no significant effect here.

Neighbourhood social mix

Finally, we explore the impacts on attachment of three different dimensions of neighbourhood social mix – ethnicity, tenure and socio-economic status. Our main hypotheses are that social mix erodes attachment, especially in more deprived neighbourhoods. For each dimension, we measure mix in two ways: entropy scores that measure the degree of mix on a single scale (details above); and categorical cluster variables that capture different kinds of mix (details below). Levels of mix vary enormously depending on the dimension that we look at and the

three dimensions appear quite independent. They also have rather different relationships with both neighbourhood deprivation and levels of attachment (Table 3). Levels of mix are lowest in relation to ethnicity where the mean entropy score is 0.19 and 90 per cent of neighbourhoods have scores less than 0.51. By contrast, socio-economic status (NSSec) mix is generally very high with a mean of 0.96 and 90 per cent of neighbourhoods above 0.90. Tenure entropy sits between these two with a mean of 0.56 and a wide distribution.

Table 3: Neighbourhood social mix measures

Cluster variable and categories	Percent of cases	Mean of entropy	Mean of deprivation decile	Mean of attachment
Ethnic mix				
White	85%	0.11	4.84	4.63
White (Asian)	9%	0.52	6.78	4.34
Asian (White)	2%	0.70	7.91	4.41
White (Black, Asian)	3%	0.75	8.88	3.82
All	100%	0.19	5.21	4.58
Tenure mix				
Owner-Occupier	61%	0.41	3.73	4.76
Owner-Occupier (Social)	21%	0.77	7.10	4.36
Social (Owner-Occupier)	10%	0.80	9.25	4.06
Owner-Occupier (Private)	7%	0.82	6.53	4.34
All	100%	0.56	5.21	4.58
NSSec mix				
Prof/Mgrl	16%	0.88	3.22	4.74
Prof/Mgrl-Intermed	37%	0.97	3.70	4.76
Intermed-Semi/Routine	31%	0.99	6.12	4.47
Semi/Routine-Unempld/Never	17%	0.95	8.82	4.19
All	100%	0.96	5.21	4.58

Source: Citizenship Survey (2005) – authors' analysis. Weighted cases.
Notes: NSSec: Prof/Mgrl – Professional/Managerial; Intermed – Intermediate; Semi/Routine – Semi-Routine/Routine; Unempld/Never – Unemployed/Other (inc. never worked).

For each dimension, four clusters were identified, labelled to reflect the largest groups in each case, with the presence of other significant groups recorded in brackets. With ethnic mix, for example, neighbourhoods in the "White (Black, Asian)" cluster have a majority White population on average but significant minorities of Black and Asian populations (in size order). With ethnicity and tenure, one group covers more than half the population and is also the 'socially dominant' group (Whites and Owner-Occupiers, respectively). As a result, one cluster emerges in each case where the neighbourhoods are dominated by this group. This cluster is the largest, the least mixed and the least deprived (labelled 'White' and 'Owner-Occupier' respectively). With socio-economic status, there are four groups of more equal size. One cluster covers neighbourhoods where the majority comes from the socially dominant group (Professional or Managerial occupations). This is the least mixed and least deprived cluster but it is also the smallest. For all the policy concern about promoting social mix in more deprived neighbourhoods, it is the most deprived neighbourhoods that appear the *most* mixed.

Contrary to expectations, neighbourhood social mix does not appear to affect attachment, whether we use entropy scores or the cluster variables to measure mix and whether we consider any of the three dimensions of mix. Table 4 (column 1) shows the improvement in the overall fit of the model (reduction in deviance) that results from adding each of the six

measures of social mix; with the continuous entropy score, we allow for non-linear relationships. Adding measures of ethnic and tenure mix produces no significant improvement in overall fit. With socio-economic status, there are weak relationships (significant at the 5 per cent level). Examining predicted attachment scores based on these models (not shown), we find that attachment is slightly higher in less mixed neighbourhoods as expected but this only applies to neighbourhoods with the very lowest levels of mix. For the great majority of neighbourhoods, *attachment does not vary with mix*.

Table 4: Neighbourhood social mix measures

Mix dimension	Measure	1. Mix variables only		2. Interaction btwn. mix and individual characteristics		3. Interaction btwn. mix and nhd. deprivation	
		Deviance change	(Prob.)	Deviance change	(Prob.)	Deviance change	(Prob.)
Ethnicity	Entropy score	4.0	(0.26)	22.4	(0.00)	6.3	(0.39)
	Clusters	5.0	(0.17)	16.9	(0.01)	5.3	(0.5)
Tenure	Entropy score	6.9	(0.08)	14.7	(0.02)	14.3	(0.03)
	Clusters	2.4	(0.49)	14.5	(0.02)	14.7	(0.02)
Socio-economic status	Entropy score	7.3	(0.03)	10.4	(0.03)	5.0	(0.29)
	Clusters	9.5	(0.02)	16.6	(0.01)	15.7	(0.02)

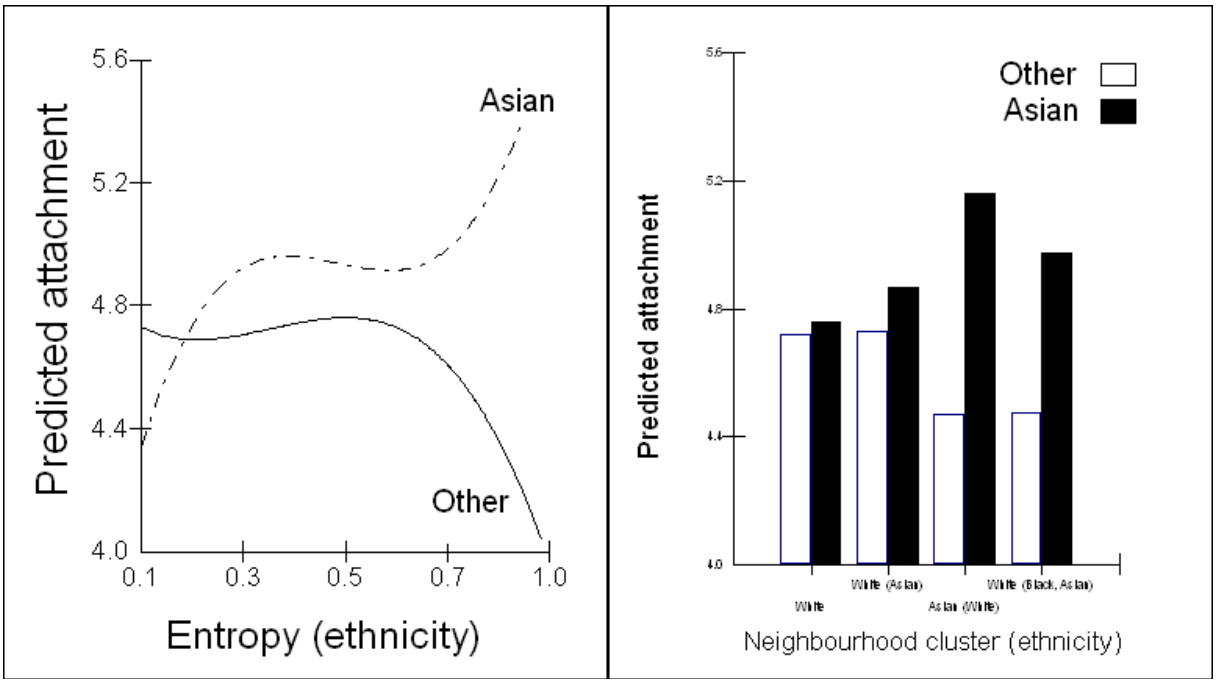
Source: Citizenship Survey (2005) – authors' analysis. Weighted cases, IGLS estimation.
Notes: Deviance change measures improvement in fit of the model through the reduction in -2*loglikelihood score which results from adding the variables noted. First set of models add entropy scores or cluster variables alone. Second set of models permit interaction with individual characteristics (for ethnicity, Asian versus Others; for tenure, Private Tenants versus Others; for socio-economic status, a linear term for NSSec). Deviance change is compared with model with no measures for mix in both cases. Third set of models adds interaction between mix variables in second set of models and neighbourhood deprivation, and deviance change is measured in comparison with latter models. Probability (Prob.) is measured from the deviance change on the chi-square distribution with the appropriate number of degrees of freedom.

Recent research has suggested that the impacts of mix may be contingent on individual characteristics. The hypothesis is that 'minority' groups are likely to be more tolerant of mix (Charles 2003; Dekker and Bolt 2007). When we allow the impact of mix to vary between groups, we do find significant relationships in each case (Table 4 – column 2) although the scale of the effects remain relatively small (the reductions in deviance scores are quite modest). Figures 3 to 5 shows predicted attachment based on entropy and cluster measures for each of the three domains, and allowing for interactions with individual characteristics.

In relation to ethnic mix (Figure 3), we are allowing for the response to mix to vary between Asian respondents and all others (overwhelmingly White); the number of cases for other minority groups is too small to examine separately. For entropy scores up to about 0.5 (the 90th centile), the (predominantly) White group is largely indifferent to mix (left pane). For much of this range, Asian respondents are the same although they record a fall in attachment in areas which are almost exclusively White (the least mixed). Looking at the clusters, the two groups of neighbourhood with least mix ('White' and 'White (Asian)' neighbourhoods – 94

per cent of the total) also record very similar levels of attachment for Asian and White respondents.

Figure 3: Predicted attachment by ethnic mix and individual status

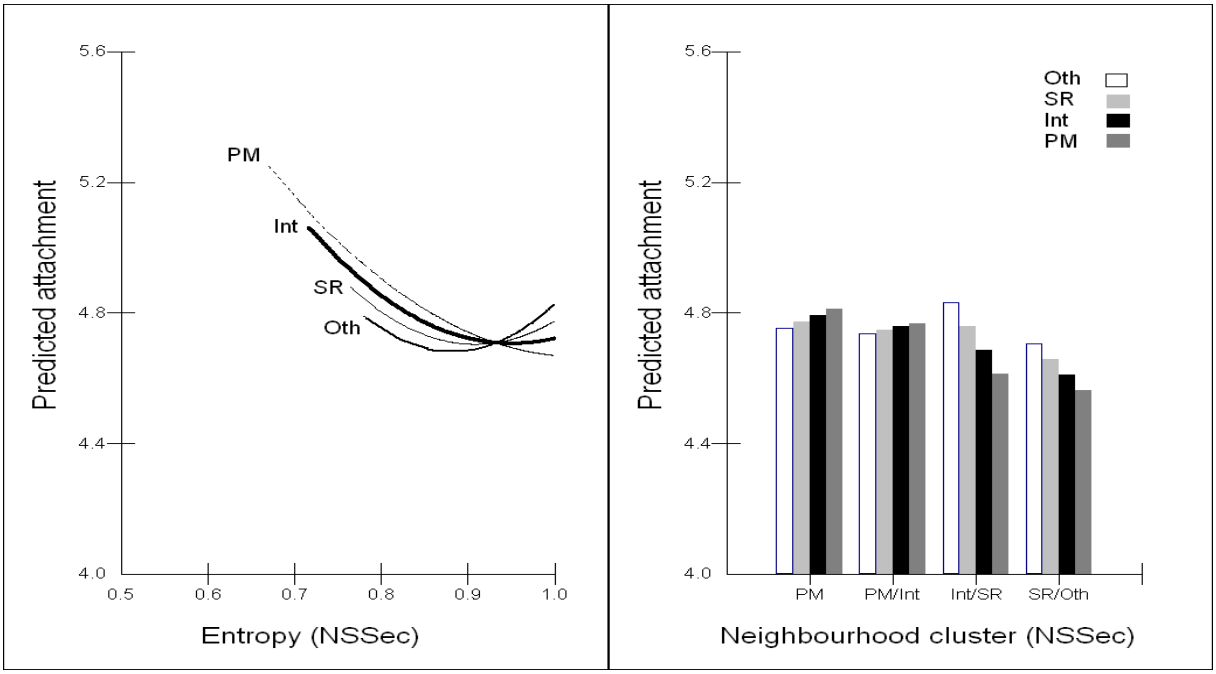


Source: Citizenship Survey (2005) – authors' analysis. Weighted cases.
Notes:
1. Clusters ordered from least to most mixed. Cluster labels reflect dominant groups; brackets indicate secondary group.

At the very highest levels of mix, however, there is a significant decline in attachment for White individuals but a sharp rise in attachment for Asians. In part, this may reflect a preference for co-ethnics by both groups; Asian respondents record their highest levels of attachment in the neighbourhoods with the largest Asian populations. In addition, however, Asian respondents recorded much higher attachment than Whites in the most ethnically-mixed neighbourhoods which had substantial proportions of households from other minority groups (right-hand pane). This finding mirrors those for Charles (2003) and Dekker and Bolt (2007). Once we control for neighbourhood ethnic composition in this way, there is no residual difference between Asian and other respondents in overall levels of attachment.

In relation to socio-economic mix, we see similar results (Figure 4). For lower socio-economic status groups, levels of attachment vary very little with the entropy measure but for the Professional/Managerial group, attachment falls as the entropy score rises from 0.65 to 1.0 (left-hand pane). Again, we might see this as simply a preference by both higher and lower status groups for living alongside people similar to themselves ('low mix' on the socio-economic status also means 'less deprived') but the picture is more complex. Attachment for the lowest status group is more or less constant across the four clusters – they appear indifferent to mix – but attachment for the Professional/Managerial group falls consistently across the four clusters.

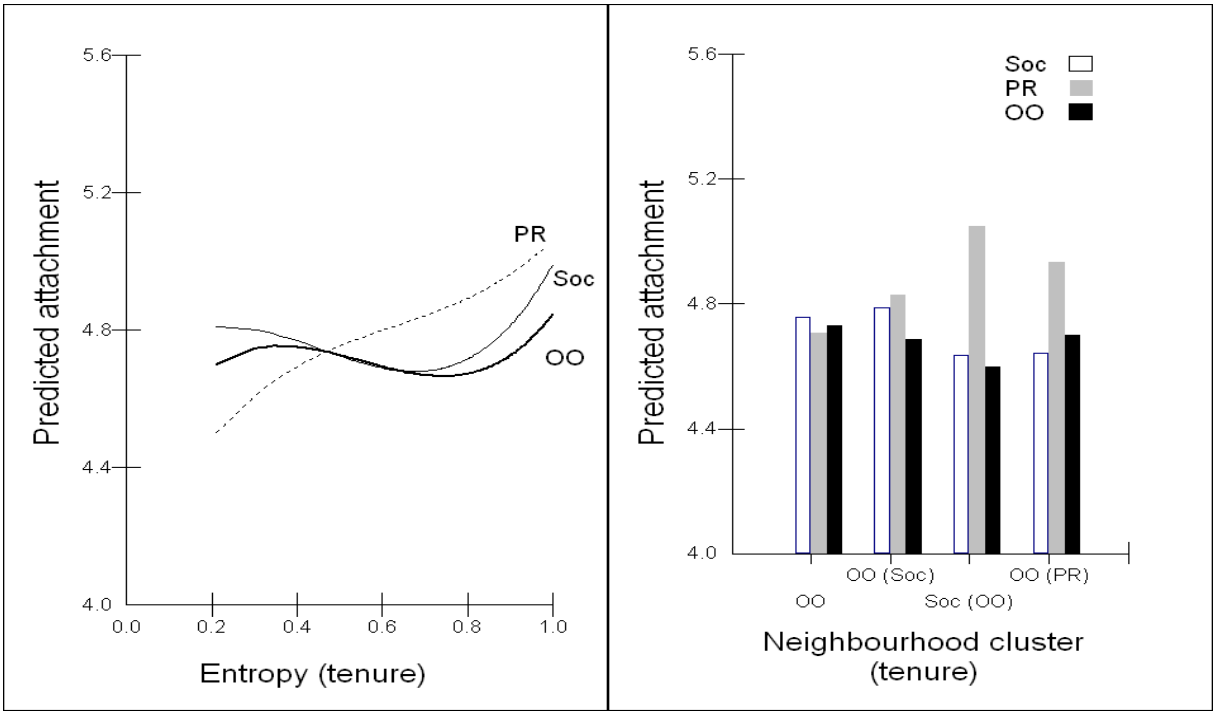
Figure 4: Predicted attachment by socio-economic mix and individual status



Source: Citizenship Survey (2005) – authors' analysis. Weighted cases.
Notes:
1. Cluster order follows natural hierarchy but least mixed on the left as with Figures 3 and 5.
2. PM – Professional/Managerial; Int – Intermediate; SR – Semi-Routine/Routine; Oth – Unemployed/Other (inc. never worked).

With tenure mix (Figure 5), the pattern is again similar although the distinction lies not between owner-occupiers and social renters as might have been expected but between both those groups and private renters. It is more difficult to characterise this as a break between the socially dominant or higher status group and the rest, although owner-occupiers and social renters are clearly the more numerous. Attachment for owners and social renters varies very little with levels of tenure mix, though there is a modest increase in attachment in neighbourhoods with the highest levels of tenure mix but these are relatively few (less than five per cent have entropy scores above 0.9). By contrast, attachment for private renters rises fairly continuously as tenure entropy increases. In terms of the tenure clusters, all three groups have similar levels of attachment in the least mixed clusters but private renters have much higher levels of attachment in the most mixed neighbourhoods (clusters 'Soc(OO)' and 'OO(PRS)' on the Figure), including those where private renting is not a substantial presence.

Figure 5: Predicted attachment by tenure mix and individual status



Source: Citizenship Survey (2005) – authors' analysis. Weighted cases.
Notes:
1. Clusters ordered from least to most mixed; brackets indicate secondary group.
2. Tenure: OO – Owner-Occupied; Soc – Social Rented; PR – Private Rented.

As a final stage in the analysis, we examine whether the impacts of mix vary with level of neighbourhood deprivation by estimating a further set of models which include the appropriate interaction terms. Table 4, column 3 shows the improvement in the fit of the models (change in deviance) that results; the test for the improvement in fit is between the models without the additional interaction terms between mix and deprivation (column 2) and the same models with this interaction (column 3). With three of the six models, there is no significant interaction. With the other three, the improvement in fit is only just significant at the 5 per cent level. We conclude that the interaction is quite minor. More detailed examination shows that the combination of social mix and deprivation does produce a more negative effect on attachment but *only for the higher status groups* – those more sensitive to mix in the first place. In relation to socio-economic mix measured by the cluster variable, for example, Professional/Managerial individuals in the more mixed neighbourhoods see attachment fall as deprivation rises but other groups do not. It should be stressed, however, that these are weak effects. The general finding is that the impact of mix on attachment is the same in more deprived neighbourhoods as in others.

Conclusion and discussion

This paper presents detailed results from a series of multi-level models exploring the impacts on place attachment of neighbourhood deprivation, turnover and social mix, and focussing on the determinants of attachment in more deprived neighbourhoods compared with others. At the individual level, the paper confirms the findings of much earlier research that age and length of residence are the most important influences on attachment, acting independently and

cumulatively. Attachment (measured here as a combination of belonging and enjoyment) develops over time, consistent with the view that it stems from the progressive embedding of people within their residential location through the development of a reassuring sense of familiarity, and functional and social connections. As discussed above, there are limiations to the conclusions that can be drawn from a single cross-sectional survey, particularly in relation to the impacts of age and length of residence. Longitudinal designs could usefully be used to test these more directly.

We have found that place attachment declines with increased neighbourhood deprivation, supporting the conclusions of studies such as Sampson (1988), largely due to the influence of deprivation on social cohesion and safety or crime. The main limitation of our work here is that the measures of social cohesion and safety are derived from individual rather than collective views, leaving open the possibility that omitted variables may lead us to overstate the strength of the relationship. A survey design with a stronger element of spatial clustering would be helpful here as it would provide greater confidence in the estimates of average neighbourhood sentiment. However, our findings challenge the notion that deprived neighbourhoods in England function in different ways to other kinds of place. Neighbourhood deprivation may weaken attachment through an association with weaker social cohesion in particular but it has little additional impact as a contextual factor. The factors that promote attachment in general have the same effect in deprived and non-deprived neighbourhoods.

Likewise, we support previous studies (e.g. Sampson 1988) that have shown that higher turnover leads to lower attachment and that it does this primarily by undermining social cohesion. Once we control for individual perceptions of cohesion, trust and safety, turnover has no further impact across most of its range. It seems that people find it difficult to trust, rely on and have confidence in their neighbours in situations of greater residential instability, and this undermines their place attachment. At the very highest levels of turnover (roughly the top 10 per cent of neighbourhoods), however, there seems to be a positive effect on attachment which warrants further investigation.

With social mix, the findings are at odds with some previous studies (e.g. Putnam 2007). Our broad conclusion is that social mix has little impact on attachment for most kinds of people, in most kinds of place. Our findings here complement those by Sturgis et al (2011) which show that ethnic mix is not a major impediment to trust in neighbours. However, we go further in showing that, for Whites, there does appear to be a modest negative impact from high levels of ethnic mix. This effect may be masked in studies which do not distinguish between ethnic groups by higher levels of attachment for Asian households. As previous studies have suggested (Charles 2003; Dekker and Bolt 2005), therefore, the effect of social mix is contingent on individual characteristics although we show (beyond what has been demonstrated in other studies) that this applies to tenure and socio-economic mix as well as to ethnic mix. At very high levels of mix, we do find attachment declining but only for the more dominant groups; namely Whites and professionals/managers. These two groups have lower attachment in neighbourhoods where the social mix is such that a minority or lower status group is more numerous. By contrast, less dominant groups (Asians, lower socio-economic groups) appear more tolerant of living ‘others’. With housing tenure, the ‘minority’ group (private renters) see attachment rising as mix increases. This can be interpreted as supporting the notion discussed earlier that place attachment nowadays derives in part from an interest in status and relative position attained through residence. However, rather than positing such concerns as the antithesis of affective bonds, the findings for our particular measure of attachment suggest that the two are mutually reinforcing; even lower status groups record higher attachment on average in neighbourhoods where higher status groups are the more numerous.

The study has a number of possible implications for policy. The first is to caution against portraying more deprived areas as deviant or malfunctioning communities. The factors that produce attachment in deprived neighbourhoods appear no different to those operating in other places. The second is to support efforts to promote social mix. Our evidence suggests this will not tend to undermine attachment overall. The third is to suggest that, while community safety agendas may support efforts to bolster place attachment by improving feelings of safety, efforts to build social cohesion directly might be more valuable. Cohesion – measured here by views about whether people felt their neighbours were close-knit, supportive and community-minded – was the major factor that explained the impacts of deprivation and turnover on attachment. Understanding what produces cohesive neighbourhoods is therefore important. Small's (2009) work on the development of social ties offers one way forward here, and points to the importance of institutional practices and networks for individual ties, particularly in more deprived locations.

Acknowledgements

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