Chapter 4

Political participation

Where might we begin when studying the political consequences of this identity? We know that to belong to your neighbourhood is an identity more widely held than attachment to country, and that it is strongly driven by some of the fundamental ways in which we relate to each other and to our environment. It seems likely then that, far from being on the periphery of politics, or incidental to political behaviour, local attachment plays an integral role to how we engage in politics in democratic societies. We could look at several areas. We might consider how this identity drives party choice. We might also consider liberal-authoritarian attitudes, or attitudes towards local policies. But it is better to start with something more fundamental; as important as who or what we vote for is whether we vote at all. As important again is the realm of

political engagement beyond voting: what causes us to display our allegiances publicly; to protest; to campaign; or to engage with the politicians we elect.

Studying participation is also one in which the conclusions we have already drawn from studying this identity are most pertinent. Political science provides us with diverse answers to questions: what causes us to engage in politics? What behaviours do we engage in when we do? Are we driven more by our own circumstances, or of those around us? While know about how place, space and the physical environment influence participation, what we know far less about is the effect of how we relate to these places on participation. Social and environmental psychology and sociology indicate that attachment to place drives participatory behaviours (Davidson and Cotte 1989; Hays and Kogl 2007). These studies do not often look at political participation, but a growing literature within political science does (Borwein and Lucas 2021; Bühlmann 2012; Fitzgerald 2018; Lappie and Marschall 2018; Lin and Lunz Trujillo 2022; Wong 2010). Not only is the contextual environment key in influencing participation, but how we relate to it and the groups in it, as with Charles Mackay's famous adage that 'men ... think in herds; it will be seen that they go mad in herds, while they only recover their senses slowly, and one by one' (Mackay 1852 page *XX*). Though the effect of social context on participation is well-studied, some of the omissions which we discussed in Chapter 3 are yet more significant here, in particular a neglect to

study variation on small units—where attachment to geographic social groups and the factors which shape participation may be strongest—and a focus on small samples and cross-sectional data.

This chapter sets out to address three key questions. First, does being locally attached cause us to engage more in politics? Secondly, is there heterogeneity between different activities? And finally, is there heterogeneity between areas? Specifically, is any potential relationship differentiated by political congruence: whether an area looks and votes like us. It begins by summarising the theory: looking at neighbourhood context and social psychological explanations. To study this, I draw on observational panel data, matching to micro-level vote counts and vote projection for small geographies. I begin with Round 6 (2012) of the European Social Survey (ESS), then three waves of the UKHLS, which allows me to model on neighbourhoods. The UKHLS also allows me to test parts of the mechanism I propose. In exploring variation based on political congruence, I focus on Brexit and partisan identity. On the latter of these I construct an extremely granular measure of political homogeneity using official election results, more than anything published for the UK.

Participation and attachment

We already know much about how many individual-level attributes—income, age, education, interest in politics and information—affect political participation. A literature nearly as varied is also concerned with the role of context and environment in shaping participation. Studies of 'neighbourhood effects' on voting behaviour date back to the middle of the last century (Butler and Stokes 1971; Cox 1969): an area that seeks to understand spatial variation in views and voting behaviour which cannot be explained by personal factors (Biggs and Knauss 2012; Blok and Meer 2018; Johnston et al. 2000; Johnston et al. 2005). V.O. Key's seminal midcentury work documented what he called the 'friends and neighbors' effect in the Southern United States, in which, partly, voters would be more likely to support candidates if their close friends or neighbours supported them, even if they had held an initially different position (Key 1949). Subsequent studies confirmed the presence of this phenomenon, not just within the United States, but around the world (Arzheimer and Evans 2012; Arzheimer and Evans 2014; Gimpel et al. 2008; Górecki and Marsh 2014; Jankowski 2016; Lewis-Beck and Rice 1983; Tatalovich 1975). These can be contextual effects—that group-level factors, such as the character of the environment or the social makeup of the neighbourhood, influence individual behaviour—or compositional—that the behaviour of a

group simply reflects the sum of behaviours of individuals within that group (Maxwell 2019; Wijk, Bolt, and Johnston 2019). Studies also attempt to explain local variation in turnout through local sociodemographic or economic factors, particularly inequality, the structural features of urban versus rural areas, size of electoral unit, and the behaviour of voters in relation to their neighbours (Lappie and Marschall 2018; Lin and Lunz Trujillo 2022; Zollinger 2024).

What we often ignore, however, is not the physical or social characteristics of place and their effect on participation, but the ways in which we relate emotionally to place and how this affects how we participate in politics. We know from Chapter 3 how strong this identity—relation to place—can be relative to other similar social identities; some of the dynamics which drive friends and neighbours voting may also be at work here. There are two possible interlinked explanations for why we might expect local attachment to cause us to engage more in political activities: a strategic motivation, and a social identity explanation. On the first, it's logical that we would want to defend the places we are attached to. Neighbourhoods are where we spend much of our waking, and increasingly working, lives and there is therefore a selfish motivation for this—we want to live better lives—as well as wanting to see more resources directed to an area we are attached to and therefore care about. Parry *et al.*, argue that this attachment to locality—the people who live there and the values

we ascribe to it and them—'encourage action to support and defend its interests and values' (1992, page 300). One of the most prominent ways we may choose to do this is through political action. National elections are often cast in terms of the effect of national policies on individual groups, including local areas; in constituency-based electoral systems, there may also be an explicit discussion of local policies and issues and their relation to national politics. There may not even need to be an explicit trade-off in resources discussed. We also know from Chapter 3 that being attached to a place is associated with a lot of behaviours and ways of living which might cause us to defend them through political action—long residences, strong and geographically dense family networks, and homeownership.

Closely related to this is the second explanation: for years, social psychologists, typically within the social identity theory tradition, have identified the ways in which we place ourselves and others in groups, and assign emotional significance to them (Allport 1954; Tajfel 1981; Tajfel and Turner 1979; Turner 1981). Social identity theory itself has rapidly become popular in political science, as researchers attempt to discern how social identity affects political behaviour, preferences and voting patterns (Mason 2018; Sides, Tesler, and Vavreck 2018). One of the strongest findings from these studies is that strong group identity heightens our knowledge of our group's status in relation to others, from which we derive self-esteem. In doing so, this increases the salience of

competition between groups. In as much as elections involve a competition between different groups, and different social groups specifically, this heightened salience of group identity will trigger behaviour in support of that identity. It is the affective link to the neighbourhood which is key here, however. It is not just defence of your social group when made aware of competition with the out-group, as with the strategic motivation, but a belief in the obligation of engaging in action seen to be in your group's interest, the increased self-worth associated with action which supports your in-group, and the belief that your needs are shared by other members of the group. The strategic explanation also has an explicitly self-interested motivation, which is lacking here. If people see themselves as closer to the neighbourhood, then they will want to engage in activity which they associate with the group, or which they think is in its best interests.

Research on related concepts within environmental or social psychology—sense of place, place attachment, sense of community, and neighbourliness—on their effect on participation in non-political activities supports this link. These concepts predict discussion of, and work on, community issues (Bolland and McCallum 2002; Hays and Kogl 2007), and participation in neighbourhood improvement programmes (Lelieveldt 2004). It is easy to imagine this effect on non-political participatory behaviour to carry over into political action, provided voters are able to make the connection between

political action and specific benefits for their area. Indeed, there is some evidence for this. Davidson and Cotte (1989), for example, find that sense of community predicts several political activities: voting, contacting officials, and working together on public problems. Finally, within social identity theory, members of the group are more likely to participate in social norms which other members are perceived to participate in. If people see political activities as neighbourhood social norms, then it's probable that they will be more likely to engage in them too, either through direct social pressure or a desire simply to engage in the same behaviour as in-group members.

Group identity

Political science has established group identity as a strong motivator of political behaviour. We know that attachment to social groups—ethnicity, age, gender, class—can influence political action, from engagement in politics to how we vote, and how we evaluate political issues and other partisans (Conover 1984; Cramer 2016; Huddy 2013; Huddy, Mason, and Aarøe 2015; Miller et al. 1981). This effect carries across both formal membership of such groups, and group consciousness, denoting both cognitive and affective attachment. Researchers are also interested in the role environment itself and context play in shaping political participation (Bartle, Birch, and Skirmuntt 2017; Cho and Rudolph 2008; Enos 2017; Jöst 2023; Zollinger 2024). We therefore

know much about how context and the local environment shape participation. We also know much about the effect of social influence—including group behaviour, social observation, and peer networks within that environment on political behaviour, including participation, vote choice and donating (Gerber, Green, and Larimer 2008; McClendon 2014; Mckenzie 2004).

In the past decade, political science has come to study in greater depth the effect of our emotional attachment to that environment, though the work is still limited. Cara Wong (2010), in a prominent early work highlights how identification with community motivates attitudes towards fiscal policy, and local political engagement, focusing on capturing 'closeness' to community. Research which studies the effect of named municipal identities on participation is fairly typical of such studies. Borwein and Lucas (2021) use two large surveys of residents in the Canadian cities of Calgary and Ontario, finding a strong relationship between attachment to these cities and interest in local politics. Bühlmann (2012) finds attachment to Swiss municipalities has an effect on civic and political engagement. [1] Most of these studies find a positive relationship.

[1] Many of these studies do not use an affective measure of attachment to place, or use proxies. See Borwein and Lucas (2021) and John et al. (2011) for exceptions. Approaches to theoretical identification of local attachment in the literature are also extremely varied. Though most studies use single indicators (Fitzgerald 2018), some employ indexes composed of multiple (Borwein and Lucas 2021; John, Fieldhouse, and Liu 2011; Kal Munis 2021; Wong 2010).

Where we disagree on this effect of local attachment on participation is usually from the confounding effect of smaller electoral units—rural and more isolated—generate greater turnout over larger ones (Frandsen 2002; Oliver 2000). As Dahl and Tufte noted in their famous study of the topic, this is likely both comes from higher social contact, that residents feel like they can make more of a difference in smaller places, and that they have greater sense of solidarity with fellow residents (Dahl and Tufte 1973). Much of this research studies subnational elections (Frandsen 2002; Lappie and Marschall 2018).

What behaviours we focus on when we study participation is revealing. Those studies which look at participation often tend to focus only on voting. They also typically link sub-national geographic identities to local activism, or voter enthusiasm for single issues, particularly on the right (Frandsen 2002; Parry, Moyser, and Day 1992). Far right voting (Cramer 2012; Cramer 2016; Fitzgerald 2018) or resentment or discrimination towards out-groups (Lyons and Utych 2021; Munis 2022) are particularly popular focuses. What research often finds is some heterogeneity between activities on the effect of local attachment. Those activities which are particularly intensive in terms of time and resources are notably affected. While Davidson and Cotter (1989), find an association between sense of community and voting, contacting politicians and collective action, they find no relation to campaigning or talking to others about

politics, perhaps some of the most visible, and time or resource intensive. These latter two are also actions involving potential conflict or meeting other social groups. Anoll (2018) similarly finds heterogeneity between voting and attending rallies. Most of these studies also find that the strongest effects for place-based identity is on voting, with much weaker or nonexistent results for other aspects of political participation, particularly those which require more resources, whether capital or time, to perform.

There are several issues with this research. Many studies which directly look at the relationship between attachment to place and participation, not just confined to political engagement, use limited samples or do not study variation on small enough units. The latter is particularly surprising. If, as many do, attempt to construct a theory of attachment to place and its effect on participation primarily as the contextual interaction of different social groups, then why neglect the smallest units, on which social interaction is most frequent, recognisable and direct? This is often because of lack of good data. Secondly, studies may also focus on a specific named identity rather than a general attachment to a geographic unit, particularly when it comes to municipal identity. While this may be helpful—often the more distinctive a place, the stronger the attachment (Lappie and Marschall 2018; Lewicka 2011; Tuan 1975), and people may find it easier to associate with such named identities—however, it necessarily precludes, because of heterogeneity of interpretation, a study of smaller units, and limits theory

to an understanding of that specific identity. [2] Urban sociology studies often centre on the neighbourhood as the most viable unit for political participation (Hays and Kogl 2007; Rohe and Gates 1985). A final limitation, particularly in the social psychology literature, is poor attempts at causal identification, in which studies often use small samples, cross-sectional surveys or geographically limited studies. Borwein and Lucas (2021) look at two Canadian cities; Lappie and Marschall (2018) only focus on mayoral elections in two US states, for example. Hays and Kogl (2007) and Davidson and Cotter (1989) study attachment to place and participation in a handful of participants in Waterloo, Iowa, and Birmingham, Alabama respectively.

Therefore, there are two interlinked reasons which we would expect local attachment to trigger participation. The first is a more directly strategic motivation about the allocation of resources to an area you care about, such that it is part of your self-concept. The second is group behaviour or shared beliefs: where people want to support the social identity which is the neighbourhood, either to affirm their identity in the face of possible threats from out-groups or because political participation is a prominent social norm. A potential cause for concern with such a theory is that the effect of local attachment on participation is confounded with social networks. More

[2] This spatial limitation is cross-disciplinary; see Davidson and Cotter (1989) for instance.

concerning for this theory would be if social networks, and particularly formal social networks, could mostly account for the relationship between attachment and participation, because it would indicate that attachment had no effect on participation in itself, through social identity or strategic motivations, and was driven predominately by network effects and people seeking out social relations or group memberships, particularly those related to political activity.

H_{1a} Being locally attached causes voters to participate more in political activities, provided those activities are not too resource or time intensive.

H_{1b} This effect happens primarily for strategic and social identity reasons.

H_{1c} This effect happens independently of social networks. ADD ABOUT CONGRUENCE

Partisan 'congruence'

But this is not the whole story. We've been describing a story in which our affective attachment to place shapes our political activity through our strength of connection to the social groups in that place, and a desire to defend and channel resources there. We should expect this to vary in one significant way, however: the actual social groups in the neighbourhood. One way to capture this would be, as many others do, to

measure the social or political context of the neighbourhood. This is particularly the case for research which studies the relationship between affective attachment to place and social mix (Bailey, Kearns, and Livingston 2012; Bühlmann 2012; Górny and Toruńczyk-Ruiz 2014; Putnam 2007; Taylor, Gottfredson, and Brower 1985; Woolever 1992). This, however, instead of capturing our relationship with social groups, merely captures the social makeup of the place. More apposite is to study the relationship between the individual and these contextual factors: what we might call 'congruence'. Indeed, we found in Chapter 3 that ethnic and class congruence at the neighbourhood level are robust drivers of local attachment. This is not a new approach, although it is rarely attempted on the level of granular neighbourhood units. Van Ham and Feijten (2008), for instance, use a 2002 survey of residents in the Netherlands to assess the role of individual characteristics as they relate to the neighbourhood, focusing on race, and their effect on residents' desire to leave. Oliver (2010) studies the relation of individuals' race to that of their social networks in the US. Laurence and Bentley (2015) measure it as the likelihood that two people in a community will be from the same ethnic group.

Since we're looking at political participation, a key element of this relationship is how it varies by the partisan groups which make up the neighbourhood. Why? I've hypothesised that being locally attached pushes us to engage in political action

through two mechanisms: a primarily self-motivated strategic desire to defend the neighbourhood and to see resources directed there; and a social identity explanation, in which our similarity to our in-group and knowledge of its relation to an out-outgroup might cause us to defend it, and in which political participation is a visible social norm of the group—people who live in the neighbourhood—we are attached to. Most important to consider here is the role of out-groups. Take the strategic explanation first: If we live in a place and are emotionally attached to it, then it follows that, if we see it as under threat from an out-group, or if intergroup contestation is high, we are motivated to defend it. While the strategic motivation is primarily self-interested, we are still members of social groups and therefore aware of out-groups and their potential threat. It is also more explicitly resource-focused, which can be more salient in electoral contexts. If we see a place as potentially under threat by people we consider to be in competition with us, then it may cause us to want to channel resources there, even if it is primarily for our own benefit.

The social identity explanation makes most sense here, however. Firstly, the presence of out-groups may simply make us more aware of competition, and therefore trigger action to defend the in-group. It is a common finding in social psychology that out-groups are perceived as more homogeneous than in-groups, usually as a result of greater information about in-group variability (Oakes, Haslam, and Turner 1994). Sec-

ondly, social identity theory has long established that in-groups become more cohesive and group identity more salient in the presence of out-groups (Tajfel and Turner 1979). If a neighbourhood has people who share a social identity, and if that identity is made salient by the presence of out-groups, then they are likely more motivated to engage in politics in support of that identity. This might happen both in cases where a single out-group is dominant—and therefore is more apparent the more dominant that group is—and where there are many groups, and thus the salience of inter-group competition is high. Finally, norms regarding participation are also stronger where there is high group cohesion (Larson and Lewis 2017; Oliver 2000). Though this largely depends on the specification of the unit, a literature on spatial economic inequality suggests that inequality within units, as opposed to between, should increase participation, due to increased out-group interaction and elite-led initiatives (Bartle, Birch, and Skirmuntt 2017).

It helps to consider why inversely this might not be the case. If we are surrounded by members of our in-group, we may be drawn into a false sense of security regarding intergroup competition, and not have our group identity activated. While this generates strong affect towards in-group members (Unger and Wandersman 1985), it means we may not feel we need to defend them through political action. Intergroup conflict in social identity theory is founded on arbitrary group distinctions, often visual, rather

than a realistic appraisal of competition with other groups for resources or otherwise. If we are surrounded by fellow partisans, we might not be as aware of other partisans in the neighbourhood and therefore not connect our attachment to the neighbourhood to the need to vote. A core tenet of social identity theory is also social comparison between groups, when intergroup competition is salient (Huddy 2001; Tajfel and Turner 1979). If we do not engage in social comparison because we are unaware of the scale or the potential threat posed by out-groups, then we are unlikely to take up political action because of it.

Therefore, our conclusions regarding congruence:

H_{2a} The relationship between local attachment and political participation is stronger in incongruent neighbourhoods.

H_{2b} This relationship becomes stronger the less congruent the neighbourhood is.

Data and measures

I begin my analysis by looking at the wider question, studying five activities, using Round 6 of the European Social Survey (ESS), conducted in 2012 (Sikt 2012). I look in more depth at a smaller selection of activities using three waves of the UK Household

Longitudinal Study (UKHLS), covering 2012 to 2018, testing vote propensity in general elections and the 2016 EU referendum, and party behaviour (ISER, NatCen, and Kantar 2021). I first study this cross-sectionally, using wave 9, then use the full panel. This provides a measure of continuity with the previous chapter, as well as allowing us again to use the UKHLS' underutilised high-quality panel and rich selection of variables. A further benefit is the availability of contextual data on a sufficient level of granularity in the UK. However, it is limited beyond voting behaviour and membership.

I first test these conclusions using ESS data, which provide a wider range of specific participation behaviours. I use five variables here. The first is voting: whether participants voted in the last national election. I also test engagement with representatives: whether respondents have 'contacted a politician, government or local government official' in the past 12 months. The final three concern more visual or active participation in politics: whether they have signed a petition; 'worn or displayed a campaign badge or materials'; or 'taken part in a lawful public demonstration'; all in the past 12 months. I model on the district level (NUTS 3); as the ESS does not provide districts for all the countries in the study, I instead model only the countries which have this available. I also study the relationship by political congruence using the ESS data; see page **??** for details.

From the UKHLS, I use three variables related to political participation and engagement in the political process during elections. The first concerns party-related activities: if respondents are party members, or if they take part in party activities 'on a regular basis', whether they are members or not. The other two ask respondents about voting behaviour: whether they voted in the last general election (2017), and if they voted in the 2016 EU referendum [3] I exclude respondents who were unable to vote. The full questions are on page **??** of Appendix III. While I would have preferred to study the effect of local attachment on voting in local elections rather than national, to my knowledge there is no available survey with this kind of information available, and certainly no panel study which is sufficiently rich. Descriptive evidence for these variables (Figure 1) shows that those respondents who are locally attached are more likely to engage in all activities and be interested in politics than those who are not, though not to any great degree. In some cases—supporting a political party and being likely to vote in the next election—the difference is more marked. The main predictor is the same as the dependent variable in Chapter 3—the question asking respondents how strongly they agree or disagree with the statement 'I feel like I belong to this neighbourhood' on a five-point Likert scale. I operationalise this as a binary indicator, taking

[3] Due to the long sampling times for waves in the UKHLS—around 30 months—and the unpredictability of the timing of national elections in the UK, some responses had to be imputed from waves 8 (2017) and 10 (2018).

the top two levels of the scale to equal 1. I model on the same extremely small geographies as I outlined in Chapter 3—lower-layer super output areas (LSOAs)—matching from the restricted version of the survey, which gives us extremely fine-grained neighbourhood units, far more so than similar research, and scalable, to which it is relatively easy to match contextual data. The concept of the 'neighbourhood' as a spatial unit is useful: it is the space–relatively bounded and well-identified in people's minds—in which we might expect the inter-group forces which shape attachment to place to be most strong: the place where many of us will live out significant amounts of our time, and where we have a realistic chance of engaging with and knowing those who also live there. It is made yet more relevant by the conclusions of the previous chapter, which pointed us towards strongly communitarian and homophilous forces in shaping local attachment. When we turn to political participation, we might expect similarly strong forces shaping this at the neighbourhood level, stronger than any higher-order identity.

Using the UKHLS, I am also able to test the proposed mechanism. On strategic motivations, I measure how strongly respondents would be 'willing to work together with others on something to improve my neighbourhood', and how likely they are to 'remain a resident of this neighbourhood for a number of years'. Both of these capture a desire to defend and remain in an area. For social identity explanations, I measure

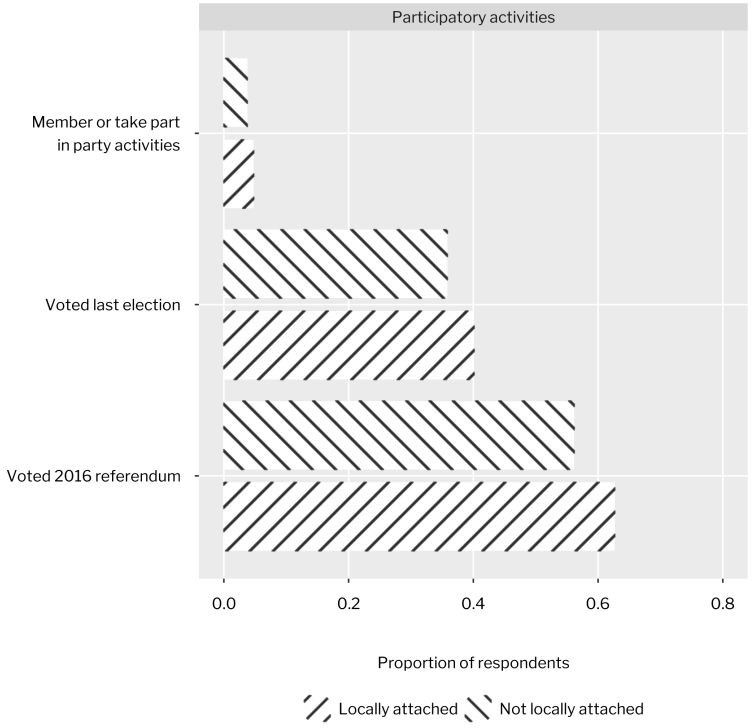

Figure 1: Proportion of respondents engaged in different political activities, comparing those locally attached and those not, including don't knows (UKHLS wave 9, 2018)

similarity to others in the social group: whether respondents agree that they are 'similar to the people that live in this neighbourhood'; and whether political participation is a social norm in the area: if respondents agree that 'most people around here usually vote in general elections'. All of these are measured on an inverted five-item Likert scale. Finally, I also measure social networks, both formal group membership and informal social interactions. For the former, I construct a linear additive variable from the question 'Whether you are a member or not, do you join in the activities

of any of these groups on a regular basis?'. Respondents are presented with a list of organisational types, such as unions, tenants associations, and religious groups, and respond yes or no to each one (see Table ?? for a list of these organisations). For the latter, I measure two things: spontaneous social contact in the neighbourhood—'I regularly stop and talk with people in my neighbourhood' measured on an inverted five-point Likert scale—and the proportion of 'close friends' respondents say live in the 'local area'. Respondents answer from 1 to 5: 'none', 'less than half', 'about half', 'more than half', or all friends. I also measure neighbourhood social capital: general neighbourhood trust, and reciprocity with neighbours. Due to availability, the former two are matched from Wave 6; there are no subsequent waves in which the questions were asked. I also measure family networks in an additional analysis (see Table ??). This is an imperfect proxy for measuring family networks, though options in the UKHLS comparable to formal organisations and informal interactions are limited and, since our ability to choose family networks is limited, it is highly unlikely to serve as a mediator. We also know, from Chapter 3, that kin ties are strong predictors of local attachment. The effect of family ties on political participation within the social capital literature is generally far more mixed.

Measuring congruence

Significantly, I measure variation of this effect by political congruence. I measure this along two dimensions—local election partisan vote share, and vote share in the 2016 EU referendum—matched to neighbourhood. To measure partisan identity, I use elections to choose representatives to municipal authorities, known as 'local authorities' or 'councils'. These authorities have varying powers depending on the region of the country, but typically have control over education, sanitation, planning, and other municipal services. Voters choose candidates to be councillors in their local 'wards'—these have a mean population of 7,490 in 2018 ([158, 37,075], s.d. = 4975)—to fill between one and four seats. [4] I match respondents to the closest prior election in their LSOA to their interview date. [5] This dataset contains the results for all local authority

[4] Elections are on a four-yearly cycle: in some authorities all seats are elected at the same time, or they are staggered, typically in thirds. Two electoral systems are used: England and Wales use multi-member plurality voting; Scotland uses the single transferable vote. I take a collation of all local election results by ward, including by-elections, for the four years prior to the start of the survey (2013–2016), as well as the two survey years: 2017 and 2018 (Teale 2023). Occasionally councils released results by incorrect ward, typically using older ward boundaries. These I hand code to their correct versions. While LSOAs do not nest perfectly within wards, they are in general very close fits, such that it is possible to match them near uniformly using standard lookup tables.

[5] Since I am disaggregating equally to the neighbourhood level from the ward level, I will not be modelling any unique neighbourhood variation in vote share for the partisan congruence, though since these variables are also a reflection of participants partisanship, they will capture some of that variation. There will, of course,

elections, and therefore includes both upper and lower-tier English non-metropolitan council elections. You can visualise these results in Figures 2 and 3. To create a measure of political congruence, I use a question asking respondents 'If there were to be a general election tomorrow, which political party do you think you would be most likely to support?' Respondents are thus assigned the vote share of the party they select, for all parties in the survey: the Conservatives, Labour, the Liberal Democrats, and other smaller parties. While ideally I would have liked to match local election data to local election voting preferences, there was no question available for this.

In multiparty elections, in which other smaller parties perform far more strongly than they do at the national level, it is striking how homogeneous many neighbourhoods are. For Brexit identity, with only two choices, neighbourhoods are relatively split, reflecting the relatively divided national vote; though some remain-voting neighbourhoods are notably homogeneous.

I do not study general election vote share for two reasons: vote share for geographic units below the constituency level is not consistently available for general elections in the UK; nor is it possible to reliably estimate vote counts by extrapolating from higher geographies. However, while the former is the case for the Brexit referendum, the latter

be variation from other neighbourhood-level variables and between-neighbourhood variation captured by the random intercepts at neighbourhood level.

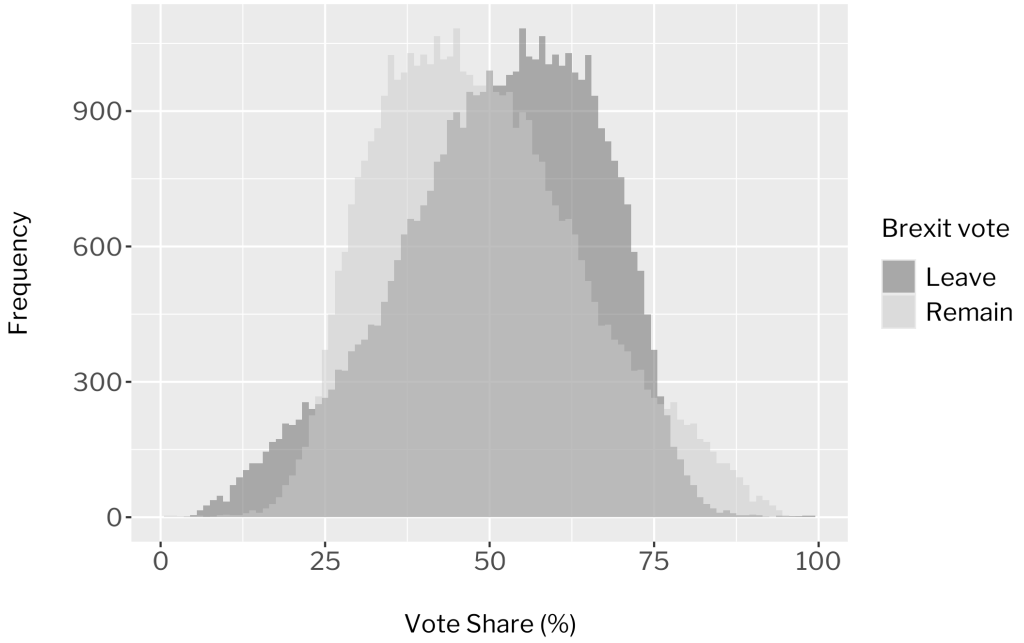

Figure 2: Distribution of 2016 referendum vote share at neighbourhood-level (Hanretty)

is not: since the relationship between demographic characteristics and the referendum result is strong, it is far more reliable to produce vote estimates for small geographies. I use an LSOA-level projection (Hanretty 2017b). This projection is obtained by using micro-level demographic data—which strongly predicts Brexit vote—to model the vote count in higher-level areas, then scaling these micro-level predictions so that predicted counts sum to the observed counts at the constituent local authority level: the lowest

for which real results are available (Hanretty 2017a). [6] I again match this data to respondents' LSOAs, and create a measure of congruence using responses to a question asking about vote choice prior to the referendum, since there is no current identity question in Wave 9, matched from the previous wave: 'Should the United Kingdom remain a member of the European Union or leave the European Union?'. [7]

For party activity, general election voting and referendum voting, I model several congruence thresholds. For voting and party activity, I use four thresholds: the plurality party in the neighbourhood, the majority party; and if there is a party winning 60 or 70 per cent of the vote. For the EU referendum models, because of smaller variation in vote share, I use three thresholds: the majority identity; and if one side won 55 per cent of the vote; and 60 per cent of the vote. A respondent is considered 'matching' if their identity matches that of the relevant group in their neighbourhood; 'non-matching' if their identity does not, if they do not express an identity or there is no such group in the neighbourhood. - CHANGE THIS This last case thus captures both overwhelming

[6] I compare these results to partial ward results collected by the BBC. I also compare them to a partial LSOA-level estimate based on local election results and ward-constituency links from the survey company Electoral Calculus (Tilley and Hobolt 2024). On the sample of the data available, they are extremely similar (correlation 0.92^{***} and 0.94^{***} respectively). See page **??**.

[7] Because the question is not asked for every wave, I match Brexit vote from waves 10–12. The variable is unevenly captured, however, since for wave 10 it was only asked in 2019, and for waves 11 and 12 only around the European and general elections of 2019.

exposure to the outgroup, and cases in which there are many competing groups, and thus the salience of intergroup competition is high. Considering that, in the case of partisan affiliation, voters may group different parties into the 'out-group', this is more prudent.

Electoral microdata is difficult to obtain in the UK, and the two measures I use here represent the best data on small geographies available. In particular, the use of local election data in this way is the most accurate and comprehensive way to obtain actual partisan vote share below the constituency level. Most similar studies either use vote share projections, or a sample of the real-world data. There are also theoretical reasons to choose local election vote share. The overwhelming majority of elections around the world are for sub-national office; these elections are also, in many ways, the most important. They choose the people and government who will be our most immediate contact with representative democracy, the ones who, in most cases, will control roads, waste, sewage and the other essential banalities of municipal life. They choose the people who hold sway over education, transportation and housing, and they may also be the elections which, through planning control, most shape the physical realm. We might therefore actually expect these elections, rather than national votes, to be more indicative of partisan dynamics shaped by local attitudes.

For both the UKHLS and ESS, I condition on age, gender, education, class and political interest. For the UKHLS, I also condition on race which, along with class, are two of the most geographically segregated sociodemographic characteristics in the UK. Age is composed of four binaries: binaries: 18 to 24, 25 to 39, 40 to 64, and older than 65. The latter is the reference category. Education is three binaries: no qualifications (reference), school leavers and those with vocational qualifications, and the university-educated. Class uses the three-class schema: higher managerial, administrative and professional occupations (*managers*, or *middle class*); intermediate occupations and self-employed (*intermediate*); and routine and manual occupations (*routine*, or *working class*), the reference category. Again, because the UKHLS is a household survey, I can use the social class of the head of the household—'Household Reference Person' (HRP)—for each member of the household, and therefore construct a far more accurate measure of the socio-demographic position of the household. Because likelihood to participate is significantly affected by interest in the political process or attention paid to it, I condition on political interest. Both the ESS and UKHLS asks 'how interested would you say you are in politics?' I operationalise this as a binary: 'High' and 'Low', comprised of the top and bottom of the scale; the latter is the reference. Race is composed of three binaries: white, Black, South Asian, and 'other': a residual category containing all remaining ethnicities.

To model this, I primarily use hierarchical modelling, fitting models with random intercepts for groups. For the UKHLS, I initially specify cross-sectional models with a two-level structure, with respondents nested in neighbourhoods. Due to issues with model fit, the party activity models are fixed effects models. Issues with model fit, primarily with the party activity models, dictated some choices in specification. This was likely due to the small counts in the dependent variable being perfectly predicted by some or a combination of the independent variables, or causing a singularity in the covariance matrix. Often this resulted in models struggling or failing to converge. To address this, firstly, I combined both party membership and activity into one response variable. Secondly, I simplified both the structure of the random effects—omitting the household level—and the predictors, though I introduce different specifications in the Appendix. Finally, I specified an optimisation algorithm design to address convergence issues and increasing the maximum number of function evaluations to give the models more opportunity to converge. [8] For the ESS, I specify a two-level structure, with districts nested within countries, and fit random intercepts for groups. I use the same optimiser settings as for the UKHLS models.

[8] This is the Bound Optimisation By Quadratic Approximation, which is better suited than other standard optimisers to dealing with complex models or ones which struggle to converge.

For the panel models, I use three waves of the survey—waves 3 (2012), 6 (2015) and 9—specifying an asynchronous model, regressing the response in the current period on all values which can vary from the previous period, excluding age, and including the lagged dependent variable as a regressor. [9] Unfortunately, because the UKHLS does not collect responses in a wave for all respondents concurrently, this model is not ideal: I am unable to study vote propensity for the 2016 EU referendum, and I am forced to replace voting in the previous general election with likelihood to vote in the next general election, on a scale from 1 to 10. This is operationalised as a binary indicator, measuring more likely than not that a respondent will vote. [10] It nonetheless gives us more confidence in the direction of effect. Because the number of individuals per neighbourhood in the survey is small—typically between 1 and 3, fixed effects models would not be appropriate here.

[9] In this case, since the models feature mostly static sociodemographic variables, the only one which can reasonably vary from wave to wave is local attachment.

[10] For waves 2 and 6, this had to be matched from waves 3 and 7 respectively, due to data availability.

Results

First we want to know whether such a relationship between local attachment and political action exists. I start with the basic question of what participatory behaviours local attachment predicts. Table 1 shows five hierarchical models for the ESS data: looking at voting in the last national election, contacting a politician, wearing campaign material, signing a petition, and protesting. Local attachment positively predicts voting in national elections, and weakly predicts contacting representatives: someone who is locally attached is 6 per cent more likely to have voted in an election, and 2 per cent more likely to have contacted a politician. For signing a petition and protesting, however, the effects are not significant. [11]

[11] Because I am modelling on only a subset of the data for the main models, I extend the analysis to all available countries, matched to the EVS sample—EU 27, plus EFTA and the UK—and grouped on countries since NUTS 3 districts are not available for all (Table **??**). I also add urbanisation (Table **??**) and political interest (Table **??**). Finally, I model on a subset of the data of countries which have had a national election within the last two years (Table **??**). The results in all these cases are substantively the same, although, for the model with recent elections, the relationship between local attachment and contacting a politician is no longer significant.

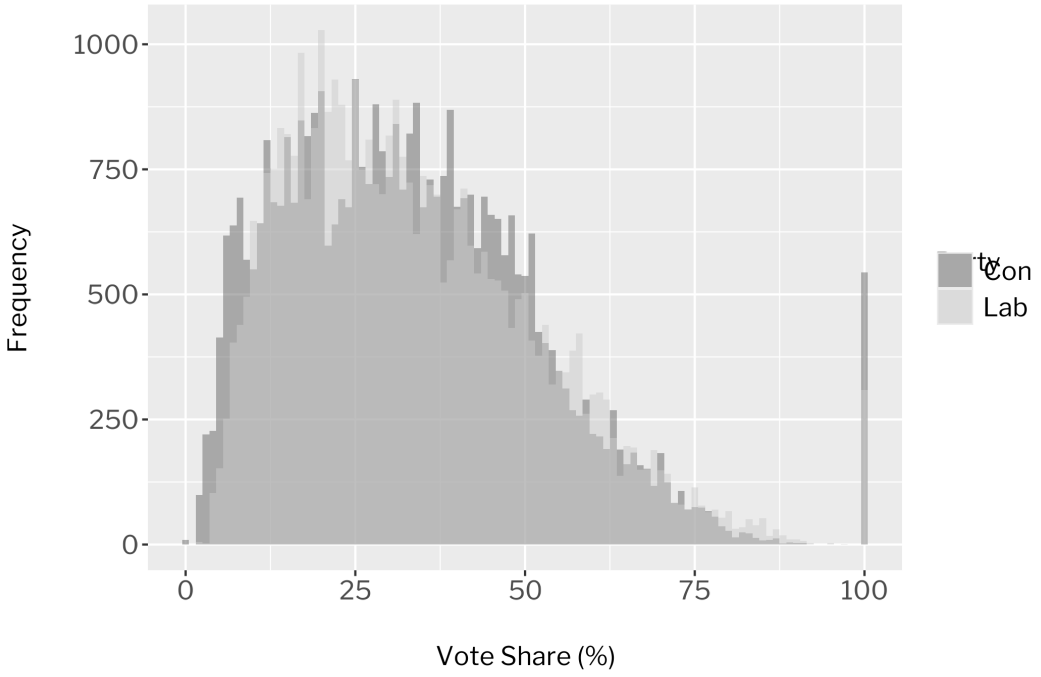

Figure 3: Distribution of local election vote share at neighbourhood-level, 2014–18, selected parties

Excluding independents; excluding 0 vote counts

Table 1: Voting and other activities (ESS round 6)

	Vote election	Contact politician	Wear materials	Sign petition	Protest
Locally attached	0.36 (0.04)***	0.15 (0.05)**	0.15 (0.06)*	0.07 (0.04)	0.07 (0.07)
(Intercept)	0.98 (0.19)***	–2.64 (0.21)***	–3.84 (0.40)***	–2.82 (0.35)***	–3.80 (0.29)***
Controls	Y	Y	Y	Y	Y
Log Likelihood	–9294.04	–6760.94	–4511.44	–7734.09	–3741.92
N (Individuals)	18165	18946	18943	18921	18939
N (Districts)	147	147	147	147	147
N (Countries)	11	11	11	11	11

Standard errors in parentheses.
****p < 0.001; **p < 0.01; *p < 0.05*

I separate the wave 9 (2018) UKHLS results into three tables: for party activity (Table 2, voting in a general election (Table ??) and voting in the 2016 referendum (Table ??). For each of these I first present the basic model, then test the two mechanisms—strategic motivation and social identity—and adding political interest. What I find is that being locally attached positively predicts voting behaviour, for both general elections and the referendum—though it is generally weaker for referendum voting—but does not for party behaviour. [12] These effects are highly significant, and consistent across many different model specifications.

This is in-line with our expectation though, that local attachment causes us to engage more in politics, though the effect is probably not strong enough to carry across to the most visible and resource-intensive political activities, such as party membership and campaigning. Indeed, for election and referendum voting, the coefficients are somewhat weak: someone who is locally attached is 6 per cent more likely to have voted in the general election and 4 per cent more likely to have voted in the 2016 referendum. Almost none of the coefficients in the party activity model are significant, which partly reflects the small number of respondents who actually engaged in these activities or were a party member (1,034 in the full survey). This is reflective of similar

[12] The full models with coefficients for all covariates are from page ?? of Appendix III.

surveys which struggle to reach active party members or which do not rely on dedicated sampling of these groups. The strength of the coefficient for the effect of local attachment on voting in the ESS model is almost exactly the same as for the UKHLS model. When considering the mechanisms for each participatory behaviour: For election voting, the addition of the strategic motivation causes the likelihood that someone who is locally attached has voted in the general election falls to 4 per cent, from 6; and the social identity hypothesis also to 4 per cent. For referendum voting, this is 2 per cent, from 4; and again 2 per cent, respectively. In all cases therefore, the strategic and social identity explanations can account for part of the relationship between local attachment and voting, though the overall relationship remains significant.

Table 2: Party activity (UKHLS wave 9)

	Model 1	Model 2	Model 3	Model 4
Locally attached	0.07 (0.20)	0.01 (0.22)	0.19 (0.22)	0.15 (0.23)
Willing to improve area		0.42 (0.13)**		
Plan to stay		–0.18 (0.11)		
Similar to others			–0.15 (0.10)	
Voting as a social norm			0.12 (0.13)	
High pol interest				4.13 (0.43)***
Controls	Y	Y	Y	Y
N (Individuals)	1744	1742	1708	1739
N (Neighbourhoods)	503	503	499	501
Log Likelihood	–952.63	–941.74	–939.67	–783.69

Standard errors in parentheses. *Ref categories*: Political interest (low)
Fixed effects for neighbourhood.
****p < 0.001; **p < 0.01; *p < 0.05*

Table 3: Voting in elections (UKHLS wave 9)

	Model 1	Model 2	Model 3	Model 4
(Intercept)	2.09 (0.39)***	1.05 (0.30)***	0.18 (0.31)	0.99 (0.17)***
Locally attached	0.41 (0.10)***	0.21 (0.10)*	0.26 (0.10)**	0.34 (0.09)***
Willing to improve area		0.25 (0.05)***		
Plan to stay		0.05 (0.05)		
Similar to others			0.02 (0.05)	
Voting as a social norm			0.47 (0.06)***	
High pol interest				1.88 (0.10)***
Controls	Y	Y	Y	Y
Log Likelihood	–3615.72	–3595.74	–3475.95	–3375.51
N (Individuals)	15324	15325	15042	15217
N (Neighbourhoods)	9019	9004	8810	8995

Standard errors in parentheses. *Ref categories*: Political interest (low)
****p < 0.001; **p < 0.01; *p < 0.05*

Table 4: Voting in EU referendum (UKHLS wave 9)

	Model 1	Model 2	Model 3	Model 4
Locally attached	0.24 (0.05)***	0.12 (0.06)*	0.19 (0.06)**	0.17 (0.05)**
Willing to improve area		0.18 (0.03)***		
Plan to stay		0.02 (0.03)		
Similar to others			–0.00 (0.03)	
Voting as a social norm			0.26 (0.04)***	
High pol interest				1.55 (0.06)***
(Intercept)	0.94 (0.10)***	0.36 (0.15)*	0.08 (0.18)	0.33 (0.10)**
Controls	Y	Y	Y	Y
Log Likelihood	–6828.75	–6798.39	–6628.76	–6395.38
N (Individuals)	14334	14315	14035	14299
N (Neighbourhoods)	7364	7356	7267	7357

Standard errors in parentheses. *Ref categories*: Political interest (low)
****p < 0.001; **p < 0.01; *p < 0.05*

I also look at several alternative specifications. For the main UKHLS model, I add urbanisation (Table ??). I also re-run the main models with fixed effects for neighbourhoods (Table ??). I add household as a grouping factor (Table ??); I exclude lower-tier councils from the analysis (Table ??), and exclude independent candidates from vote totals (Table ??). In all these variations, none of the main results change substantively. Finally, I also separate out party membership and activity (Table ??). In neither case is local attachment significant. One possibility with this question was whether the relationship between local attachment and participation could partly be explained by social networks. The addition of formal group membership and informal contact in the neighbourhood did not have any substantive effect on the relationship between attachment and general election or referendum voting (Table ??), though the strength of local attachment on participation was reduced slightly. The addition of aspects of social capital—generalised trust and reciprocity (Table ??)—had more of an effect. For both general election and referendum voting, the coefficients for local attachment are no longer significant. Including family social networks of family members in the household had no substantive effect on the main conclusions (Table ??).

Finally, I specify a dynamic panel model (Table 5). This is not an ideal specification: because of the UKHLS' very long fieldwork, I cannot use actual behaviour and are

instead modelling self-reported likelihood to vote. For similar reasons, I was unable to test voting in the 2016 referendum. There are two reasons that this is not a significant issue, however. The first is that people's intention to vote is generally correlated with their likelihood to actually vote (Glaser 1958; Greenwald et al. 1987). Secondly, these results reflect what we see in the cross-sectional model, even given this relatively hard test of the theory, and therefore should primarily serve to strengthen our conclusions about those. I find that the results are mostly consistent with the cross-sectional results, showing that we can robustly predict vote propensity in the current period from local attachment in the previous. I also find that the strength of local attachment on vote propensity is notably reduced from the basic attachment model, though these are not directly comparable. This is perhaps expected, given the specification, but it points to dynamic effects for modelling local attachment on participation.

How does exposure to political groups vary local attachment and participation?

How does the relationship between local attachment and participation vary by our exposure to political groups? Tables 6 and 7 look at general election voting and voting

Table 5: Election voting asynchronous panel model (UKHLS)

	Model 1
Vote propensity (lagged)	2.51 (0.07)***
Locally attached (lagged)	0.20 (0.07)**
(Intercept)	–0.31 (0.13)*
Controls (current period)	Y
Log Likelihood	–2944.55
Deviance	5889.11
N (Individuals)	9024

Standard errors in parentheses.
****p < 0.001; **p < 0.01; *p < 0.05*

in the 2016 EU referendum respectively, the former using local election vote share and the latter using referendum vote share, for the UKHLS data. The party activity model is still not significant in either group; for the election voting and EU referendum models, the relationship between local attachment and voting is not significant in neighbourhoods which voted the same as how respondents voted, and is in neighbourhoods which didn't vote the same way as respondents. In the latter, for election voting in non-matching majority-party neighbourhoods, someone who is locally attached is 6 per cent more likely to have voted in the general election, compared to someone who is not. This relationship is the same magnitude as for the overall model which, while it does not show that the effect is stronger here, does demonstrate that the relationship

Table 6: Election voting congruence: non-matching (UKHLS wave 9)

	Plurality	Majority	60 per cent	70 per cent
Locally attached	0.36 (0.10)***	0.35 (0.09)***	0.35 (0.09)***	0.36 (0.09)***
High pol interest	2.02 (0.11)***	2.01 (0.11)***	1.93 (0.10)***	1.89 (0.10)***
(Intercept)	–0.23 (0.31)	–0.21 (0.30)	–0.19 (0.28)	–0.21 (0.28)
Controls	Y	Y	Y	Y
Log Likelihood	–3020.03	–3173.46	–3272.88	–3343.70
N (Individuals)	8144	8534	8755	8914
N (Neighbourhoods)	4338	4438	4477	4514

Standard errors in parentheses. *Ref categories*: Political interest (low)
****p < 0.001; **p < 0.01; *p < 0.05*

comes primarily from this group. That the coefficient for local attachment is smaller and not significant in neighbourhoods which match how respondents vote indicates that the relationship is weaker or non existent in this subgroup, and that the overall effect of attachment on voting is dependent on political incongruence: people living in areas which don't vote like them. The relationship between local attachment and voting is broadly similar in magnitude across the different strengths of partisan groups in the neighbourhoods, which indicates that the relationship is not scalable, and that voters might perceive all dominant out-groups as a threat regardless of strength, once they pass plurality.

Table 7: Referendum voting congruence: non-matching (UKHLS wave 9)

	Majority	55 per cent	60 per cent
Locally attached	0.15 (0.07)*	0.20 (0.06)**	0.18 (0.06)**
High pol interest	1.75 (0.08)***	1.63 (0.07)***	1.59 (0.06)***
(Intercept)	–0.88 (0.14)***	–0.24 (0.12)*	0.03 (0.11)
Controls	Y	Y	Y
Log Likelihood	–4100.05	–5265.11	–5728.15
N (Individuals)	7530	10574	11974
N (Neighbourhoods)	4663	5790	6354

Standard errors in parentheses. *Ref categories*: Political interest (low)
****p < 0.001; **p < 0.01; *p < 0.05*

These results may partly be a product of the smaller sample of neighbourhoods which match respondents' partisan identity, although we observe the same non-significance for referendum voting, where the number of matched and non-matched neighbourhoods is closer in size. For referendum voting, the coefficient for local attachment is actually weaker in the non-match model than the overall model, though still significant, while it is not significant in the match model. In the former, someone who is locally attached is 3 per cent more likely to have voted in the referendum, compared to someone who is not. This result, though weaker, nonetheless still demonstrates significant heterogeneity between the two groups and suggests that local attachment has a consistently measurable impact on participation in the non-matching group.

Discussion

We know already much about how group identity motivates political behaviour (Conover 1984; Cramer 2016; Huddy 2013; Huddy, Mason, and Aarøe 2015; Miller et al. 1981). We also know from a from an expansive literature that attachment to place can shape how we engage in politics (Borwein and Lucas 2021; Bühlmann 2012; Fitzgerald 2018; Lappie and Marschall 2018; Lin and Lunz Trujillo 2022; Wong 2010). What we now have is a much better understanding of how our affective attachment to place shapes political participation, across very small geographic units. We see this behaviour primarily in low-cost activities: voting, over more resource and time-intensive activities, such as campaigning or protesting. Modelling on the full panel also gives us stronger confidence in the robustness of these relationship. We also know how this can vary by the ways we relate to the contextual political make-up of these units: that the overall relationship is driven primarily by voters living in neighbourhoods which don't vote like them. This effect is not scalable though: voters are motivated to participate in the presence of out-groups of any size.

We also know more about why this might happen. Both the proposed mechanisms— strategic and social identity motivations— partly account for the relationship between local attachment and voting, in general elections and the 2016 referendum. Seeing

voting in the local area as a social norm—thinking that most people around you do the same—explains most of the relationship in particular. This lends weight to the social identity explanation: that, when we feel as though we belong to our neighbourhood, we engage in these activities more because we see others around us doing so and want to join in, than any strategic explanation. Voting during national elections is also a relatively high-profile activity. There is evidence for the strategic explanation too: that the ability of local attachment to predict voting in the 2016 referendum is consistently weaker than that for voting in elections, gives weight here, since there is a less obvious justification for defending local interests when voting in that case.

That I find weak or insignificant relationships between local attachment and more resource-intensive activities points to the relationship stopping at these activities. If we are to place more weight on the strategic explanation, then it may be that, as I speculated at the beginning, voters do not make the connection between other forms of political activity and benefits for their area as they do for voting. If we place more weight on the social identity explanation, then it may be that people simply aren't aware enough of the participatory activities of those around them, beyond voting, that they are unable to draw a link between identity and behaviour. This last explanation may also be because the numbers participating in these non-voting activities in both surveys I use are very low.

On congruence, I find that local attachment's ability to predict likelihood to vote is driven by voters living in neighbourhoods with large numbers of partisan out-groups. I hypothesised that this is likely driven primarily by the social identity mechanism: that the presence of out-groups triggers action to defend our in-group, either when we are surrounded by many members of an out-group, or where contestation between different partisan out-groups is high. That we see no significant effect in neighbourhoods dominated by voters' partisan in-group would also bear this out.

We knew already from Chapter 3 that local attachment is an identity deeply embedded within Western societies, even more strongly held in some cases than attachment to country. This cued us to its potential importance within politics; it seemed unlikely that an identity which is so strongly held would not have some influence on this sphere. I have found that this is the case. This conclusion also sits within a growing collection of studies, dating back many decades, on the role of affective attachment to our environment in shaping participatory behaviours. This chapter has taught us two things: First, that local attachment is robustly related to voting, though not more involved political action; and secondly: that, while we already know much about the contextual effect of social mix on political participation, this has taught us about the effect of the interaction of the individual with that context, which is relatively neglected. We may see in later chapters that these conclusions and the mechanisms which underpin

them, carry over into the role of local attachment in shaping other aspects of political action or views.

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Appendix II
Chapter 3

EVS questions

Local attachment

Which of these geographical groups would you say you belong to first of all?

- *locality or town where you live*
- *region of country where you live*
- *[COUNTRY]*
- *Europe*
- *the world as a whole*

Respondents rank two options from the list.

Notes on EVS coding

– NUTS 3 districts are revised every three years. The EVS does not provide codes for the same revision period; for instance, most codes are for the 2006–2010 period, though a small number are for 2010–2013. Commission data similarly is not provided based on NUTS codes for the same revision period. Where

there were discrepancies in matching, I matched codes from different periods on a best-fit basis, preferencing codes from the Commission (i.e. changing those few EVS codes which did not match to the census data). Since the data is incomplete, this was an approximate match, not summing or dividing statistics based on mergers or splits of geographies. The Commission does also not provide any detailed data on the suitability of the match from one set to the next. Selecting from the first year of EVS fieldwork for that country. In practice, boundaries did not change significantly over the period.

– Since I am unable to classify class by head of household for the EVS, that in this case the reference category will include students, the long term unemployed, and those who have never worked.

UKHLS questions

Local attachment

Here are some statements about neighbourhoods. Please answer how strongly you agree or disagree with each statement.

I feel like I belong to this neighbourhood.

Responses given on an inverted five-point Likert scale.

Distance to parents and adult children

About how long would it take you to get to where your [mother / father] lives? Think of the time it usually takes door to door.

About how long would it take you to get to where your son/daughter (aged 16 or over) lives? Think of the time it usually takes door to door.

Respondents answer from a list of options: Less than 15 minutes; between 15-30 mins; between 30 mins and 1hour; between 1 and 2 hours; more than 2 hours; lives / works abroad

Notes on UKHLS coding

- Each constituent nation uses slightly different LSOA geographies. In England and Wales they are called LSOAs (mean = 1,628, [876, 7,907], s.d. = 319). In Scotland, they are called 'data zones' (mean = 815, [34, 8,807], s.d. = 279); in Northern Ireland they are 'Super Output Areas' (SOAs) (mean = 2,049, [366, 4,859], s.d. = 565). I refer to them all as LSOAs.
- Some questions—those measuring distance the respondents lived from their parents or adult children—were not asked in wave 6. Where respondents hadn't moved house at any point between the two waves, I imputed values from the prior wave. If a respondent had moved house in that period, I matched values from the following wave. Note that the UKHLS only flags postcode changes, not actual address changes, so this does not capture intra-postcode moves, although this should not matter since these would be very short distances. This matching method imputes NA for any respondents who dropped out of the survey at any wave between the two waves of interest, where there are waves in-between. If a respondent had again moved in the period after, I took the mean of the response for the prior and post wave, rounded to the nearest integer—since integers correspond to broad time categories: less than 15 minutes, 15 to 30 minutes and so on—since these individuals who move house multiple times are potentially an important case to study, and therefore it would be inappropriate to systematically remove them from the analysis.
- Where armed forces are not allocated to relevant occupational categories (in UKHLS), they are excluded in all the analyses in this thesis.
- In households with joint owners or renters, the HRP is the one with the highest income; if income is the same, it is the eldest of the two. If there is more than one family in a household, the HRP will be chosen from among the HRPs

for the different families, in accordance with a set hierarchy. See (Office for National Statistics 2014, page 22). For the first wave of the survey in 1998, this is the person responsible for the rent or mortgage; in the case of joint responsibility, the eldest of the two.

- White travellers, Irish travellers and gypsies have their own category in the 2011 census, in 2001 they are listed as white, and so I have done so across the whole panel.
- I derive race in the UKHLS from multiple sources—from the adult and youth questionnaire, as reported by other household members, that of biological parents—giving priority to self-reported information.

Data harmonisation

Table A1: Outlier census or linked data

Desired data	*Issue / Selected data*
Rural-urban indicators for Northern Ireland	Not available
Turnover by LSOA (or equivalent) for 2011 census.	Only available by output area ('small area' for Northern Ireland). When figures are amalgamated to LSOA, some migration and emigration statistics will apply to people who only moved into or out of the OA but within the LSOA.
Harmonised NS-SeC class schema for 2011 census	Some UK nations differ in how they classify residual occupational classes, notably students and the long term unemployed, in outputs. I have chosen to exclude all residual classes from the analysis.
Harmonised ethnic categories for 2011 census	Occasional discrepancy in ethnic categories between the UK nations. For instance, some define travellers as 'white' in outputs, while some do not. Amalgamated broad ethnic categories in order to overcome this.

Table A2: Harmonising census settlement classification for England and Wales, 2011 census

Settlement classification (England and Wales)	*Final classification*
A1 Major conurbation	1 - Large urban
B1 Minor conurbation C1 City and town - less sparse C2 City and town - sparse	2 - Urban
D1 Town and fringe - less sparse D2 Town and fringe - sparse	2 - Town and fringe
E1 Village - less sparse E2 Village - sparse	3 - Village
F1 Hamlet and isolated dwellings - less sparse F2 Hamlet and isolated dwellings - less sparse	4 - Isolated dwellings

Note: The division between the three 'rural' categories for England and Wales (2 to 4 and 6 to 8), is not based on population size but density, local context, and isolation from other settlements.

Table A3: Harmonising census settlement classification for Scotland, 2011 census

Settlement classification (Scotland)	*Final classification*
1 - Large Urban Area: Settlement of over 125,000 people	1 - Large urban
2 - Other Urban Area: Settlement of 10,000 to 125,000 people	2 - Urban
3 - Accessible Small Town: Settlement of 3,000 to 10,000 people, within 30 minutes drive of a settlement of 10,000 or more 4 - Remote Small Town: Settlement of 3,000 to 10,000 people, with a drive time of 30 to 60 minutes to a settlement of 10,000 or more 5 - Very Remote Small Town: Settlement of 3,000 to 10,000 people, with a drive time of over 60 minutes to a settlement of 10,000 or more	3 - Town and fringe
6 - Accessible Rural: Settlement of less than 3,000 people, within 30 minutes drive of a settlement of 10,000 or more 7 - Remote Rural: Settlement of less than 3,000 people, with a drive time of 30 to 60 minutes to a settlement of 10,000 or more	4 - Village
8 - Very Remote Rural: Settlement of less than 3,000 people, with a drive time of over 60 minutes to a settlement of 10,000 or more	5 - Isolated dwellings

Note: The distinction between settlements smaller than 3,000 residents for Scotland is based on travel time to the nearest large settlement. Therefore, the division into villages and isolated settlements is imperfect.

EVS robustness checks

Table A4: Testing alternative population dynamics (EVS)

	Model 1	Model 2
DV: Attachment to locality		
Socio-demographic		
Age (Ref: 65+)		
18 to 24	–0.50 (0.07)***	–0.50 (0.07)***
25 to 39	–0.26 (0.04)***	–0.26 (0.04)***
40 to 64	–0.22 (0.04)***	–0.22 (0.04)***
Female	0.16 (0.03)***	0.16 (0.03)***
Education (Ref: No quals)		
School leaver	–0.17 (0.05)***	–0.17 (0.05)***
Degree	–0.48 (0.06)***	–0.48 (0.06)***
Occupation (Ref: Routine)		
Manager	–0.12 (0.04)**	–0.12 (0.04)**
Intermediate professions	–0.00 (0.05)	–0.00 (0.05)
Individual level		
No. of own children in house	0.07 (0.02)**	0.07 (0.02)**
No. of family members in house	0.02 (0.03)	0.02 (0.03)
Match majority class in district	0.09 (0.04)*	0.09 (0.04)*
District level		
Urbanisation (Ref: Isolated)		
Large urban	–0.15 (0.05)**	–0.14 (0.05)**
Urban	–0.12 (0.04)**	–0.12 (0.04)**
Town and fringe	–0.06 (0.05)	–0.05 (0.05)
Village	–0.09 (0.05)	–0.09 (0.05)
log(Population density)	–0.31 (0.09)***	–0.31 (0.09)***
log(Net migration)	–0.02 (0.10)	
log(Crude rate of net migration)		0.05 (0.08)
(Intercept)	1.26 (0.13)***	1.23 (0.13)***
Log Likelihood	–17887.15	–17886.98
N (Individuals)	29604	29604
N (Districts)	746	746
N (Countries)	29	29

Standard errors in parentheses.
****p < 0.001; **p < 0.01; *p < 0.05*

Table A5: Ordered logit model (EVS)

DV: Attachment to locality (ordered)	Model 1	Model 2	Model 3	Model 4	Model 5
Socio-demographic					
Age (Ref: 65+)					
18 to 24	–0.36 (0.05)***	–0.35 (0.05)***	–0.36 (0.05)***	–0.38 (0.05)***	–0.42 (0.06)***
25 to 39	–0.19 (0.03)***	–0.21 (0.03)***	–0.21 (0.03)***	–0.22 (0.04)***	–0.22 (0.04)***
40 to 64	–0.17 (0.03)***	–0.20 (0.03)***	–0.20 (0.03)***	–0.20 (0.03)***	–0.21 (0.03)***
Female	0.14 (0.02)***	0.13 (0.02)***	0.13 (0.02)***	0.13 (0.02)***	0.15 (0.02)***
Education (Ref: No quals)					
School leaver	–0.20 (0.04)***	–0.20 (0.04)***	–0.19 (0.04)***	–0.20 (0.04)***	–0.19 (0.04)***
Degree	–0.47 (0.05)***	–0.49 (0.05)***	–0.48 (0.05)***	–0.49 (0.05)***	–0.46 (0.05)***
Occupation (Ref: Routine)					
Manager	–0.17 (0.03)***	–0.11 (0.03)***	–0.11 (0.03)**	–0.11 (0.03)***	–0.13 (0.04)***
Intermediate professions	–0.02 (0.03)	0.04 (0.04)	0.05 (0.04)	0.04 (0.04)	0.00 (0.04)
Individual level					
No. of own children in house		0.05 (0.02)**	0.05 (0.02)**	0.06 (0.02)**	0.05 (0.02)*
Match majority class in district		0.06 (0.03)		0.06 (0.03)	0.04 (0.04)
Match plurality class in district			0.05 (0.03)		
No. of family members in house				0.03 (0.03)	0.01 (0.03)
District level					
Urbanisation (Ref: Isolated)					
Large urban					–0.15 (0.04)***
Urban					–0.10 (0.04)**
Town and fringe					–0.11 (0.05)*
Village					–0.08 (0.05)
log(Population density)					–0.34 (0.08)***
log(Net migration)					–0.04 (0.09)
0|0.5	–1.11 (0.10)***	–1.06 (0.10)***	–1.06 (0.11)***	–1.06 (0.10)***	–1.30 (0.13)***
0.5|1	–0.12 (0.10)	–0.06 (0.10)	–0.06 (0.11)	–0.06 (0.10)	–0.33 (0.13)**
Log Likelihood	–36005.86	–34501.71	–34502.00	–34501.11	–29748.30
N (Individuals)	35747	34163	34163	34163	29604
N (Districts)	845	845	845	845	746
N (Countries)	31	31	31	31	29

Standard errors in parentheses.
****p < 0.001; **p < 0.01; *p < 0.05*

Table A6: Belonging to country (EVS)

DV: Attachment to country	Model 1	Model 2	Model 3	Model 4	Model 5
Socio-demographic					
Age (Ref: 65+)					
18 to 24	–0.12 (0.05)*	–0.13 (0.06)*	–0.13 (0.06)*	–0.11 (0.06)	–0.11 (0.07)
25 to 39	–0.02 (0.04)	–0.04 (0.04)	–0.04 (0.04)	–0.03 (0.04)	–0.03 (0.04)
40 to 64	0.00 (0.03)	–0.01 (0.03)	–0.01 (0.03)	–0.01 (0.03)	0.00 (0.04)
Female	0.03 (0.02)	0.02 (0.03)	0.02 (0.03)	0.02 (0.03)	–0.00 (0.03)
Education (Ref: No quals)					
School leaver	0.00 (0.04)	–0.00 (0.05)	–0.00 (0.05)	–0.00 (0.05)	0.01 (0.05)
Degree	–0.03 (0.05)	–0.02 (0.06)	–0.02 (0.06)	–0.02 (0.06)	–0.03 (0.06)
Occupation (Ref: Routine)					
Manager	0.12 (0.03)***	0.10 (0.04)*	0.12 (0.04)**	0.10 (0.04)*	0.10 (0.04)*
Intermediate professions	0.06 (0.03)	0.03 (0.04)	0.05 (0.05)	0.03 (0.04)	0.01 (0.05)
Individual level					
No. of own children in house		0.02 (0.02)	0.02 (0.02)	0.02 (0.02)	0.01 (0.02)
Match majority class in district		–0.04 (0.04)		–0.04 (0.04)	–0.04 (0.04)
Match plurality class in district			–0.00 (0.04)		
No. of family members in house				–0.04 (0.03)	–0.01 (0.03)
District level					
Urbanisation (Ref: Isolated)					
Large urban					0.26 (0.05)***
Urban					0.11 (0.04)**
Town and fringe					0.15 (0.05)**
Village					0.15 (0.05)**
log(Population density)					0.14 (0.09)
log(Net migration)					0.08 (0.10)
(Intercept)	0.65 (0.11)***	0.68 (0.12)***	0.66 (0.12)***	0.69 (0.12)***	0.41 (0.14)**
Log Likelihood	–21155.69	–20163.03	–20163.45	–20162.36	–17706.88
N (Individuals)	35747	34163	34163	34163	29604
N (Regions)	845	845	845	845	746
N (Countries)	31	31	31	31	29

Standard errors in parentheses.
****p < 0.001; **p < 0.01; *p < 0.05*

Table A7: Predictors of belonging to neighbourhood: congruence (UKHLS Wave 9)

DV: Neighbourhood attachment	Model 1	Model 2	Model 3
Socio-demographic			
Age (Ref: 65+)			
18 to 24	–1.15 (0.10)***	–1.16 (0.10)***	–1.16 (0.10)***
25 to 39	–0.94 (0.09)***	–0.94 (0.09)***	–0.96 (0.09)***
40 to 64	–0.53 (0.07)***	–0.53 (0.07)***	–0.54 (0.07)***
Female	0.19 (0.04)***	0.19 (0.04)***	0.19 (0.04)***
Education (Ref: No quals)			
School leaver	–0.26 (0.10)**	–0.29 (0.10)**	–0.29 (0.10)**
Degree	–0.17 (0.10)	–0.21 (0.10)*	–0.21 (0.10)*
Occupation (Ref: Routine)			
Manager	0.10 (0.06)	0.01 (0.07)	0.09 (0.06)
Intermediate professions	0.09 (0.07)	–0.04 (0.07)	0.01 (0.07)
Race (Ref: White)			
Black	–0.01 (0.14)	–0.02 (0.14)	–0.07 (0.21)
South Asian	0.21 (0.11)	0.21 (0.11)	0.15 (0.19)
Asian	0.17 (0.21)	0.13 (0.21)	0.12 (0.24)
Mixed	–0.16 (0.16)	–0.17 (0.16)	–0.19 (0.20)
Other race	–0.59 (0.33)	–0.64 (0.33)	–0.69 (0.35)*
Individual level			
No. of own children in house	0.27 (0.05)***	0.27 (0.05)***	0.27 (0.05)***
Commute (Ref: < 5 min / wfh)			
Five to 10 minutes commute	–0.10 (0.09)	–0.09 (0.09)	–0.08 (0.09)
10 to 30 minutes commute	–0.18 (0.06)**	–0.17 (0.06)**	–0.16 (0.06)**
More than 30 minutes commute	–0.31 (0.07)***	–0.31 (0.07)***	–0.30 (0.07)***

Contd.

Table A7: Predictors of belonging to neighbourhood: congruence (UKHLS Wave 9)

Residence (Ref: < 1 yr)			
Lived in house 1 to 2 years	0.28 (0.12)*	0.27 (0.12)*	0.26 (0.12)*
Lived in house 2 to 3 years	0.51 (0.13)***	0.50 (0.13)***	0.48 (0.13)***
Lived in house 3 to 5 years	0.30 (0.11)**	0.29 (0.11)*	0.28 (0.11)*
Lived in house 5 to 10 years	0.46 (0.11)***	0.44 (0.11)***	0.44 (0.11)***
Lived in house more than 10 years	0.72 (0.10)***	0.71 (0.10)***	0.70 (0.10)***
Class matches majority group			0.19 (0.06)**
Class matches plurality group	0.19 (0.05)***		
Class congruence (Ref: Maj grp not match)			
Manager, live maj manager area		0.33 (0.08)***	
Intermediate professions, live in maj intermed. area		–	
Race match group above nat avg	0.16 (0.07)*	0.17 (0.07)*	0.16 (0.07)*
No. of family members in house	0.24 (0.11)*	0.23 (0.11)*	0.23 (0.11)*
Household level			
Owns home	0.34 (0.06)***	0.33 (0.06)***	0.35 (0.06)***
Neighbourhood level			
Urbanisation (Ref: Isolated)			
Large Urban	–0.15 (0.13)	–0.14 (0.13)	–0.16 (0.14)
Urban	–0.40 (0.13)**	–0.39 (0.13)**	–0.41 (0.13)**
Town and fringe	0.07 (0.14)	0.07 (0.14)	0.06 (0.14)
Village	0.13 (0.15)	0.15 (0.15)	0.14 (0.15)
log(Population density)	–0.03 (0.02)	–0.02 (0.02)	–0.03 (0.02)
log(Population turnover)	–0.05 (0.03)	–0.06 (0.03)*	–0.05 (0.03)
(Intercept)	0.39 (0.23)	0.54 (0.23)*	0.50 (0.24)*
Log Likelihood	–8269.78	–8265.57	–8269.85
N (Individuals)	13455	13455	13455
N (Households)	8376	8376	8376
N (Neighbourhoods)	7038	7038	7038

Standard errors in parentheses. Note: Majority intermediate congruence coefficient removed due to low variance
****p < 0.001; **p < 0.01; *p < 0.05*

Table A8: Predictors of belonging to neighbourhood, hierarchical model on full panel (UKHLS)

	Model 1	Model 2
DV: Neighbourhood attachment		
Socio-demographic		
Age (Ref: 65+)		
18 to 24	–1.04 (0.05)***	–1.04 (0.05)***
25 to 39	–0.83 (0.04)***	
40 to 64	–0.49 (0.04)***	
Female	0.14 (0.02)***	
Education (Ref: No quals)		
School leaver	–0.36 (0.05)***	
Degree	–0.28 (0.05)***	
Occupation (Ref: Routine)		
Manager	0.04 (0.03)	
Intermediate professions	0.00 (0.03)	
Race (Ref: White)		
Black	0.09 (0.07)	
South Asian	0.34 (0.06)	
Asian	0.14 (0.10)	
Mixed race	–0.12 (0.09)	
Other race	–0.13 (0.16)	
Individual level		
No. of own children in house	0.22 (0.02)***	
Commute (Ref: < 5 min / wfh)		
5-10 min commute	–0.06 (0.04)	
10-30 min commute	–0.17 (0.03)***	
30+ min commute	–0.26 (0.04)***	
Residence (Ref: < 1 yr)		
Lived 1-2 years in house	0.18 (0.06)**	
Lived 2-3 years in house	0.29 (0.06)***	
Lived 3-5 years in house	0.33 (0.06)***	
Lived 5-10 years in house	0.43 (0.05)***	
Lived 10+ years in house	0.69 (0.05)***	
Mobility (Ref: Not moved)		
Moved 0-15 km		
Moved 15-30 km		
Moved 30-60 km		
Moved 60+ km		

Contd.

Table A8: Predictors of belonging to neighbourhood, hierarchical model on full panel (UKHLS)

Match majority class	0.17 (0.03)***	
Match abv avg race	0.19 (0.03)**	
No. of family in house	0.08 (0.03)**	
Household level		
Own home	0.35 (0.03)***	
Neighbourhood level		
Urbanisation (Ref: Isolated)		
Large urban	–0.01 (0.08)	–0.01 (0.08)
Urban	–0.24 (0.08)**	
Town and fringe	0.08 (0.08)	
Village	0.14 (0.08)	
log(Population density)	–0.08 (0.01)***	
log(Population turnover)	–0.17 (0.03)***	
(Intercept)	0.49 (0.14)***	
Log Likelihood	–31359.84	
N (Individuals)	52175	
N (Households)	32098	
N (Neighbourhoods)	25241	

Standard errors in parentheses.
****p < 0.001; **p < 0.01; *p < 0.05*

Table A9: Predictors of belonging to neighbourhood, synchronous model with all predictors lagged (UKHLS)

	Model 1	Model 2
DV: Neighbourhood attachment		
Socio-demographic		
Age (Ref: 65+)		
18 to 24	–0.97 (0.09)***	–0.94 (0.08)***
25 to 39	–0.60 (0.07)***	–0.63 (0.06)***
40 to 64	–0.34 (0.05)***	–0.34 (0.05)***
Female	0.12 (0.03)***	0.13 (0.03)***
Education (Ref: No quals)		
School leaver	–0.14 (0.07)*	–0.16 (0.07)*
Degree	–0.09 (0.07)	–0.10 (0.07)
Occupation (Ref: Routine)		
Manager	0.08 (0.04)	0.08 (0.04)
Intermediate professions	–0.01 (0.05)	0.01 (0.05)
Race (Ref: White)		
Black	0.08 (0.11)	0.07 (0.10)
South Asian	0.17 (0.09)	0.19 (0.09)*
Asian	0.19 (0.15)	0.15 (0.14)
Mixed race	–0.06 (0.13)	0.04 (0.13)
Other race	–0.34 (0.23)	–0.28 (0.23)
Individual level		
No. of own children in house	0.22 (0.05)***	0.21 (0.05)***
Commute (Ref: < 5 min / wfh)		
5-10 min commute	–0.11 (0.07)	–0.11 (0.06)
10-30 min commute	–0.13 (0.05)**	–0.14 (0.05)**
30+ min commute	–0.23 (0.06)***	–0.25 (0.06)***
Residence (Ref: < 1 yr)		
Lived 1-2 years in house	0.40 (0.10)***	
Lived 2-3 years in house	0.39 (0.10)***	
Lived 3-5 years in house	0.30 (0.09)***	
Lived 5-10 years in house	0.34 (0.08)***	
Lived 10+ years in house	0.46 (0.08)***	
Mobility (Ref: Not moved)		
Moved 0-15 km		–0.16 (0.08)
Moved 15-30 km		–0.29 (0.21)
Moved 30-60 km		–0.81 (0.29)**
Moved 60+ km		–0.83 (0.17)***
Match majority class	0.15 (0.07)*	0.13 (0.07)*
Match abv avg race	0.31 (0.11)**	0.28 (0.11)**
No. of family in house	0.31 (0.06)***	0.26 (0.06)***
Household level		
Own home	0.20 (0.08)*	0.20 (0.08)*

Contd.

Table A9: Predictors of belonging to neighbourhood, synchronous model with all predictors lagged (UKHLS)

Neighbourhood level		
Urbanisation (Ref: Isolated)		
Large urban	–0.34 (0.24)	–0.35 (0.24)
Urban	–0.28 (0.21)	–0.29 (0.20)
Town and fringe	0.19 (0.20)	0.13 (0.20)
Village	0.03 (0.19)	–0.02 (0.18)
log(Population density)	–0.07 (0.03)*	–0.08 (0.03)*
log(Population turnover)	–0.07 (0.09)	–0.11 (0.09)
Lagged variables		
Lagged Neighbourhood attachment	1.90 (0.03)***	1.90 (0.03)***
Lagged No. of own children in house	–0.13 (0.05)*	–0.13 (0.05)*
Lagged 5-10 min commute	0.03 (0.06)	0.03 (0.06)
Lagged 10-30 min commute	–0.04 (0.05)	–0.04 (0.05)
Lagged 30+ min commute	0.03 (0.06)	0.01 (0.06)
Lagged Match majority class	–0.04 (0.07)	–0.01 (0.07)
Lagged Match abv avg race	–0.19 (0.11)	–0.16 (0.11)
Lagged Own home	–0.00 (0.08)	0.04 (0.08)
Lagged No. of family in house	–0.15 (0.06)*	–0.12 (0.06)*
Lagged Large urban	0.38 (0.25)	0.40 (0.24)
Lagged Urban	0.16 (0.21)	0.19 (0.21)
Lagged Town and fringe	–0.08 (0.20)	–0.04 (0.20)
Lagged Village	0.18 (0.19)	0.23 (0.19)
Lagged log(Population density)	0.05 (0.03)	0.05 (0.03)
Lagged log(Population turnover)	0.02 (0.09)	0.05 (0.03)
(Intercept)	–0.78 (0.15)***	–0.40 (0.13)**
Log Likelihood	–11911.80	–12790.11
N (Individuals)	23327	24946

Standard errors in parentheses.
****p < 0.001; **p < 0.01; *p < 0.05*

Descriptives

Table A10: National proportions of ethnic groups at the 2011 census

	Number	*Percentage*
White: Total	55,073,145	87%
White: British	52,320,080	83%
White: Irish	*Included above*	*Included above*
White: Gypsy / Traveller / Irish Traveller	62,981	0.1%
White: Other	2,690,084	4.3%
Asian / Asian British: Total	4,373,661	6.9%
Asian / Asian British: Indian	1,452,156	2.3%
Asian / Asian British: Pakistani	1,174,602	1.9%
Asian / Asian British: Bangladeshi	451,741	0.7%
Asian / Asian British: Chinese	433,444	0.7%
Asian / Asian British: Other Asian	861,718	1.4%
Black / Black British: Total	1,905,506	3.0%
Black / Black British: African	1,021,973	1.6%
Black / Black British: Caribbean	599,197	0.9%
Black / Black British: Other Black	284,336	0.5%
Mixed / British Mixed	1,250,414	2.0%
Other: Total	580,049	0.9%

Source: ONS 2013