HOTBEDS OF UNREST AND EXTREMISM

How Social Context Influences Political Participation in the 21st Century Britain, from Rioting to Far Right Party Membership

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Approximate word count: 55,000

MICHAELMAS 2015

ABSTRACT

British politics at the start of the 21st century provide a good setting for examining factors associated with mobilisation for extremist politics. This thesis is concerned with the relationship between individuals' preferences, their local setting and political behaviour. With focus on two outcomes – participation in urban rioting and support for a far right party – this thesis is divided into two parts and consists of five research papers addressing different aspects of mobilisation.

In the first part we focus on urban disorder and examine police arrest records from the London riot of 2011. Much of the sociological literature has focused on variation in rioting across cities; here we examine variation within London by mapping the residential addresses of 1,620 rioters onto over 25,000 neighbourhoods. Our findings challenge the orthodoxy that rioting is not explained by deprivation or by disorganisation. Furthermore, we present evidence suggesting the importance of political grievances, in particular relations with the police, and examine the process of mobilisation to show that it was aided by spatial proximity and social similarity.

In the second part we look at factors associated with engagement with far right politics. We use individual attitudinal data from the British Election Study to examine whether concerns over immigration are associated with the actual experience of immigration in one's place of residence. The results suggest that local setting does play some role, although individual factors seem to be more important. Secondly, we use leaked British National Party membership list to map 12,536 far right supporters onto over 200,000 neighbourhoods in Britain. Our findings underline the importance of a larger geographic context, where some spatial configurations present particularly fertile grounds for the far right; we also report the relative unimportance of cultural threat and significance of the social distance. Lastly, we question the recently advocated 'legacy effect' and suggest that white flight mechanism may possibly be an alternative way of thinking about organisational continuity.

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ACKNOWLEDGMENTS

I would like to express my gratitude to a number of people without whom finishing this thesis would not have been possible. I have received immense support from my supervisor, Dr Michel Biggs, who encouraged me to work on this topic and who was there to patiently point me into the right direction whenever I got stuck. My examiners, Professor Jens Rydgren and Professor Francesco Billari, provided a number of insightful comments and helpful suggestions, for which I am very grateful. I wish to thank people I met while staying in Oxford and who in one way or another contributed towards making it an enjoyable experience: Amr Sabry Alaarg, Annika Birch, Andrea Canales, Tak Wing Chan, Amy Clair, Germán Vera Concha, Sonny Dhanda, Raheel Dhattiwala, Balázs Dianiska, Vaughan Dutton, Jane Greig, Monika Iwanowicz, Joanna Lima, Samina Luthfa, Luigi Marini, Nicole Martin, Karin Meijboom, Sumeet Mhaskar, Anne Millard, Ania Kotarba-Morley and Mike Morley, Nina Skoczolek, Anish Vanaik, Andrew Wallace and Wybo Wiersma. I would like to thank Nuffield College, my college advisor Professor Duncan Gallie, senior tutor Dr Eleni Kechagia-Ovseiko and the lodge porters, who opened the doors on a number of occasions when I forgot my college card. Finally, I am grateful to my family and my partner for providing me with a steady stream of tea and culinary treats as well as encouragements for the last couple of years.

WHAT THIS THESIS IS ABOUT

This thesis seeks to analyse different aspects of mobilisation for engagement in extremist politics, specifically the types of effects geographical and socio-economic factors may have on participation in urban disorder or far right membership. By extremist politics we mean forms of political activity that resorts to violence or incitement of violence for political reasons. The Palgrave Macmillan dictionary of political thought notes that extremism is a broad term but in general it refers to:

> *Taking a political idea to its limits, regardless of 'unfortunate' repercussions impracticalities, arguments and feeling to the contrary and with the intention not only to confront but also to eliminate opposition* as well as *adoption of means to political end which disregard accepted standards of conduct in particular which show disregards for the life, liberties and rights of others*. (Scruton 2007)

The proposed thesis takes what is essentially a case study approach to this issue and presents five stand-alone pieces, two on the London riot of 2011 and three on far right politics and membership in the British National Party (BNP). Why these two forms of engagement? Arguably, participation in urban disorder is very different from membership in a far right party. The former is illegal while the latter – at least in the case of the British National Party – is stigmatised but remains legal[1]. There are also demographic differences: the former attracts mostly young males (often ethnic minority groups) while the latter is the domain of older generations of white men. Finally, urban unrest is a rapid and uncoordinated process that unravels over a matter of days while mobilisation for

[1] Although it is worth mentioning that several organisations, including British police force and Anglican Church clergy, do not allow BNP members to join.

membership in a far right party is built over years of activists' coordinated work on the ground.

The overarching theme that unites these different forms of engagement is that they are taken by people who become disillusioned with engagement opportunities offered by mainstream politics. Young rioters in London were just as distrustful of Westminster politicians as were the people attending BNP rallies in small towns across England. In both cases the cost of engagement in extreme politics is potentially high – rioters face arrests and lengthy prison sentences. On the other hand, members of the BNP faced backlash following the publication of party's membership list – in numerous cases people who were on the list lost their jobs, had windows smashed and were forced to change their phone numbers after receiving threats. Secondly both the members of a far right party and the rioter are alike in that they make an attempt on peaceful coexistence in the society, the former through launching a campaign of hatred against variously defined 'foreign elements' (in case of the BNP these are most commonly ethnic minorities and Muslims) and the latter through torching buildings and breaking into shops.

Both far right party support and urban rioting has been on the rise in recent years and hence it is important to learn more about the underlying mechanisms which can explain the motivations for participating in these forms of extreme political engagement. This dissertation will address an important question regarding the relationship between actors' preferences, environment and behaviours, namely why people may engage in higher cost forms of collective action.

Apart from using usual statistical regression techniques, this work will draw on spatial techniques commonly applied by quantitative geographers such as mapping for exploratory analysis (Papers 1- 4), inclusion of distance-based variables (Papers 1 and 2), heatmaps (Paper 2), spatially lagged variables (Papers 1 and 4) or applications of spatial

programming to overcome the problem of changing boundaries when comparing data for administrative units overtime (Papers 3-5). These methods are now receiving increased recognition in sociology. The approach taken in this dissertation is that spatial techniques are used not for the sake of applying a novel technique of data analysis but rather they should be driven by theoretical considerations, that is in cases where for instance including spatially constructed variables can show something new about the problem we investigate or help to overcome issues which would otherwise make analysis impossible.

OUTLINE

In the first part we focus on instances when people take politics to the streets, and examine the London riot of 2011 as a case study. The paper titled **Anarchy in the UK: Economic Deprivation, Social Disorganisation, and Political Grievances in the London Riot of 2011** challenges the orthodoxy that participation in riots is unrelated to socio-economic deprivation or social disorganisation and presents evidence suggesting the importance of political grievances, in particular relations with the police. In the second paper titled **Escalation and Diffusion: How rioting changes over time?** we take advantage of the unique police arrest records to examine how riots change in time. Our findings show that neighbourhoods in areas characterised by poor relations with the police were drawn sooner into the rioting and that diffusion of rioting was aided by spatial proximity as well as social similarity. We also look at the evidence of the role of gangs in mobilisation and introduce an alternative measure of diffusion called *school catchment network*; while the former finds no support we find a rather surprising effect for the latter that warrants further investigation.

The second part investigates engagement with a far right political party and attitudes towards immigrants. The paper titled **Too many immigrants: What shapes people's perception and attitudes towards immigrants** looks at whether concerns over

immigration are associated with the *actual experience* of immigration in one's place of residence. Anti-immigration attitudes are a necessary, although not sufficient ingredient that contributes towards support for far right politics. The results suggest that local settings (both in terms of immigration levels and changes) are important, although individual factors seem to play a bigger role. In the fourth paper titled **Spatial bases of far right support: What contextual factors are associated with membership in the British National Party** we engage with the demand-side arguments for emergence of far right and focus on how proximity to ethnic minorities affects party membership. This work builds on multilevel modelling of far right membership presented by Biggs and Knauss (2012) and provides a confirmation as well as an extension of the work of Rydgren and Ruth (2013) on the 'halo effect', which says that the propensity to support the far right is highest in areas close to immigrant-dense areas, but not within these areas. In that paper we also build on threat and contact theories of ethnic hostility to examine the impact of demographic changes, cultural threat and social distance. In the last paper titled **Lasting legacies: Do areas that supported the National Font in the 1970s still support contemporary far right?** we engage with the supply-side arguments for emergence of far right parties and look at whether areas which proved to be successful grounds for the far right politics in the 1970s benefit from a boost in support in the modern era. This paper provides a critical re-analysis of a recent article by Goodwin, Ford and Cutts (2013) and shows that once we control for a more refined measures of support for the National Front in the past, the 'legacy effect' is no longer significant.

PART 1 RIOTING

The outbreak of rioting in August 2011 was an extraordinary episode in British history, the most widespread and prolonged breakdown of order in London's history since the Gordon riot of 1780. Over four days, thousands of people took part in destruction and looting, causing property damage costing in excess of £30 million. The police ceded control of large swathes of territory and rioting occurred in two-thirds of the city's boroughs. Rioting in London inspired outbreaks elsewhere in England, including Manchester and Birmingham. Parliament was recalled from summer recess to deal with the crisis. Eventually more than 3,000 people were arrested in the capital. While London was still in flames, the Prime Minister, David Cameron, determined that riots were about 'criminality, pure and simple'; this sentiment was also echoed in the media which had a tendency to view rioters and their actions through the lenses of irrationality, mental abnormality and criminal deviation. Nevertheless, in the aftermath of the London riot there were some urgent questions to be answered: what led to a situation where law and order broke down and why there were a couple of thousands of people, by some estimates between 13,000 and 15,000, rioting on the streets? Importantly, the London riot of 2011 had also shown that although outbreaks of collective violence are relatively rare, when they do occur the consequences can be severe and amount to an effective paralysis of the entire city. The urgency in further emphasised by the fact that London was not alone—from the *banlieues* of Paris to the suburbs of Stockholm, over the last couple of years Europe has been racked by a series of severe instances of urban unrest[2].

[2] Only in the last five years large-scale riots have broken out in Britain, France, Spain, Greece, and Sweden.

Police records which became available in the aftermath of the London riot of 2011 provide a great opportunity for studying riots – through matching postcodes of arrested individuals with characteristics of their local neighbourhood, we can show what sort of socio-economic factors made people more likely to participate in the disorder. Furthermore, access to approximate time of arrest allows analysing how profile of participants shifted over time and space. With this high quality data we can not only provide crucial insights into the causes and the dynamic of the London riot of 2011 but we can also test some of the underlying assumptions in the literature on mobilisation for collective violence.

Theoretical Perspectives

The study of rioting has progressed enormously since the early days of Le Bon and his work on crowd behaviour. Le Bon's ideas (similarly to Durkheim's) were shaped by the social and political climate of post-revolutionary France where the legacy of the French Revolution shook the old foundations of the society and caused political unrest often perceived as a threat to the social order. His writing inhibits a conservative bias, where Le Bon sees crowds as irrational and anonymous entities and warns against the dangerous powers they exert upon individuals. According to Le Bon, crowd behaviour is driven by the emergence of a 'collective mind', which transforms individual members of the crowd and makes them:

> *[…] feel, think and act in a manner quite different from that in which any individual of them would feel, think and act were he in a state of isolation*. (1995)

> Even though it is still possible to come across academics using the language of Le Bon[3], at least since the 1970s the academic consensus is that participation in riotous assemblies is neither irrational nor anonymous (McPhail 1991).

Modern theories about rioting were largely influenced by the work of social movement scholars as well as the work of social historians. The first group (consisting of scholars such as McPhail, Spilerman, Lieberson and Silverman, Oberschall and later Useem, Myers or Olzak to mention just a few) should be credited for rigorous empirical investigations, where they were trying to explain factors associated with the wave of rioting that swept through the United States in the 1960s. Around this time a group of popular explanations of collective violence were the so-called breakdown and strain theories that emphasised the role of deprivation in generating grievances (Gurr 1970). The inconclusiveness of the research published in the aftermath of the 1960s American riots can be summarised as raising more questions than answers. A famous example is a series of studies conducted by Spilerman (1970, 1971 and 1976) who found that the structural characteristics of cities were *not* significantly related to whether a given city experienced a riot or not during the 1960s.

Out of this impasse, McPhail helped to set a new research agenda for studying collective violence (1971). His secondary analysis of 287 associations yielded by the literature led McPhail to dismiss the popular deprivation-frustration-aggression explanations for disorder. Instead, McPhail advocated that researchers should focus on riot dynamics; in

[3] On August 11, 2011 the *Guardian* published Professor John Brewer's letter written on behalf of the British Sociological Association, where the author starts the opening paragraph by arguing that crowds are *irrational*. This statement effectively disregards findings from the last 50 years of sociological investigations on collective violence and social movements.

particular, on establishing how people assemble for the riots, what they do when they riot and what are the targets of the rioters.

This emphasis is also echoed in the work of Marxist historians such as Rudé or Thompson who helped to re-orient the inherently conservative bias of the early French scholars. The work of Thompson is well known for introducing the concept of a 'moral economy' of the crowd, which Thompson applied in the context of English food riots in the eighteen century. Thompson argued that the rioters were far from irrational and were motivated by common political culture about fair prices and subsistence which opposed what the peasants saw as an excessive profit making on essentials such as bread (1971). In a similar vein, Rudé's work on political crowds in eighteen and early nineteenth century England and France demonstrated that rioters were not indiscriminate in their targets and that contrary to an assumption often taken for granted those who participated in rioting were not societal outcasts. Instead the rioters often had a clear purpose: they were protesting against injustice from the government, high officials or elites and fighting to secure food at prices that they could afford (1964). Importantly, Rudé was also one of the first scholars to pay attention to channels of riot diffusions; although his work was mostly descriptive he used maps to show that food riots in England diffused along transportations routes.

Original research on the riots also appeared in the aftermath of the wave of riots which hit England in the 1980s (which was somewhat reminiscent of the 1960s in the United States). Writing about the English riots, Lea and Young argued that to explain why the riots happened it was necessary to examine the relationship between the police and young members of ethnic minority groups, especially British-born Caribbean men who, according to the authors, developed a sub-culture of pretty crime and street robbery in response to unequal treatment and racial discrimination (in Cowell et al. 1982). Arguably, the troubled relations between British police and ethnic minority groups is as visible today as it was

three decades ago—for instance a recent report by the Equality and Human Rights Commission revealed that in some parts of England black men were 29 times more likely to be subjected to stop and search than their white counterparts (Hurrell 2013).

There is an important nomenclature issue which should be discussed. As observed by Bugguley and Hussain in the literature, especially British studies, the preferred term among some members of the academic community is to refer to riots as an uprising, in order to acknowledge the sense of collective purpose of the rioters who fought to challenge the racist state (2008). In a similar vein, Charles Tilly warns against using the word riot because according to Tilly application of the term entails a political rather than an analytical decision (2003). Although these are important points, here we choose to follow Oberschall who is more pragmatic in arguing that

> *One must examine what collective goals and demands are voiced by the actors […] if the main purpose of the action is to inflict damage and/or injury upon certain groups or a category of persons such as police, merchants, or whites in general then one is dealing with a riot*. (1995)

What the first part of the thesis is about

We use police arrest data to analyse what factors were associated with participation in rioting in London in 2011. In the first paper we engage with the cross-sectional analysis and match the rioters with their neighbourhoods of residence. Importantly, we do not look just at the neighbourhoods which had a resident rioter (selection on the dependent variable is a common mistake!) but simultaneously analyse the characteristics of neighbourhoods with rioters and those without rioters. This allows filling some of the existing gaps in the literature; in particular, we find evidence that at least in the case of the London riot of 2011 rioting was strongly associated with socio-economic deprivation in the neighbourhood. Secondly, we use the concept of social disorganisation to characterise the neighbourhoods

that are more prone to crime in general and see if this was also a factor explaining the variation in rioting. Lastly, we investigate the role of political grievances by including measures derived from the Metropolitan Police Public Attitudes Survey which asks residents for their opinion about policing.

The second paper follows the advice given by McPhail (1971, 1994) and looks at the assembling process (i.e. mobilisation for rioting) as well as change over time. Apart from testing the effect of ethnicity, relations with the police and relative deprivation over the course of the five days, we also test three channels of diffusion (spatial, social similarity and school catchment network) and compare two different types of diffusion variables encountered in sociological literature on diffusion (which we shall call simple and systemic).

PAPER 1 ANARCHY IN THE UK: ECONOMIC DEPRIVATION, SOCIAL DISORGANISATION, AND POLITICAL GRIEVANCES IN THE LONDON RIOT OF 2011[4]

It wasn't no drama, no stress, everyone had the power. Everyone had the strength.

The police wasn't in control. We had the power.

—young man recalling the riot (BBC 2012)

London riot of 2011 was the largest outbreak of collective violence in modern British history and with high quality data that emerged in the aftermath it provides a unique opportunity to study the *nuts and bolts* of the situations when people take politics to the streets. What makes London riot sociologically intriguing is its divergence from the familiar pattern of an ethnic riot. To be sure, rioting was triggered by the police shooting of a young man of mixed race, but there the resemblance ends. Those who participated were ethnically heterogeneous: of those arrested in London, just under half were classified as black while a third was white. Rioters did not focus on any ethnic group when targeting properties, and only the police were subject to sustained attack. The sociological literature has been dominated by ethnic riots in the United States, especially the spectacular wave of riots by African Americans in the 1960s. The London riot therefore provides an opportunity to test sociological theories on another sort of event.

[4] This paper is co-authored by Michael Biggs. It was published as Kawalerowicz, Juta and Michael Biggs. 2015. Anarchy in the UK: Economic Deprivation, Social Disorganisation, and Political Grievances in the London Riot of 2011. *Social Forces* 94 (2): 673-698.

Sociological investigation of riots is dominated by examination of variation in frequency and severity of rioting across American cities. Lieberson and Silverman (1965) conducted the first systematic comparison, while Spilerman (1970, 1971, 1976) provocatively concluded that social conditions did not matter. The tradition culminated in sophisticated event-history analyses by Myers (1997, 2000, 2010) and by Olzak and collaborators (Olzak 1992, Olzak and Shanahan 1996, Olzak, Shanahan and McEneaney 1996). These studies are ideal for tracing the diffusion of rioting from one city to another. Taking the city as the unit of observation, however, provides only limited insight into the social contexts conducive to riots, because rioting is highly localised. There are surprisingly few systematic analyses of variation in rioting *within* a city[5]. Bergesen and Herman (1998, Herman 2005) locate riot fatalities within census tracts in six major American riots during the twentieth century. Baudains, Braithwaite, and Johnson (2013a) map offenses during the London riot of 2011 within areas comprising about 1,500 people. We exploit similar data to analyse variation within London. Unlike previous work, we investigate where rioters lived rather than where riot offenses were committed, which has the advantage of more precisely matching individuals to their social context. We also disaggregate to smaller neighbourhoods, containing about 300 residents. The dependent variable is the number of rioters—those arrested and charged for offenses committed during the riot—in each neighbourhood.

THE LONDON RIOT

We define a riot as an event in which a large number of people deliberately damage property and attack others; this often also involves looting. The numerical threshold is not pertinent here; 30 or 50 are common (Wilkinson 2009). A riot invariably involves

[5] Earlier work on variation across census tracts (e.g. Abudu et al. 1972, Abudu Stark et al. 1974) is hard to interpret because of the methods used.

vicarious participants who watch and thereby encourage those who attack, destroy, or steal (Collins 2008). But here we restrict the term 'rioter' to those who actually commit the acts. Riot covers a wide variety of events, and so it is useful to make two heuristic distinctions (drawing on typologies by Marx 1970, McPhail 1994)[6]. The first is the occasion for the riot. Some riots develop out of another event, like a protest demonstration or sporting fixture; such riots are often explained as the spontaneous reaction, by a minority, to aggressive policing (e.g. Stott and Reicher 1998). In other cases, the event is a riot from the outset: people assemble specifically for the purpose of rioting (or of watching others do so). A second distinction is the type of target. In some cases, rioters target the police or other organs of state power. In other cases, they primarily target another non-state group.

These distinctions will help to situate the London riot. On 4th of August a specialised armed unit of police shot and killed a young man of mixed race from Tottenham—Mark Duggan—who they suspected of carrying a gun. The circumstances of his death were unclear (and in 2015 still remain disputed). Certainly the authorities released false information to the media and failed to properly communicate with the family. Rumours circulated that Duggan had been deliberately assassinated. These accusations were taken up by the Black Independent Advisory Group, established to challenge policing in Haringey Borough (which encompasses Tottenham). Two days after the shooting, on the afternoon of 6th of August, activists from the Group and Duggan's family led a demonstration to Tottenham police station. About a hundred protesters waited while negotiations with the police continued. Over a period of three hours in the evening, crowds gathered and the tension grew. A police car was set alight and rioting began, inflamed by rumours (apparently false) that police at the scene had just beaten a young black woman or

[6] Riots in prison are excluded because their institutional conditions are so different (Goldstone and Useem 1999).

girl (*Guardian*, December 9, 2011). This initial outbreak can be classified as a riot developing out of protest. Hypothetically, if the police had defused the situation at the outset, the riot would not have occurred. Rioting spread to other points in Haringey Borough that night, as the police ceded control of the streets[7].

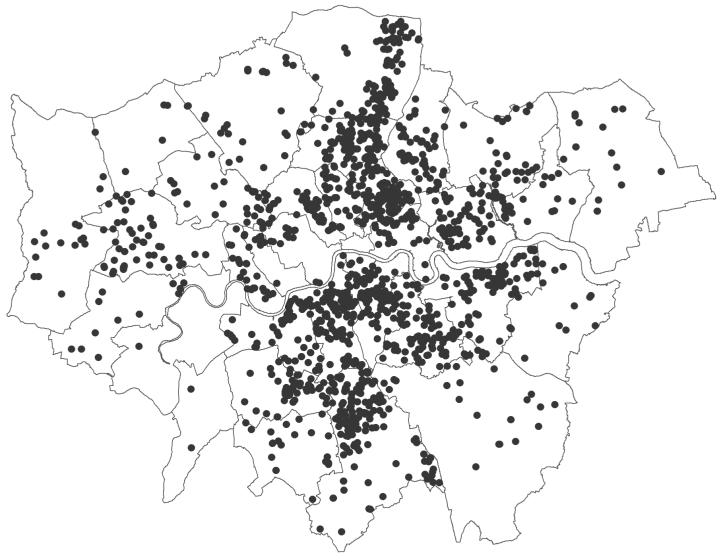


FIGURE 1 GEOGRAPHICAL DISTRIBUTION OF RIOTERS

Rioting on subsequent nights occurred as people congregated specifically for that purpose. The rioting spread across London and to a few other English cities. When interviewed subsequently, rioters recounted their anger at the police, frustration at economic deprivation, resentment towards the government for cutting social programs, and the lure of looting. The relative importance of these motivations—to put it crudely, whether protest or crime was paramount—is debated. Lewis et al. (2011) highlight 'anger and frustration at people's every day treatment at the hands of the police.' This emphasis is criticised by Treadwell, Briggs, and Winlow (2013), whose interviews contained 'far more mentions of designer clothing brand names such as Gucci and Prada than of the name of Mark

[7] This account draws on Metropolitan Police (2012), Lewis et al. (2011), Morrell et al. (2011).

Duggan.' Briggs (2012) suggests that rioters initially justify their involvement by anger at the police; only as the interview continues do they gradually admit the importance of material gain. Discerning individual motivations is complicated by the fact that the decision to riot depended heavily on the actions of others. A schoolgirl recounted how her initial reluctance was overcome: 'because everyone was doing it, I thought, if everyone was doing that and no one is getting caught at the time, why can't I do it?' (BBC 2012, also Lewis et al. 2011, Morrell et al. 2011). As we are going to show in the next paper, the riots were in large measure generated by an endogenous process of positive feedback (Biggs 2003). Alongside television, BlackBerry Messenger was important in relaying information as the events unfolded (Morrell et al. 2011).

As observed at the outset, the London riot is not usefully framed as an ethnic riot. Obviously this event was completely different from a riot in which one ethnic group attacked another, like whites and blacks in Chicago in 1919 or Hindus and Muslims in Ahmedabad in 2002 (Chicago Commission on Race Relations 1923, Dhattiwala and Biggs 2012). More subtlety is needed to distinguish the London riot from the American 'race' or 'ghetto' riots of the 1960s—such as Watts, Newark, and Detroit (Fogelson 1971, Janowitz 1968). Those were sparked by a confrontation between white police and black citizens. Most importantly, the great majority of rioters were black (NACCD 1968)[8]. Notorious riots in London in the 1980s fit the same pattern: in Brixton in 1981, and at the Broadwater Farm Estate in Tottenham in 1985 (Benyon and Salomos 1987, Keith 1993). The London riot differed in important respects. Duggan's father was from Jamaica but his mother is white. His maternal aunt was prominent at the standoff outside Tottenham police station,

[8] It is usually claimed that blacks targeted stores owned by whites, but Rosenfeld (1997) demonstrates how the ethnicity of owners can be confounded by type of store.

and some of the protesters were white[9]. The senior police officer who tried to defuse the situation, is not white; the crowd shouted 'Uncle Tom' at him (*Guardian*, July 2, 2012). The precipitating incident was therefore not strictly black and white. When interviewed, rioters did not consider the event to be a race riot (Lewis et al. 2011). Finally, the rioters were ethnically heterogeneous. Of those arrested in London, 47% were classified as black, 32% as white, 11% as mixed, and 8% as South Asian (Home Office 2011). Blacks were overrepresented in comparison to the population and whites underrepresented, but no group comprised a pronounced majority.

EXPLAINING RIOTS

Riots can be explained in various ways. Here, we focus on the social, economic, and political circumstances which are conducive to rioting. This means neglecting the dynamics of the riot as a process (which will be elaborated later on), not because these dynamics are less important but because our ecological data is particularly suited to investigating cross-sectional variation. We consider five distinct explanations: deprivation, relative deprivation, ethnic competition, social disorganisation, and political grievances.

Deprivation—standing for poverty, unemployment, and lack of education—is an obvious explanation for rioting. Several mechanisms can be adduced. People who are deprived have less reason to view societal institutions as legitimate. They have more to gain from looting, and less to lose from a criminal conviction. Deprivation may also operate indirectly. People who are deprived are less able to exercise power via political parties or social movements. They are more likely to experience conflict with police. Since the 1970s, however, sociologists have rejected or at least downplayed deprivation (prominent exceptions are Piven and Cloward 1992, Useem 1998). The reasons are worth scrutinising.

[9] Video evidence from Fully Focused (2012).

In the 1960s politicians denounced rioters as 'riffraff' (Fogelson 1967), while sociological theory—in the tradition of Le Bon and Blumer—branded them as irrational (McPhail 1989). Rejecting these notions, revisionist sociologists unfortunately equated them with deprivation as an explanation. In addition, revisionists tended to conflate rioting with other forms of contention where privileged rather than deprived strata were in the vanguard; consider the role of college students in the Civil Rights movement (Andrews and Biggs 2006). When all forms of contention are lumped together, then deprivation is no longer a plausible explanation.

Research on individual participation in the 1960s riots has been interpreted as refuting deprivation. McPhail (1971) summarizes ten reports on individual participation. Out of 50 bivariate associations with variables for deprivation, Cramer's V is not statistically significant (at the .05 level) 19 times and it exceeds .3 only twice. One wonders how many sociological findings would survive such stringent bivariate tests in small samples. Oberschall's (1973) pioneering treatise crystallised the emerging consensus:

> *the majority of rioters were a representative cross section of the youth and adult male resident in the neighbourhoods in which rioting occurred and were not composed of habitual criminals, recent migrants, the unemployed and uneducated under-class*.

The cited evidence does not provide unequivocal support for all these assertions. Just over half the arrested rioters had a criminal record, though that may not denote habitual criminality (Fogelson and Hill 1968). Although most rioters were not unemployed, surveys of Newark and Detroit (Caplan and Paige 1968) actually provide evidence that unemployment increased the probability of an individual rioting within riot-affected areas. Most importantly, Oberschall's statement avoids the first-order question of whether rioters were more deprived than the population of the city *as a whole*, or equivalently whether

rioting tended to occur in deprived neighbourhoods. Oberschall's (1968) own analysis of the Watts riot confirms its 'lower-class character.'

There is evidence against deprivation from multivariate analysis of variation across and within American cities. Deprivation has no effect or a negative effect—the opposite from that predicted—on rioting (Herman 2005, Olzak and Shanahan 1996, Olzak et al. 1996). Note, however, that non-white unemployment is incorporated into one of Olzak and Shanahan's (1996) preferred explanatory variables, competition. And the percentage or number of unemployed non-whites significantly increases the probability of a riot (DiPasquale and Glaeser 1998, Myers 1997). Within cities, deprivation has no additional effect on fatalities when ethnic competition is taken into account (Bergesen and Herman 1998, Herman 2005). In sum, deprivation receives little support, but the evidence is less compelling than is portrayed.

Hypothesis 1: Rioters came from areas which were economically deprived.

It is worth emphasising that Hypothesis 1 is formulated in accordance with commentary on the London riot, though the orthodox sociological view, based mostly on analysis of 1960s rioting in the US, would not expect it to hold.

Relative deprivation is a distinctive explanation. People are more likely to riot if their conditions are relatively worse than those of a comparison group. For the 1960s riots, for example, blacks would riot where their conditions were worse relative to whites. Although the theoretical logic is compelling, relative deprivation receives little empirical support (e.g. Caplan and Paige 1968, Lieske 1978, Olzak and Shanahan 1996, an exception is Morgan and Clark 1973). This explanation is more difficult to test, because the scope of comparison remains unspecified by theory. It properly requires evidence on subjective beliefs *before* the riot; surveys and interviews undertaken afterwards are inevitably

influenced by the riot itself. Without such evidence, a proxy can be constructed from the relative affluence of surrounding areas:

Hypothesis 2: Rioters came from areas which were surrounded by prosperous areas.

Ethnic competition has emerged as the master variable in recent literature on American riots. Olzak (1992) argues that 'ethnic conflicts and protests erupt when ethnic inequalities and racially ordered systems begin to break down.' The mechanism here is threat: people in one group are more likely to riot if they feel another group has designs on their prerogatives (Blumer 1958). The findings are complex. Race riots were more likely in cities with higher levels of segregation between whites and non-whites, yet also where segregation was decreasing (Olzak et al. 1996). Within a city, riot fatalities tended to occur in tracts where the black percentage was high and increasing; in Los Angeles in 1992, though, fatalities happened where the black percentage was declining (Bergesen and Herman 1998, Herman 2005). These results make sense theoretically where they accord a majority was threatened by an increasing minority, such as whites threatened by blacks in Chicago in 1919 or blacks (the majority in the local area) threatened by Latinos in Los Angeles in 1992. In Newark and Detroit in 1967, however, the interpretation of these results seems less straightforward.

The literature on riots often specifies 'breakdown' as a distinct explanation (e.g. Useem 1998), but this lacks theoretical amplification. Drawing on the extensive literature on crime and community (e.g. Sampson and Groves 1989, Sampson 2012), we use the concept of 'social disorganisation' (Shaw and McKay 1942) as synonymous with low levels of social cohesion or social capital or collective efficacy[10]. The mechanism linking this with rioting is the same as for crime: in a disorganised community, the law-abiding

[10] 'Social disorganisation' appears only in Ernest Burgess' introduction (Shaw and McKay 1942).

majority are not able to prevent or punish criminal actions by a minority of young people. This mechanism does not apply to a riot with widespread support, where the majority of the community approves of rioters attacking a minority. It could be relevant, however, where rioters destroy property and loot stores close to home, thus harming the majority of residents. Social disorganisation is ideally measured by survey questions (Warren 1969). In the absence of a direct measure, we can try to grasp social disorganisation at various points in a hypothetical sequence. One potential cause is residential mobility (Kasarda and Janowitz 1974, Baudains, Braithwaite, and Johnson 2013a). Another is ethnic fractionalisation: the extent to which people belong to different ethnic groups (not to be confused this with 'diversity' as a euphemism for the proportion of non-whites). Several American studies find that people in more fractionalised communities are less trusting and less likely to participate in collective activities (Alesina and Ferrara 2000, 2002, Putnam 2007). Whether this finding applies to Britain is debated (Demireva and Heath 2014, Laurence 2011, Letki 2008, Sturgis et al. 2011). The density of charitable organisations provides arguably the most direct measure (Sampson 2012). Finally, a potential consequence of disorganisation is low electoral turnout (Putnam 1993).

Hypothesis 3: Rioters came from areas which were socially disorganised.

Political grievances provide a final explanation. Grievances over policing are the most obvious, given that so many riots are precipitated by an incident in which the police are seen to have acted unjustly (e.g. NACCD 1968, Keith 1993). Note, however, that the vast majority of such incidents do not trigger a riot. There is surprisingly little evidence that policing explains cross-sectional variation. Variables such as the number of police officers or the expenditure on police cannot capture the quality of policing (Carter 1986, DiPasquale and Glaeser 1998, Morgan and Clark 1973). In the American context, the ratio of black police officers to black population is pertinent, but appears only in bivariate

analysis (Lieberson and Silverman 1965). When surveyed retrospectively, rioters are more aggrieved by the police than are nonparticipants (e.g. Murphy and Watson in Cohen 1970, Santoro and Broidy 2014). Such evidence is problematic because the grievances may be the result, rather than the cause, of participating in the riot (McPhail 1971). More fundamentally, even if grievances predated the riot, they could reflect criminality on the part of people who subsequently rioted as well as malpractice on the part of the police (as observed above, rioters are more likely to have a criminal record). Ideally, then, we want evidence on grievances amongst the community as a whole, predating the riot. Perez, Berg, and Myers (2003) use a survey conducted in 1966 to compare attitudes to the police in San Francisco and Boston before subsequent riots, but rioting had occurred in the former just before the survey (*New York Times*, September 29, 1966).

Grievances over the provision of public services do not feature in the sociological literature, no doubt because the American riots of the 1960s coincided with a period of increasing government expenditure. Indeed, riots were more likely in cities with higher expenditure (DiPasquale and Glaeser 1998, Lieske 1978). (Racial disparity in public services has not been tested.) Nevertheless, grievances over cuts in public services provide a plausible explanation for the London riot of 2011, given the testimony of rioters and the timing of the riot after the accession of a Conservative government (in 2010) committed to cutting public expenditure. At the most aggregate level, with country-year as the unit of analysis, there is suggestive evidence that budget cuts increase protest, including riots (Ponticelli and Voth 2011).

Hypothesis 4: Rioters came from areas which were characterised by poor relations with police.

Hypothesis 5: Rioters came from areas which were subjected to cuts in public expenditure.

DATA AND METHOD

The Metropolitan Police provided an anonymised list of 3,552 individuals who they arrested in connection with the 2011 riot. This police force covers the conurbation of Greater London, with a population of 8.2 million[11]. We filter this list by three criteria. First, we exclude individuals arrested for crimes committed after 10th of August, whose offenses—such as handling stolen goods—did not imply participation in the actual riot. Second, we exclude individuals who were arrested but not subsequently charged in court. This exclusion distinguishes our study from previous analyses of arrest data (e.g. Fogelson and Hall 1968, Baudains, Braithwaite, and Johnson 2013a)[12]. Third, we necessarily exclude individuals for whom no postcode was recorded (or whose postcode could not be identified). This reduces the number of individuals to 1,674. The most common offenses were burglary and violent disorder (in which three or more people 'use or threaten unlawful violence').

How representative is this 'sample' of rioters? Oberschall (1968) warns that 'those arrested are more likely to be representative of the groups which were milling about or looting than of the activists.' After all, a riot signifies that the police have lost control—and so individuals at the vortex are relatively invulnerable to arrest. Fortunately for our purpose, the police devoted unprecedented resources to subsequent investigations (Metropolitan Police 2012). Hundreds of detectives were assigned, and they exploited CCTV which is ubiquitous in Britain. Almost two-thirds of our sample were arrested after 10th of August, extending to January 2012. We should acknowledge two offsetting biases in these later investigations. On one hand, the police could more readily identify suspects already known to them from previous brushes with the law (if the police tended to round up the usual

[11] A small portion of the financial district, known as the City of London (with only 7,400 residents), is under the jurisdiction of a separate police force. This witnessed no rioting and is excluded from our analysis.

[12] There is no information on the ultimate verdict. In the English riots overall, only one in five of those charged were acquitted (Ministry of Justice 2012).

suspects, we minimize this bias by restricting the sample to those against whom evidence was sufficient to prosecute). On the other hand, experienced criminals were more adept at avoiding arrest, for example concealing themselves from CCTV (Harding in Briggs 2012). Seven out of ten of those arrested for riot offenses in London had a prior criminal record, albeit this includes infractions too minor to warrant prosecution (Metropolitan Police 2012)[13]. This accords nicely with 270 English rioters interviewed by Lewis et al. (2011), of whom 68% admitted to a criminal record. Furthermore, the scale of the police investigations ensures that our sample of rioters is a significant fraction of the total number of rioters. Although any estimate of the total is hazardous, it must have been on the order of ten thousand in London.

One great virtue of our data is that British postcodes provide exceptional spatial resolution (first exploited by Biggs and Knauss 2012). The residential addresses of rioters are matched with the smallest geographical unit available from the Census, the 'output area.' These units are the finest geographical level available from British Census, as stated by the Office of National Statistics (ONS) output area boundaries were constructed to reflect the concept of a 'neighbourhood', i.e. they were built from small clusters of adjacent postcodes, constructed to maintain similar population sizes, shape, and socio-economic homogeneity based on tenure and type of dwellings. The ONS adopted roads or natural barriers as boundaries. At the 2011 Census—undertaken just four months before the riot—there are 25,022 of these neighbourhoods (as they will be termed) in London, with a median of 321 residents[14]. Of our sample, 3% lived outside London. The remaining 1,620 individuals were located in 1,375 neighbourhoods (5% of the total). Data for such fine

[13] In Britain, the police can issue a caution, reprimand, or warning to someone who admits guilt; no penalty is attached.

[14] This this spatial scale compares favourably with Census tract frequently used to denote neighbourhoods in American studies as stated on the US Census Bureau website, Census tracts have on average 4,000 residents with a range between 1,200 and 8,000.

geographic units was not always possible to obtain, hence apart from output areas, we used data aggregated at ward and borough levels (see Table 1). Figure 1 maps the geographical distribution, showing borough boundaries. Boroughs are units of governance with elected councils and control over local services.

Unit		Obs	Mean	SD	Min	Max
Output Areas						
	People	25,022	326	83	91	2,296
	Area	25,022	6	22	0.02	1,226
Wards						
	People	624	13,438	2,462	5,110	23,084
	Area	624	250	241	35	2,904
Boroughs						
	People	32	264,607	54,489	158,649	363,378
	Area	32	5,154	3,337	1,213	15,015

TABLE 1 DESCRIPTIVE STATISTICS OF THE GEOGRAPHIC UNITS USED IN THE ANALYSIS

The most flexible estimation strategy is a hurdle model with two components: logistic regression to predict whether any rioters came from the neighbourhood; if there were any, zero-truncated negative binomial regression to predict their number (Hilbe 2011). The second component has little power—only 199 neighbourhoods had more than a single rioter, and the maximum number of rioters was six—and so we focus on the logistic regression[15]. This enables us to incorporate a multilevel structure, with neighbourhoods nested within 624 electoral wards (comprising roughly ten thousand residents), in turn nested within 32 boroughs (comprising roughly a quarter of a million). Most independent variables are measured at the neighbourhood level[16]. Table 2 provides the summary statistics (and Table 5 the correlations).

For Hypothesis 1, several variables measure deprivation. Because these variables are

[15] Negative binomial regression on the number of rioters does not permit random intercepts at higher levels (Rabe-Hesketh and Skrondal 2008). It yields essentially identical results to those shown in Table 3.
[16] Measuring them instead at higher levels of aggregation (which are for instance closer to the American census tract) produces a markedly inferior model (AIC_c increases by 286 over Model 3).

intercorrelated, we construct an index following Land, McCall, and Cohen (1990) and subsequent neighborhood research (e.g. Sampson, Raudenbush, and Earls 1997; Kirk and Papachristos 2011). Principal-component factor analysis is used to combine unemployment, adults without educational qualifications, employment in routine and semi-routine occupations, overcrowded housing, council housing (equivalent to public housing in the United States), and single parents (detailed in Table 6). Each variable is highly correlated with at least one of the others (maximum pairwise $r = .88$). The final two variables—council housing and single parents—could conceivably be interpreted as also measuring social disorganisation. If they are omitted from the index and included as separate variables, they are not statistically significant and the effect of the index remains unaltered. An index makes it simpler to incorporate deprivation on a wider geographical scale: we also enter the weighted mean of the deprivation index within the ward's neighborhoods. Aside from the deprivation index, we capture affluence by including the proportion of the occupied population in each of the three top occupational classes (out of five): managerial and professional; intermediate occupations; small employers and self-employed. These three variables are expected to reduce rioting.

For Hypothesis 2, relative deprivation, we employ spatial analysis techniques to measure the extent to which the neighbourhood is surrounded by more affluent neighbourhoods:

$$R_{iwb} = \frac{\sum_{j=1}^{J} A_j - A_{iwb}}{J}$$

where A is the proportion of the occupied population in the top class (managers and professionals), for all neighborhoods ($j = 1 \ldots J$) within a certain distance of neighborhood *iwb* (measured from each centroid). After experimentation, 1,500 meters is used for the distance threshold.

Social disorganisation, Hypothesis 3, is explored using several variables. These are not highly correlated, unlike those for deprivation. Residential mobility in the year preceding the 2011 Census is unfortunately not available. Two variables are substituted. One is the proportion of residents who had immigrated to the United Kingdom since 2010. Another is the proportion of households owned (outright or mortgaged), which is expected to reduce rioting. Ethnic fractionalisation is derived from the 18 ethnic identities offered by the Census (detailed below). The standard Herfindahl or Simpson index is calculated to yield the probability that two individuals randomly drawn from the neighbourhood belong to different ethnic groups[17]. Inspired by Sampson excellent *Great American City: Chicago and the Enduring Neighborhood Effect* (2012), we measure the density of non-profit organisations. The Charity Commission registers all charitable incorporated organisations whose annual income reaches £5,000[18]. Each charity has a contact person with a physical address (not a post box). Starting from the Commission's database at July 2011, we select all organisations whose scope of operation included London. Because some organisations (like the Boy Scouts) register numerous local affiliates at the same national headquarters, we discard duplicate organisations insofar as they had the same contact person. This leaves five thousand charities whose postcode suffices for geocoding. We count the number in each ward, denominated by population (in thousands)[19]. There is one outlier: the ward enclosing Buckingham Palace has double the density of charities as the next highest, reflecting its prestigious location. The next highest value is substituted, though this does not alter the results. The final variable for social disorganisation is electoral turnout. The

[17] Fractionalisation computed instead from five coarser ethnic categories (white, black, Asian, mixed, other) is highly correlated (r = .92) and makes no difference to the results. Neither logging nor adding a quadratic term improves AIC_c.

[18] Registration is not essential for churches or chapels of some Christian denominations if their income is below £100,000. Universities and national museums are exempt.

[19] A binary variable for the presence of at least one charity at the neighbourhood level has no effect.

proportion of the eligible electorate who voted in London's local elections in May 2010 is expected to reduce rioting[20].

Hypotheses 4 and 5, on political grievances, are tested by variables at the borough level. With only 32 boroughs, it is necessary to choose a single variable for each. The Metropolitan Police regularly survey the public on their attitudes towards the police. We focus on the question 'How well do you think the Metropolitan Police treat people with respect?' with answers on a scale ranging from 1 ('not at all well') to 7 ('very well'). We aggregate over 6 months (January to June 2011) to boost the sample size for each borough (around 250). The average score ranges across boroughs from 4.7 to 6.2. This variable is expected to reduce rioting. For Hypothesis 5, we use net current expenditure of each borough's local authority[21]. This expenditure is mainly funded from central government, with a small portion raised from local taxes. Local expenditure is dominated by education and social care. We calculate the increase in net current expenditure for the financial year ending in March 2011 (compared to the year ending in March 2010). It ranges from -15%, representing a significant cut, to 8%. This variable is expected to reduce rioting.

Aside from the hypotheses, we incorporate ethnicity because of its importance in the sociological literature. The British census employs a detailed classification. For example, 'Black/African/Caribbean/Black British' is subdivided into three categories: 'African,' 'Caribbean,' and 'Other' (to be written in). We enter all categories exceeding 2.5% of London's population (treating white British as reference category). It is crucial to remember that Caribbean, for example, refers to those who categorised themselves as such; it does not imply lack of British identity or foreign birth. Each ethnic category is expressed as a proportion of the total neighbourhood population. Given the importance of

[20] http://data.london.gov.uk/datastore/package/borough-council-election-results-2010.
[21] 'Revenue Outturn Summary' at http://www.gov.uk/government/collections/local-authority-revenue-expenditure-and-financing.

segregation between blacks and whites in the literature on American riots, we also enter an index of multi-group segregation, Theil's information theory index (Reardon and Firebaugh 2002). This measures the extent to which ethnic groups within the ward are segregated by neighbourhood.

Three control variables are included. Rioters are always predominantly young, and so we enter the proportion of the population aged between 16 and 24[22]. Rioters tend to target locations close to home; the median distance to the location of the criminal offense was about 2 km (Baudains, Braithwaite, and Johnson 2013b). People living far away from potential looting opportunities should be less likely to participate. As a proxy for significant concentrations of retail stores, we use locations of the 24 Foot Locker outlets in London[23]. This was a prominent chain targeted for looting (Briggs 2012; Lewis et al. 2011). For each neighbourhood, we compute distance to the nearest store. The proximity variable is calculated as one over the square of distance[24]. We expect proximity to increase rioting. Finally, we enter population density, in thousands per hectare, expecting this to increase rioting.

RESULTS

Table 3 shows the estimates, expressing coefficients as odds ratios. Model 1 begins with Hypotheses 1 and 2; Model 2 adds Hypothesis 3; Model 3 adds Hypotheses 4 and 5. Successive models represent a substantial improvement, as indicated by reductions in AIC; this criterion captures the tradeoff between fit and parsimony (Burnham and Anderson 2004). The estimates for random effects reveal significant similarity (unexplained by

[22] The sex ratio does not vary appreciably across neighborhoods.
[23] Footlocker is an international fashion footwear retailer and with brands like Nike, Adidas or Converse it targets mostly young people. A list of stores within London was compiled using an online store locator available at http://www.footlocker.eu/en/gb/k/store-locator.aspx.
[24] Distances less than 250 meters are treated as 250, which is approximately the radius of the average neighborhood. Other functional forms, such as square root of distance or inverse distance prove inferior (e.g. Andrews and Biggs 2006, Myers 1997).

independent variables) among neighborhoods within a ward and among wards within a borough. As expected, the probability of rioting increases with the proportion of young people and with the proximity of opportunities for looting. Population density unexpectedly reduces the probability of rioting. In Model 1, Hypothesis 1 is strongly supported. The deprivation index greatly increases the probability of rioting, at both the neighborhood and the ward level. Variables for affluence are not statistically significant. Hypothesis 2 is not supported, as the proxy for relative deprivation has no discernible effect.

Even controlling for deprivation, rioting is strongly associated with people identifying as African and even more by those identifying as Caribbean, compared to white British (the difference between the two is statistically significant, $p < .001$). Rioting is also more associated with people of Pakistani origin than with those of Indian origin (the difference is statistically significant, $p = .029$). Differences between the two black groups and between the two Asian groups reveal how much information is lost in coarse ethnic categories.

In Model 2, Hypothesis 3 is affirmed by two results. Firstly, ethnic fractionalisation increases the probability of rioting[25]. This variable dramatically reduces the association between the two black ethnic groups and rioting. In other words, blacks tend to live in areas with high ethnic diversity. Controlling for fractionalisation, the presence of people of Indian descent significantly reduces the probability of rioting compared to the presence of white British. Secondly, the density of charities at the ward level reduces the probability of rioting.

[25] The same measure of fractionalisation at ward level is not statistically significant. Presumably this explains why Baudains, Braithwaite, and Johnson (2013a) find only a marginal effect.

In Model 3, Hypothesis 4 is strongly supported. In boroughs where people felt they had the respect of police, rioting was less likely. Hypothesis 5 is not supported; as local government expenditure has no apparent effect. Hypotheses 1 and 3 are unaffected, while ethnic composition still has significant effects. Figure 2 shows the magnitude of the effect of selected variables.

The predicted probability of rioters coming from a neighbourhood is on the vertical axis. For the 'typical' neighbourhood, with all variables set to the median, the probability is .036 (denoted by the horizontal black line). The horizontal axis shows how the variable affects the predicted probability. The vertical grey lines mark the variable's 10th percentile, median, and 90th percentile. The 95% confidence interval for the predicted probabilities is shaded. For the deprivation index at the neighbourhood level, going from the 10th to the 90th percentile more than doubles the predicted probability from .026 to .059. The index extends far beyond the 90th percentile (the two highest values have a predicted probability that is off the graph), though prediction at the extreme values is uncertain. Note that this graph omits the effect of deprivation at the ward level. The effect for both variables together can be calculated. At their 10th percentiles—signifying a prosperous neighbourhood within a prosperous ward—the predicted probability is .019; at their 90th percentiles—a poor neighbourhood within a poor ward—the predicted probability quadruples to .077.

For ethnic fractionalisation, going from the 10th to the 90th percentile more than doubles the predicted probability from .018 to .047. For charitable organisations, going from the 10th to the 90th percentile reduces the predicted probability from .040 to .031. This difference is not large. Some wards have much higher organisational density than the 90th percentile, however, and their predicted probability is substantially lower, albeit estimated

with more uncertainty. For opinion about the police, going from the 10th to the 90th percentile cuts the predicted probability by almost two-thirds, from .064 to .022[26].

TABLE 2 SUMMARY STATISTICS

Variable	*min*	*median*	*mean*	*std dev*	*max*
(1) At least one rioter arrested and charged	.00	.00	.05	.23	1.00
(2) Population	91	321	326	83	2296
(3) Youth	.00	.11	.12	.05	.95
(4) Proximity to nearest Foot Locker	.00	.12	.52	1.60	16.00
(5) Population density	.00	.10	.12	.20	22.60
(6) Ethnicity: white Irish	.00	.02	.02	.02	.24
(7) Ethnicity: white other	.00	.11	.13	.08	.63
(8) Ethnicity: black African	.00	.04	.07	.07	.64
(9) Ethnicity: black Caribbean	.00	.03	.04	.05	.34
(10) Ethnicity: Asian Pakistani	.00	.01	.02	.04	.46
(11) Ethnicity: Asian Indian	.00	.03	.06	.09	.76
(12) Ethnicity: Asian Bangladeshi	.00	.00	.02	.07	.90
(13) Ethnicity: Asian other	.00	.03	.05	.04	.52
(14) Ethnic segregation *(ward)*	.03	.07	.07	.02	.14
(15) Deprivation index	-2.02	-.13	.00	1.00	3.61
(16) Deprivation index *(ward)*	-1.44	-.02	-.01	.67	1.76
(17) Class: managerial and professional	.01	.34	.37	.16	.90
(18) Class: intermediate professions	.00	.11	.12	.04	.39
(19) Class: small employers and self-employed	.00	.09	.09	.03	.45
(20) Relative affluence in surrounding area	-.48	.00	.00	.11	.47
(21) Home ownership	.00	.48	.49	.25	1.00
(22) Immigrants arrived since 2010	.00	.03	.04	.04	.60
(23) Ethnic fractionalization	.04	.72	.67	.18	.91
(24) Density of charitable organizations *(ward)*	.00	.55	.62	.39	2.74
(25) Voting turnout at 2010 local election *(ward)*	.36	.61	.62	.07	.79
(26) Opinion that police are respectful *(borough)*	4.67	5.32	5.30	.35	6.19
(27) Growth of government expenditure, 2009/10-2010/11 *(borough)*	-.15	.00	.00	.04	.08

The small number of boroughs may raise concern about the result for public opinion regarding the police. Its robustness can be tested by dropping each borough in turn from Model 3. The odds ratio hardly changes, ranging from .30 to .36. Furthermore, boroughs could differ systematically in ways not captured by the two independent variables. Model 4 introduces a separate intercept for each borough. Haringey, where Duggan lived, has one of the highest intercepts. Nevertheless, this makes no difference to the results.

[26] Percentiles refer to neighborhoods even for variables measured at the ward or borough level.

Finally, it is worth briefly considering the second component of the hurdle model: predicting the *number* of rioters, conditional on there being at least one. There were only 1,375 neighbourhoods with one or more rioters; all boroughs are represented, albeit some by very few neighbourhoods. Model 5 shows the results of zero-truncated negative binomial regression. Coefficients are expressed as incidence-rate ratios. Only three variables are statistically significant at the .05 level. The rate of rioting increases with the proportion of people identifying as Asians of Pakistani descent. This estimate depends on a small number of neighbourhoods where they comprise a substantial proportion, and so should be taken with caution. The other two results lend further support to Hypotheses 1 and 4. The rate of rioting increases with neighbourhood deprivation. Boroughs where people had judged the police to treat them with respect have a lower rate of rioting.

DISCUSSION

Before discussing the implications of these findings, we should reiterate their limitations. Our analysis assumes that people who were arrested and charged for crimes during the riot provide a tolerable approximation of the location of actual rioters. Unlike other studies using arrest data, we exclude cases where there was insufficient evidence to bring a charge. This makes our analysis less vulnerable to one concern, that the police arrest people without real evidence of their involvement. It is still vulnerable, of course, to the problem that most rioters escape detection.

Our analysis is ecological, identifying the characteristics of small neighbourhoods which make the presence of rioters more or less likely. The analysis requires geographical variation. This restriction might explain the lack of support for Hypothesis 5, measured by local government expenditure. In England, central government controls the bulk of expenditure and its policies have far greater salience. Its decision to abolish the Education Maintenance Allowance, paid to teenagers who stayed in school, was mentioned by rioters

in subsequent interviews (Lewis et al. 2011, Morrell et al. 2011). At the time of the riot, however, most payments had not yet ceased. Therefore, we do not conclude that government policy was unimportant in explaining the riot, only that we cannot detect such an effect across local authorities. Similarly, the lack of support for Hypothesis 2 does not license the conclusion that inequality was unimportant in explaining the riot, only that we cannot detect such an effect using local disparities in class composition.

Rioting varied with a neighbourhood's ethnic composition, even after taking into account many other characteristics. There could be suspicion that the police disproportionately targeted blacks for arrests, but this is hard to reconcile with the disparity between the proportions of blacks identifying as Caribbean and those identifying as African. This ecological difference aligns with survey evidence, as the former express greater mistrust in the police (Heath et al. 2013). There is a long history of conflict between police and Caribbean immigrants, going back to the 1950s, which reached its peak in the riots of the 1980s (White 2002). It is important to emphasize that London's black population is not nearly as segregated as in American cities (Peach 1996). Of those identifying as Caribbean, only 4% live in a neighbourhood where blacks are the majority. This is why, despite the overrepresentation of blacks among those arrested, the riot did not manifest the characteristics of an ethnic riot. One methodological point is worth making. The significant differences within coarse ethnic categories—Asian as well as black—reveal the superiority of detailed categories as used in the British census.

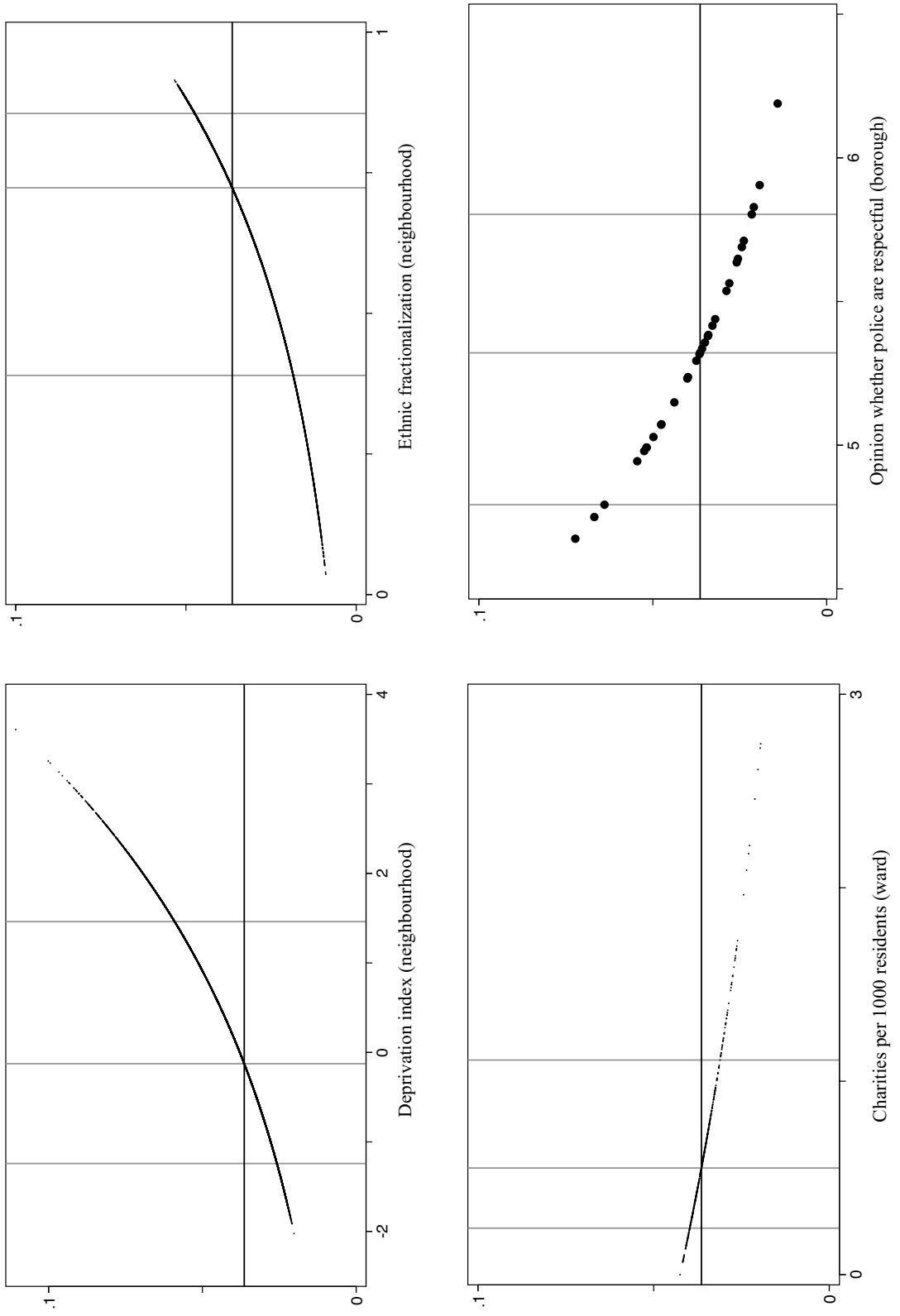


FIGURE 2 HOW RIOTING VARIED WITH DEPRIVATION, DISORGANISATION AND POLITICAL GRIEVANCES

Deprivation emerges as an important explanation for variation across London. The probability of rioters increased with deprivation both in the immediate neighbourhood and in the wider area. These findings amplify what is known from qualitative and quantitative studies of the 2011 riot, but are hard to square with the rejection of deprivation in the sociological literature[27]. As Useem (1998) observes, the case against deprivation has been exaggerated. It may be true that rioters were no more deprived than their neighbours who did not take part—but that proposition does not bear on the question of whether rioters were more likely to come from deprived neighbourhoods across the city as a whole, or equivalently whether rioters were more deprived than the city's overall population.

In American cities, areas where blacks predominate are almost invariably poor; indeed, proportion black is used as one measure of concentrated disadvantage (Sampson, Raudenbush, and Earls 1997). The overlap surely hinders any attempt to distinguish poverty from race in American ethnic riots. It is possible, by contrast, in London. Our results complement Caren's (2011) cross-national time-series analysis, which suggests that riots tend to occur in economies undergoing recession. Even after accounting for many other variables, rioting varied with public opinion about the police. Compared to the testimony of rioters (the interpretation of which is disputed), our variable has two advantages.

It captures public opinion before the riot happened and predominantly reflects the views of the vast majority who did not riot. We suggest that where police had worse relations with the public rioting against the police attracted less disapproval from the local community.

[27] We can analyse the incidence of rioting (arrests per population) across the 57 British cities exceeding 200,000. Controlling for the proportion of youth and of non-whites, deprivation has no detectable effect. This illustrates the limitation of analysing rioting across cities.

Certainly there is strong evidence that anger at the police was not simply a rationalisation preferred by rioters.

The most provocative findings pertain to social disorganisation. Ethnically diverse neighbourhoods were more likely to produce rioters, controlling for ethnic composition. Wards where charitable organisations were scarce were more likely to produce rioters. These results are plausibly interpreted as evidence for social disorganisation. Disorganisation—lack of collective efficacy at the community level—is conducive to crime (e.g. Sampson and Groves 1989; Sampson 2012). Young people experienced in crime were surely more likely to commit crimes during the riot. Note that disorganisation at the community level is compatible with highly organised gangs (Shaw and McKay 1942). In the London riot, criminal gangs exploited the opportunity and even arranged a truce to enable them to roam beyond their normal territories (Harding in Briggs 2012). The Metropolitan Police classified 19% of those arrested as gang members, though it is not clear how membership is defined (Home Office 2011). Aside from the enduring effect of social disorganisation on crime, disorganisation would have made it harder for parents and neighbours to prevent young people from joining the riot.

Attacks on the police had a degree of legitimacy in some communities—above all in Haringey on the first night—but looting and arson did not. Interviews with people who did not participate in the riot reveal the importance of parental control (Morrell et al. 2011). There are good reasons, then, for rioting to have increased with social disorganisation. The link from concept to variables is admittedly contestable. The use of ethnic fractionalisation is justified by the assumption that it tends to increase disorganisation. This assumption is controversial, especially in Britain. Using ecological analysis of survey data, Letki (2008) and Laurence (2011) find that ethnic fractionalisation does reduce collective efficacy.

	1			2			3		
	odds	*se*	*p*	*odds*	*se*	*p*	*odds*	*se*	*p*
Youth	17.77	12.78	.00 ***	7.25	5.67	.01 *	7.24	5.67	.01 *
Proximity to nearest Foot Locker	1.04	.02	.02 *	1.04	.02	.02 *	1.04	.02	.02 *
Population density	.29	.10	.00 ***	.27	.09	.00 ***	.27	.09	.00 ***
Ethnicity: white Irish	1.24	2.75	.92	.41	.95	.70	.31	.71	.61
Ethnicity: white other	.72	.44	.58	.22	.18	.06	.22	.17	.05
Ethnicity: black African	4.64	2.50	.00 **	1.24	.75	.73	1.24	.75	.72
Ethnicity: black Caribbean	112.66	90.27	.00 ***	22.69	20.78	.00 ***	16.41	14.72	.00 **
Ethnicity: Asian Pakistani	7.77	7.74	.04 *	1.46	1.55	.72	2.35	2.43	.41
Ethnicity: Asian Indian	.37	.24	.12	.18	.13	.02 *	.14	.10	.00 **
Ethnicity: Asian Bangladeshi	1.40	.94	.62	.56	.40	.42	1.09	.72	.90
Ethnicity: Asian other	1.41	1.31	.71	.25	.26	.18	.21	.22	.13
Ethnic segregation *(ward)*	.81	2.30	.94	24.87	70.38	.26	27.09	75.70	.24
Deprivation index	1.45	.12	.00 ***	1.37	.15	.00 **	1.38	.15	.00 **
Deprivation index *(ward)*	1.43	.14	.00 ***	1.34	.15	.01 **	1.32	.14	.01 **
Class: managerial and professional	.89	.76	.89	.99	.89	1.00	.73	.63	.72
Class: intermediate professions	.35	.41	.37	.59	.71	.66	.61	.74	.68
Class: small employers and self-employed	.44	.56	.52	.56	.72	.65	.60	.78	.70
Relative affluence in surrounding area	.82	.60	.79	.71	.51	.64	.47	.33	.28
Home ownership				.61	.18	.10	.62	.18	.10
Immigrants arrived since 2010				.17	.21	.16	.23	.29	.24
Ethnic fractionalization				7.79	3.90	.00 ***	8.06	3.97	.00 ***
Density of charitable organizations *(ward)*				.75	.08	.01 **	.75	.08	.01 **
Voting turnout at 2010 local election *(ward)*				1.05	1.04	.96	1.06	1.02	.95
Opinion that police are respectful *(borough)*							.33	.07	.00 ***
Growth of government expenditure, 2009/10-2010/11 *(borough)*							1.24	2.13	.90
Random intercept: ward (standard deviation)	.36	.05	.00 ***	.33	.05	.00 ***	.33	.05	.00 ***
Random intercept: borough (standard deviation)	.53	.09	.00 ***	.51	.09	.00 ***	.29	.07	.00 ***
Difference in AICc compared to Model 1					-75.64			-94.32	

Multilevel logistic regression (8 integration points), with ln(population) as offset; N = 25,022 neighborhoods in 624 wards in 32 boroughs

odds: odds ratio; se: standard error; p: p-value (two-tailed), *** p < .001, ** p < .01, * p < .05

	4			5		
	odds	*se*	*p*	*irr*	*se*	*p*
Youth	6.60	5.16	.02 *	1.65	2.59	.75
Proximity to nearest Foot Locker	1.04	.02	.02 *	1.01	.03	.67
Population density	.26	.09	.00 ***	2.22	1.74	.31
Ethnicity: white Irish	.59	1.37	.82	1.65	8.27	.92
Ethnicity: white other	.18	.15	.04 *	.61	1.27	.81
Ethnicity: black African	1.21	.74	.75	4.40	7.21	.37
Ethnicity: black Caribbean	15.26	14.10	.00 **	16.36	32.70	.16
Ethnicity: Asian Pakistani	1.35	1.45	.78	77.26	161.43	.04 *
Ethnicity: Asian Indian	.26	.19	.06	.10	.15	.13
Ethnicity: Asian Bangladeshi	.54	.42	.42	.40	.97	.70
Ethnicity: Asian other	.32	.33	.28	83.02	206.66	.08
Ethnic segregation *(ward)*	24.21	68.98	.26	15.08	96.06	.67
Deprivation index	1.36	.15	.00 **	1.61	.31	.01 *
Deprivation index *(ward)*	1.28	.14	.03 *	1.01	.22	.98
Class: managerial and professional	.67	.61	.66	1.74	3.76	.80
Class: intermediate professions	.59	.72	.66	4.15	11.39	.60
Class: small employers and self-employed	.58	.76	.68	86.70	225.91	.09
Relative aff uence in surrounding area	.55	.41	.42	.17	.24	.20
Home ownership	.59	.17	.07	1.10	.56	.85
Immigrants arrived since 2010	.16	.20	.15	.64	2.70	.92
Ethnic fractionalization	6.84	3.46	.00 ***	.39	.51	.47
Density of charitable organizations *(ward)*	.75	.08	.01 **	1.27	.35	.40
Voting turnout at 2010 local election *(ward)*	1.00	.99	1.00	11.44	21.82	.20
Opinion that police are respectful *(borough)*				.53	.15	.03 *
Growth of government expenditure, 2009/10-2010/11 *(borough)*				.69	1.45	.86
Random intercept: ward (standard deviation)	.28	.06	.00 ***			
Alpha (coeff cient)				2.25	3.37	.59

Model 4: multilevel logistic regression (8 integration points), with ln(population) as offset ; N = 25,022 neighborhoods in 624 wards, separate intercepts for 32 boroughs (not shown)

Model 5: zero-truncated negative binomial regression, with ln(population) as offset; N = 1,375 neighborhoods, standard errors adjusted for clustering by borough

odds: odds ratio; irr: incidence-rate ratio; se: standard error; p: p-value (two-tailed), *** p < .001, ** p < .01, * p < .05

TABLE 3 PREDICTING THE PROBABILITY OR NUMBER OF RIOTERS IN LONDON'S NEIGHBOURHOODS

By contrast, Sturgis et al. (2011) and Demireva and Heath (2014) argue that fractionalisation has no discernible effect, once deprivation and other factors are taken into account. The last two studies, however, make the effect disappear only by controlling for factors that would mediate between ethnic fractionalisation and social disorganisation: recorded crime or fear of crime, and social contact. Thus they do not challenge the association posited here. Our innovation in using the British equivalent of American non-profit organisations provides a more direct measure of social disorganisation. Areas where charities are located should have a denser network of associational ties, especially where location is the residential address of the charity's contact person. This inference is weaker where the location is the address of a large corporate headquarters (as with the Boy Scouts). This measurement issue has not, to our knowledge, been recognised. An important task for future work is to compare the density of charitable organisations with geocoded survey measures of collective efficacy or associational membership.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
(2)	.06																								
(3)	.07	.33																							
(4)	.02	-.03	.03																						
(5)	.01	-.01	.08	.05																					
(6)	-.04	-.13	-.11	.07	.01																				
(7)	-.02	-.14	-.01	.12	.15	.18																			
(8)	.17	.08	.18	.01	.13	-.18	-.10																		
(9)	.18	.07	.11	.02	.06	-.03	-.05	.50																	
(10)	.01	.29	.13	.09	-.01	-.16	-.12	.00	.07																
(11)	-.04	.32	.08	.00	-.05	-.08	-.16	-.14	-.09	.47															
(12)	.02	.15	.21	-.01	.12	-.14	-.09	.04	-.02	.13	.00														
(13)	.00	.22	.11	.02	.02	-.06	-.01	.00	.02	.36	.49	-.04													
(14)	-.06	-.15	-.02	-.04	.00	-.10	-.17	-.18	-.35	-.26	-.23	.10	-.28												
(15)	.17	.08	.23	.01	.12	-.13	-.21	.67	.47	.08	-.07	.26	.07	-.13											
(16)	.15	.17	.27	.01	.10	-.14	-.10	.58	.44	.13	-.01	.24	.06	-.19	.66										
(17)	-.13	-.30	-.40	.05	-.01	.25	.36	-.53	-.36	-.28	-.16	-.24	-.24	.15	-.80	-.61									
(18)	-.05	-.03	-.19	-.11	-.18	-.12	-.51	-.16	-.08	-.06	.03	-.15	-.09	.22	-.10	-.13	-.18								
(19)	-.06	.07	-.22	-.07	-.17	.03	.03	-.18	-.08	.11	.11	-.16	.07	-.10	-.18	-.13	-.10	.17							
(20)	.10	.13	.36	.02	.07	-.08	-.19	.39	.26	.06	-.05	.20	.12	-.05	.70	.22	-.74	.05	.01						
(21)	-.13	.10	-.26	-.15	-.26	-.02	-.30	-.51	-.32	.04	.19	-.24	-.02	.11	-.66	-.44	.28	.50	.39	-.39					
(22)	-.02	.06	.36	.14	.19	-.01	.56	-.03	-.10	.16	.19	.08	.25	-.08	-.12	.01	.12	-.48	-.17	-.08	-.34				
(23)	.12	.17	.25	.12	.17	.09	.39	.46	.49	.34	.25	.15	.42	-.52	.40	.41	-.30	-.48	-.11	.24	-.56	.40			
(24)	-.03	-.12	.02	.08	.04	.06	.16	-.09	-.11	-.20	-.14	.00	-.13	.12	-.15	-.22	.25	-.14	-.08	-.05	-.09	.11	-.05		
(25)	-.09	-.02	-.25	-.10	-.20	.07	-.40	-.38	-.26	-.15	-.02	-.13	-.12	.22	-.36	-.55	.25	.42	.15	-.11	.54	-.44	-.56	.00	
(26)	-.10	.11	.06	-.02	.00	-.08	-.08	-.09	-.28	.25	.22	.29	.10	.05	.02	.04	-.14	.00	.06	-.02	.05	.12	-.04	-.09	-.03
(27)	-.02	.08	.04	.03	.02	.13	.11	-.04	.11	.23	.20	.11	.21	-.32	.00	.00	.01	-.18	.00	.01	-.07	.11	.31	-.07	-.04

TABLE 6 CORRELATION MATRIX

Variable	*Factor loading*
Proportion of economically active population who are unemployed	.85
Proportion of adults (16+) who lack any educational qualification	.76
Proportion of occupied population who are in routine or semi-routine occupations	.83
Proportion of households which have occupancy rating of -1 or under	.67
Proportion of households which have socially rented tenure	.85
Proportion of households with dependent children which are headed by a single parent	.74

TABLE 5 DEPRIVATION INDEX

PAPER 2 ESCALATION AND DIFFUSION: HOW RIOTING CHANGES OVER TIME?

Because everyone was doing it, I though, if everyone was doing that and no one is getting caught at the time, why can't I do it?

—young woman recalling the riot (BBC 2012)

British history abounds in examples of collective violence and yet in many ways what happed in London in 2011 was unusual and startling. Despite the dramatic circumstances leading to the outbreak in Tottenham, deaths resulting from encounters with the police occur almost every year—few are followed by a large-scale mobilisation for rioting[28]. Also, in contrast to previous outbreaks (Brixton riot of 1981, Broadwater Farm riot of 1985, The Poll Tax riots of 1990, G-20 riot in 2009), this time rioting spread quickly outside the area where it started and continued for a number of days before police managed to regain full control of London's streets. In our previous paper (Kawalerowicz and Biggs 2015) we looked at factors associated with riot participation, this paper investigates the dynamic side of rioting - how they begin, change in time and diffuse.

Riots tend to start similarly: a long-running antagonism between some groups serves as a background for a trigger event, an incident seen as an act of acute injustice which breaks the fragile status quo[29]. The situation may become volatile when people assemble to express their outrage, if members of one group feel strong resentment and their perception

[28]According to The Independent Police Complaints Commission (IPCC), the body which oversees complains about police conduct, between 2004 and 2015 police fatally shot 23 people in England and Wales. If we add the total number of deaths in police custody this figure goes up to 230 (IPCC 2015b).

[29] An exception is a class of issueless riots described by Marx (1970), who notes that riots can sometimes break out when law enforcement authorities go on strike or an unable to police the streets, for instance during a blackout.

of injustice is not addressed, some of those assembled are likely to resort to violence[30]. The prelude to rioting in Tottenham followed the usual outline of events. On 4th of August an unmarked police car followed a minicab carrying a 29-year-old mixed-race man, Mark Duggan. The police were part of Operation Trident, a London-wide taskforce set up to target gun crime among black communities. The minicab was abruptly stopped and when eleven armed officers surrounded the car, Duggan leapt out trying to escape. Two shots were fired, one hit Duggan's chest, killing him instantly (IPCC 2015a). The incident took place in the early hours of the afternoon on a busy road close to Broadwater Farm estate, where Duggan grew up. It was witnessed by a number of people[31]. Conflicting information came from the media, raising speculations that police was trying to cover up the incident. For instance, initially the IPCC maintained that police officers were being shot at; the media picked this up with reporting suggesting that police officers killed Duggan in self-defence. The question of alleged shootout had been debated and it was only in 2014 that the High Court's judgement into the incident concluded that Duggan was not armed at the time when he was shot (*Guardian*, January 15, 2014). Members of the local community were also angered by the way the media depicted Duggan as a violent criminal (for instance in their reporting the *Daily Mail*, a tabloid newspaper with second largest readership in the United Kingdom, referred to Duggan as 'a gangsta gunman', 'thug' and 'violent gangster'), even though, as it later emerged, his criminal record included two relatively minor offences: possession of cannabis and handling of stolen goods (*Independent*, September 23, 2013).

[30] It is enough that one group sees this act as unjust, even if the claim can be questioned by the other group. Let us recall a famous sociological dictum known as the Thomas theorem – 'If men define situations as real, they are real in their consequences' (cited in Merton 1995).

[31] One of the key witnesses in IPCC investigation into the killing said that the incident was seen by a number of people waiting at the nearby bus stop. The witness said that when she heard shots being fired there were 'a lot of people at the bus stop shouting and screaming' (IPCC 2015a). This suggests that local residents were aware of the shooting.

The place for killing Duggan could not have been worse. A centre stage for rioting in 1985, Tottenham had a long history of troubled relations with the police—it was here that the murder of PC Keith Blakelock took place in 1985, when a police officer was hacked to death by a group of rioters. Tensions were running high in the months leading to the riots. In June 2011 the Metropolitan Police launched operation Target aimed at tackling drug possession, robbery and possessions of weapons. Tottenham, identified as one of the crime hotspots, saw a number of arrests including some raids where the Mayor of London, Boris Johnson, joined police officers (although his role in these raids remained unclear). Reporting on increased police activity, Press Association newswire noted that 'police carried out 150 operations […] making 32 arrests for offences including possessions of firearms, burglary, drugs, public order and theft' (*Press Association*, June 8)—which raises a question over remaining 118 operations where presumably those raided were not found guilty of any punishable offences. Another example is the treatment of around 100 anti-cuts protesters who occupied Haringey Civic Centre in February. As reported by the BBC, protesters clashed with the police with injuries on both sides (*BBC News*, February 25, 2011). Afterwards protesters wrote an anonymous letter to the local newspaper to complain about what they perceived as the harsh treatment at the hands of the police (*Tottenham Independent*, March 6, 2011). These and other tensions and misunderstanding added up and helped in galvanising residents to act collectively in the aftermath of Duggan's shooting.

Left with little information from the police and angered by what they saw in the media, on 6th of August friends and supporters of Mark Duggan assembled in front of Tottenham police station demanding explanations about the circumstances in which Duggan died. The protesters waited for three hours in front of the station but were not satisfied with the seniority of the officers available to speak with them. With time the atmosphere started to

turn sour, the assembly not only grew in numbers but also in hostility towards the police. As the dusk started to set in, no resolution was achieved and Duggan's relatives left the scene. Shortly thereafter bottles and stones were thrown at the police station and two police cars were set alight.

How did Tottenham, a fierce but local disorder, escalate into the largest episode of collective violence in modern British history? Below we provide a timeline of events and discuss it in the context of the likely escalation factors identified by Collins in his excellent work of micro-sociological theory of violence. Within a broader category of collective violence riots are a class of loosely structured collective action characterised by spontaneous assembly process and lack of clear leadership. Therefore, in order to escalate, those involved need to mobilise other people; as emphasised by Obserschall signalling and effective assembling strategy are key success factors in this case (1995). The profile of those who participate in rioting is likely to change with time, at first rioting is carried out by a small group of people who are committed to violence—they attack members of the group which they see as their enemy, damage property and set fire to vehicles and buildings. Usually, riot participants are not a homogenous group; in fact, the majority of people are not inclined to engage in serious acts of violence and join only when there are appropriate engagement opportunities such as looting (McPhail 1994, Collins 2008). To start a serious riot, the committed few need to gain the momentum to effectively challenge the authorities and then interest a wider mass of people in breaking the law. The rioters in Tottenham instantly attracted wider attention, letting other potential recruits know that they had established zones where police were being challenged. Amid clashes, the rioters torched a double-decker bus and set fire to a number of shops. While social media undoubtedly helped in mobilisation, in his theory of violence Collins stresses that arson plays an instrumental role in the assembling process. According to the author the main

effect of fire is to 'demand attention from the world outside but above all from nearby resident who could now not help but take their stand, one way or the other' (2008). Apart from being seen as an emotional expression of anger, fire does serve as a device for gathering people to witness and participate in the disorder[32]. If arson was indeed used in the way proposed by Collins, we would expect it to be negatively correlated with the number of people involved in rioting–arson would be more common at times when people attempt to *escalate* a riot but less common at times when rioting is at its peak and those participating focus on other activities. This claim can be verified with data compiled by the London Fire Brigade that provides information on the number of fires attended by the service for each day of the disorder (2011). Although the police arrest records provide only an approximation of the scale of the rioting, we see that the number of fires is negatively correlated with the number of people committing riot related offences (ϱ=-.75, p<.05)[33].

TABLE 7 NUMBER OF FIRES AND RIOT RELATED OFFENCES BY DAY

Day	Date	Fires Attended	Recorded Offences	Ratio
1	6th of August (00:00-23:59)	90	37	2.43
2	7th of August (00:00-23:59)	109	213	0.51
3	8th of August (00:00-23:59)	148	1213	0.12
4	9th of August (00:00-23:59)	263	400	0.66
5	10th of August (00:00-23:59)	197	70	2.81
6	11th of August (00:00-23:59)	74	24	3.08

Source: Metropolitan police arrest data and London Fire Brigade (2011).

This aligns with rioters' own accounts. When asked about the circumstances in which he joined the riots, a young man recalls that when he saw reports of police cars set alight 'for some reason I just wanted to be there, I actually wanted to burn cars and see them burn'. (BBC 2012) Another man who witnessed how rioters set fire to the double decker bus observed that 'It was the smoke attracted most of the people there and that's when they

[32] The pivotal role of arson in the context of riots is well illustrated by one of the slogans associated with 1960s riots in the US 'burn baby, burn'.

[33] The authors of the report also provide an overview of the number of fires in 2010 and note that in this period in the preceding year the fire brigade attended fewer fires. They link the spike in 2011 to the London riot.

started gathering there'. (BBC 2013)

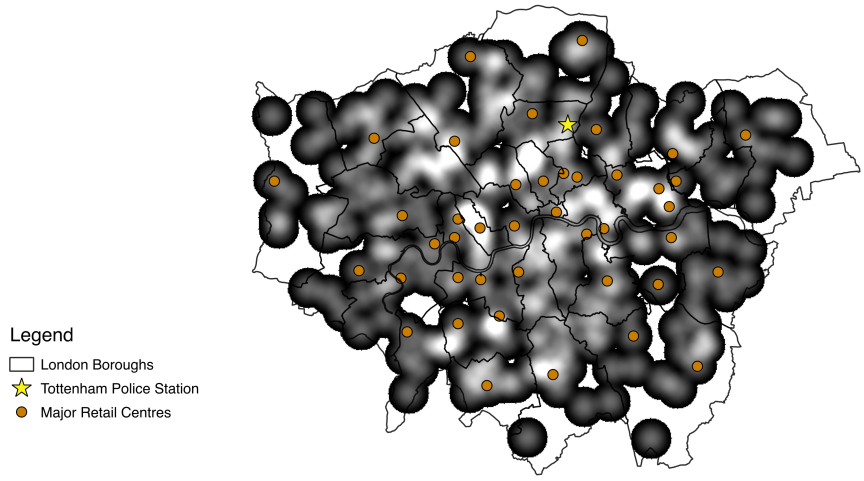
The second escalating factor is the availability of looting opportunities that attract a wider mass of people. Media reports repeatedly stressed that among those arrested in connection with the London riot of 2011 there were some 'unusual suspects' who did not fit the criminal stereotype: school teachers, Olympic youth ambassador and youth workers. Here, it is useful to refer to the concept of 'moral holidays', a term coined by Collins to describe a situation of temporary breakdown in normal social rules and controls. The predictability and stability of modern society is based on the simple premise that most people follow the law, most of the time. Yet, this may change dramatically during moral holidays, that is when:

> *Police authorities are absent, or they are ignored or actively disrespected by the crowd. […] A moral holiday comprises a free zone in time and space, an occasion and a place where the feeling prevails that everyday restraints are off; individuals feel protected by the crowd, and are encouraged in normally forbidden acts*. (Collins 2008)

Looting opportunities are important because as we noted earlier riotous assemblies consist of a minority of elite rioters ready to resort to violence and looting gives 'something to do' for the majority of people who are not interested or indeed prepared to enact serious violence. This becomes a process akin to a chain reaction where involvement of a larger group of people determines how long the situation of moral holidays can be sustained, continuing to attract more people. In Kawalerowicz and Biggs (2015), we have shown that during the riots proximity to retail centres was a significant factor predicting the probability of a riot mobilisation within a neighbourhood. London in general has a high retail density but Tottenham High Road falls in particularly vulnerable spot where relatively high retail density was matched with socio-economic deprivation (see Figure 3).

The rioters quickly turned to looting partly because it started on Tottenham High Road, close to two major retail centres, Wood Green located 2.2km away (which is classified as one of twelve major metropolitan shopping centres) and Tottenham Hale just 0.9km away.

FIGURE 3 DENSITY OF RETAIL CENTRES IN LONDON



Source: CBRE data from 2013 on 286 retail centres, including 43 major retail centres. The grey area shows heat map based on all retail centres in London.

As the first night of progressed, the police allocated their resources to extinguishing rioting on Tottenham High Road, meanwhile both centres were looted with reports suggesting that there were no police officers to attend these incidents (Morrell et al. 2012, Metropolitan Police 2012). This situation has been described by a witness in the following words:

> *What I was experiencing in the retail park was the most epic thing that could possibly be going on there. Half of Tottenham was on fire and we were thinking where are the police? There are hundreds of people emptying the shops*. (BBC 2012)

The outbreak in Tottenham was followed by a series of copycat riots that were taking place across London. On the second day, just as the police were starting to regain control of Tottenham, rioting broke out in Enfield, an area six miles north from the first riot. More outbreaks followed in Walthamstow, Brixton, Hackney and Croydon (for spatial

distribution of rioting by day see Figure 4). Rioters reported that they felt a celebratory mood on the street. Witnesses interviewed by Dower reported that 'it seemed like a massive free-for-all, everybody was jumping on the bandwagon, there were screams of laughter', describing the atmosphere as something akin to a street party (BBC 2013). In some areas (notably Brixton) police officers tried to arrest the looters but came under sustained attack and were forced to flee. Situations when police were outnumbered encouraged a wide range of people to engage in criminal activity. The Metropolitan Police signalled their weakness when on the second night they issued a statement which was effectively an admission that the authorities were not able to protect businesses, sending out a clear signal that rioters would be less likely to face arrests that night (Singh et al. 2012). Interviewed about his involvement after the riots, one man said that 'The police there…they were doing nothing, there was no authority show. It looked like, you know, we could run the streets' (BBC 2012).

With escalation in rioting comes the increased likelihood of repression, however even repressive tactics can backfire if they are not administered carefully. Following the second night of violence 6,000 police officers were deployed to the likely trouble spots. At this point this was not enough to stop rioting in London. As can be seen on Figure 5, despite increased police presence, rioting reached its peak on the third night, with violence also spreading outside of London to Birmingham and Manchester. Inadequate number of police officers was likely to encourage attacks on retail premises. Policing strategy left some areas vulnerable; for instance, a large number of officers were deployed in Hackney where just as they were starting to regain control of the area, officers were ordered to withdraw from fears that rioters may use firearms. Incidentally, deployment of officers to Hackney caused a shortage of police forces in other areas of London, notably in Croydon, which later became a scene of some of the heaviest looting. On the morning of 9th of August the

Metropolitan Police was granted permission for an unprecedented mobilisation of forces from across the country. That day a total 16,000 police officers were deployed in the capital. The action was publicised widely and brought a decisive halt to rioting. On 10th of August, four days after rioting broke out in Tottenham, London's streets were relatively quiet, with isolated incidents extinguished by the afternoon the next day.

CHANGE OVER TIME

The dynamics of riots are not well understood. Empirical investigations support the notion that rioting attracts a heterogeneous group of people who join at different times and for various reasons. There is a temporal variation where violence usually takes place in the initial stages of a riot and as rioting progresses new people join to take advantage of the circumstances (McPhail 1994, Miller 1999, Collins 2008). An example of such dynamic is given by the Kerner Report investigating American urban riots in the 1960s (NACCD 1968). The authors noted that initially property destruction was directed towards symbols of the white establishment and had political underpinnings; but overtime people were drawn for more opportunistic looting. The observation that new recruits may be different from those who start rioting applies to earlier outbreaks of urban riots in London. According to Keith, during the 1981 Brixton riot it was black minority groups who carried out the initial outbursts of violence (often as a reaction to heavy handed policing), while looting attracted a broader range of ethnic backgrounds (1993). Keith notes that upon closer examination, arrest statistics reveal that violent conflict with the police 'was almost exclusively a Black preserve; only in the looting was there more general participation'. There is some evidence for the changing profile of participation in the case of 2011 riot in London. For instance, using Metropolitan Police arrest data, Baudains and colleagues (2013) separated offences into three days, showing that explanatory variables had

somewhat different patterns of significance for different days. The authors observed that the presence of a tube station was a significant predictor of offences committed on the 7th and 9th of August, but not on the 8th of August. The explanation suggested by Baudains et al. is that when rioting was at its peak (i.e. 8th of August), potential recruits would not need to travel around to join. Although this is an interesting observation (and a plausible explanation), there are more questions that can be asked about temporal aspects of the London riot of 2011. The approach taken by Baudains et al. can be challenged on methodological grounds. Group comparisons are a common issue of interest for social scientists. Running separate estimations for riot-related offences committed on each day does not warrant conclusions about the differences in the effect of independent variables on these groups (for a discussion about common misinterpretations of results based on group comparisons see Gelman and Stern 2006). An alternative approach would be to estimate one model with dummy variables for each day and an interaction effect between independent variables and group categories. Interaction effects are suited for answering precisely this type of questions (namely has the influence of a variable *X* change with value of variable *Y*). We hypothesise that in the early stages, political grievances played a more pronounced role, with relative deprivation becoming a more important participation driver later on. Additionally, after Keith, we test the hypothesis about the changing ethnic profile of participants.

Hypothesis 1: Ethnic profile of rioters changes over time with ethnic minority groups being more present in the early stages of the riots.

Hypothesis 2: In the earlier stages of the riot mobilisation was more influenced by poor relations with the police.

Hypothesis 3: In the later stages of the riot mobilisation was more influenced by relative deprivation.

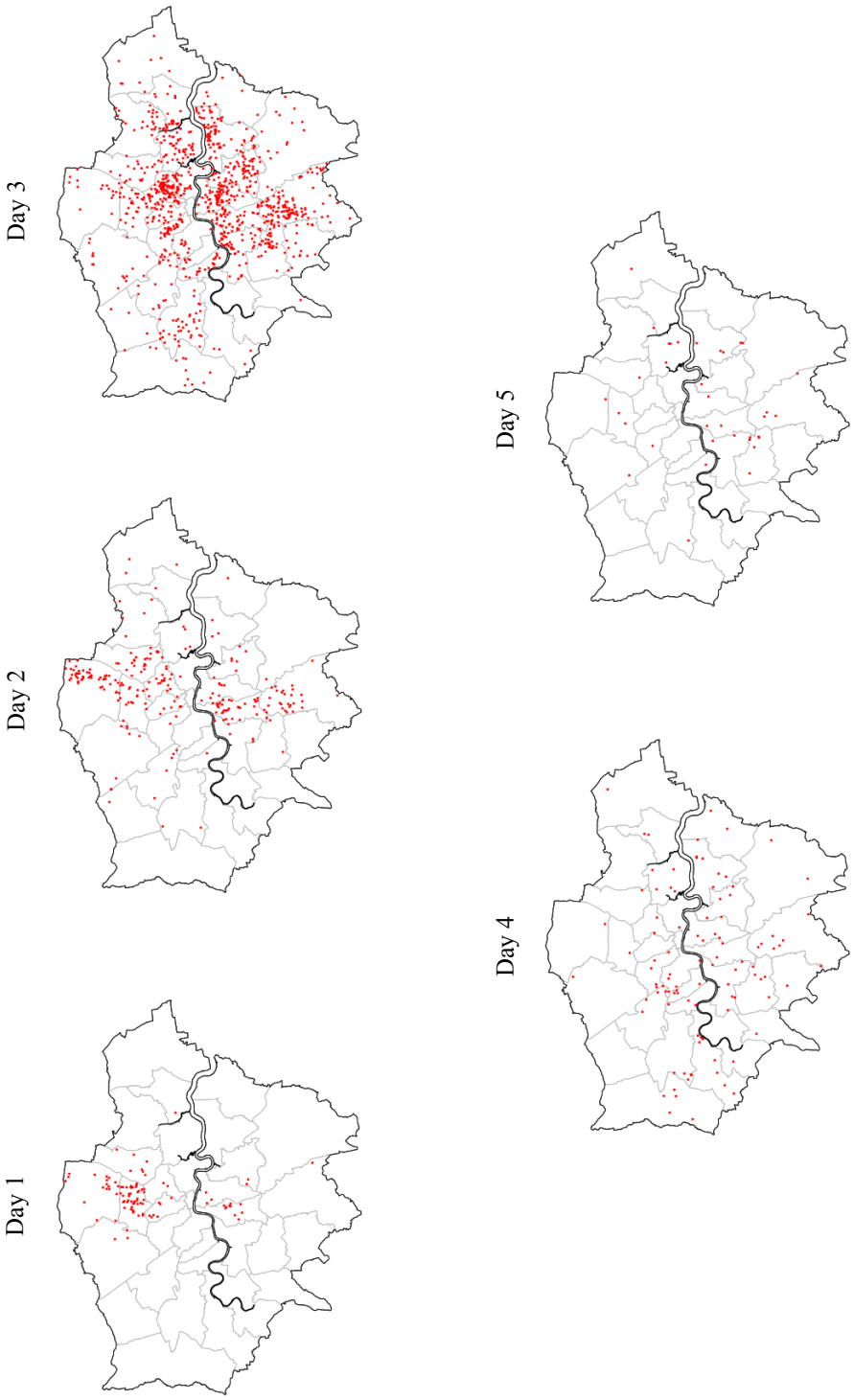


FIGURE 4 GEOGRAPHIC DISTRIBUTION OF RIOTERS BY DAY

MOBILISATION FOR RIOTING

One of the key arguments for the uniqueness of 2011 riots in comparison to earlier episodes of collective violence is that the riot attracted unusually large number of participants. Although it is difficult to provide an exact figure, Singh et al. estimated that between 13,000 and 15,000 were involved in rioting in London and other cities (2012). How were people mobilised for rioting? This question goes beyond that level of socio-economics characteristics which we previously investigated and has to do with the way people interact and influence one another. Although hints suggesting the role of an endogenous feedback process appeared in interviews with the rioters, this direction remained underexplored, especially given the quality of the police arrest data[34]. For instance, based on the information provided by their interviewees, Morrell et al. concluded that 'seeing other young people participating, and being seen to get away with looting, was a clear influence on their own impulsive involvement' (2011).

To explain how people are mobilised for collective action, sociologists apply the concept of diffusion. Mobilisation for riots can be understood as a learning process where favourable outcome (i.e. my neighbour participated in rioting on a previous night and did not get caught) provides a model for subsequent events. Studies have looked at diffusion processes in a variety of contexts such as the spread of political movements, strike, sit-ins, protests on campus and riots (Hedström 1994, Andrews and Biggs 2006, Conell and Cohn 1995, Soule 1997, Myers 1997, 2000). The results show that even when controlling for previously established socio-political variables, there is evidence of an endogenous positive feedback process where the occurrence of collective action at one point in time

[34] Baudains and colleagues used arrest data to show that areas experiencing rioting in the last 24 hours had increased odds of being targeted the next day. Yet, as the authors noted they 'touched only briefly on the issue of spatial diffusion' (Baudains et al. 2013b).

makes the occurrence of the similar events more likely in the future (Biggs 2003). Diffusion may be driven by spatial or social proximity, some researchers also introduce a distinction between diffusion mediated by direct and indirect ties (Soule 1997, Snow et al. 2004).

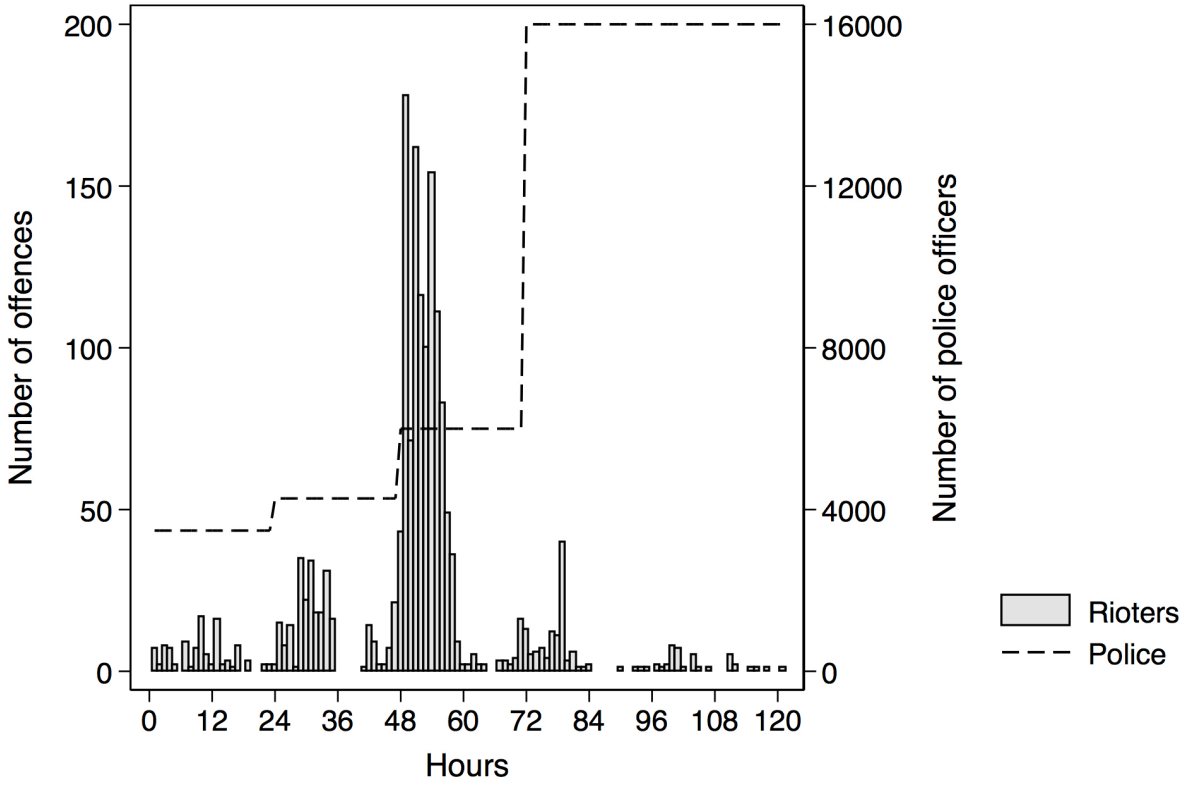


FIGURE 5 LONDON RIOT BETWEEN 6TH OF AUGUST AND 11TH OF AUGUST 2011

In case of the former, behaviour between individuals spreads proportionally to a frequency of contact, with social ties acting as a primary mechanism of direct channels of diffusion. Direct ties have been shown to play a role in recruitment for 1967 riot in Detroit. As reported by Singer, out of 500 black men he interviewed, 48% learned about the riots from personal communication (1970). The impact of direct ties is generally difficult to show and researchers tend to make assumptions which link direct ties to spatial proximity, whereby people are assumed to be more likely to come in contact with those who are geographically closer to them. Making this assumption may not always be warranted. Especially in case of rioting where data is available at a small scale geographical level of a neighbourhood we

are not sure whether someone joins because he or she heard that riots were going on the street 200 meters away from their house, or because they were asked to join by friends. In his re-examination of 1960s American riots, Myers argued that the spread of rioting was influenced by spatial diffusion, where the impact of riots in the last week was shown to be proportional to the inverse of the distance (1997). In other words, recent rioting in cities close by increased that city's hazard of experiencing a riot, an observation we hypothesize to be also applicable in explaining mobilisation for rioting in London in 2011.

Hypothesis 4: Mobilisation for rioting was affected by spatial diffusion, with the impact inversely related to geographic proximity to neighbourhoods with riot mobilisation.

It has been argued that direct channels cannot account for all instances of diffusion. One of the intriguing findings from social movement literature is that diffusion can also work via indirect channels, for instance social similarity (i.e. a degree of similarity between those who display certain forms of behaviour and those who adopt it). Just as kilometres are used to denote geographical distance, social similarity refers to distance in the sociological sense and takes different forms – it may refer to cultural, social or economic domains. Importantly, social similarity does not assume that individuals need to be in contact with each other in order to diffuse collective action, as highlighted by Soule the mechanism or indirect channels of diffusion is one which relies on 'collective identity or shared cultural understanding of activists who are not directly connected' (2004). This suggests that neighbourhoods with highest levels of frustration (social-economic, relations with the police, etc.) may have had a shared understanding of participation as an act of defiance shared by groups of similar socio-economic characteristics. In her study Soule (1997)

analyses the spread of the shantytown protest tactics[35] across American campuses where, as she argues, there were no apparent links between universities, but behaviour of students at one university would influence behaviour of students at other universities that were similar in terms of prestige and institution type. Soule proposes that one of the primary mechanisms of diffusion is social similarity. Although this idea seems to be overlooked by other sociologists working on diffusion (between 1997 and now there was a number of papers published in leading sociological journals which did not consider social similarity as a channel of diffusion), social similarity was picked up by Braun and Koopmas who go a step further and use this concept to challenge the notion of spatial diffusion. The authors argue that for the spread of far right violence in Germany, the significance of spatial diffusion is merely a by-product of spatial clustering of counties that are similar with regards to a number of key determinants of the dependent variable[36] (Braun and Koopmans 2010). Here, we would like to analyse whether the spread of rioting across London is better explained by direct or indirect diffusion. The impact of social similarity can by studied by looking at whether there is evidence that rioting spreads through neighbourhoods that were similar in terms of their economic profile. In our previous paper we have shown that combined measure of deprivation (consisting of neighbourhoods' unemployment, lack of educational qualifications, share of residents in routine occupations, overcrowded housing, socially rented accommodation and share of single parents) was one of the key factors associated with rioting, therefore we take it to be a good candidate for studying social similarity as a channel of diffusion.

[35] It is a form of activism where protesters occupy public spaces for a long time; it gained popularity across North American campuses in the 1980s as a form of protest against South African apartheid.
[36] The authors identify those as political party preferences, share of people working in agriculture and presence of foreigners.

Hypothesis 5: Mobilisation for riots was affected by social similarity, with involvement related to economic similarity with neighbourhoods with riot mobilisation.

Spatial proximity has long been used as a proxy for interaction. Hedström observes that although not ideal, substituting distance for social ties can be justified because the probability of forming social ties is related to geographic distance between individuals (1994). Yet, in rare instances, researchers came up with alternative ways of operationalizing social ties. An important contribution is this respect is Gould's study of insurgency in the Paris Commune of 1871 where the author shows that the level of resistance in each district was influenced by mobilisation in other districts linked by membership in the National Guard (1991). Gould concluded that neighbourhood and organisational ties created by membership in the National Guard interacted in creating solidarity necessary for mobilisation for the insurrection against the Versailles army. Previous studies looked at the age distribution of rioters and noted that majority of them were quite young, as noted by Baudains and colleagues 'a large proportion of the offenders is younger than 20 of age' (2013a). Therefore, we argue that can social networks can be approximated by connections created by attending same high schools with others. As anyone who attended high school knows, students who go to the same school are likely to be in frequent contact with one another; even in case of larger schools, students may be more likely to recognise people from their school than those living in their neighbourhood. Here, the key assumption is that people who attend the same school are more likely to form social ties.

Hypothesis 6: Mobilisation for riots was more likely for individuals who belong to school catchment areas that cover neighbourhoods with riot mobilisation.

Lastly, we want to investigate whether gangs affected mobilisation. Theoretically, gangs can be seen as organisations that were capable of mobilising members, whether for the purpose of fighting with police or looting. While most research focuses on positive cases of mobilisation, this arguably could be an example of negative activism where the presence of an organisation (i.e. gang) provides a cadre of activists who can facilitate wider engagement in rioting. In the aftermath of the London riot, Lewis and colleagues interviewed 270 rioters. What emerged from their interviews is that during the London riot of 2011 gangs behaved in an atypical manner. Across London, say Lewis and colleagues, usual postcode rivalries and gang hostilities were resolved for what effectively became a four-day truce (2011). Another researcher, Simon Harding, reported that youths were allowed to travel into other neighbourhoods without facing the usual repercussions, which supports the idea that gangs imposed some sort of truce. The assumption that gangs were somehow involved in orchestrating the disorder was opposed by Densley and Mason (2011), who say that gangs did not consciously suspend their turf rivalries to organise the riots, but rather it was simply that normal rules ceased to apply in the context of a wider havoc caused by the disorder.

We know that gang affiliates were overrepresented among those arrested[37]. The initial information published by the Ministry of Justice estimated that gang affiliates constituted about a third of the arrested persons, although this figure was later revised down to 19% (Harding in Briggs 2012, Densey 2013). The Home Office concluded that 'in terms of the role gangs played during the disorder most forces perceived that where gang members were involved they generally did not play a pivotal role' (Home Office 2011). Among the rioters interviewed by Lewis et al. opinions were divided. Some identified as gang

[37] The Metropolitan Police estimates that there are about 3,600 gang members in London. In a city with population of over 8 million people this means that gang members comprise less than one per mile of Londoners.

affiliates and said that their participation was a chance to get back at the police— one youth recalls that 'I saw it as a chance for revenge and I took it with both hands. I wasn't there for the robbing; I was there for revenge'— although other interviewees rejected the view that riots were 'orchestrated by some gang bosses' (Lewis et al. 2011). Scholarly opinions are divided with regards to questions of the overall gang involvement in rioting in London. Lewis et al. conclude that on the whole the role that gangs played was not significant and may have been overstated by the media, in contrast Harding argues that riots in London had their genesis in urban street gang and that social network of gangs were key players.

While earlier assessments of gangs' involvement were largely based on arrest records, here we would like to draw attention an important problem associated with relaying on arrest statistics. As highlighted by Hallswarth and Brotherton, identifying gang members is not an exact science; in particular, the authors warn that it is not clear how the Metropolitan Police define gang affiliates. According to Hallswarth and Brotherton young men who live in riot affected areas would normally know and interact with gang members through a wider social or kin network, yet this does not mean that they are involved in gang criminal activity.

Hypothesis 7: Involvement in rioting was higher in neighbourhoods that were part of known gang turfs.

Data and Methods

Out analysis covers five days, beginning on 6th of August and finishing on 11th of August. Accounts as to the exact duration of rioting in London varied, this is well illustrated by the fact that Metropolitan police entitled their report *4 Days in August*, while Singh et al. titled their *5 Days in August*. We decided to opt for a longer duration because there were still

number riot-related offences on day five[38], for day six the number was much lower and, unlike on the previous days, the largest share of recorded offences fell under theft and handling, which suggests that these offences no longer referred to active participation in rioting. We use Metropolitan Police arrests data and replicate the method of extracting observations that had been outlined in our previous paper. For majority of arrests it was possible to match postcodes to 25,022 neighbourhoods in London, however in some cases postcodes were missing or were incomplete. The day-by-day distribution is given in Table 8. Despite the scale of the unrest, by the end of day five only 5% of neighbourhoods experienced rioting. The dependent variable y_{it} is a dichotomous binary variable denoting whether there was at least one rioter at time *t* residing in neighbourhood *i*. Although police data provides information about arrests with what appears to be a minute-by-minute accuracy, it is likely that these records are subjected to a measurement error; just because

TABLE 8 ARRESTS BY DAY

Day	Start	End	Arrested	Charged	Charged & geocoded
1	18:00 06.08	18:00 07.08	167	127	97
2	18:00 07.08	18:00 08.08	796	570	236
3	18:00 08.08	18:00 09.08	1804	1286	965
4	18:00 09.08	18:00 10.08	173	115	100
5	18:00 10.08	18:00 11.08	69	43	35

Source: Metropolitan Police arrest data

the police recorded that someone committed an offence at 9:05pm on the second day does not mean that the person joined rioting at this precise moment as they could have been rioting for a couple of hours prior to being recorded. Secondly, we assume that the influence across residential neighbourhoods should work on a coarser scale. For instance, when someone participates at 9:05pm, their action is not going to influence other potential rioters within the next hour, but presumably it influences others the next day. Days seem to be the most natural units of analysis or diffusion processes in our case, with the relatively

[38] For 35 offences on day 5 it was possible to identify postcodes and match them to neighbourhoods.

small number of time units (5) compensated by a large number of neighbourhoods (25,022).

We want to explain mobilisation for rioting across London's neighbourhoods; in particular, why some neighbourhoods were drawn sooner than others. Event history analysis is a preferable method for research questions involving duration. In our case, it is appropriate to treat time as a discrete variable. The unit of analysis is the 'neighbourhood-day' and there are 125,110 spells. Usually observations are dropped from analysis once they register an event; here we deviate from this practice and for each day we assume that neighbourhoods are at the risk of having and event. In some cases, rioting kept going on in the neighbourhood for a number of days and we do not want to dismiss this information by excluding observations with reoccurring events. Therefore, we estimate the probability that mobilisation occurring in neighbourhood *i* at time *t* by fitting a multilevel logistic model with two levels of analysis: 624 wards nested within 32 boroughs.

EXPLANATORY VARIABLES

We begin with description of diffusion variables. To capture general diffusion, we introduce a dichotomous variable for whether there was a riot mobilisation in neighbourhood *i* on previous day or not. The variable $D_{1(i,t)}$ is equal to 1 if there was at least one rioter in neighbourhood *i* in a day preceding *(t-1)* and zero otherwise.

Spatial diffusion captures the impact of past mobilisation in other neighbourhoods in London. We assume that the impact of riot mobilisation decays with distance, with closer neighbourhoods having more influence in comparison to places that are further away. Researchers sometimes construct spatial diffusion variables based on the closest neighbour that has some desired characteristics; the most obvious reason seems to be that this simplifies calculation of diffusion variables (Braun and Koopmans 2010). Alternatively,

and this seems to be an approach adopted by the majority of social movement scholars, one can look at the impact of mobilisation across the entire system (here across London's 25,022 neighbourhoods). We can test both the *simple* and *systemic* version of diffusion variables to see which does a better job at explaining riot mobilisation. We define two types of spatial diffusion variables, one following the method used by Braun and Koopmans (simple diffusion) and one used by Hedström, Myers or Andrews and Biggs (systemic diffusion). Braun and Koopmans defined their simple spatial diffusion variable as the inversed distance

of the most nearby unit in which an event took place in the previous time period [39]. Hence, simple spatial diffusion $D_{2(i,t)}$ is defined as

$$D_{2(i,t)} = \left(\frac{1}{d_{ik}}\right)$$

where d_{ik} stands for distance (in meters) between centroids of neighbourhood *i* and neighbourhood *k*, where neighbourhood *k* is chosen from all neighbourhoods which experienced riot mobilisation on previous day and where the distance between neighbourhood *i* and neighbourhood *k* was the smallest. Similarly, systemic spatial diffusion variable $D_{3(i,t)}$ is defined as:

$$D_{3(i,t)} = \left(\frac{\sum_{t-1}^{t} \sum_{i}^{I} D_{1(i,t-1)}}{\sqrt{d_{ij}}}\right)^{\theta}$$

where d_{ij} stands for distance (in meters) between centroids of neighbourhoods *i* and *j* [40]. While in earlier studies it was common to use an inverse of distance or to set the decay parameter θ to 1, here we follow a recent study by Biggs and Andrews (2015) who

[39] The authors also said that they experimented with mean inversed distance and the square inverse root functions and said that results with all three parameters were similar.
[40] For a couple of neighbourhoods distances are rather small and for distances smaller than 250m we set distance to 250m. This value is adopted because the average radius of a neighbourhood is around 250m.

compared how well different variants of this value fit with the data on diffusion of sit-ins in the United States and empirically established that the value of $\theta = 0.5$ is associated with the best fit.

We can define measures of diffusion for social proximity analogously. We define two variables, a simple social similarity diffusion which is an exact replication of social similarity used by Braun and Koopmans and systemic social similarity diffusion which looks at the impact of riot mobilisation all across London. How did Braun and Koopmans construct their social similarity variable? The authors looked at the inversed difference in the percentage of a given socio-economic characteristic and in the most similar unit that had an event occurring in previous time period. The simple social similarity diffusion $D_{4(i,t)}$ is therefore defined as:

$$D_{4(i,t)} = \left(\frac{1}{p_{ik}}\right)$$

where p_{ik} stands for the difference[41] between the deprivation index of neighbourhood *i* and neighbourhood *k*, where neighbourhood *k* is chosen from all neighbourhoods which had riot mobilisation on the previous day and where the difference in deprivation index between neighbourhood *i* and neighbourhood *k* was smallest. It is not said explicitly in Braun and Koopmans but we assume that by difference the authors meant the absolute difference (analogous to distance). The systematic social similarity diffusion variable $D_{5(i,t)}$ is defined as:

$$D_{5(i,t)} = \left(\frac{\sum_{t-1}^{t} \sum_{i}^{I} D_{1(i,t-1)}}{\sqrt{p_{ij}}}\right)^{\theta}$$

[41] We rounded deprivation index to four decimal points for calculating social similarity variables, the reason was that that otherwise we would observe huge outliers especially in case of systemic version of this variable. More importantly, we do not expect that residents are sensitive to such minimal differences.

where p_{ij} stands for difference deprivation index between neighbourhoods i and j. As before we set $\theta = 0.5$ and expect to see that the riots would diffuse through poor neighbourhoods across London.

Next, we look at the role of being connected by the network of school catchment areas. We define school catchment areas by the schools-to-neighbourhoods (many-to-many) mapping. Data about schools and students was obtained from the National Schools Census 2014, where information was given on how many students from each ward attend a given school[42]. Information on students' place of residence is available for all 587 secondary schools in London. Theoretically, we are interested in determining the network of neighbourhoods where a high percentage of youth go to the same school; the network would also need to account form the fact that in some wards residents attend more than one school. We exclude schools with less than 100 students[43] and focus on wards that are home to at least 10% of students from a given school. This leaves us with 470 schools and drops the number of wards from 778 down to 573. Data was converted from schools-to-wards mapping into schools-to-neighbourhoods mapping using output areas to wards lookup files available from the ONS Geoportal[44]. We define a school catchment matrix W which consists of dichotomous values where entry w_{ij} is equal to 1 if at least 10% of students from a given school live in neighbourhood i and if they attend school with at least 10% of students from neighbourhood j and 0 otherwise. What is the meaning of the school catchment diffusion variable? For all neighbourhoods that are connected to neighbourhood i by school catchment matrix, the school catchments diffusion variable calculates the proportion of neighbourhoods that experienced riot mobilisation on the previous day.

[42] Data from 2014 is made public from London School Atlas application that allows downloading underlying data tables.
[43] After inspecting data, we found that these small schools tend to be specialised institutions such as schools for children with learning difficulties, young offenders, etc.
[44] Available from https://geoportal.statistics.gov.uk

Formally, for neighbourhood *i* we define the number of neighbourhoods connected via matrix *W* which had a riot mobilisation on the proceeding day. This is defined as $w[i,] * v_{t-1}$where $w[i,]$ is the *ith* row of matrix *W* and v_{t-1} is a dichotomous vector with entries defined by $D_{1(i,t)}$.We normalise $w[i,] * v_{t-1}$ by diving it by the number of neighbourhoods connected to neighbourhood *i* via matrix *W*. The school catchment diffusion variable is defined as:

$$D_{6(i,t)} = \frac{w[i,] * v_{t-1}}{w[i,] * I}$$

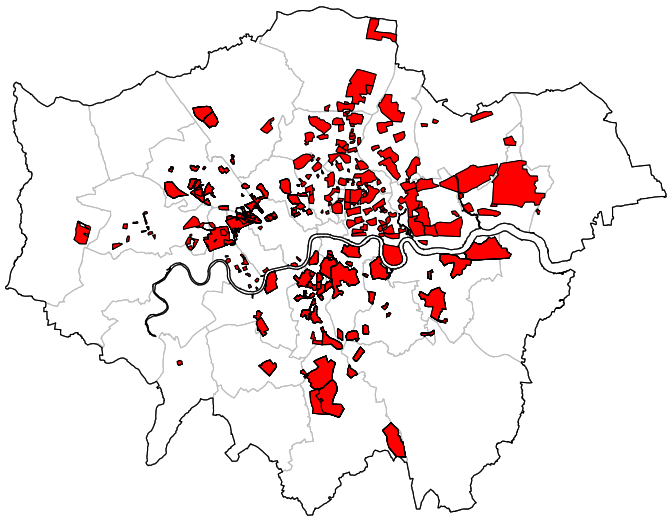
where *I* is a vector of the same length as v_{t-1} with all entries equal to *1*. The exact method together with simplified examples for constriction of this and other diffusion variables are given in the Appendix.

Lastly, we have a binary variable that denotes whether a given neighbourhood falls into a known gang turf or not. In contrast to diffusion variables defined earlier, this variable is time invariant, which means that for each neighbourhood it has the same values for all days. Data on gang turfs was taken from a London Street Gangs website and contains information about 230 gangs operating in London. This figure is in line with a list of 169 gangs published by the Metropolitan Police in 2007, although the founder of the London Street Gangs website seems to be critical of police maps, claiming that they are inaccurate and contain errors.

The person behind Gangs in London remains anonymous. According to an interview given for the Telegraph by the founder of the website, his work is motivated by personal experience of growing up on a London estate which was affected by gang violence. According to the founder, the information about gang turfs was drawn from first-hand accounts, in particular 'from those involved or associated to those involved in gangs – including members, teachers and youth crime workers' (*the Telegraph*, March 30, 2010).

In an attempt to validate this data source, we contacted two leading British experts on gang violence. James Densley, who conducted extensive ethnographic work on youth gangs in South London, confirmed that he knew the person behind the website and said that 'the maps appeared to me to be pretty accurate, but I can only speak for south London, which I know best' (email correspondence 2015). Another researcher, Simon Harding, used London Street Gangs maps in his last book on gang violence in the United Kingdom (2014). In a telephone conversation from August 2015 Harding confirmed that he knew the person who founded the website and said that even though this person was not an academic (sic!) he would generally regard it to be a valid source of information, although Harding also mentioned that it would be important to establish when these maps were made as gang turfs may be subject to significant changes in time.

FIGURE 6 GANG TURFS IN LONDON



Source: Data from London Street Gangs.

The author(s) of the website replied to our email and confirmed that the last time they updated their maps was in 2013 (email correspondence 2014). We assume that they are an acceptable approximation of the gang turfs in 2011. The areas identified as gang territories are shown in Figure 6.

RESULTS

Results are shown in Tables 9, 10 and 11, with estimates expressed as odds ratios (these are exponents of the coefficients). Odds ratios are interpreted as answering the question of how much would one unit in the independent variable multiple the probability of an event, in this case a probability that at least one resident of neighbourhood *i* participated in rioting on day *t*. Initially we attempted to estimate three level models (neighbourhoods nested in wards nested in borough) but we decided to simplify the approach and estimated a two level model (wards nested in boroughs) because the random intercept for neighbourhoods absorbed much of the variation in the model, suggesting that the model was over-fitted, given each neighbourhood has only 5 days of observations [45].

First let us discuss Model 1 which shows how rioting changed over the five days. For this we estimate a multilevel interaction model (shown in Table 9) and test whether independent variables have the same effect on every day. For eight variables there is sufficient evidence to reject the null hypothesis that their effect is the same on each day. Five refer to neighborhood measures (relative deprivation, White Other, Other Asians, owned accommodation, ethnic fractionalisation) and three to borough measures (voting turnout at 2010 local elections, relations with the police and growth in borough spending). How do these results correspond to our hypotheses?

With respect to hypothesis 1 about the impact of ethnicity there are only two ethnic groups with coefficients suggesting different effects on different days, White Other and Other Asians. While this is an interesting result, it does not reflect the effect that we were expecting to see, given Keith's argument about involvement of black minority groups who felt discriminated by the police. In case of White Other ethnic group the two coefficients

[45] The second reason was more practical – estimating just one three level model on our data took in excess of 72 hours and the interaction model took just short of one month to be estimated.

that are statistically significant (and different from one another) are the interaction for day one (at the 10th percentile in the proportion of white Other in the neighborhood the predicted probability is .008, holding other variables fixed at their median values; at 90th – that is neighborhoods with high presence of White Other ethnic group – the predicted probability goes up to .061) and day three (when it goes from predicted probability of .005 at 10th percentile down to .002 at 90th percentile). In case of Other Asian ethnic group, the coefficients are statistically significant for day 1 and day 2. Both are associated with decrease in odds; because we cannot reject the null hypothesis that the coefficients are the same for both days we just say that going from 10th percentile to 90th percentile of this variable, while keeping other variables fixed at their median value, is associated with reduction in predicted probability of rioting from .006 to .002.

Hypothesis 2 about the changing impact of relations with the police is supported. Let us reiterate that this variable measures the average score on the question 'How well do you think the Metropolitan Police treat people with respect?' where 1 meant 'not at all well' and 7 'very well'. Hence, higher score is equivalent to a more positive opinion of the police. We expect to find that the odds ratios should be smaller than 1, especially for earlier days. Indeed, this is what we find; the effect is statistically significant for first three days suggesting that areas that had less positive opinion of the police were first to be drawn into the disorder. How big is the effect? Although the predicted probabilities for day 1 are very low, going from an area with good police relations (represented by 90th percentile of this variable) to one with bad relations (10th percentile), while keeping other variables fixed at their median value, is associated with nine-fold increase in the predicted probability of rioting. The effect is similar for the second day. On day 3 a similar exercise yields a three-fold increase in the predicted probability of rioting. The changing effect of this variable is presented in Figure 7.

For Hypothesis 3 we observed that for relative deprivation the coefficients for day one, day two, day three and day five are not statistically different from one another and that the effect seems to be mostly driven by what is happening on day four (odds ratio equal to 56.28). That could suggest that relative deprivation starts playing a role later on, possibly when more people start participating in the looting. Substantively, going from 10th percentile in relative deprivation (which represents neighborhoods relatively affluent in comparison to their surrounding) to 90th percentile (neighborhoods relatively deprived in comparison to their surrounding) is associated with over three-fold increase in predicted probability of rioting, with probability going from .004 to .010).

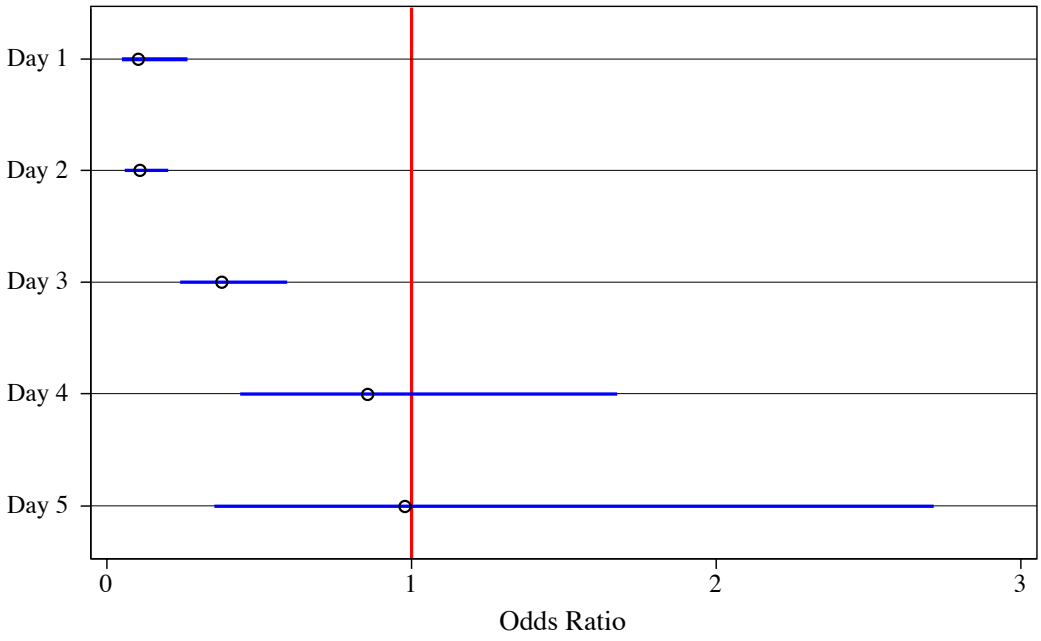


FIGURE 7 HOW THE EFFECT OF RELATIONS WITH THE POLICE CHANGED OVER TIME

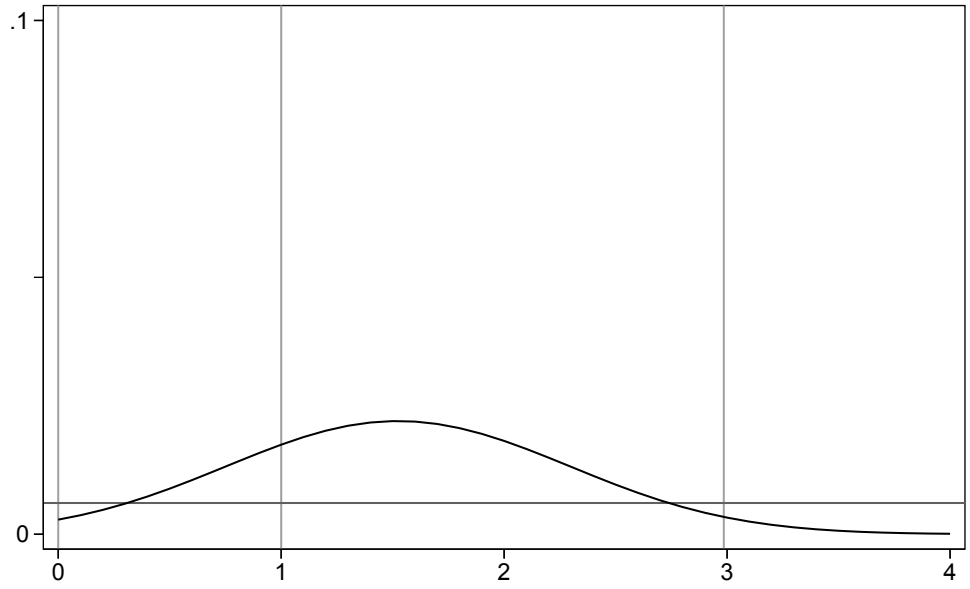
With respect to diffusion variables, first we observe that neighbourhoods experiencing a riot on the previous day had their odds of riot mobilisation multiplied by a factor of 1.5 (Model 2 in Table 10). This seems to be an important control and we include it in further models. Looking at Models 3 and Model 4 we find that systemic variables perform better in explaining variance than simple diffusion variables (this can be judged by inspecting AIC scores, the former is associated with reduction of 48 scores as opposed to just 1 score

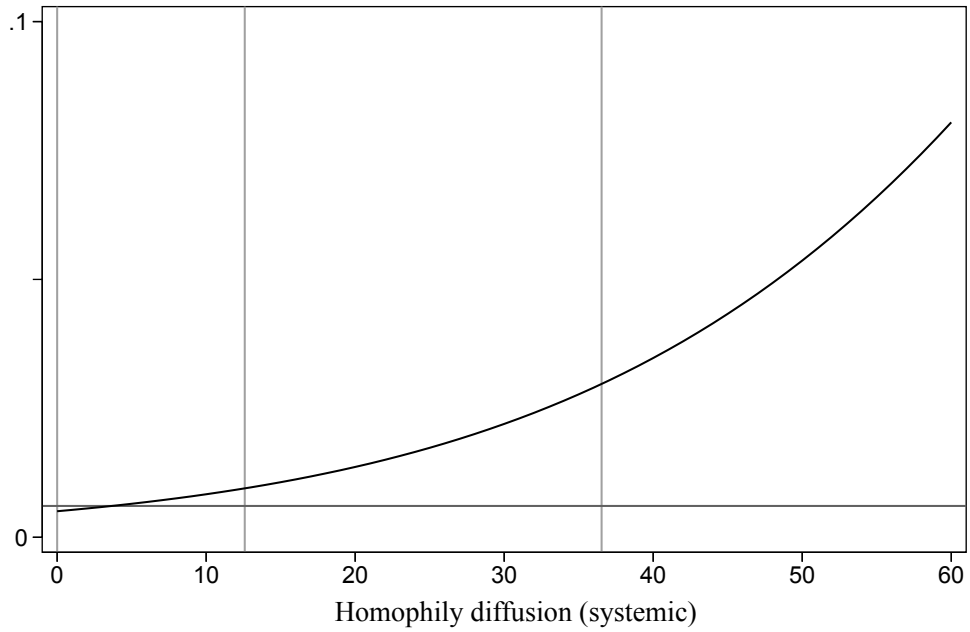
in case of simple diffusion variables). Hypothesis 4 and 5 are supported—we find a statistically significant effect for spatial and social similarity diffusion (they are also significant and have similar effect when run on their own). Interestingly, we do not find an effect for simple social similarity variable; yet the systemic variable is significant and associated with increased rioting. Also, in contrast to Braun and Koopmans we do find that spatial variable affects the diffusion of rioting even when controlling for social similarity.

School catchment network diffusion is not run together with spatial and social similarity diffusion variables because it is highly correlated with them.[46] In Model 5 we find that the effect of school catchment network does not increase propensity for rioting, quite the opposite, it seems to make it less likely. This is a surprising finding and we present some arguments for why we observed this effect later on. Finally, model 6 shows that gang turfs are associated with increased odds of rioting but the effect is not significant at .05 level. The substantive effect of diffusion variables on the dependent variable is shown in Figure 8. The model's overall ability to discriminate between neighbourhoods with riot mobilisation and neighbourhoods without it can be measured by the area under the Receiver Operating Characteristic (ROC) curve, which ranges from .5, meaning no discrimination, to 1, which means perfect discrimination (Andrews and Biggs 2006). To show how Model 4 performs we use a visual method for assessing the predictive power of models with binary outcomes developed by Greenhil, Ward and Sacks (2011). In the separation plot the data is rearranged so that the fitted probability values are presented in ascending order from the left hand to the right hand (Figure 9). The pink lines represent instances where an event (rioting) occurred (for comparison we also present Base Model with no diffusion variable). A separation plot reflecting a perfect prediction of a binary

[46] Here it should be mentioned that systemic spatial diffusion is highly correlated with systemic social similarity but we also run models which controlled just for spatial diffusion and just for social similarity and both were significant and with similar coefficients when run on their own.

outcome would be divided into two parts, where all values after a certain threshold would be pink. Model 4 is able to match high probability predictions to actual occurrences reasonably well.





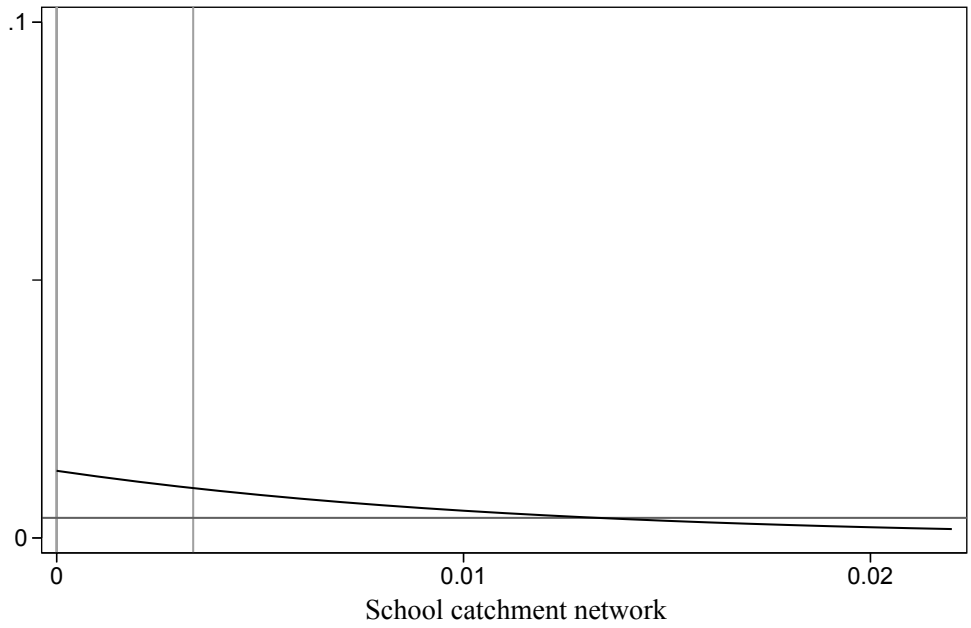


FIGURE 8 THE EFFECT OF DIFFUSION VARIABLES ON RIOTING

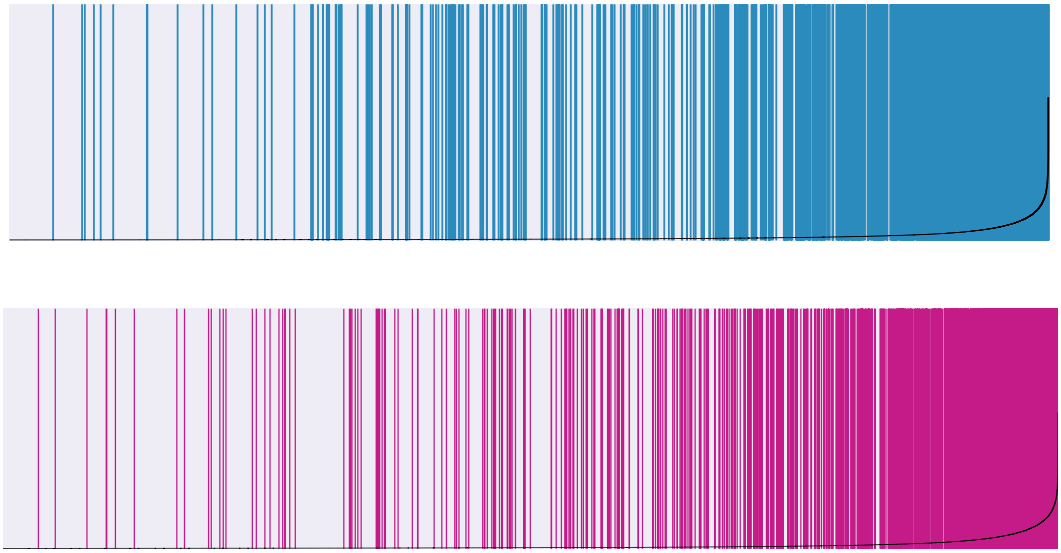


FIGURE 9 SEPARATION PLOTS FOR BASE MODEL AND MODEL 5

DISCUSSION

In the aftermath of the London riot of 2011 the Metropolitan Police released a unique source of information about people arrested for riot-related offences. This presents an ideal opportunity to test some of the underlying assumptions and debates on dynamics of collective violence. The data is time-stamped (meaning we know when offences were committed) and gives high spatial resolution where we are able to pin individual rioters

down to the level of their residential neighbourhood. Our analysis shows that the profile of participation changes over time and that diffusion processes play an important role. The study shows that some neighbourhoods were drawn into rioting sooner than other, in particular early mobilisation was observed in areas where residents perceived police as disrespectful. This is yet another clue that political grievance played a role in the London riot of 2011.

Secondly, in our analysis systemic variables perform better than simple diffusion variables (used by Braun and Koopmans). One possible reason is that we are looking at a different type of diffusion. Braun and Koopmans studied the spread of ethnic violence in Germany over the period of five years between 1990 and 1995 with a rather fine time unit of 7 days' week. Mobilisation for rioting is likely to work differently from the spread of ethnic violence, perhaps with less emphasis on the 'spur of the moment' decisions to join. Secondly, Braun and Koopmans used traditional history event analysis which excludes units experiencing an event from analysis in future time periods. In theory this could impact the robustness of spatial diffusion, although it is difficult to give an unequivocal statement without testing the data.

Furthermore, in the 2010 paper Braun and Koopmans reported that:

> *[…] after including direct measures of social similarity across spatial units, we found no substantial effect anymore for geographical distance. There is a tendency among recent scholars of social movement diffusion to regard geographical distance as a measurement of existing network ties (Hedström 1994, Myers 2000, Andrews and Biggs 2006). However, if distance does not affect diffusion once controls for social similarity are added this interpretation might have to be reconsidered.* (Braun and Koopmans 2010)

The authors' provocative finding does not find support in our results, perhaps because London can be described as a city with high degree of spatial inequality[47] – this is due to many factors, one often cited reason is the WW2 Blitz, in particular a period of sustained bombing of British capital which created a random distribution of spaces later developed as social housing estates. In the same time, it should be reiterated that Braun and Koopmans were right in emphasising the importance of social proximity that had been overlooked by some researchers.

Another important finding is the nonlinear effect of spatial diffusion. How can we make sense of it sociologically? The results suggest that at first, rioting in areas close to one's own neighbourhood has a positive effect but after some threshold point (looking at Figure 8 suggests a value of around 1.5) it is associated with declining probability of rioting. The nonlinearity in the effect of previous outbreaks has been examined by Olzak and colleagues in their analysis of 1960s American race riots (1996). The authors argue that this nonlinearity is similar to an exhaustion effect - at first rioting attracts other potential recruits but because rioting is costly for the community (businesses are shut, property is destroyed, and in some cases residents' lives are endangered) after a while violence hits a threshold point after which people become increasingly disillusioned with the unrest (Olzak et al. 1996). There is another, more pragmatic, explanation for the nonlinearity of the spatial diffusion which is associated with the distribution and indeed exhaustion of looting opportunities. Let us recall that Baudainis et al. (2013a) reported that people were more likely to riot at locations that were close to where they lived. If that were the case, we would expect that after some point looting would become less attractive as most of the

[47] The standard measure used to assess the extent of spatial clustering is Morans' I. For deprivation index is London this value is equal to I=.60 which is relative low (the range goes between -1 and 1); indeed, LISA maps show that there are significant pockets where deprived neighbourhoods border affluent neighbourhoods.

goods in the shops would be gone. Also, after the initial wave of looting, we would expect the police to try to regain control over the area which would deter potential rioters from joining.

With regards to the effect of school catchment network we were surprised to find that they were associated with decreased rather than increased mobilisation for rioting, although the effect is not as big as for other diffusion variables (see Figure 8). One potential reason for this is related to data. Ideally we would like to use school Census data from 2011, however the procedure for applying for this data in not easy and requires a significant time investment (for good reasons). To our defence, we do not think that the school catchment network was completely restructured in a couple of years between 2011 and 2014, however we do admit that this is something to explore in the future. More interestingly, if data from 2011 showed a similar effect, this would open a possibility that school catchment networks indeed did play a role in *decreasing* mobilisation in rioting.

One thing to consider is the impact of schools' size on school catchment diffusion variable. There is some variation in terms of London's school sizes (among the schools which we consider here the average size is 836 students, median 881), with the largest school attended by 1,743 students, this variation may pose some problems for school catchment diffusion variable. For instance, we suspect that larger schools (say the ones with 1,000 students rather than 100 students) have a higher population at risk of potential participants. On the other hand, smaller schools can foster closer social ties than larger schools, and the information about involvement of students in one ward would have a higher impact on students in another ward. Although it is not easy to control for size of schools in our regression, a possible solution would be to weight catchment matrix W by combined school size of connected components (here instead we choose normalize matrix W by to account for the varying number of neighbourhoods' connections).

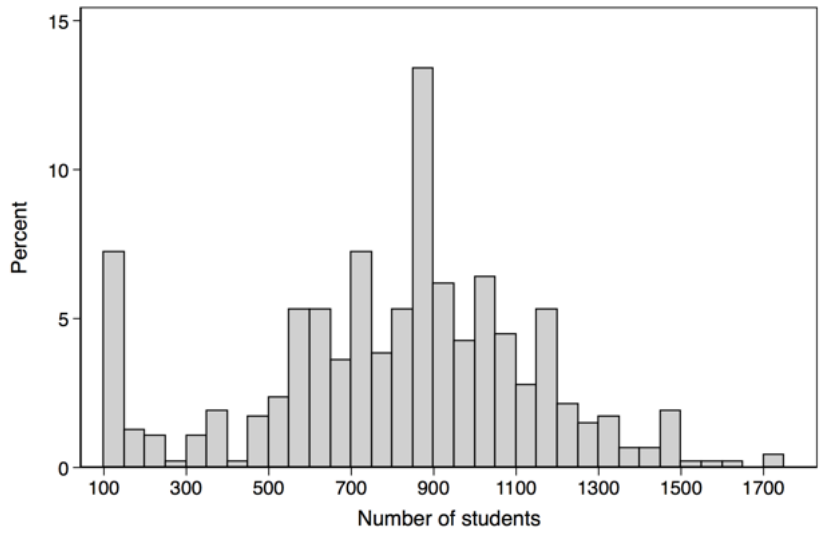


FIGURE 10 SCHOOL SIZES IN LONDON. NOTE THIS SHOWS JUST SCHOOLS IN LONDON WITH MORE THAN 100 STUDENTS.

Lastly, although we have not found evidence of mobilisation aided by gangs there is a potential limitation of our data which could explained this non-finding. While it is possible that gang affiliates played a role in mobilisation, we would expect them to be underrepresented in the arrest data which out analysis is based on. This is because people who had previous brushes with the law would be more skilled in avoiding detection, for instance by covering their faces while committing criminal acts. This would make it more difficult for the police to identify them and would result in underestimation of gang affiliated in arrest records.

TABLE 9 PREDICTING THE PROBABILITY OF RIOTERS IN LONDON'S NEIGHBOURHOODS

	Model 1		
	odds	*se*	*p*
Youth and Day 1	3.55	9.71	0.64
Youth and Day 2	28.67	50.11	0.05
Youth and Day 3	9.27	8.16	0.01 *
Youth and Day 4	0.30	0.74	0.62
Youth and Day 5	1.92	7.84	0.87
Proximity to nearest Foot Locker and Day 1	1.05	0.05	0.34
Proximity to nearest Foot Locker and Day 2	1.05	0.04	0.19
Proximity to nearest Foot Locker and Day 3	1.04	0.02	0.07
Proximity to nearest Foot Locker and Day 4	1.02	0.05	0.64
Proximity to nearest Foot Locker and Day 5	0.99	0.13	0.94
Population density and Day 1	0.06	0.09	0.05
Population density and Day 2	0.03	0.03	0.00 ***
Population density and Day 3	0.18	0.08	0.00 ***
Population density and Day 4	0.19	0.24	0.20
Population density and Day 5	0.48	0.99	0.72
white Irish and Day 1	522.63	3747.64	0.38
white Irish and Day 2	0.00	0.00	0.12
white Irish and Day 3	1.29	3.35	0.92
white Irish and Day 4	0.92	6.50	0.99
white Irish and Day 5	0.00	0.00	0.44
white other and Day 1	13253.95	25716.94	0.00 ***
white other and Day 2	15.34	22.58	0.06
white other and Day 3	0.00	0.00	0.00 ***
white other and Day 4	0.12	0.30	0.39
white other and Day 5	0.15	0.61	0.65
black African and Day 1	1.88	4.02	0.77
black African and Day 2	2.48	3.31	0.49
black African and Day 3	0.80	0.55	0.75
black African and Day 4	0.07	0.15	0.22
black African and Day 5	3.42	10.72	0.69
black Carribean and Day 1	8.97	26.81	0.46
black Carribean and Day 2	1.50	2.72	0.82
black Carribean and Day 3	15.30	15.33	0.01 **
black Carribean and Day 4	0.76	2.41	0.93
black Carribean and Day 5	993.79	4227.51	0.10
Asian Pakistani and Day 1	1.41	6.03	0.94
Asian Pakistani and Day 2	23.71	49.04	0.13
Asian Pakistani and Day 3	0.86	1.02	0.90
Asian Pakistani and Day 4	6.38	17.48	0.50
Asian Pakistani and Day 5	66.14	284.40	0.33
Asian Indian and Day 1	0.00	0.00	0.11
Asian Indian and Day 2	0.01	0.01	0.01 **
Asian Indian and Day 3	0.12	0.10	0.01 **
Asian Indian and Day 4	3.16	4.73	0.44
Asian Indian and Day 5	0.11	0.36	0.51
Asian Bangladeshi and Day 1	0.11	0.39	0.53

Asian Bangladeshi and Day 2	0.51	0.98	0.73
Asian Bangladeshi and Day 3	1.97	1.39	0.33
Asian Bangladeshi and Day 4	0.10	0.20	0.25
Asian Bangladeshi and Day 5	0.01	0.05	0.39
Asian other and Day 1	0.00	0.00	0.04 *
Asian other and Day 2	0.00	0.01	0.02 *
Asian other and Day 3	0.30	0.35	0.30
Asian other and Day 4	8.68	25.95	0.47
Asian other and Day 5	133.35	612.67	0.29
ethnic segregation and Day 1	0.00	0.05	0.59
ethnic segregation and Day 2	285.28	1686.24	0.34
ethnic segregation and Day 3	104.75	324.62	0.13
ethnic segregation and Day 4	0.00	0.02	0.47
ethnic segregation and Day 5	0.00	0.00	0.46
deprivation and Day 1	0.79	0.28	0.50
deprivation and Day 2	2.07	0.48	0.00 **
deprivation and Day 3	1.45	0.18	0.00 **
deprivation and Day 4	1.23	0.42	0.53
deprivation and Day 5	0.84	0.49	0.77
deprivation (ward) and Day 1	2.84	0.98	0.00 **
deprivation (ward) and Day 2	1.12	0.25	0.62
deprivation (ward) and Day 3	1.17	0.14	0.19
deprivation (ward) and Day 4	1.68	0.46	0.06
deprivation (ward) and Day 5	0.77	0.39	0.61
managerial and professional and Day 1	0.02	0.06	0.13
managerial and professional and Day 2	0.08	0.14	0.14
managerial and professional and Day 3	2.17	2.06	0.42
managerial and professional and Day 4	14.50	31.26	0.21
managerial and professional and Day 5	0.44	1.68	0.83
intermediate professions and Day 1	0.00	0.00	0.05
intermediate professions and Day 2	0.40	1.09	0.74
intermediate professions and Day 3	1.39	1.90	0.81
intermediate professions and Day 4	0.02	0.08	0.31
intermediate professions and Day 5	0.02	0.13	0.55
small employers and self-employed and Day 1	8.95	36.85	0.59
small employers and self-employed and Day 2	0.09	0.26	0.40
small employers and self-employed and Day 3	4.65	6.97	0.31
small employers and self-employed and Day 4	0.00	0.01	0.15
small employers and self-employed and Day 5	0.14	1.00	0.78
Relative affluence in surrounding area and Day 1	0.15	0.33	0.39
Relative affluence in surrounding area and Day 2	0.02	0.02	0.01 **
Relative affluence in surrounding area and Day 3	1.01	0.78	0.99
Relative affluence in surrounding area and Day 4	56.28	102.87	0.03 *
Relative affluence in surrounding area and Day 5	4.39	14.88	0.66
Home ownership and Day 1	0.12	0.12	0.03 *
Home ownership and Day 2	5.28	3.46	0.01 *
Home ownership and Day 3	0.51	0.17	0.05
Home ownership and Day 4	0.60	0.57	0.60
Home ownership and Day 5	0.61	0.99	0.76
Immigrants arrived since 2010 and Day 1	0.00	0.00	0.07

Immigrants arrived since 2010 and Day 2	0.02	0.08	0.22	
Immigrants arrived since 2010 and Day 3	0.80	1.15	0.87	
Immigrants arrived since 2010 and Day 4	0.03	0.11	0.38	
Immigrants arrived since 2010 and Day 5	0.00	0.00	0.17	
Ethnic fractionalization and Day 1	21.34	42.59	0.13	
Ethnic fractionalization and Day 2	345.23	424.49	0.00	***
Ethnic fractionalization and Day 3	13.97	7.75	0.00	***
Ethnic fractionalization and Day 4	0.29	0.41	0.38	
Ethnic fractionalization and Day 5	0.61	1.48	0.84	
Dencity of chraitable organizations (ward) and Day 1	0.76	0.28	0.46	
Dencity of chraitable organizations (ward) and Day 2	0.93	0.21	0.76	
Dencity of chraitable organizations (ward) and Day 3	0.73	0.09	0.01	**
Dencity of chraitable organizations (ward) and Day 4	0.90	0.27	0.73	
Dencity of chraitable organizations (ward) and Day 5	0.50	0.32	0.28	
Voting turnout at 2010 local election (ward)and Day 1	7290.19	21199.92	0.00	**
Voting turnout at 2010 local election (ward)and Day 2	20.63	39.38	0.11	
Voting turnout at 2010 local election (ward) and Day 3	0.36	0.37	0.32	
Voting turnout at 2010 local election (ward) and Day 4	0.00	0.01	0.01	**
Voting turnout at 2010 local election (ward) and Day 5	0.00	0.00	0.05	*
Opinion that police are disrespectful (borough)and Day 1	0.11	0.05	0.00	***
Opinion that police are disrespectful (borough)and Day 2	0.11	0.03	0.00	***
Opinion that police are disrespectful (borough) and Day 3	0.38	0.09	0.00	***
Opinion that police are disrespectful (borough) and Day 4	0.86	0.29	0.65	
Opinion that police are disrespectful (borough) and Day 5	0.98	0.51	0.97	
Growth of government expenditure and Day 1	6220205.20	27446867.00	0.00	***
Growth of government expenditure and Day 2	335.08	932.23	0.04	*
Growth of government expenditure and Day 3	0.32	0.61	0.55	
Growth of government expenditure and Day 4	0.44	1.46	0.80	
Growth of government expenditure and Day 5	0.00	0.00	0.09	
Random intercept: ward (standard deviation)	0.34	0.07	0.00	
Random intercept: borough (standard deviation)	0.33	0.05	0.00	

Multilevel logistic regression (1 integration point), with ln(population) as offset

N = 125,110 spells (neighborhood-days). Neighbourhoods are nested in 624 wards in 32 boroughs

odds: odds ratio; se: standard error; p: p-value (two-tailed), *** p < .001, ** p < .01, * p < .05

TABLE 10 PREDICTING THE PROBABILITY OF RIOTERS IN LONDON'S NEIGHBOURHOODS

	Base				Model 2				Model 3			
	odds	*se*	*p*		*odds*	*se*	*p*		*odds*	*se*	*p*	
Youth	6.85	5.03	0.01	**	6.57	4.82	0.01	*	6.58	4.84	0.01	*
Proximity to nearest Foot Locker	1.04	0.02	0.02	*	1.04	0.02	0.02	*	1.04	0.02	0.02	*
Population density	0.14	0.05	0.00	***	0.15	0.05	0.00	***	0.15	0.05	0.00	***
Ethnicity: white Irish	0.50	1.08	0.75		0.52	1.14	0.77		0.52	1.14	0.77	
Ethnicity: white other	0.18	0.14	0.02	*	0.18	0.14	0.02	*	0.18	0.14	0.02	*
Ethnicity: black African	1.10	0.63	0.87		1.07	0.61	0.91		1.08	0.62	0.90	
Ethnicity: black Caribbean	15.78	13.30	0.00	**	15.36	12.91	0.00	**	15.48	13.05	0.00	**
Ethnicity: Asian Pakistani	2.55	2.52	0.34		2.55	2.52	0.34		2.55	2.52	0.34	
Ethnicity: Asian Indian	0.17	0.11	0.01	**	0.17	0.12	0.01	**	0.17	0.12	0.01	**
Ethnicity: Asian Bangladeshi	1.57	1.01	0.49		1.54	0.99	0.51		1.53	0.99	0.51	
Ethnicity: Asian other	0.23	0.23	0.14		0.23	0.23	0.14		0.23	0.23	0.14	
Ethnic segregation *(ward)*	19.83	53.44	0.27		19.92	53.28	0.26		20.24	54.18	0.26	
Deprivation index	1.44	0.15	0.00	***	1.44	0.15	0.00	***	1.44	0.15	0.00	***
Deprivation index *(ward)*	1.24	0.13	0.04	*	1.23	0.13	0.04	*	1.23	0.13	0.04	*
Class: managerial and professional	0.81	0.68	0.80		0.81	0.68	0.81		0.82	0.68	0.81	
Class: intermediate professions	0.38	0.43	0.40		0.37	0.43	0.39		0.37	0.43	0.39	
Class: small employers and self-employed	1.06	1.29	0.96		1.08	1.33	0.95		1.08	1.32	0.95	
Relative affluence in surrounding area	0.63	0.42	0.49		0.64	0.43	0.50		0.64	0.43	0.50	
Home ownership	0.70	0.20	0.21		0.70	0.20	0.20		0.70	0.20	0.21	
Immigrants arrived since 2010	0.14	0.16	0.10		0.14	0.16	0.10		0.14	0.17	0.10	
Ethnic fractionalization	7.74	3.67	0.00	***	7.63	3.61	0.00	***	7.57	3.58	0.00	***
Density of charitable organizations *(ward)*	0.76	0.08	0.01	**	0.76	0.08	0.01	**	0.76	0.08	0.01	**
Voting turnout at 2010 local election *(ward)*	0.59	0.55	0.57		0.58	0.53	0.55		0.58	0.54	0.56	
Opinion that police are respectful *(borough)*	0.32	0.07	0.00	***	0.33	0.07	0.00	***	0.33	0.07	0.00	***
Growth of government expenditure, 2009/10-2010/11 *(borough)*	1.22	2.17	0.91		1.19	2.12	0.92		1.19	2.11	0.92	
Day 2	2.47	0.30	0.00	***	2.46	0.30	0.00	***	2.44	0.31	0.00	***
Day 3	10.94	1.18	0.00	***	10.80	1.16	0.00	***	10.70	1.29	0.00	***
Day 4	1.03	0.15	0.83		0.98	0.14	0.90		0.97	0.17	0.86	
Day 5	0.36	0.07	0.00	***	0.36	0.07	0.00	***	0.35	0.07	0.00	***
Mobilization on previous day					1.51	0.24	0.01	**	1.52	0.24	0.01	**
Diffusion: simple spatial									11712.31	490973.50	0.82	
Diffusion: simple spatial squared									0.00	0.00	0.66	
Diffusion: simple homophily									1.00	0.00	0.72	
Diffusion: systemic spatial												
Diffusion: systemc spatial squared												
Diffusion: systemic homophily												
Diffusion: school catchment												
Gang turfs												
Random intercept: ward (standard deviation)	0.32	0.07	0.00		0.32	0.07	0.00	***	0.32	0.07	0.00	***
Random intercept: borough (standard deviation)	0.32	0.05	0.00		0.30	0.05	0.00	***	0.31	0.05	0.00	***
AIC	12541				12537				12542			
Difference in AICc compared to Model 1					4				1			

Multilevel logistic regression (1 integration point), with ln(population) as offset;

N = 125,110 spells (neighborhood-days). Neighbourhoods are nested in 624 wards in 32 boroughs

odds: odds ratio; se: standard error; p: p-value (two-tailed), *** p < .001, ** p < .01, * p < .05

TABLE 11 PREDICTING THE PROBABILITY OF RIOTERS IN LONDON'S NEIGHBOURHOODS, 2011

	Model 4				Model 5				Model 6			
	odds	*se*	*p*		*odds*	*se*	*p*		*odds*	*se*	*p*	
Youth	8.14	6.05	0.00	**	6.43	4.75	0.01	*	6.78	4.98	0.01	**
Proximity to nearest Foot Locker	1.04	0.02	0.02	*	1.04	0.02	0.01	*	1.04	0.02	0.02	*
Population density	0.17	0.06	0.00	***	0.15	0.05	0.00	***	0.14	0.05	0.00	***
Ethnicity: white Irish	0.44	0.97	0.71		0.40	0.89	0.68		0.51	1.11	0.76	
Ethnicity: white other	0.18	0.14	0.03	*	0.20	0.15	0.03	*	0.17	0.13	0.02	*
Ethnicity: black African	1.33	0.76	0.62		1.12	0.65	0.85		0.93	0.54	0.90	
Ethnicity: black Caribbean	16.41	13.97	0.00	**	20.10	17.13	0.00	***	14.29	12.01	0.00	**
Ethnicity: Asian Pakistani	2.64	2.61	0.33		2.55	2.55	0.35		2.48	2.44	0.36	
Ethnicity: Asian Indian	0.19	0.13	0.01	*	0.16	0.11	0.01	**	0.17	0.11	0.01	**
Ethnicity: Asian Bangladeshi	1.55	1.02	0.51		1.53	1.01	0.52		1.49	0.96	0.53	
Ethnicity: Asian other	0.24	0.24	0.15		0.20	0.20	0.11		0.24	0.24	0.15	
Ethnic segregation *(ward)*	19.74	53.04	0.27		13.15	36.49	0.35		17.06	45.55	0.29	
Deprivation index	1.48	0.15	0.00	***	1.43	0.15	0.00	***	1.43	0.15	0.00	***
Deprivation index *(ward)*	1.22	0.13	0.06		1.32	0.14	0.01	**	1.21	0.13	0.06	
Class: managerial and professional	1.38	1.18	0.70		0.66	0.56	0.62		0.81	0.67	0.80	
Class: intermediate professions	0.32	0.37	0.32		0.34	0.40	0.36		0.39	0.45	0.42	
Class: small employers and self-employed	1.08	1.33	0.95		0.99	1.22	1.00		1.15	1.40	0.91	
Relative affluence in surrounding area	0.72	0.49	0.63		0.53	0.36	0.35		0.60	0.40	0.44	
Home ownership	0.76	0.22	0.34		0.73	0.21	0.26		0.70	0.20	0.20	
Immigrants arrived since 2010	0.14	0.17	0.10		0.13	0.16	0.10		0.14	0.17	0.11	
Ethnic fractionalization	6.28	3.01	0.00	***	8.08	3.87	0.00	***	7.84	3.71	0.00	***
Density of charitable organizations *(ward)*	0.76	0.08	0.01	**	0.74	0.08	0.00	**	0.76	0.08	0.01	**
Voting turnout at 2010 local election *(ward)*	0.55	0.51	0.52		0.65	0.62	0.65		0.63	0.58	0.62	
Opinion that police are respectful *(borough)*	0.32	0.07	0.00	***	0.28	0.06	0.00	***	0.33	0.07	0.00	***
Growth of government expenditure, 2009/10-2010/11 *(borough)*	1.36	2.49	0.87		1.54	2.92	0.82		1.17	2.06	0.93	
Day 2	0.21	0.13	0.01	*	2.65	0.32	0.00	***	2.46	0.30	0.00	***
Day 3	0.50	0.43	0.42		12.83	1.44	0.00	***	10.80	1.16	0.00	***
Day 4	0.13	0.17	0.11		1.64	0.27	0.00	**	0.98	0.14	0.90	
Day 5	0.03	0.02	0.00	***	0.37	0.07	0.00	***	0.36	0.07	0.00	***
Mobilization on previous day	1.59	0.25	0.00	**	1.76	0.28	0.00	***	1.51	0.24	0.01	**
Diffusion: simple spatial												
Diffusion: simple spatial squared												
Diffusion: simple homophily												
Diffusion: systemic spatial	16.08	11.89	0.00	***								
Diffusion: systemc spatial squared	0.40	0.07	0.00	***								
Diffusion: systemic homophily	1.05	0.01	0.00	***								
Diffusion: school catchment					0.00	0.00	0.00	***				
Gang turfs									1.12	0.08	0.11	
Random intercept: ward (standard deviation)	0.33	0.07	0.00	***	0.34	0.07	0.00	***	0.31	0.06	0.00	***
Random intercept: borough (standard deviation)	0.31	0.05	0.00	***	0.35	0.05	0.00	***	0.30	0.05	0.00	***
AIC	12493				12502				12536			
Difference in AICc compared to Model 1	48				39				5			

Multilevel logistic regression (1 integration point), with ln(population) as offset;

N = 125,110 spells (neighborhood-days). Neighbourhoods are nested in 624 wards in 32 boroughs

odds: odds ratio; se: standard error; p: p-value (two-tailed), *** p < .001, ** p < .01, * p < .05

PART 2 FAR RIGHT POLITICS

Despite its recent decline, the British National Party (BNP) remains one of the most successful far right parties in the history of British politics. After 2000, the support for the BNP has been growing rapidly and by 2010 the British National Party had transformed itself from an organisation operating on the political fringe to the fifth biggest party in the United Kingdom (Copsey 2004, Goodwin 2011). Its electoral achievements were most significant in second order elections, where the BNP polled as high as 16.9% of votes in some constituencies in 2005 and had 57 representatives elected as councillors at one point in 2009 (Goodwin, Ford, Duffy and Robey in Eatwell and Goodwin 2010, *Guardian*, May 4, 2012). Yet, the best performance on the part of the BNP could perhaps be seen in the 2009 European elections where the party secured over nine hundred thousand votes, winning 6.2% of the total vote and two seats in the European Parliament (*BBC News*, June 8, 2009).

Arguably, these gains would not have been possible if not for the growing number of activists. Because the BNP as a minor and stigmatised party had limited resources, it relied heavily on members' donations and readiness to get involved in community-based activism. As reported by Matthew Goodwin, starting from 2001, the number of members grew exponentially from an estimated 2,000 in 2001 to the alleged 14,000 announced by the BNP in 2010 (2011).

Understandably, the party's success has attracted a lot of attention and comments, as much on the side of the jubilant Nick Griffin who in his 2009 post-election speech declared that

the party will 'go on from here'[48] (*BBC News*, 2009), as on the side of the anti-fascist Hope not Hate network which organised a mass campaign to expose the extremism of the BNP, and the academics who speculated that 2009 could have been a moment of a political breakthrough for the far right in the United Kingdom, a point after which the party would be able to enter the parliament and seize a significant share of votes like some other European far right parties. Yet the breakthrough has failed to arrive. The first signs of BNP's downfall were visible already in 2010, when following the local elections, the number of BNP councillors went down to 28. The electoral performance was surprisingly low and, as Nick Griffin himself admitted, the results were 'disastrous' (Goodwin 2011). Things got worse for the British National Party. Commenting on BNP's recent electoral results from the 2012 local elections, the Guardian announced that the BNP is 'finished as an electoral force' (*Guardian*, May 4, 2012). To understand the scale of the BNP's obliteration, consider that the party lost all but three councillors, failed to defend its seat on the London assembly with its vote in the former stronghold going down by 50% in comparison to the last election[49] (BBC, 5 May 2012). The decline of the party has been party attributed to exposure of its problematic links to a more violent and racist past and was also in part caused by its electorate migrating to UK Independence Party (UKIP) seen by many as a more acceptable alternative led by Nigel Farage, a charismatic leader who brought anti-immigration sentiments into political mainstream. In 2014 European Elections BNP's vote collapsed, with the part getting less than 200,000 votes (1.1% nationally) and Nick Griffin, the party's leader, failing to be re-elected as MEP.

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[48]It is just too tempting not to quote the entirety of Nick Griffin's statement: 'Hundreds of thousands of voters have given their verdict on the dam of lies of the old party, and tonight the British National Party has breached the dams of lies, the waters of truth, and justice, and freedom are once again flowing over this country. It was a great victory; we go on from here' (Griffin in BBC 2009).

[49] Although one could argue that the 47,000 votes cast in this election is still a non-negligible number.

One may ask for a justification to study the BNP in circumstances when the time of its political influence most likely comes to an end. We maintain that the far right should not be dismissed as a sociological phenomenon. Studying social bases of its support is of enduring theoretical importance to sociology and in a current climate where extreme ideologies, are becoming stronger all across Europe, gaining a better understanding of extreme politics is as important as ever.

First of all, even in the face of BNP's collapse, the recent gains of the far right in Britain should not be underestimated, as its electoral performance should be seen in the context of the first-past-the-post system that is known to discourage new entrants and small parties. Secondly, there exists a latent base of support for far right politics in the United Kingdom, leaving a possibility that it may resurface in the future. As an illustration of that, consider that a poll conducted in London among those who voted in 2004 European elections revealed that as much as 23% stated that they 'might vote' for the BNP in the future (John and Margetts 2009). Indeed, this vote is now exploited by the UK Independence Party, which managed to present themselves as a more acceptable anti-immigration party without an embarrassing past [50].

Also, vital aspects of far right ideological agenda enjoy considerable public support. Robert Ford reports that 58% of Britons polled by MORI in 2008 agreed with the statement, 'Parts of this country don't feel like Britain any more due to immigration', while British Attitude Survey carried out in 2003 has shown that 20% of respondents would deny right of citizenship to British-born children of immigrants and 15% thought that being *white* was at least fairly important for being regarded as British. According to

[50] Although the party claims to screen activists for past engagements with far right parties such as the BNP, the statements made by its current members brings the effectiveness of such screening into question. For instance, recently UKIP councillor, Rozanne Duncan was filmed saying that she 'really did have a problem with people with *negroid* features' while UKIP MEP, Godfrey Bloom, keeps referring to countries receiving overseas aid as 'bongo-bongo land'.

Ford, although the far right potential has not yet been realised, in favourable political circumstances a party similar to the BNP could appeal to at least 15-20% of voters, perhaps even more (in Eatwell and Goodwin 2010). As highlighted by political commentators, it is only because of the electoral system that UKIP, a Eurosceptic right wing populist party with a rather strong anti-immigrant sentiments, secured just one MP seat in the last General Election (the scale of its appeal was shown by the fact that the party got 13% of the vote and came second in 120 constituencies[51]).

Lastly, this study has been also motivated by the availability of a unique dataset on extreme politics in the United Kingdom. The leaking of the BNP membership list, which contains information about over 12,000 members, provides an unprecedented opportunity to study factors associated with higher levels of support for far right politics. In general, empirical analyses of this subject are difficult because of a limited amount of information about people who support the far right. Arguably, members are aware of the stigma associated with their views and therefore tend to be sensitive to infiltration attempts and prefer to remain anonymous. While previous studies have largely focused on electoral performance or political polls, the BNP membership list provides an equally valuable and barely explored source of information. It enables studying not just a sample but the total population of the most committed supporters of the far right. Because the list contains postcodes, it is possible to identify contextual factors associated with membership at multiple scales, including that of a small neighbourhood (output area). To the best of my knowledge, there have been two studies examining this dataset. In this part, we will aim to look at factors associated with anti-immigrant attitudes at sub-national level, extend the

[51] There are 650 Westminster constituencies in the United Kingdom. Last elections took place on 8th of May, 2015.

analysis of Biggs and Knauss (2012) and critically engage with findings reported by Goodwin, Ford and Cutts (2013).

Theoretical Perspectives

The British National Party has a lineage which can be traced directly to an earlier era of far right activism (the party was established in 1982 by John Tyndall who was earlier a chairman of the National Front and had a long history of engagement with British fascist movements; it was later chaired by Griffin who himself was active in the National Front). Its recent, if short-lived, gains are reminiscent of a wider set of successes of similar parties in Western Europe: *Front National* in France, *Vlaams Blok* in Belgium, *Partij voor de Vrijheid* in the Netherlands*, Lega Nord* in Italy, *Freiheitliche Partei Österreichs* in Austria, *Schweizerische Volkspartei* in Switzerland, *Dansk Folkeparti* in Denmark or *Sverigedemokraterna* in Sweden.

Although researchers expressed renewed interest in studying such parties, there is a general lack of agreement as to the exact definitions and terminology, even though the term 'far right' is generally accepted by researchers, a similar group of parties may be referred to as radical right, extreme right or right-wing extreme, neo-nationalist or anti-immigration parties[52]. Here, we shall refer to the BNP as a far right party, since researchers working on British politics applied it in reference to this party and other similar groups from the past[53]. What makes the BNP a far right party? Even though in the BNP has had to include a more diverse set of issues in its manifesto, it is clear that ethnic nationalism has always been at the heart of the party's agenda. In fact, the BNP amended its constitution only in 2010 to allow non-white membership, making it a good example of a political

[52] For instance, the BNP has been described as a far right party (Copsey and Macklin 2011 or Goodwin 2011), extreme right (Bowyer 2008, Ford and Goodwin 2010) and populist radical right (Mudde 2007).
[53] However, we agree that this term may no longer be applicable to United Kingdom Independence Party where the links to fascist organisations from the past are less obvious and where ethno-pluralist doctrine, at least in the official party line, seems to be subtler than in case of the BNP.

group driven by hostility and prejudice towards ethnic minorities and immigrants. Furthermore, the party also takes from the distinctive doctrine of ethno-pluralism, a notion that multiculturalism leads to cultural extinction of natives (in the early days the BNP run campaigns on 'white genocide'), git also uses glorifying myths of the past and anti-establishment rhetoric. All these are common features of contemporary parties on the far right (Kitschelt 1995, Mudde 2000, Norris 2005, Rydgren 2007). In the context of the surge in support for the BNP it is important to ask what factors increase the likelihood of getting involved in the extreme politics of the far right. Theories on the emergence of such parties can be divided into two strands: one dealing with demand-side factors, which focus on attitudes and preferences of supporters, and the other on supply-factors, which focus on political opportunity structure, characteristics of organizations and their programme.

Demand side

The roots of support for far right politics have often been traced to relative deprivation and marginalisation resulting in susceptibility to blame immigrants for ones' disadvantaged position. Firstly, relative deprivation says that voting for far right parties is influenced by frustration and disappointment with one's socio-economic position in comparison to both the past time and to others (Gurr 1970, Rygren 2007). Closely related to this perspective is the modernisation losers thesis which sees support for the far right as a response of marginalised groups to ongoing socio-economic changes, in particular to the shift from industrial to post-industrial society (Betz 1994)[54]. In economic terms, such marginalised groups can include the old working class whose position became precarious due to changes in the employment structure but also small business owners, who face increased competition from large international companies. Apart from economic factors, Betz also

[54] Although these hypotheses can lead to similar hypotheses (deprivation relative to one's position in the past is similar to marginalisation of modernisation losers), relative deprivation may lead to a separate set of hypotheses if we investigate the effect of deprivation relative to other groups, for instance ethnic minorities.

highlighted the erosion of old collective identities (for instance that existing among the mining communities) and the inability of marginalised groups to cope with the new circumstances. The modernisation losers thesis predicts that support should be concentrated among groups which lost out the most: poorly educated, unemployed and unskilled. While empirical studies generally provide support for the link between low and moderate educational qualifications and support for far right parties[55], the results on unemployment are mixed. For instance, a positive association has been reported by Jackman and Volpert (1996) in their macro-level study, yet a negative effect (i.e. far right vote declines when unemployment goes up) was reported in a study by Kniegge which had a similar design (1998). Additionally, it is possible that the effect of unemployment becomes important only in some circumstances. For instance, in his comprehensive analysis of 165 national elections in 16 countries Golder found that the effect of national unemployment is conditioned by immigration levels (2003). Researchers looking at sub-national levels reported negative effect or no effect of unemployment in France, Belgium and the United Kingdom but not in Sweden (Lubbers and Scheepers 2000, Coffé, Heyndels and Vermier 2007, Biggs and Kanuss 2013, Rydgren and Ruth 2013). Importantly, studies where this explanatory variable was measured at an individual level found that while it may be insignificant at aggregate level, having a personal experience of unemployment increases the probability of voting for a far right party (Lubbers, Gijsberts and Scheepers 2002, Rink, Phalet and Swyngedouw 2009). With regards to class, Biggs and Knauss (2013) show that the proportion of small employers and self-employed in a neighbourhood increases the probability of white Britons belonging to the BNP, similarly Ivarsflaten argues that nationally blue collar workers and small business owners were

[55] But see Norris whose analysis covers radical right parties outside of Western Europe (2005). The author finds that while support for such parties is stronger among those with low or moderate levels of education, this is not always the case (for instance in Israel or Hungary) and that it would be an exaggeration to conclude that support for such parties is universally a domain of those with low education.

overrepresented among far right voters in Denmark and France (2005). However, the causal connection is not always clear; for instance, Lubbers and Scheepers studied Front National vote and claim that, at least in France, the overrepresentation of manual workers is explained by education and gender (2000).

Alternatively, researchers looked at ethnic competition thesis, which identifies presence of immigrants as a potential driver of surge in support for far right parties. Here, support is hypothesised to be driven by natives' response to challenges to their hegemonic position where the majority group becomes more hostile as the size of proximate ethnic minority group increases (Key 1949, Blumer 1958, Blalock 1967, Quillian 1995). Proponents of this line of analysis argue that ethnic hostility arises as a reaction to a conflict of interests which is generated by real or perceived competition over resources such as employment or housing opportunities but also, as is increasingly recognised, due to challenges over cultural homogeneity (McLaren 2003, Schneider 2008). Kitschelt (1995) and later Norris (2005) looked at the association between the national share of immigrants, increases of immigration levels and presence of refugees and far right vote but failed to find a clear link, yet for instance Lubbers et al. matched individual level survey data with national share of immigration and found that far right vote was positively associated with the number of non-Western immigrants in a country (2002). Yet, especially in case of ethnic conflict thesis, analyses based on national level comparisons provide limited insight. Commenting on findings which are based on large scale aggregate data, Rydgren warns that 'it is an ecological fallacy to conclude from country level data that voters living in ethnically heterogeneous countries also live in ethnically heterogeneous local settings', and there is a need for more fine grained studies in this field (2007). What is known about smaller geographical scales and what new directions shed new light on the impact of immigration on far right support?

Researchers reported that presence of immigrants is associated with higher voting for Front National across 97 French départements (Lubbers and Scheeepers 2000), Vlaams Blok across Belgian municipalities[56] (Coffé et al. 2007) or Sweden Democrats across 290 Swedish municipalities (Rydgren and Ruth 2011) although for instance Lubbers and Scheepers call for caution in interpreting these results, as they note that French départements are still relatively large units of analysis ('In some départements the number of ethnic immigrants in on average relatively high but villages exist where this number almost equals zero'). Some tried to use alternative measures of context by employing cross-national survey data where respondents were asked to define whether they live in an area with many immigrants or not. The findings reported by Rydgren suggest that in Denmark and the Netherland voters who lived in more ethnically heterogeneous areas were more likely to vote for a radical right party but this was not the case in Austria, Belgium, France or Norway (2008). Even though this is an innovative approach it does not go without some limitations as we do not know what respondents have in mind when they report presence of immigration in the 'area' where the live, not is it clear what they define as 'an area with some minority residents'.

Two promising directions have been explored in recent years. The first relates to recognising the importance of larger geographical context and capturing the effect of geographical location where far right vote is shown to be higher not necessarily within immigrant-dense areas but in areas which are close to them (Rydgren and Ruth 2013). This pattern has been previously remarked on (Bon and Cheylan 1988, Bowyer 2008) and Rydgren and Ruth managed to capture it in a quantitative analysis of *Sverigedemokraterna* vote across 5,668 Swedish voting districts. Yet, an even more persuasive quantitative

[56] The analysis of Coffé and colleagues, on the other hand, should be treated with caution because the authors did not look at individual level outcome variable but modelled the percentage of vote in municipalities.

evidence would be provided in a study which either looks at individual level data or which denominates the share of vote by the target population (minorities are unlikely to vote for a far right party). The second advancement came from integrating different spatial scales which allow to capturing a more nuanced dynamic where presence of immigrant has a different effects depending on the scale. An example of such study is the analysis of BNP membership presented by Biggs and Knauss where the authors have shown that membership in the BNP is lower in neighbourhoods with higher proportion of non-whites but higher in cities with larger proportion of non-whites when these cities are also highly segregated[57].

Supply side

Although demand factors play a role, the success of far right parties also depends on political environment and party characteristics. Within the political opportunity structure, researchers identified factors such as realignment process, where far right parties are expected to be more successful in countries where old social institutions of the left no longer exert influence on working class voters (Eatwell 2000, Rydgren 2002), the convergence hypothesis, where mainstream parties converge towards the center, creating niches and spaces which can be claimed by smaller and more radical parties (Kitschelt 1995, Ven der Burg, Fennema and Tilly 2005, Alzheimer and Carter 2006, although Norris (2005) did not find support for this hypothesis) and party system, where political systems with proportional electoral systems (Swank and Betz 2003, Jackman and Volper 1996,

[57] The observation that presence of immigrant may actually dampen support for a party right party is related to contact theory, a second influential perspective which holds that proximity to immigrants actually *decreases* levels of hostility (Allport 1954, Pettigrew 1998, Dovidio, Glick and Rudman 2005, Tropp and Pettigrew 2005). Importantly, Allport recognises that geographic proximity may not be sufficient for contact and thus he specifies four conditions which are necessary to facilitate intergroup interaction. These conditions include equal group status, common goals, intergroup cooperation and support of the authorities (Allport 1954). Since its introduction over 50 years ago, the contact hypothesis has been tested in a variety of contexts and supported by a substantial amount of evidence (for a review see Pettigrew 1998) which seems to confirm that intergroup contact is associated with lower levels of prejudice.

Golder 2003) and system with lower entrance thresholds (Van der Burg et al. 2005, Carter 2002, Norris 2005) offer a better environment for far right parties to emerge and grow. Additionally, the success of far right parties depends on their organisational practices and ability to recruit members to create areas of local support. In their cross-national analysis of right-wing voting in countries of the European Norway and Norway, Lubbers and colleagues found that certain characteristics of right-wing parties (such as charismatic leader, well organized party and an active cadre) are associated with electoral success (2002). In fact, the authors claim that organizational characteristics are more important than other political factors, which suggests that factors associated with organisational characteristics of far right parties should be given serious consideration. In this part, we will investigate evidence for the so called 'legacy effect', which belong to the group of organizational factors within the supply-side explanations, where researchers have argued that far right can benefit from organizational continuity (Goodwin, Ford and Cutts 2012).

Studies on British far right

For many years Britain has been considered as one of the few Western European countries where far right parties never secured wider support, in fact when included in the analysis it was often discussed as a negative case with scholars pondering over factors which forced far right groups into political wilderness. Starting in the mid-2000s, the BNP was the first far right party since the National Front in the 1970s which managed to attract some support. This may be partly the reason why in comparison to other European far right groups, the amount of research on the contemporary far right in the United Kingdom is still relatively scarce, with scholars focusing on the analysis of electoral results (Borisyuk, Rallings, Thrasher and van der Kolk 2007, Bowyer 2008, Ford and Goodwin 2014), historical development and ideology (Eatwell in Hainsworth 2000, Copsey 2004, Goodwin in Eatwell and Goodwin 2010) and sometimes on qualitative research (Goodwin 2011,

Rhodes 2012). The emerging evidence seems to confirm that support for the far right is most likely among middle-aged men with lower levels of educational attainment who tend to be located in the North of England, Midlands or Yorkshire and inhabit segregated cities with large numbers of non-white residents. These findings provide support for Betz's 'modernisation losers' hypothesis, which asserts that globalisation and the rise of post-industrialism have led to relative impoverishment of some societal groups. As a result, those who were 'left behind' started to blame the newly arrived ethnic minorities for their precarious economic position (1994). Although previous research on the contemporary far right sometimes advocated the 'working-class authoritarianism' hypothesis (Whiteley 1979, Ford and Goodwin 2010), claiming that individuals employed in the manufacturing sector are particularly prone to support extreme right groups, the evidence as to how class affects contemporary far right support seems to be mixed (Bowyer 2008, Biggs and Knauss 2012).

What the second part is about

In this thesis we focus on two subgroups of these theories, with respect to demand-size explanations we look at contextual factors related to immigration. These tend to be conceptualised within the group of ethnic competition and ethnic contact theories which predict how presence of groups which do not fit the ideal of homogenous community relate to success of far right politics. With respect to supply side factors, we look at organisational characteristics in particular the evidence of organizational continuity between modern far right parties and far right parties from an earlier era, which could boost electoral performance.

In 2008, a unique opportunity for studying the British far right emerged when a dataset containing a complete list of over 12,000 members of the British National Party was leaked on the Internet. Analysing this dataset, Biggs and Knauss proposed a multilevel

model of British National Party membership which shows that the presence of ethnic minorities may have different effects on the levels of ethnic hostility, depending on the scale at which these groups are observed. Specifically, the model suggests that the probability of white British adults belonging to the BNP is lower in small-scale neighbourhoods inhabited by a substantial proportion of non-whites and that it is higher in large scale districts with a substantial proportion of non-whites, although this effect is conditioned on the high degree of segregation between white and non-white residents (Biggs and Knauss 2012). Similarly, earlier findings with reference to 2002 and 2003 local council elections led Bowyer to conclude that:

> *While the BNP seems to receive the most support in districts with large ethnic minority population, its strength seems to be concentrated inwards where white residents are less likely to encounter members of ethnic minority groups than other whites in their district, i.e., in white enclaves within ethnically diverse cities*. (Bowyer 2008)

The fact that the proportion of non-white population has different effects at these two scales is important, because it allows reconciling the contact and threat hypotheses of racial prejudice. Although these two theories make apparently contradicting predictions as to the effect of proximity to non-white residents, it seems that living on the same street with people coming from different ethnic groups is responsible for lower levels of BNP membership among white Britons, while being a resident of a district with highly segregated and substantial ethnic communities may increase the feeling of threat, consequently heightening the probability that white British will join the BNP. Further empirical support for this intriguing observation came from Sweden; in their recent paper Rydgren and Ruth (2013) show that electoral support for Swedish Democrats follows a pattern whereby the vote is strongest in areas close to immigrant-dense areas but not

within these areas. The authors follow the theoretical argument outlined above, namely that the 'halo effect' arises due to discrepancies between living close to the 'imagined other' but not the 'experiences other'.

While all three papers in this part revolve around the theme of discrepancies outlined by Rydgren and Ruth, the first paper in the second part of this thesis starts with the question of attitudes – does experience of living in areas with immigrants make native Britons less enthusiastic about immigrants? The answer to this question has been often taken for granted; here we show that it is more complicated than often assumed. Importantly, we would like to highlight that anti-immigration attitudes on its own are a necessary although not a sufficient condition for far right support. Not all people who are sceptical of immigration would get involved in xenophobic and racist politics represented by the BNP. The second paper is based on the BNP membership model proposed by Biggs and Knauss. In the first part we will try to bring the 'white enclaves' argument one step further by showing that ethnic threat can work on a larger scale and influence not only the district for which predictions are made but also its surrounding districts. Initially, accounting for possible spatial effect was motivated by the fact that the model proposed by Biggs and Knauss is adversely affected by spatially correlated residuals, with membership most underestimated for districts of Melton, Charnwood, Pendle, North West Leicestershire and Blaby (see Figure 11). Even though the authors have controlled for urban-rural division by including a variable for population density, it seems that some of the rural areas display an unexplained propensity for higher than expected BNP membership, a fact which we will try to explain by accounting for two types of spatial effects.

In the remaining part of this paper we will aim to further develop Biggs and Knauss' model by testing a set of hypotheses derived from the threat and contact hypotheses of ethnic hostility. For instance, since far right activity is often thought to emerge in response

to threat posed by changing ethnic composition, it seems likely that demographic change could be a factor influencing BNP membership. Some recent studies on the American far right used measures of demographic change instead of the absolute levels of non-white population (Van Dyke and Soule 2002, Hopkins 2010). Here we will attempt to answer the question of whether recent demographic increase of non-white groups can account for elevated support for the BNP and to what extend can demographic change be used interchangeably with absolute levels of non-white population. Additionally, it has been highlighted by Goodwin (2011) that the geographic distribution of BNP membership indicates that areas heavily affected by de-industrialisation tend to have more far right supporters than other regions, an assertion which we can test by operationalizing de-industrialisation as depopulation and decline in white population.

Next, we will show how social distance, measured by educational attainment, can be included in the membership analysis. By accounting for social distance, we try to include controls for equal status which has been identified as an important condition for intergroup contact. Lastly, although the threat theory seems to be supported by the findings on ethnic composition, it is interesting to notice that among studies we reviewed, all but one (Ford and Goodwin 2010) report the insignificance of unemployment levels in predicting BNP support, while reporting that a higher proportion of Muslim population in the region is associated with high levels of far right support. We suspect that at least in part, BNP membership may be associated with the feeling of cultural threat related to proximity of culturally distinctive non-white residents and we will test this hypothesis by including a variable for the logged number of mosques at ward and district level.

In the last paper we will re-examine the evidence for the so-called 'legacy effect'. A recent analysis of the BNP membership dataset led researchers to conclude that they have shown that 'earlier cycles of activism by the NF (National Front) emerge as a strong and

significant predictor of modern membership of the BNP' (Goodwin, Ford and Cutts 2013). By using GIS[58] tools, we can obtain more sophisticed measures of the NF support in the 1970s. Once our measures of NF support in the 1970s are introduced into the model, the legacy effect hypothesis is no longer supported.

[58] Geographic Information System

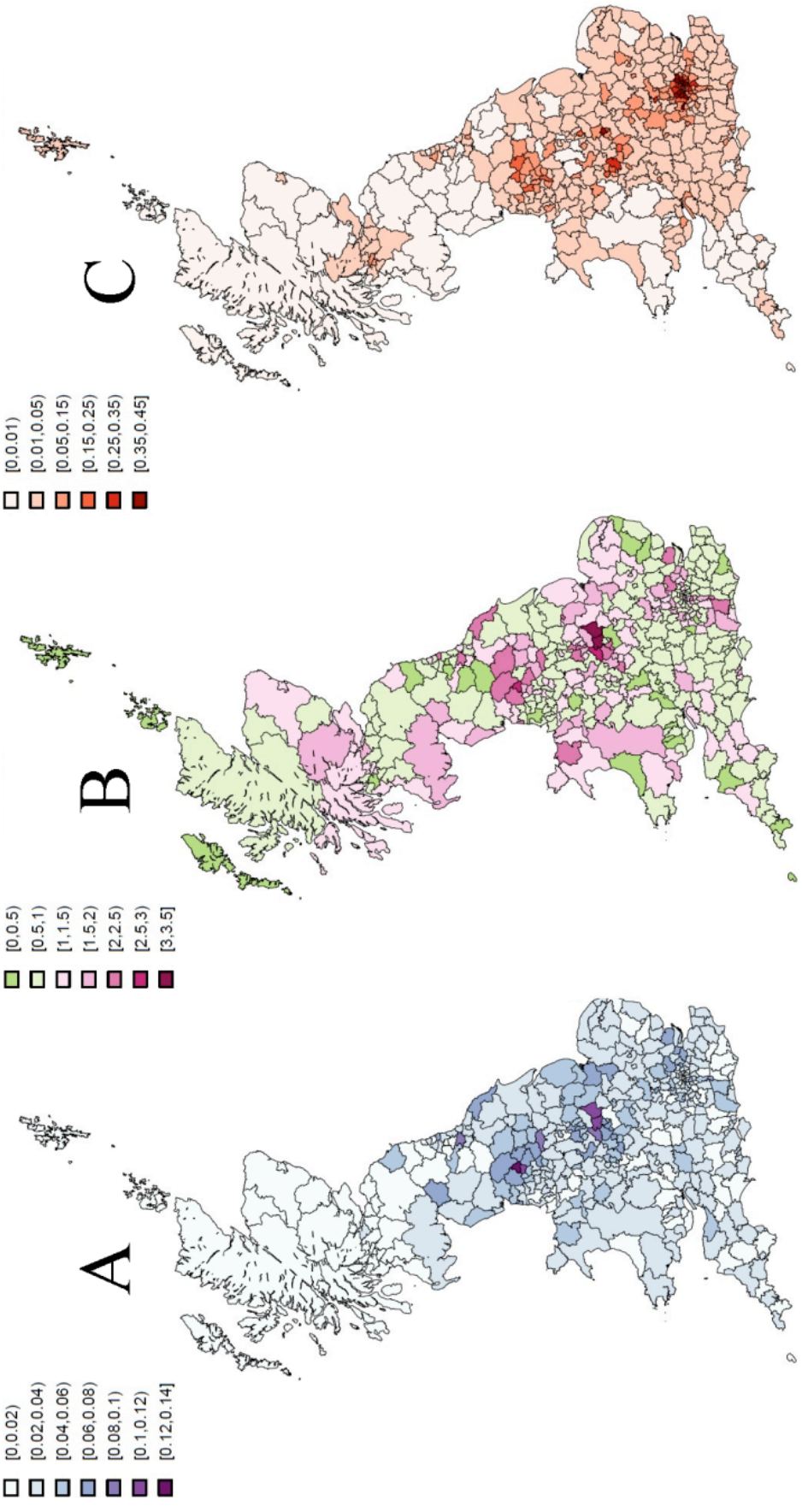


FIGURE 11 (A) DISTRICT DISTRIBUTION OF PERCENT OF BNP MEMBERS, (B) RESIDUALS FROM MULTI-LEVEL BINOMIAL LOGISTIC REGRESSION MODEL PROPOSED BY BIGGS AND KNAUSS, (C) PROPORTION OF NON-WHITE RESIDENTS

PAPER 3 TOO MANY IMMIGRANTS: WHAT SHAPES PEOPLE'S PERCEPTION AND ATTITUDES TOWARDS IMMIGRANTS

> *In a recent interview Fatima Manji, a second-generation British-born Muslim reporter working for Channel 4, queried residents of Redcar and Cleveland about their views on immigration. Two white women from one of the most white and ethnically homogenous areas in the country admitted that there had not been much immigration into the area, nevertheless they were concerned about the influx of immigrants in near-by Middlesbrough*[59]*. The conversation seemed quite friendly until Manji asked them 'And what is it you worry will happen' which was followed by an uncomfortable silence. The women look at each other, then at Manji. They looked at her headscarf, finally one said, 'That there will be more of them than us'. (Channel 4 News 2013)*

In many ways, this conversation exemplifies the recent debate about immigration in the United Kingdom – there is a large volume of discussion and concerns about immigration yet it is not exactly clear who counts as an immigrant and whether people living in communities which are experiencing immigration are most worried about the influx of immigrants into the country. It is important to stress that British history is one of 'astounding traffic into and out of our ports' (Winder 2005). Post-WW2 immigration in particular has had a profound and lasting impact. Fifty years ago British population was a fairly homogenous country with slightly over 1% of non-white population, by 2011 the share of population who identifies as ethnic minority constituted 13%, with a similar figure for foreign-born residents[60]. The level of immigration has been high over the last two decades. The Office of National Statistics (ONS) shows that the net migration rose

[59] Data from 2011 Census shows that 97% of residents described themselves as white British; it is also in the last decile in terms of change in the share of non-whites as well as foreign-born white population.
[60] Estimated total 'coloured' population in 1966 Census, as reported by Rose (1969).

markedly in the 2000s reaching an all-time high in 2015. To see how these developments have been linked with the level of public concern, it suffices to note that in 2007 immigration and race relations topped the list of most important issues facing the country, ahead of education, the National Health Service (NHS) and the economy[61] (Page 2009, Blinder et al. 2011, Blinder 2014).

Although over the last 20 years attitudes towards immigration hardened, with 56% of the adult residents favouring a large reduction in immigration (up from 39% in 1995), yet British public remains strikingly divided on attitudes to immigrants[62] (Ford and Heath 2014). British research in this field tends to focus on individual factors, it has been shown that more negative views about immigrants are associated with having lower educational qualifications, coming from lower income households and working in lower-supervisory and technical occupations (Dustmann and Preston 2001, Ford and Heath 2014) which broadly corresponds with the modernisation loosers hypothesis used to explain the increasing support for radical right in Europe (Betz 1994). Also, some increase in the anti-immigration attitudes can be attributed to the fact that politicians have increasingly referred to immigration in order to gain popular support. For instance, Michael Fallon, the Conservative defence secretary talked about British people who live in 'towns under siege' and expressed his concern that British people 'feel swamped by immigration' *(Financial Times*, October 26, 2014) while Nigel Farage, the leader of the UK Independence Party, worried that parts of Britain that were 'becoming like a foreign land' (*Guardian*, February

[61] It is important to stress that increasing share of ethnic minority residents is as much due to migration as it is due to higher birth rates among ethnic minority groups (often with British citizenship, frequently living in the United Kingdom for many decades, most commonly from Caribbean and South Asian backgrounds). Historically, the dynamics of immigration in post-WW2 years can be roughly divided into two important (and different) waves, the first one lasting until mid-1970s and consisting mostly of migrants from former British colonies, the second wave taking place in the last decade where there was a large influx of migrants from EU countries.

[62] For instance, even though the balance of opinion is negative, 31% think that immigration has been good for British economy, and 35% say that immigration enriched Britain's cultural life (Ford and Heath 2014).

28, 2014). Yet, there is surprisingly little evidence on whether those who are most negative in their assessment also come from areas with first-hand experience of immigration, or, like in case of worried residents of Redcar and Cleveland, live in place where there are hardly any immigrants in sight.

This paper aims to investigate how local context (i.e. local setting, an area which one lives in and which is known to him/her) is associated with perception and attitudes towards immigrants in England and Wales. Secondly, trying to establish what is the most salient image that comes to respondents' minds when they are asked questions about immigration we introduce three operationalisations of 'immigrant' groups based on ethnicity, skills and religion. We show that when it comes to defining the most salient immigrant category, ethnicity is more important that skill-based or religious categories. Lastly, we examine how local demographic changes and levels of immigration are associated with attitudes towards immigrants.

How context influences attitudes towards immigrants

To examine variation in attitudes towards immigrants it is necessary to look at both individual factors and local context in which natives interact with other people. The two dominant theoretical frameworks linking attitudes with local context are the power threat hypothesis and contact theory. Rooted in the work of Blumer (1958) and Blalock (1967), power threat hypothesis was originally applied to conceptualize ethnic hostility in terms of size relations between dominant and subordinate groups. With sufficient numbers of newcomers, the hegemonic position of the majority group would be undermined, thus generating competition over resources such as employment, access to social housing or political influence (incidentally these arguments are used in British political debate). How can this framework be applied to anti-immigration sentiments? As observed by Hopkins, exhibiting more negative attitudes towards immigrants in immigrant-heavy communities is

the hallmark of a threatened response (Hopkins 2010). In contrast, contact theory proposes that under certain conditions, local environment with higher share of minority groups facilitates a reduction in prejudice among members of the majority group. Contact theory is often attributed to a pioneering work of Allport (1954), who underlined the importance of interaction in the process of attitude formation. Importantly, presence of immigrants is not a sufficient condition to facilitate a reduction in negative attitudes. Not all forms of contact are equal; in particular, it is important to distinguish between contact resulting in formation of social ties (for instance participating in social or cultural activities organised by members of a minority group) and superficial casual contact, which does not facilitate a reduction in negative attitudes (Pettigrew 1998).

What is the evidence in support of these hypotheses? First, it seems that threat operates at a larger scale, while contact takes over at smaller scales that are more conducive to formation of interpersonal ties. This makes sense; after all we are more likely to come into meaningful interaction with people living in the same area but would normally have little contact with people living on the other side of the country (despite that fact that we may be aware of their existence and have some, more or less informed, opinions about them). Additionally, having first-hand experience of immigrant-dense areas is likely to make people more critical of inaccurate or misleading messages about immigrants[63].

Cross-national studies generally provide support for power threat hypothesis with the size of the minority groups reported to foster more negative attitudes towards immigrants. In an early influential piece Quillian examined Eurobarometer data for 12 Western European countries, finding that the effect of the share of non-Western immigrants is intensified by deteriorating economic conditions, with prejudice on the rise when there is both a large

[63] A good example of this is a vigorous reaction from residents of Birmingham after the city was recently called a *no-go zone* for non-Muslims by a Fox News guest commentator, Steve Emerson.

foreign presence and poor economic conditions (1995). Further studies showed that the size of immigrant population (foreign born, those with at least one foreign-born parent, non-EU migrants, non-Western migrants, religious minorities or immigrant ethnic minority groups) measured at country level is positively related with perceived threat (Schneider 2008), exclusionary preferences (Scheepers et al. 2002) and anti-foreigner attitudes (Semyonov et al. 2006, Semyonov et al. 2008), although for instance Strabac and Listhaug (2008) reported that the size of Muslim population in a country does not increase the level of anti-Muslim prejudice, while Hjerm (2007) as well as Sides and Citrin (2007) examined European Social Survey data and concluded that actual or perceived size of immigrant population at the country level does not have an impact of attitudes towards immigrants in Europe.

In trying to reconcile these studies with a general pattern emerging from cross-national studies let us note that Strabac and Listhaug, Hjerm as well as Sides and Citrin include in their analyses Central and Eastern European countries which exhibit surprisingly high levels of anti-immigrant attitudes given relatively low levels of non-Western immigration. This is a questionable selection (and exposes the problem of cross-national analysis) because the authors do not take into account the fact that in Central and Eastern Europe the demise of communism was met with the surge in ethnic nationalism often associated with the struggle for independence under the communist rule [64] (Evans and Need 2002).

Research on the impact of immigration in the subnational context provides less conclusive, a plausible explanation for this is that at smaller scales the effect of contact starts to mediate threat reactions. Studying the subnational context, researchers have variously

64 Incidentally, it is worth noting that Luxemburg, a country with over 44% of foreign-born residents, lies on the other side of the attitude spectrum, with natives holding fairly positive attitudes towards immigrants. A recent work by Weber shows that inclusion of Luxembourg affects the overall results of cross-national analysis (2015), with variables for the share of foreign-born going out of significance in models containing Luxembourg.

reported that levels of immigration can either have a negative effect on attitudes towards immigrants (Fossett and Kiecolt 1989, Quillian 1996, Schlueter and Scheepers 2010) have no effect (Dustmann and Preston 2001, Evans and Need 2002, Semyonov et al. 2004, Hjerm 2009), have different effects depending on which immigrant group is considered (Taylor 1998, Dixon and Rosenbaum 2004) or even have a positive effect (Fox 2004, Wagner et al. 2003). Studies from US and Europe consistently report that personal contact with immigrants (having immigrant friends, acquaintances or colleagues) mediates threat response (Dixon and Rosenbaum 2004, Schneider 2008, Ellison et al. 2011) Additionally researchers sought to distinguish between small and larger geographic scales to show that threat and contact operate together, although at different scales (Oliver and Wong 2003, Ha 2010, Biggs and Knauss 2012). For instance, Ha looks at both small and large geographic scales and reports finding that 'attitudes toward immigrants vary across geographic areas […] anti-immigrant sentiments tend to be greater in the metropolitan areas, and pro-immigrant sentiments are relatively larger in the neighbourhoods'.

The lack of consensus can be illustrated by considering three UK studies, which investigate how local context affects anti-immigrant attitudes. Dustmann and Preston (2001) examine British Social Attitudes surveys between 1983 and 1990 and look at the share of ethnic minority groups at the ward level. The authors control for individual factors (sex, age, income, employment status, class, education, religion, housing tenancy) and find that the share of immigrants has no apparent effect on various forms of anti-immigrant sentiments. Dustmann and Preston warn that researchers should exercise caution in evaluating attitudinal studies where ethnic composition is treated as an exogenous variable, especially if units of analysis are small (this is because most residential moves take place over relatively short distances). Finding that a higher share of immigrants in an area is associated with more positive attitudes does not necessarily warrant a conclusion that the

presence of immigrants changed anyone's attitudes towards them; an alternative interpretation would be that those with most negative attitudes were the first to move. The authors say that 'high concentrations of ethnic minorities, if they have any effect, probably lead to more hostile attitudes in England'.

Although Dustmann and Preston make a compelling methodological argument, their point is contradicted by empirical evidence from a recent study by Kaufmann and Harris who use longitudinal data from British Household Panel Survey to show that among white British movers, those who relocate to more diverse wards are not significantly different from people moving to less diverse wards (Kaufmann and Harris 2015). A third study which examines how context influences attitudes in the United Kingdom is that of Bridges and Mateut (2014), with the authors looking at variation across 12 regions (NUTS1) and reporting that British attitudes towards immigrants are negatively correlated with the share of immigrants in the region (which Bridges and Mateut interpret as a clue that contact plays an important role in explaining attitudes towards immigration). A weakness of this study, however, is that the authors look at attitudes of all respondents, not the native majority group[65].

To reiterate, this paper aims to shed light on the influence of contextual factors on attitudes towards immigrants in England and Wales. In doing so, we make use of a rich source of information available from British Election Study, which allows to measure attitudes at individual level and link them to local characteristics of areas where respondents live. Additionally, this study seeks to address the following problems: (1) reliance on the assumption that people are capable of assessing the extent of immigration in their

[65] From the methodological point of view, this is an important weakness. Consider that in some areas of Britain, notably in London, people may exhibit positive views about immigration and ethnic minorities; yet Londoner's attitudes should also be interpreted in the light of the fact that over 50% of London's residents are non-whites.

environment, (2) inconsistence in the use of immigrant category groups and (3) insufficient recognition of the impact of changes vis-à-vis levels of immigrant populations.

PERCEPTION AND REALITY

Before looking at how contextual factors influence attitudes, let us explore whether actual demographic change is related to peoples' perception of immigration levels. Power threat hypothesis assumes that concerns over immigration are rooted in local demographics. Hence, in order to feel threatened by immigrants, residents must first know that immigrants are present in the area or alternatively, be aware that the immigrant population is growing. This issue was investigated by Semyonov et al. (2004) who examined how perception of the national share of immigrants was associated with regional share of foreign-born population across 59 districts in Germany. The authors note that perception of the size of immigrant population was almost twice as high as the actual levels at the district level. Furthermore, they report that even though perceived size is positively associated with perceived threat, actual size is not significantly related with perception of threat, suggestion that (at least in Germany) perception of immigration is not only *biased* but also *inaccurate*. This conclusion stands in contrast with finding reported by Schlueter and Scheepers (2010) who found that for Dutch municipalities, objective size of ethnic minority groups corresponds with subjective perception. The authors also note that perception of a larger ethnic minority group was associated with perception of threatened group interests, which in turn translates to more negative attitudes towards ethnic minorities. There are two possible reasons why results reported by Semyenov et al. and Schlueter and Scheepers diverge. First, the authors adopt different definitions of immigrants (a point which we will develop in this paper), secondly the first study looks at a much larger scale than the latter. In a similar study conducted in the United States, Newman et al. (2015) report that objective measures of the size of the foreign-born

population and unemployment rate strongly predict perceived levels of local immigration. The results show that those residing in zip code areas with largest share of immigrant population (73% foreign born in parts of Miami, Florida) were nearly 70% more likely to report living among 'many immigrants' when compared to those residing in zip code areas with no foreign born residents.

The link between perception and actual levels of immigration at smaller regional scales remains understudied in the United Kingdom. In line with findings reported by Semyenov et al. for Germany, we know that perception of immigration levels in the United Kingdom is consistently *biased*, with national level surveys showing a widespread misconception about immigration levels (Saggar and Drean 2001). Consider that Ipsos MORI recently reported that the mean estimate of the proportion of foreign-born population in the UK was 31%, well over twice 13% given by 2011 Census (Duffy and Frere-Smith 2014). Moreover, analysis of European Social Survey data shows that Britons top the list of nations that overestimate the national share of foreign-born residents in the country (Sides and Citrin 2007). However, to the best of our knowledge, no study has looked at whether estimates correlate with actual proportions, that is whether respondents living in areas with higher share of immigrants also give higher estimates (this builds on a distinction between *biased* and *accurate* estimates, here the question is about the later). Due to the nature of our data, we are going to look at perception of changes rather than levels. There are good theoretical reasons to look at changes. It has been argued that in comparison to levels, changes in the proportion of immigrant minority groups are less likely to escape natives' attention. One can also invoke an influential prospect theory from behavioural economics, which (in circumstances unrelated to anti-immigration sentiments) holds that when evaluation gains and losses people tend to react to changes rather than the absolute levels (Kahneman and Tversky 1979).

Hypothesis 1: Perception of immigration levels is positively associated with actual demographic change.

WHO ARE THE IMMIGRANTS?

The second question related to identifying who are the people that white Britons (i.e. the people whose nativity is rarely questioned) see as immigrants. The fact that studies on attitudes towards immigrants use different ways to conceptualise the population of interests makes the results difficult to compare. Two studies mentioned in previous section may serve as an example; Semyonov et al. looks at foreign-born while Schlueter and Scheepers at ethnic minorities, yet both studies draw (diverging) conclusions about attitudes towards immigrants. Who are the people that white British are most responsive to when asked questions about their attitudes to immigrants?

Immigrants are most commonly defined by ethnic criteria; arguably even the Western/non-Western distinction employed by Schneider (2008) or Hjerm (2009) coincides with ethnicity. Using data from 1983-1996 British Attitudes Study surveys, Ford (2011) shows that attitudes towards immigrants are more negative respondents are asked about immigrants from South East Asia and West Indies (i.e. non-whites), and more positive towards European and Australian nationals. Ford argues that racial hierarchies are a key dimension distinguishing acceptable from unacceptable immigrants. Some authors have argued that attitudes towards immigrants are no longer driven by crude racism but are rooted in concerns over economic well-being and symbolic unity of the majority group. An alternative to ethnic criteria would be skills - attitudes towards immigrants may be shaped by conditions in the labour market, with negative opinions concentrated on immigrants who are unskilled or unemployed. There is some empirical support for this idea. For instance, in a pioneering study, Hainmueller and Hiscox (2010) use experimental survey design to show that American opposition to arrival of more immigrants depends on

whether immigrants are described as highly skilled or low skilled. If skills are the key dimension across which acceptable immigrants are distinguished from unacceptable ones, we would expect to see that the skill levels of immigrants matters and that white British have more negative views if they live in local environments with higher percentage of unskilled immigrants. Third dimension of acceptability refers to sociocultural issues such as symbolic threats and the idea of ethno-pluralism. McLaren (2003) argues that across EU15 countries, the preference for expulsion of immigrants is driven not by self-interest (i.e. unemployed persons showing more negative attitude towards immigrants who may take their place in the labour market) but by perception of cultural and religious threat. Similarily, Rydgren notes that a potent narrative used by radical right wing parties is rejection of multiculturalism and the idea that different ethnicities may be incompatible and incommensurable. Religious minorities, Muslims in particular, are mentioned as a potential source of symbolic threats (McLaren and Johnson 2007, Rydgren 2007). This is reminisced of the view that values and beliefs of some religious groups are fundamentally at odds with one another and that their expansion threatens 'our way of life'. This perspective was popularised by an influential work of Samuel Huntington, who warns against the inherent clash of civilisations (Huntington 1996). On cannot help noticing that it gained some support, considering that British Attitudes Survey from 2003 showed that 47% of the public thought that British Muslims could never be really committed to Britain, with a further 62% saying that British Muslims were more loyal to other Muslims around the world than they are to other people in this country.

To sum up, while ethnicity and country of birth are the most common characteristics used to describe immigrant population, in order to test which set of criteria is most salient we propose to consider the ethnic, skill-based and religious categories. The exact way in which we define these immigrant groups will be outlined in the next section.

Hypothesis 2a: Higher levels of non-whites would be associated with more negative views on immigration.

Hypothesis 2b: Higher levels of low skilled immigrants would be associated with more negative views on immigration.

Hypothesis 2c: Higher levels of Muslim immigrants would be associated with more negative views on immigration.

THE ROLE OF CHANGES VIS-A-VIS LEVELS

When examining how levels of immigrant groups impact attitudes, researchers often make a mistake of applying a static framework to a dynamic process of relations between natives and immigrants. Consider the inherent vagueness of what it means to be an immigrant; even though immigrants arrival may attract media attention and mobilise people to express their opposition, incoming migrants and their children often stop being seen as immigrants after residing in a country for a while. This temporal dimension is crucial - with time come the possibilities for a more meaningful contact and despite initial difficulties, immigrant minority groups often become more established overtime (think of how Notting Hill Carnival became an icon of British cultural life and how in early years it faced violent backlash which culminated in Notting Hill race riots[66]). It is plausible that people react adversely to a rapid influx of immigrants, but once they have time to get used to the new environment, they re-evaluate their assessment. Advancements in studying contextual factors that affect attitudes towards immigrants came from studies that moved from levels-based approach to consider the impact of overtime changes (Olzak 1987, Olzak 1990, Hopkins 2010) and the interaction between levels and changes (Green et al. 1998,

[66] In 2006 The Notting Hill Carnival was added to the list of 100 icons of Britain along with Big Ben, Sherlock Holmes and Morris dancing. The ICONS project was commissioned by The Department of Culture, Media and Sport with nominations and votes made by the public.

Newman 2013). Importantly, while in some studies change is conceptualised merely as a derivative of levels (for instance according to Hopkins (2010) 'while levels of ethnic heterogeneity might escape notice, changes are less likely to do so […] When people filter the vast quantities of information available, they pay special attention to change'), others argue that levels and change should be considered jointly.

One such perspective, rooted in a classical interpretation of power-threat hypothesis, holds that members of the majority group would exhibit more hostile views towards minority groups when the size of the latter presents a challenge to the interests and dominant social and political position of the majority group. This focus on the balance of power is a prominent theme in Olzak's work on ethnic competition. Olzak says that conflict is more likely to erupt at times when ethnic and racial hegemony of the dominant group is challenged and the racial order begins to break down. The rate of ethnic collective action follows as a consequence of higher *levels* of minority groups but also as a reaction to rapid *changes* in levels of immigration that further increase hostility. This assertion has been empirically confirmed in Olzak's analysis of incidences of ethnic collective action (violence and protest) in the United States (1987). Interestingly, while the finding about the impact of changes seems fairly robust, in other study Olzak found either no effect of levels or even that higher levels of minority population was associated with less incidences of violence (Olzak 1990).

Although some studies imply that attitudes towards members of the minority group will be more negative in areas with substantial share of minority population, others suggest that attitudes will be more negative when minorities constitute a smaller share of the population. The latter is in line with the prejudice reduction mechanisms which is at the heart of contact theory – when there are no opportunities for contact peoples' ideas about members of other groups will be based on (often negative) stereotypes. How can levels

interact with change in shaping attitudes? An alternative to ethnic competition is found in the defended neighborhoods hypothesis that says that hostility towards immigrants will be stronger in homogenous areas experiencing rapid increases in immigration levels. The emphasis on demographic changes suggests that the sense of threat is not simply a function of the minority population but also depends on prior expectations about the local environment. The defended neighborhoods hypothesis was tested in the context of hate crimes against Asians, Hispanics and blacks in New York (Green, Strolovitch and Wong 1998), with results showing that racially motivated hate crimes were related to demographic change (i.e. hate crimes where more common when non-whites have moved into areas described as white strongholds and lower if these minority groups have long resided in significant numbers).

Similarly, Newman et al. (2013) provide evidence that white Americans' response to local changes depends on the prior demographic balance in the area. In American counties where there were few Hispanics initially, an influx of Hispanics increased threat response and fostered anti-immigration attitudes. The authors contend that a rapid increase in immigration levels will be most threatening for those living in areas with small pre-existing immigrant populations and least threatening for those residing in areas with where immigrant are more numerous. Newman and colleagues draw attention to the process of acculturation, which the authors define as large-scale sociocultural change due to novel contact between distinct groups, saying that although individuals are likely to experience cultural shock, they adapt to the new environment over time. Hence higher base levels are associated with more positive attitudes towards the minority group. Whites react adversely to increases in the levels of immigration, however the same change would be associated with less negative reactions in an area where residents have had a chance to interact with non-white population over a longer period of time.

Importantly, ethnic competition and defended neighborhood perspectives, while agreeing on the effect of rapid increases in immigration level, offer divergent predictions about the impact of levels. From ethnic competition perspective, higher levels of minority group population are a source of competition and threat, while defended neighborhoods hypothesis focuses on possibilities for contact and reduction in prejudice following from residing in a context with more numerous minority groups. With regards to the effect of change, the theories make similar prediction (i.e. change is associated with higher levels of hostility) but differ with regards to mechanisms; ethnic competition sees increases in immigration levels as a challenge to hegemony of the dominant majority group, defended neighborhood perspective as a catalyst for action among those who seek to preserve homogeneity.

Hypothesis 3a: Higher levels of immigration are associated with less positive attitudes towards immigrants.

Hypothesis 3b: Higher levels of immigration are associated with more positive attitudes towards immigrants.

Hypothesis 4: Increase in the size of immigrant population is associated with more negative attitudes towards immigrants.

Hypothesis 5: Increase in the size of immigrant population is associated with more negative views about immigrants in areas that had lower share of that immigrant population (interaction effect).

A final contextual aspect influencing threat is residential segregation. As observed by Pettigrew and other proponents of contact theory, presence of minority group may not result in reduction of negative attitudes if contact takes place in the context of high segregation between the minority and majority groups (Pettigrew 1998). Despite a

substantial body of literature on attitudes to immigrants, the potential influence of residential segregation remains overlooked or tested with measures that conflate residential segregation with ethnic composition. For example, upon finding that the share of foreign born is positively related with attitudes towards immigrants in US counties and negatively related to attitudes across French *régions* and *départements* Fetzer writes that:

> *Perhaps immigrants in the US are less strictly segregated than the foreign-born are in France' and 'interactions in US counties may then represent a good or close contact whereas most contact in the more segregated French regions would remain casual and hence produce hostility toward immigrants*. (2000)

but he never explicitly tests this hypothesis. Similarly, in a study which seeks to test how segregation influences establishment of interpersonal ties with members of minority group, Semyonov and Glikman (2009) look at self-reported neighborhood composition (respondents are asked if they live in a neighborhood where almost nobody, some or most of residents are of different ethnic origin) of European Social Survey respondents across 21 countries finding that living in more heterogeneous neighborhood is associated with higher probability of forming inter-ethnic ties.

The impact of residential segregation has been tested in studies of far right support. For instance, Biggs and Knauss show that membership in British National Party among the British majority population is higher in local authorities which have high levels of residential segregation (Biggs and Knauss 2012). Van der Waal and colleagues have later confirmed this finding in their analysis of *Partij voor de Vrijheid* vote in 50 Dutch cities (2013). A plausible argument can be made to the contrary, namely that residential segregation may be associated with lower levels of hostility towards immigrants. In her original analysis of variation of anti-immigrant vote in Swedish electoral districts, Valdez

argued that highly segregated areas may decrease the visibility of immigrant groups, hence reducing the feeling of threat for the majority group (2014). Her results show that the presence of highly segregated estates is associated with reduction in anti-immigrant vote, although the share of the non-Western population is still a positive predictor.

Hypothesis 6a Segregation of immigrants is associated with more negative attitudes towards immigrants.

Hypothesis 6b Segregation of immigrants is associated with less negative attitudes towards immigrants.

Data and Method

This analysis distinguishes two levels: the individual and the contextual measured at the Westminster parliamentary constituency level. Individual data comes from the British Election Study (BES). The main focus of the British Election Study is political participation, however respondents are also asked about their views on immigration and whether they think that immigration levels are going up or down. Here, we use Wave 4 from the latest study, which was conducted in March 2015 on a sample of over 26,000 respondents. The BES is an Internet survey and hence we should consider possible implications for drawing inferences about the population. Started in 1967, BES has been a long running study, the closest that British political science came to institutionalising empirical research (Scarbrough 2000). The data is collected by YouGov using an online sample of its panel members. The advantage is that YouGov has a relatively large sample at its disposal – over 360,000 British adults who take part in its surveys. For nationally representative samples YouGov draws subsamples so that the panel is representative of British adults in terms of age, gender, social class and types of newspapers read[67]. After

[67] Information from https://yougov.co.uk/about/panel-methodology

collection data is weighted (by age, gender, social class, region, party identity and newspaper readership) to represent the national profile of all adults aged 18+, including people with no Internet access. Importantly, the company states that its nationally representative samples are an accurate approximation of British population and 'Not just those with internet access, but everyone' [68]. Yet, it is true that BES is a panel study and hence it is designed specifically for studying political opinions and changes overtime, not cross-nationally. In other words, BES methodology is less focused on producing population estimates of the levels of variables than tracking individual level changes in political attitudes and behaviours.

Because we want to examine perception and attitudes of the non-immigrant majority group, we focus on a subsample of white British respondents from England and Wales [69]. What makes BES suitable for our purpose is that we know where each respondent comes from, down to the level of Westminster constituency. Although these units are larger than local neighbourhoods, we argue that they are the natural unit of analysis for competition over political influence. Arguably, the impact of contact may be more problematic in context of Westminster constituencies (which on average have about 97,000 residents). We would prefer to use much finer scale; however, this is the smallest level of aggregation available in a survey that asks question about respondents' views on immigration. Still, it should be stressed that this level is smaller than regional distinctions often found in the literature. For contextual variables, we use small area (output area) statistics from 2001 and 2011 Census to calculate statistics for 2011 Westminster parliamentary constituencies. In case of 2011 Census this was a relatively simple exercise in aggregation, however for

[68] People who do not have access to the Internet will be excluded from YouGov surveys, however the company says that 'While it is true that not everyone does have access to the internet, independent academic research shows that its widespread uptake means the views of those with access to the internet and now mostly indistinguishable from those without' (YouGov 2015).

[69] We excluded Scotland from our analysis because Scottish Census does not release small area statistics on religion by ethnicity.

calculating change overtime we use GIS to deal with the modifiable areal unit problem (boundaries of some constituencies changed between 2001 and 2011 so they were not directly comparable). The method is described in detail in the Appendix. For levels we will use base levels of 2001, because we assume that peoples' expectations about the present are based on experiences from the past. The question remains of how to operationalize change. On one hand we could think of it as simply the influx of people, the numbers of newcomers setting in the area. This, however, would overlook the fact that local areas (such as constituencies in this study) have different number of residents. Hence, we denominate the increase by the number of people in the constituency in 2001, creating what effectively amounts to a measure of growth for immigrant populations.

There are two dependent variables. Our first dependent variable is the perception of levels of immigration where we rely on the following question from BES: 'Do you think that levels of immigration are getting higher, getting lower or staying about the same?'. There are five ordered responded options, ranging from 'Getting much higher' to 'Getting much lower'. The distribution of this variable is shown in Figure 12. The second dependent variable measures attitudes. To construct this variable, we use the following three questions: (1) 'Do you think immigration is good or bad for Britain's economy?', (2) 'Do you think that immigration undermines or enriches Britain's cultural life?' and (3) 'Immigrants are a burden on the welfare state'. The first two variables are measured on a scale from 1 to 7, for economic impact it ranges from 'Bad for economy' to 'Good for economy' and from 'Undermines cultural life' to 'Enriches cultural life' for cultural impact. The third variable is measured on a scale from 0 'Strongly agree' to 5 'Strongly disagree'. The variables are highly correlated (Cronbach's alpha=.89), we follow a common practice of using principal factor analysis to construct an index of attitudes (Semyonov et al. 2006, Sides and Citrin 2007, Hjerm 2007). Distribution of the index is

shown in Figure 13; higher values of the index correspond to more positive attitudes towards immigrants. The peak at the minimum value is for people who have most negative assessment of immigrants on all three measures (13% of those who replied to all three questions on attitudes to immigrants). The main explanatory variables, the levels and change of immigrant groups in constituencies, are constructed using Census statistics aggregated at Westminster constituency level (by levels we mean base levels in 2001). One limitation is that the dependent variable measuring attitudes is based on factual statements (with which the respondent may agree or not). For instance, a researcher who studies migration and who does not harness anti-immigration attitudes may say that the impact of immigration on the national economy is not always unequivocally positive (as this may depend on the type of migration, its volume, the extent of welfare provisions for the newcomers, etc.). On the other hand, using factual statements for analysis of attitudes is wide-spread and can be found in highly cited studies on this topic such as Semyonov et al. (2006) where the authors base the index on questions about the impact of immigrants on the welfare state, unemployment, crime and evaluation of levels of immigration in the country. Additionally, we argue that this problem is to some degree alleviated by inclusion of not one but three questions on immigration which tap into different domains (economy, culture, welfare) and that someone who provides a low scoring on all three question can be characterised as being rather negative about immigration.

To distinguish between different immigrant groups, we look at all those who are *not* classified as white British. British Census data is very rich and gives bivariate statistics for ethnicity and country of birth. To answer the question of who are the immigrants (or at least what images come to respondents' minds when they are asked questions about immigration) we start by noting who is not defined as an immigrant: The nativity of white

Britons (i.e. whites who are born in the United Kingdom) is rarely questioned. We will treat them as the non-immigrants.

Next, from the remaining population (all people minus the non-immigrants) we create different groups of immigrants. This immigrant groups are then divided according to different criteria - ethnic (white and non-white), skills (unskilled and skilled)[70] and religion (Muslim and non-Muslim). The spatial distribution of levels and change in ethnic, skill-based and religious immigrant groups are shown in the Appendix. Apart from levels and change we also include measures of residential segregation[71] between each immigrant group and white British majority group. To calculate segregation, we use index of dissimilarity calculated over 8,546 wards and electoral divisions and 573 English and Welsh Westminster constituencies.

The independent variables which we consider are sex, age, lack of educational qualifications, subjective perceptions of risk of unemployment, economic situation and risk of poverty. Agresti and Finlay say that establishing whether variable X can cause variable Y requires 'studying whether the association between these two variables remains once we remove the effect of other variables on this association. In a multivariable analysis, a variable is said to be controlled when its influence is removed' (2014). While sex and age are classic control variables (because temporally these are placed before the association we investigate - presence of immigrants in the area cannot influence one's sex) the remaining variables may not be antecedent to variables which we investigate. In particular, this may apply to subjective views about one's employment prospects, here it is plausible that presence of immigrants may influence individual evaluation of chances for

[70] We follow Rose, Pevalin and O'Reilly (2005) and code NS-SeC class five which includes semi-routine and routine occupations as unskilled, while skilled occupations are those in class one to four, from managerial and professional to lower supervisory and technical occupations.

[71] Output areas (which are the smallest level of geographic aggregation level available from the Census) were used to calculate segregation in each constituency.

employment which in turn affects attitudes towards immigrants (here subjective perception of employment is an intermediate variable which mediates the impact of context on attitudes). On the other hand, not including individual level variables would weaken out analysis because while it is known that sex, age and educational qualification are strong predictors of anti-immigration sentiments, so are variables capturing socio-economic deprivation. Contextual variables for population density at constituency level and the percentage of unemployed are also included a regional dummy variable for Wales. Descriptive statistics for dependent and independent variables are shown in Table 12.

Perception is estimated with ordered logistic regression with errors clustered at constituency level. For modelling attitudes, we use multi-level mixed effects model, a method preferred when dealing with nested sources of variability. Regressions are weighted using BES sampling weights for Wave 4 (Stata [pw] command).

RESULTS

Results of ordered logistic regression are displayed in Table 13. Is peoples' perception associated with actual change in their local areas? The results suggest that the answer to this question to a large extent dependent on respondents' individual characteristics, rather than the contextual characteristics of the area in which they live. Comparing R-squares we see that adding contextual factors brings only limited improvement to Model 1 (Base Model). Yet, for all models of perception we observe a pattern whereby the share of a given immigrant group in 2001 is associated with people reporting *lower* increases in immigration, while change in immigration levels is associated with reporting *higher* increases in immigration for non-whites (note that the scale goes from 1 which stands for

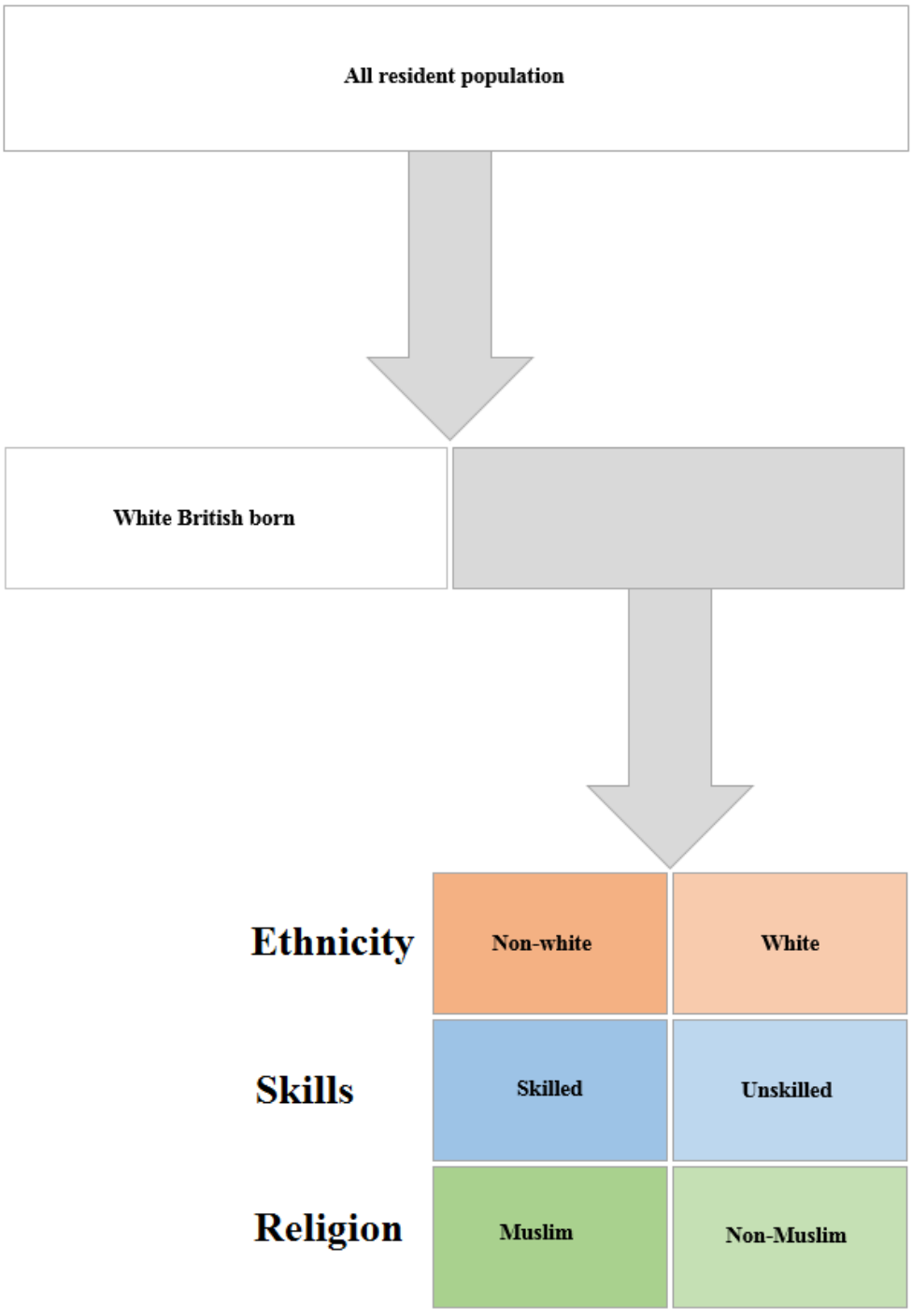


Chart 1 Construction of three immigrant categories. Note that proportions on the chart do not represent the actual proportions in the population.

TABLE 12 DESCRITIVE STATISTICS

	Observations	Mean	SD	Min	Max
Dependent Variables					
Attitude index	17,373	-0.16	0.94	-1.50	1.84
Perception of levels of immigration	16,939	4.17	0.89	1.00	5.00
Individual					
Male	17,373	0.52	0.50	0.00	1.00
Age	17,373	50.54	16.18	16.00	95.00
No qualifications	17,373	0.08	0.27	0.00	1.00
Risk of unemployment	17,373	0.14	0.35	0.00	1.00
Economic situation got worse	17,373	0.32	0.47	0.00	1.00
Risk of poverty	17,373	0.23	0.42	0.00	1.00
Constituancy					
No qualifications	17,373	0.23	0.05	0.10	0.39
Density	17,373	7.83	4.09	1.08	39.50
Immigrant segregation: White foreign-born	17,373	0.15	0.07	0.02	0.47
Immigrant change: White foreign-born	17,373	0.02	0.02	0.00	0.12
Immigrant share: White foreign-born	17,373	0.04	0.03	0.01	0.30
Immigrant segregation: Non-white	17,373	0.23	0.11	0.05	0.66
Immigrant change: Non-white	17,373	0.06	0.06	0.00	0.38
Immigrant share: Non-white	17,373	0.07	0.10	0.00	0.66
Immigrant segregation: Unskilled	17,373	0.25	0.10	0.04	0.63
Immigrant change: Unskilled	17,373	0.02	0.02	0.00	0.11
Immigrant share: Unskilled	17,373	0.02	0.02	0.00	0.16
Immigrant segregation: Skilled	17,373	0.18	0.08	0.03	0.52
Immigrant change: Skilled	17,373	0.03	0.04	-0.01	0.23
Immigrant share: Skilled	17,373	0.04	0.05	0.01	0.33
Immigrant segregation: Muslim	17,373	0.34	0.13	0.08	0.77
Immigrant change: Muslim	17,373	0.02	0.03	-0.01	0.30
Immigrant share: Muslim	17,373	0.02	0.04	0.00	0.39
Immigrant segregation: Non-Muslim	17,373	0.19	0.08	0.04	0.54
Immigrant change: Non-Muslim	17,373	0.06	0.06	-0.01	0.30
Immigrant share: Non-Muslim	17,373	0.08	0.09	0.01	0.61
Wales	17,373	0.07	0.26	0.00	1.00

'Getting much lower' to 5 which stands for 'Getting a lot Higher'). Hence, we can say that people seem to react to change in their local area, especially in case of more visible groups such as non-whites. Curiously, white Britons are also less likely to report that immigration levels are 'Getting much higher' if there is a larger pre-existing immigrant population in their area (See Figure 14). The results for change are not statistically significant at .05 level. Together with the results in Model 4, this suggests that people may not focus on skills and religion but rather of ethnicity (non-whites are a dominant group among skilled immigrants and non-Muslim immigrants). Model 3 and 4 show that share of unskilled and non-Muslim immigrants in 2001 is associated with reporting *lower* levels of immigration. This is in line with the argument that past levels of immigrants in the area form expectations about the future.

To assess whether local context is at all important for anti-immigrant attitudes in the United Kingdom let us first look at the proportion of variance in anti-immigrant attitudes explained by cross-constituency differences as compared to individual differences. We run the null model with only a constant and random variation between- and within constituencies. This gives the Interclass Correlation (ICC), which is calculated by dividing the variance at the constituency level by the total variance. The ICC shows that about 6% of total variance in attitudes is attributable to difference across constituencies with remaining 94% attributed to individual differences. To test Hypothesis 2 about the influence of immigration defined through ethnic, skills-based and religious categories, we run three separate regressions and select the model leading to the greatest reduction of AIC score. The results are displayed in Table 14. Model 5 does not include contextual factors; Models 6 to 8 show results with contextual variables for each immigrant group. First, with lower AIC score, models that include contextual factors are shown to be superior in

comparison to Model 5. Model 6 is associated with the greatest reduction in AIC score (38), suggesting that ethnicity performs better at explaining variance in attitudes towards immigrants than skill-based or religious categories. This provides support for Hypothesis 2a.

Furthermore, we find support for Hypothesis 3b; higher base levels of immigrants are associated with more positive attitudes towards immigrants; for non-whites, unskilled immigrants and non-Muslim immigrant groups this association is statistically significant at .05 level. Hypothesis 4 about change is also supported with the effect in predicted direction observed for change in the share of non-whites and Muslim immigrant groups. To test Hypothesis 5, we use the model with the lowest AIC score and add interaction effect between the share and change for foreign-born and non-whites (Table 15). In Model 9 the interaction effect is statistically significant for non-whites; Figure 15 shows how both variables affect the estimated attitude index. Attitudes towards immigrants are most positive in constituencies with larger base levels of non-white population and little increase in the size of non-white population. Living in constituencies with low base levels of non-white population is associated with more negative evaluation of immigrants, however changes do not seem to matter that much. Surprisingly, those living in constituencies with high base levels of non-white population seem to react more negatively towards change (slope for high base level is steeper).

Model 9 also shows that higher levels of residential segregation are associated with more negative attitudes towards non-whites, yet we also find a statistically significant effect in the opposite direction (i.e. higher segregation is associated with more positive attitudes) for white foreign-born group. This could be due to differences in visibility – threat response may be easier to elicit in case of non-whites as they are easier to spot (and therefore to be classified as 'immigrants') on the street, while people may be generally

more oblivious of living in an area with higher share of white immigrants, especially if they live in more segregated areas. Hence, we find support for both Hypotheses 6a and 6b, however it seems that different dynamics may apply to whites and non-whites.

DISCUSSION

Before discussing the implications of the results, let us reiterate the limitations of this study. The first is that our attitude measure relies on respondent's evaluation of factual statements. Alternatively, one could ask respondents for views about immigrants (for instance 'Would you object to living next to an immigrant neighbour' but in this case the potential problem with such question is desirability bias where the respondent would tend to give a socially acceptable answer which does not necessarily reflects his or her views). While we argue that the problem is to some degree alleviated by creating an index out of three factual statements (referring to immigrants' impact on the economy, culture and the welfare state), one should be careful about equating immigrant scepticism and xenophobia. Secondly, there is the problem of deciding which independent variables should be included in the regression. We identified geographical scale which is relatively small in comparison to scales used in similar studies, for which we had information on both residents' evaluation of immigration (both levels and whether immigration has a positive or negative impact) as well residents' composition. However, our data did not provide as many individual level characteristics as we would like in an ideal scenario – in attitudinal studies it is common to include a number of socio-economic characteristics which include educational attainment, income, tenancy, employment status or class. While age, sex and educational qualification were available we had to make a decision on whether to include other three potentially important variables (subjective perceptions of risk of unemployment, economic situation and risk of poverty) which are not control variables in the strict sense but may potentially mediate the impact of context on attitudes towards

immigrants. It is plausible that levels or increase in the share of immigrants may be associated with respondents' evaluation of economic prospects which in turn affect attitudes, so we should stress that there may be an intermediate step in the causal relation between local context and attitudes.

Two things emerged from this study. First, respondents' perception of immigration levels seems to be subject to similar dynamics that their attitudes, i.e. people report lower levels of immigration if they live in areas which had larger shares of immigrant communities, and higher levels when the change is larger. This finding should be considered in the context of Hopkins' assertion that local conditions play an important role in shaping attitudes towards immigrants in the UK (Hopkins 2011). In his politicised places hypothesis, Hopkins proposes the hostility towards immigrants is observed in local areas that undergo sudden influx of immigrates at the time when salient national rhetoric reinforces the threat (Hopkins 2010). Arguably, looking at responses in Wave 4 of the British Election Study, which was collected just two months before the General Election, could be classified as a time of increased national salience of immigration. White Britons seem to pay attention to the change in their local areas, however what also emerges is that pre-existing levels of immigration may affect their expectations about the area (hence the share of immigrant groups is associated with reporting lower immigration levels).

Secondly, on the question of which categories are most salient for categorising immigrants, we found that in shaping attitudes towards immigrants, ethnicity seems to be more important than skills and religion. Furthermore, we found that changes and levels of immigrant populations are both associated with attitudes towards immigrants. We confirmed that pre-existing levels are associated with less negative attitudes, while increase fosters more negative attitudes. The interaction effect found in this study is different from what is predicted by competition theory and defended neighbourhood

hypothesis—change is associated with more hostility and this effect is more pronounced in areas with higher pre-existing levels of non-white population. Theoretically this could be explained if we assumed that while areas with higher pre-existing levels of immigrant populations offered more opportunities for contact, the speed of change would undermine the ability for accommodating further change. In other words, the prejudice reducing processes of interpersonal contact would not catch up with threat triggered by rapid increases of immigrant populations.

TABLE 13 PERCEPTION OF IMMIGRATION LEVELS

	Model 1			Model 2			Model 3			Model 4		
Individual												
Male	-0.01	0.73		-0.01	0.72		-0.01	0.74		-0.01	0.74	
Age	0.03	0.00	***	0.03	0.00	***	0.03	0.00	***	0.03	0.00	***
No qualifications	0.73	0.00	***	0.74	0.00	***	0.74	0.00	***	0.74	0.00	***
Risk of unemployment	-0.11	0.06		-0.11	0.06		-0.11	0.06		-0.11	0.06	
Economic situation got worse	0.25	0.00	***	0.25	0.00	***	0.25	0.00	***	0.25	0.00	***
Risk of poverty	0.34	0.00	***	0.34	0.00	***	0.34	0.00	***	0.34	0.00	***
Constituancy												
No qualifications	2.22	0.00	***	1.98	0.00	***	2.58	0.00	***	1.97	0.00	***
Density	-0.01	0.21		-0.01	0.19		-0.01	0.29		-0.01	0.24	
Wales	-0.11	0.11		-0.11	0.11		-0.12	0.08		-0.10	0.14	
Immigrant segregation: White foreign-born				-0.48	0.16							
Immigrant change: White foreign-born				-0.54	0.72							
Immigrant share 2001: White foreign-born				-0.63	0.47							
Immigrant segregation: Non-white				0.39	0.10							
Immigrant change: Non-white				1.41	0.03	*						
Immigrant share 2001: Non-white				-0.87	0.02	*						
Immigrant segregation: Unskilled							0.24	0.44				
Immigrant change: Unskilled							-2.58	0.28				
Immigrant share 2001: Unskilled							-5.18	0.03	*			
Immigrant segregation: Skilled							0.33	0.38				
Immigrant change: Skilled							2.59	0.14				
Immigrant share 2001: Skilled							0.70	0.53				
Immigrant segregation: Muslim										-0.10	0.66	
Immigrant change: Muslim										-0.35	0.79	
Immigrant share 2001: Muslim										0.41	0.63	
Immigrant segregation: Non-Muslim										0.14	0.67	
Immigrant change: Non-Muslim										1.09	0.12	
Immigrant share 2001: Non-Muslim										-0.94	0.02	*
Cut1	-2.95			-3.01			-2.75			-3.02		
Cut2	-1.41			-1.48			-1.22			-1.49		
Cut3	0.93			0.86			1.12			0.85		
Cut4	2.43			2.37			2.63			2.36		
N	16,939			16,939			16,939			16,939		
R squared	4.38%			4.43%			4.42%			4.40%		
AIC	38,131			38,122			38,125			38,132		
ΔAIC				-10			-7			1		

p-values in parentheses * p<0.05, ** p<0.01, *** p<0.001

TABLE 14 ATTITUDES TOWARDS IMMIGRANTS

	Model 5			Model 6			Model 7			Model 8		
Level 1												
Male	0.11	0.00	***	0.11	0.00	***	0.11	0.00	***	0.11	0.00	***
Age	-0.01	0.00	***	-0.01	0.00	***	-0.01	0.00	***	-0.01	0.00	***
No qualifications	-0.36	0.00	***	-0.36	0.00	***	-0.36	0.00	***	-0.36	0.00	***
Risk of unemployment	0.09	0.00	**	0.09	0.00	**	0.09	0.00	**	0.09	0.00	**
Economic situation got worse	-0.04	0.03	*	-0.04	0.03	*	-0.04	0.04	*	-0.04	0.04	*
Risk of poverty	-0.18	0.00	***	-0.18	0.00	***	-0.18	0.00	***	-0.18	0.00	***
Level 2												
No qualifications	-1.95	0.00	***	-1.66	0.00	***	-1.77	0.00	***	-1.41	0.00	***
Density	0.00	0.07		0.00	0.96		0.00	0.71		0.00	0.62	
Wales	0.06	0.12		0.06	0.13		0.06	0.14		0.06	0.16	
Immigrant segregation: White foreign-born				0.38	0.03	*						
Immigrant change: White foreign-born				1.08	0.18							
Immigrant share 2001: White foreign-born				0.25	0.66							
Immigrant segregation: Non-white				-0.43	0.00	***						
Immigrant change: Non-white				-0.96	0.00	**						
Immigrant share 2001: Non-white				0.82	0.00	***						
Immigrant segregation: Unskilled							-0.01	0.95				
Immigrant change: Unskilled							0.28	0.84				
Immigrant share 2001: Unskilled							2.92	0.03	*			
Immigrant segregation: Skilled							-0.42	0.03	*			
Immigrant change: Skilled							-0.44	0.67				
Immigrant share 2001: Skilled							-0.15	0.83				
Immigrant segregation: Muslim										-0.08	0.44	
Immigrant change: Muslim										-1.68	0.01	*
Immigrant share 2001: Muslim										0.74	0.08	
Immigrant segregation: Non-Muslim										-0.01	0.95	
Immigrant change: Non-Muslim										0.05	0.89	
Immigrant share 2001: Non-Muslim										0.69	0.00	***
Constant	0.78	0.00	***	0.69	0.00	***	0.75	0.00	***	0.59	0.00	***
Random effects												
Between constituencies	0.03			0.03			0.03			0.03		
Within constituencies	0.78			0.78			0.78			0.78		
N	17,373			17,373			17,373			17,373		
AIC	45,448			45,410			45,434			45,428		
ΔAIC				-38			-14			-21		

p-values in parentheses * p<0.05, ** p<0.01, *** p<0.001

TABLE 15 ATTITUDES TOWARDS IMMIGRANTS

	Model 9		
Level 1			
Male	0.11	0.00	***
Age	-0.01	0.00	***
No qualifications	-0.36	0.00	***
Risk of unemployment	0.09	0.00	**
Economic situation got worse	-0.04	0.04	*
Risk of poverty	-0.18	0.00	***
Level 2			
No qualifications	-1.82	0.00	***
Density	0.00	0.55	
Wales	0.05	0.18	
Immigrant segregation: White foreign-born	0.48	0.01	**
Immigrant change: White foreign-born	-0.31	0.78	
Immigrant share 2001: White foreign-born	-1.01	0.22	
Interaction: White foreign-born share and change	19.89	0.11	
Immigrant segregation: Non-white	-0.53	0.00	***
Immigrant change: Non-white	-0.50	0.17	
Immigrant share 2001: Non-white	1.30	0.00	***
Interaction: Non-white share and change	-2.73	0.03	*
Immigrant segregation: Unskilled			
Immigrant change: Unskilled			
Immigrant share 2001: Unskilled			
Interaction:Unskilled share and change			
Immigrant segregation: Skilled			
Immigrant change: Skilled			
Immigrant share 2001: Skilled			
Interaction: Skilled share and change			
Immigrant segregation: Muslim			
Immigrant change: Muslim			
Immigrant share 2001: Muslim			
Interaction:Muslim share and change			
Immigrant segregation: Non-Muslim			
Immigrant change: Non-Muslim			
Immigrant share 2001: Non-Muslim			
Interaction:Non-Muslim share and change			
Constant	0.73	0.00	***
Random effects			
Between constituencies	0.03		
Within constituencies	0.78		
N	17,373		
AIC	45,408		
ΔAIC	40		

p-values in parentheses * p<0.05, ** p<0.01, *** p<0.001

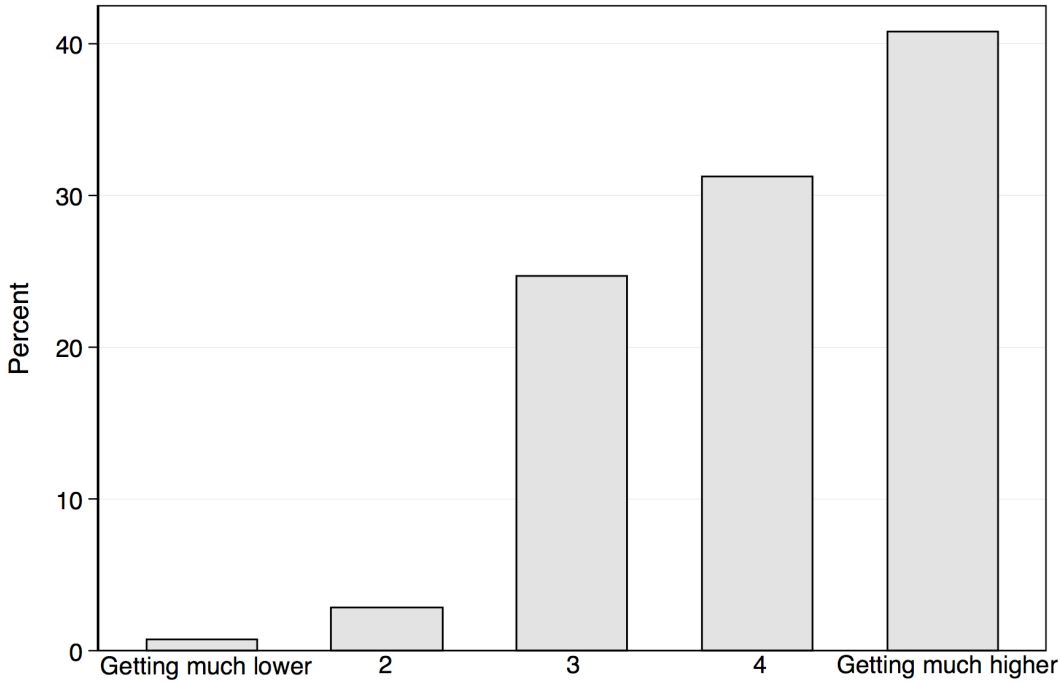


FIGURE 12 DISTRIBUTION OF DEPENDENT VARIABLE (LEVELS OF IMMIGRATION)

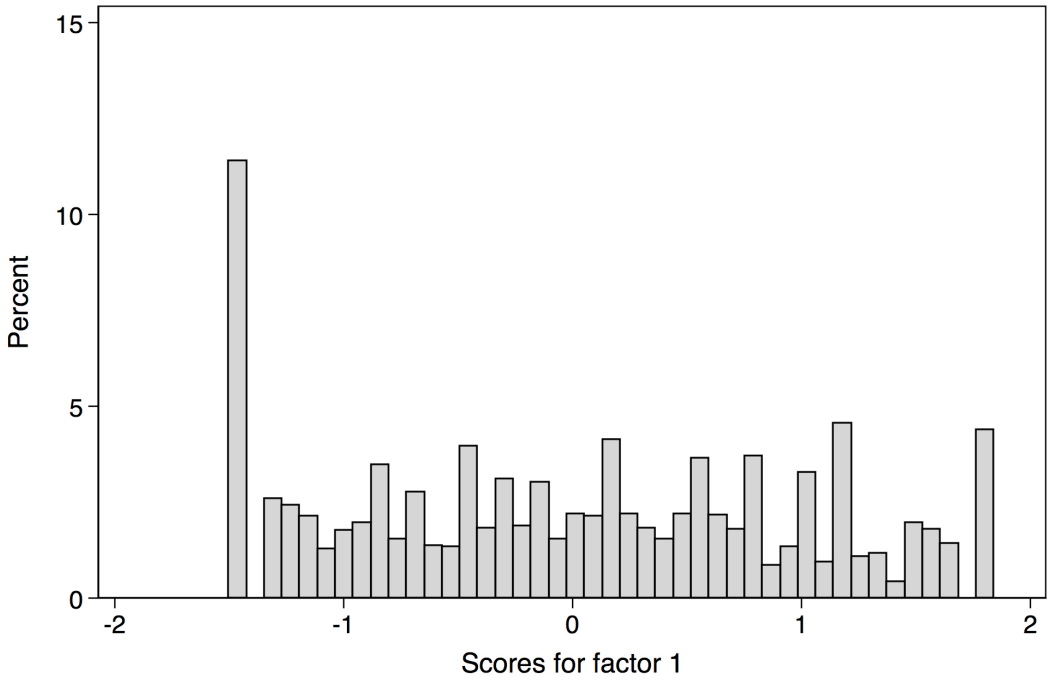


FIGURE 13 DISTRIBUTION OF DEPENDENT VARIABLE (ATTITUDE INDEX)

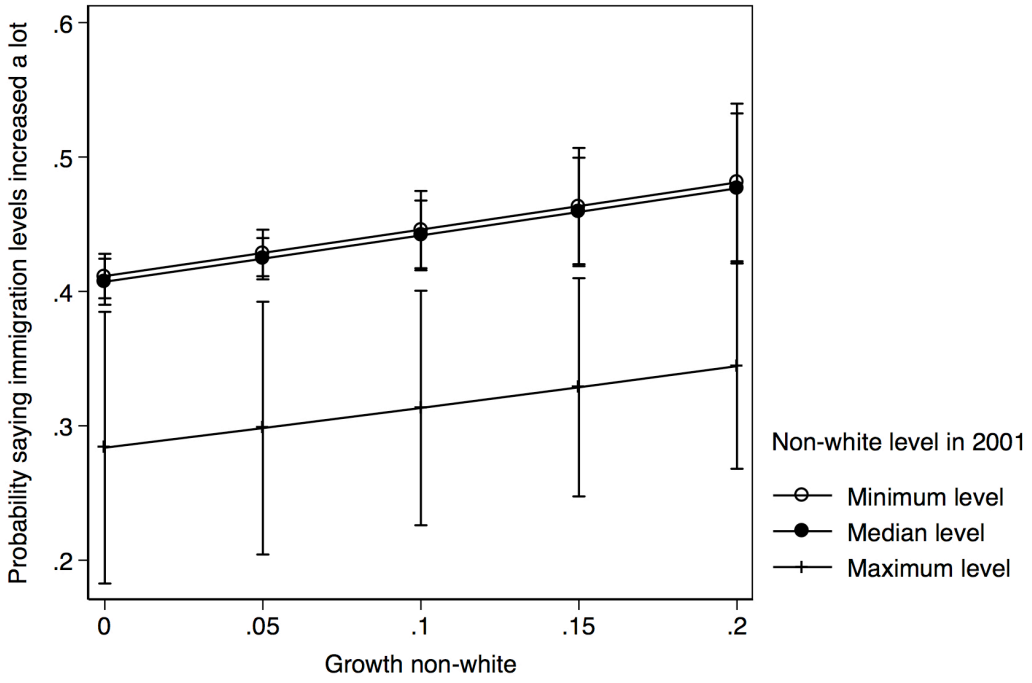


FIGURE 14 THE EFFECT OF NON-WHITE CHANGE ON THE PROBABILITY OF SAYING THAT IMMIGRATION LEVELS INCREASES "A LOT" AT VARYING PERCENTILES OF NON-WHITE BASE LEVELS.

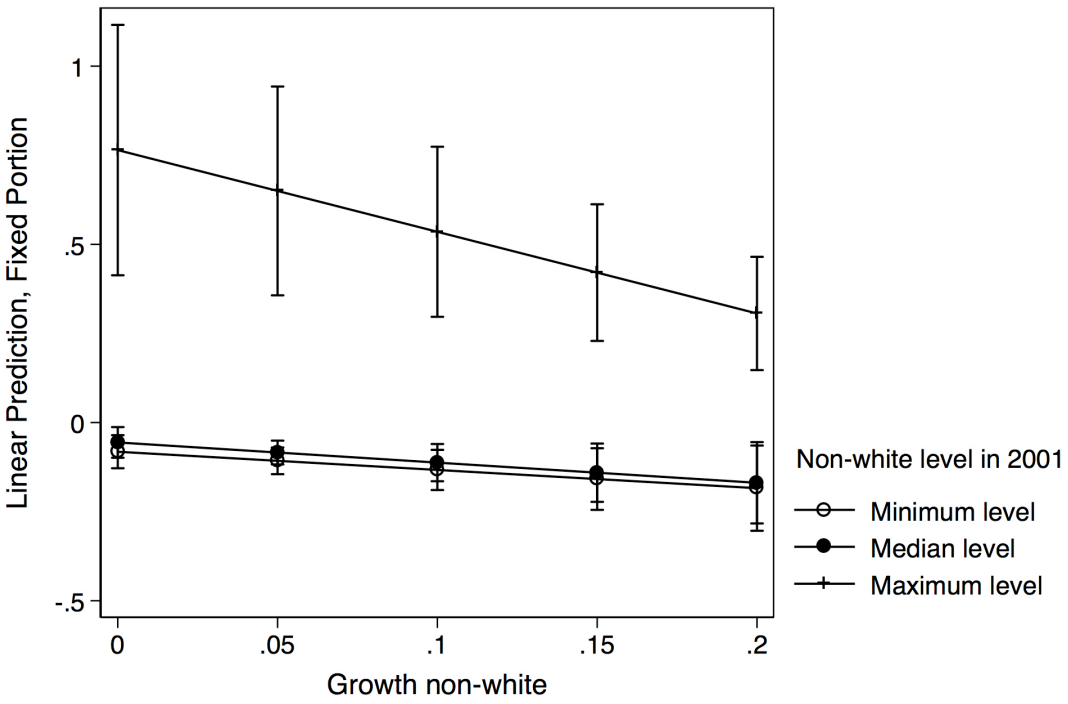


FIGURE 15 THE EFFECT OF NON-WHITE CHANGE ON ATTITUDES TOWARDS IMMIGRANTS AT VARYING PERCENTILES OF NON-WHITE BASE LEVELS.

PAPER 4 SPATIAL BASES OF FAR RIGHT SUPPORT: WHAT CONTEXTUAL FACTORS ARE ASSOCIATED WITH MEMBERSHIP IN THE BRITISH NATIONAL PARTY

In this paper we are going to extend the existing model of BNP membership developed by Biggs and Knauss (2012). Following the literature, we attempt to account for two types of spatial effects, check whether demographic change can be used as an alternative measure to absolute levels of non-white population, include variables measuring the alleged effect of social distance and see whether there is evidence that cultural threat increases the probability of white British adults belonging to the BNP. The results are most pronounced for spatial effects and social distance. Moreover, it is revealed that the presence of mosques at ward level is also a significant predictor of BNP membership, although the effect is rather small. The final model for this chapter is presented on page 176.

SPATIAL ANALYSIS

A useful starting point would be to look at maps of BNP membership similar to that created by Biggs and Knauss (Figure 11). What can be observed is that, contrary to the claims of some academics who maintain that the BNP is essentially an urban phenomenon (Goodwin 2011, Goodwin, Ford and Cutts 2013), the party recruited heavily in rural districts of the North West and East Midlands, especially those in direct proximity of cities with large and highly segregated ethnic enclaves such as Leicester, Bradford, Oldham and Birmingham. Incidentally, the maps also reveal that the urban environment does not always produce higher levels of far right sympathies. There are hardly any BNP pockets in London, even though it is home to about 45% of the UK's ethnic minority population (*Guardian*, February 21, 2000). Here, we propose an inclusion of what can be thought of as a large scale neighbourhood effect and show that (1) the spatial context of a given district does affect the probability of BNP membership and (2) that this membership is

most likely in regions characterised as white enclaves, that is, districts bordering another district with much higher proportion of non-white residents.

The predominant approach in much of social science analysis is to disregard the spatial character of geographically aggregated data and proceed as if the independent variables influenced only the depended variable measured within a certain region marked by artificially imposed boundaries. This approach can be criticised on two grounds. First, there is a problem of boundaries which partition space into clear-cut chunks (Lee et al. 2008). Secondly, geographic units of analysis such as output areas, wards or districts are not a set of free floating entities but are embedded in space and surrounded by other units with a possibility of exhorting influence on attitudes and behaviour in other areas (Ward and Gleditsch 2008). As it is now increasingly recognised, analysis conducted on geographically aggregated data needs special approach due to potential presence of spatial effects which violate the key assumption of independence among observations. Additionally, as we are reminded by Ward and Gleditsch, a good reason to consider spatial effects may be the reliability of our results - when regressions are run on spatially autocorrelation data results are likely to include biased estimates and Type I errors [72] (2008). To operationalize these effects, we first need to introduce some concepts from the spatial analysis toolbox.

AUTOCORRELATION

The crucial concept of spatial analysis is spatial autocorrelation, a measure of clustering among neighbouring observations. On the map we define two areas as contiguous if they share at least one common boundary point (the so-called first order queen contingency criterion). This definition of contiguity gives rise to a connectivity matrix **W** where entry

[72] Which are made when true null hypothesis is rejected

w_{ij} is equal to 1 if region *i* is adjacent to region *j* and 0 otherwise. Matrix **W** is then weighted by population to reflect the fact that densely populated metropolitan areas are more likely to have a higher impact on ethnic hostility than scarcely populated rural regions. Let us denote the matrix emerging from this transformation as **C** and let y_i^s denote the mean value of some variable *y* across all contiguous observations (or the so-called lag of *y)* over space (Ward and Gleditsch 2008).

To see how lagged variables are related to observation y_i consider that the lag of *y* for observation *i* is defined as:

$$y_i^s = \frac{\sum_j y_j \, c_{ij}}{\sum_j c_{ij}}$$

where y_i^s calculates the average, population-weighted value of the independent variable y across all units which are connected to unit *i*. To illustrate this operation, consider that when we refer to the spatial lag of the proportion of non-whites in Charnwood, what is meant is the average, population-weighted value of the proportion of non-whites in Leicester, North West Leicestershire, Rushcliffe, Melton, Harborough, Blaby and Hinckley & Bosworth, all of which fulfil the first order queen contingency criterion in relation to Charnwood. Formally, the definition of the spatial lag y^s reflects the fact that each y_i^s is related to values of y for other units as well as contingency weights c_i. The formula for y^s is given by:

$$y^s = Cy$$

where C is the population-weighted connectivity matrix and y is some variable. Positive spatial autocorrelation, also known as spatial dependency, happens when similar values are found in neighbouring regions, in which case spatial clustering is observed (Anselin 1995). On the other hand, negative spatial autocorrelation (spatial heterogeneity) occurs if an area with high values of some variable is surrounded by areas with low values of the corresponding variable, or an area with a low value is surrounded by areas with high values. In this case, negative spatial autocorrelation is observed in the form of spatial outliers (Anselin 1995). For those regions where no correlation exists between variable and locations, the spatial patterns exhibits zero spatial autocorrelation.

Global autocorrelation reflects the similarity between units' own level of some variable and the levels of the same variable among their neighbours, a relationship captured by the overall correlation between y and y^s. The linear association between the two is known as the *Moran I* statistic, which can also be interpreted as the measure of deviation from spatial randomness, formally defined as:

$$I = \frac{\mathrm{N}}{\sum_i \sum_j c_{ij}} \frac{\sum_i \sum_j c_{ij} (X_i - \bar{X})(X_j - \bar{X})}{\sum_i (X_i - \bar{X})^2}$$

where N is the number of spatial units indexed by i and j, X is the variable of interest, $\bar{X}$ is the mean of X and c_{ij} is an element of a matrix $\boldsymbol{C}$. Moran I is scaled to take values within

the *(-1, 1)* interval, where positive values indicate positive autocorrelation and negative values correspond to negative auto-correlation. When variables are used in standardised form[73], information about autocorrelation can be conveniently displayed in the form of Moran scatter plots (see page 155) where each point represents a geographic unit with its own value of some variable displayed on the x-axis and the average value for neighbouring units on the y-axis. The slope of the fitted line is equal to *I* (Anselin 1995).

Theoretically, spatial autocorrelation can arise through a number of mechanisms. As noted by Voss and colleagues these can include *(1) feedback*, which reflects genuine social interaction and influence channelled by spatial proximity of actors, *(2) grouping forces*, where people of similar characteristics are found clustered together, either by choice or because they are constrained to live together as a result of larger social, economic or political forces or *(3) grouping responses*, where individuals or households which share common characteristics respond similarly to some external factors (Voss et al. 2006)[74].

Having defined spatial autocorrelation and lagged variables, we can now check for spatial patterns in our data. Upon analysing residual patterns of multilevel modelling of BNP membership (Biggs and Knauss 2012), it emerges that residuals[75] at district level exhibit moderate positive autocorrelation (*I=.22*) which violates the assumption of independence. Additionally, it seems that residuals are actually higher in regions which already have high

[73] Mean equal to 0 and standard deviation equal to 1.
[74] Voss et al. also mention the 'nuisance correlation', which is allegedly observed when spatial effects give rise to clusters which are much larger than the units of analysis, giving appearance of high autocorrelation among observations. In fact, this would be more adequately described as the omitted variable problem, a result of not controlling for effects which may be region-specific. For instance, in the United States, one may observe correlations at census tract level, which should be attributed to legislation at state level.
[75] When discussing residuals at district level, we use the ratio of actual to predicted values instead of the difference. This is because the 408 districts vary widely by population size, hence the over-prediction of 100 BNP members is more serious in a district with 1,000 white Britons, than in a district of 100,000 white Britons, which is better reflected by ratios rather than differences. Consequently, high values represent under-estimation and low values over-estimation.

levels of BNP membership and are located in close proximity of areas with high concentrations of non-white residents.

HETEROGENEITY

This observation links to theoretical considerations made by Roger Eatwell who drew attention to the distinction between the proportion of non-white within one's immediate area and in neighbouring areas. In a chapter devoted to National Front (NF) voting in the 1970s, Eatwell writes that 'the correlation between far right support and immediate presence of ethnic communities' can be seen as an alternative approach to 'invasion approaches which hold that racist voting is likely to be greater in areas on the periphery of ethnic settlements' (Eatwell in Hainsworth 2000). Arguably, experiences from neighbouring areas may influence the level of ethnic hostility to the same extent as the situations in one's own area. Similarly, Husbands reports how Martin Webster, a notorious NF activist, admitted that what contributed to the electoral success of his party was not so much the presence of a strong immigrant population but rather an 'immigrant problem' in sight nearby (Husbands in Miles and Phizacklea 1979)**.**

Following the publication of a complete BNP membership list, questions were raised as to the degree of the overlap between areas of high concentration of non-whites and pockets of BNP membership. Commenting of the maps published by the Guardian, David McCandless pointed out that the party recruited heavily not within but around areas with large non-white communities (*Guardian*, Novermber 6, 2009). This issue is also reflected in the recent debate over whether the British National Party can still be characterised as an urban movement, with distribution of supporters closely linked to spatial distribution of ethnic minorities. A recent analysis of the BNP membership list led Goodwin and colleagues to conclude that supporters 'concentrate heavily in particular types of areas: they tend to be urban, economically deprived, with large numbers of poorly educated

voters and ethnically homogenous wards' (Goodwin et al. 2013). Yet a study conducted by Biggs and Knauss on the same dataset shows contradictory results, with authors claiming that population density has a negative effect on party membership, meaning that its supporters are less likely to inhabit urban areas (Biggs and Knauss 2012)

Case of Leicestershire

In trying to solve this puzzle, we note that what draws attention in our data is a handful of cases of spatial heterogeneity, where cities with high proportions of highly segregated non-white population border predominantly white and rural areas. We think it is worth to underline the special role of the cities, one which should be interpreted in the context of a growing recognition of the importance of the fact that social interactions are structured and depend on special features which may either channel or inhibit interaction (Lee et al. 2008, Grannis 1998). Regions such as Melton, Blaby and Pendle are characterised by higher than average likelihood of BNP membership among white Britons, yet this probability is underestimated when classical multilevel modelling is applied (Biggs and Knauss 2012). Examples of this pattern are found in regions bordering Leicester (non-white proportion .36, index of dissimilarity .57) and in regions surrounding Bradford (non-white proportion .21, index of dissimilarity .71), Oldham (non-white proportion .13, index of dissimilarity .71) and Birmingham (non-white proportion .29, index of dissimilarity .60).

Consider spatial distribution of BNP membership depicted in Figure 16 and Figure 17. Rural areas surrounding Leicester are characterised by low levels of non-white concentration, yet these are also the places where local pockets of BNP are found. Furthermore, in a finer scale of output areas one can see that hotspots of high non-white concentration do not overlap with neighbourhoods inhabited by British National Party supporters. Quite the opposite, BNP strongholds seem to be located in the white neighbourhoods in close proximity of areas inhabited by non-white residents. Importantly,

when used in its original non-spatial form, the threat hypothesis would state that residents of rural Leicestershire should not exhibit a high level of prejudice. After all, they are unlikely to come into direct contact with members of other ethnic groups on a daily basis. Yet people living in districts of Charnwood, North-West Leicestershire, Melton or Blaby are likely to travel to Leicester once in a while to do shopping, run errands, some even to work. Their experience of Leicester may directly affect their perception of ethnic minorities, resulting in possible prejudice and openness to the rhetoric used by the BNP, where white Britons are called to arms to unite in action in order to 'defend their way of life', before it would be too late (British National Party 2011). At the same time, because their business in the city is only temporary, potential members would not have enough opportunities to develop meaningful relationships with members of ethnic minority groups, which, as proposed by Allport, could offset prejudice (1954) [76]. Finally, one may suspect that residents of rural areas in direct proximity of large and diverse cities are more likely to support the BNP as a result of a white flight mechanism, where at least some of the current members had migrated from diverse urban areas to more ethnically homogenous suburban or rural regions. In this case strong ethnic hostility can be seen as the motivation for both a decision to move out and to join a far right political group.

Based on the above discussion we propose three hypotheses on spatial context at district level. We hypothesise that:

Hypothesis 1: Presence of large and highly segregated non-white settlements in one district increases the probability of white Britons belonging to the BNP in bordering districts.

[76] Furthermore, although it would require further testing which is beyond the scope of this paper, it seems plausible that since their point of reference lies in a predominantly white area, residents of rural areas may overestimate the level of non-white presence in cities.

Hypothesis 2: Residents of districts characterised by low levels of non-white proportion which are bordered by districts with high levels of non-white proportion will show higher levels of BNP membership.

Due to the high correlation of proportion of non-white residents and population density at district level *(r=.76)*, this prediction already taps into the urban/rural division issue and is expected to provide more appropriate predictions, especially for cases of white rural enclaves where threat is elevated due to proximity to urban districts with high concentrations of non-white residents. It should also be mentioned that we do not expect the prediction to work the other way round, i.e. to decrease BNP membership for cases of ethnic enclaves bordered by predominantly white districts. In the United Kingdom, higher levels of non-white populations are observed predominantly for large cities, which in turn structure the interaction. It is difficult to imagine how proximity to rural white districts could influence white Britons living in ethnically diverse urban areas.

DEMOGRAPHIC CHANGES

Although explaining ethnic prejudice in terms of the size of minority groups seems to be by far the most predominant approach, it is possible to ask whether there is an alternative mechanism at play where hostile reactions stem from demographic changes rather than the proportion of minority group residents. This less explored route of inquiry was taken by Daniel Hopkins, who has shown that the association between demographic changes in the proportion of ethnic minorities and hostility is significant, albeit conditioned on the degree to which these changes were subject to national debate in the media (Hopkins 2010)[77].

[77] Here, we do not aim to control for the coverage factor, partly because there is some evidence that salience, measured by Hopkins as the number of mentions of the word immigration in media outlets, is not straightforwardly correlated with self-reported prejudiced in the United Kingdom (Rothan and Heath in Park 2003).

Theoretically, there are at least two reasons to think that demographic change may be a better measure than absolute levels. First, attitudes of the majority group may depend on how recently non-white individuals have arrived and whether their influx has been steady over the years or occurred in one short and highly visible episode. Calls for an immediate halt to non-white immigration were heard in the late 1950s both in streets of English towns and the parliament, despite the fact that at that time there was less than quarter of a million non-white people in the United Kingdom (Winder 2005). Similarly, the arrival of 25,000 Ugandan and Malawian Asians in 1972 and 1976, a modest number by international migration standards, caused a public outcry which can be attributed to the fact that members of this group arrived in a short period of time, creating a feeling of invasion which was perpetuated and exploited by tabloid newspapers (Winder 2005).

In this context it is also worth mentioning that for recent arrivals, the mechanisms proposed by the contact theory may not have started to offset the hostility because in contrast to non-whites who settled some time ago, those who entered the United Kingdom most recently have had little chance for intergroup networking and establishment of social ties, both of which have been shown to be crucial factors which offset prejudice (Pettigrew 1998). Secondly, there is the cognitive aspect, with an underlying assumption that rates of change are more noticeable than the absolute levels. Prospect theory developed by Kahneman and Tversky (1979) maintains that individuals generally evaluate losses according to the direction and rate of change, rather than the absolute values. In the context of competition for resources, this means that members of the majority group are more likely to exhibit hostility towards minority group residents in cases when ethnic composition changes substantially over a short period of time, because this is when their losses become most visible.

Demographic change can also be explored as a proxy for de-industrialisation. Because of the pattern of residuals clustering in Northern and Central England (see Figure 11), it seems plausible that regions most affected by de-industrialisation and urban decline may present particularly fertile grounds for far right rhetoric. A connection between de-industrialisation and far right support has been previously emphasised by Ford and Goodwin (2011), who found the electoral support for the BNP was concentrated in 'declining industrial towns of the North and Midlands regions' and Rhodes, who describes how a loss of 48% of manufacturing jobs in Burnley between 1999 and 2008 coincided in time with a dramatic surge of BNP support [78], a phenomenon which earned the town a reputation as 'the racist capital of Britain' (*Guardian*, October 16, 2003, Rhodes 2012). The case of Burnley is not unique and similar patterns of urban decline have been documented in places like Wolverhampton, Birmingham, Dudley, Solihull, Newcastle and Leicester.

What is important is that once started, industrial decline triggers a whole chain of events, including persistent unemployment, de-population, weakening demand for housing, vacant buildings, dropping property prices and victimisation of ethnic minorities (Rhodes 2012, Spencer et al. 1986). The dynamic of urban decline is described in detail by Loïc Wacquant who introduces a useful concept of stigmatised territories which are places affected by de-industrialisation where public and private resources diminish, creating a state of heightened competition over those limited resources which are still available.

[78] In 2003 BNP became the main opposition grouping in Burnley.

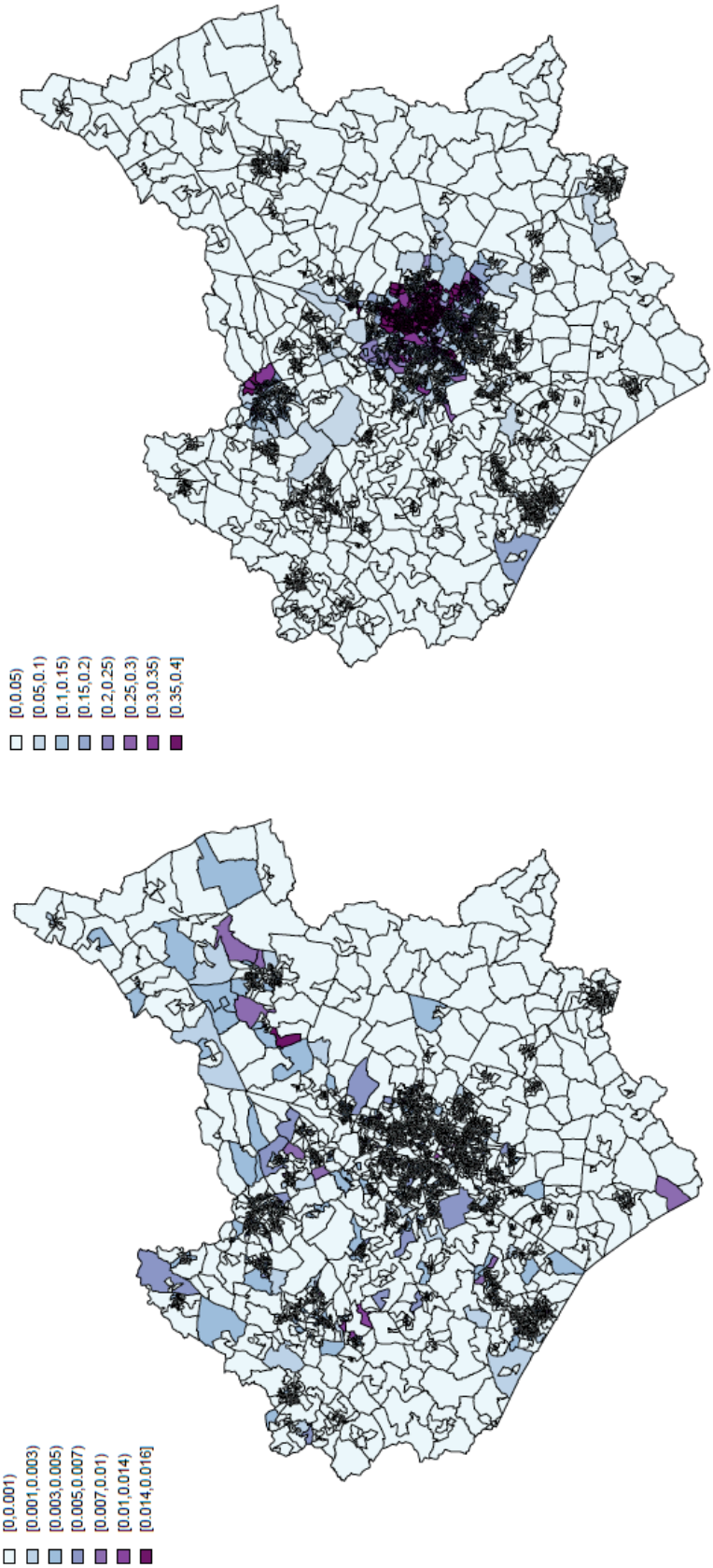


FIGURE 16 ON THE LEFT PERCENT BNP MEMBERS AND ON THE RIGHT PERCENT NON-WHITES IN LEICESTERSHIRE

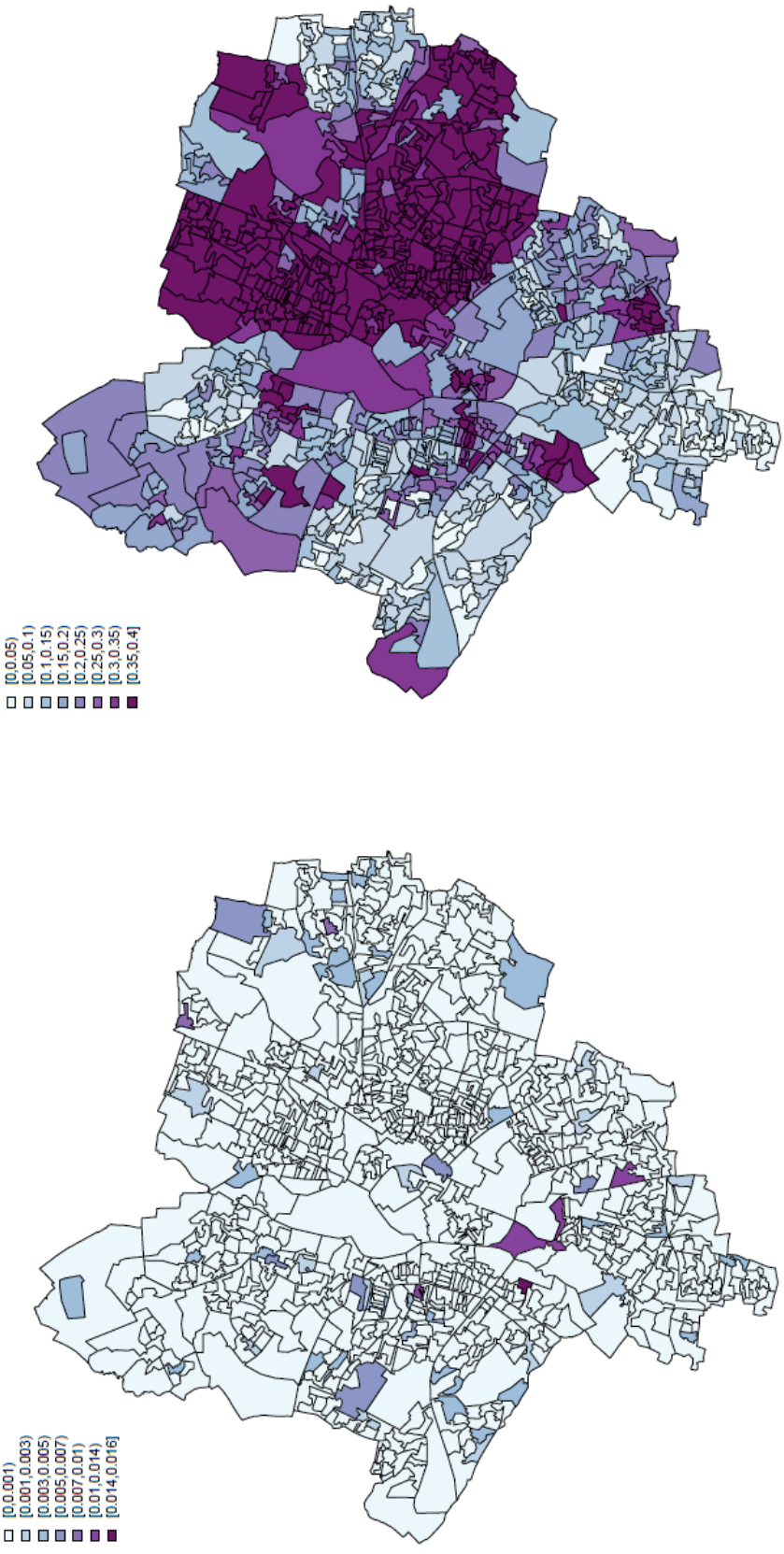


FIGURE 17 ON THE LEFT PERCENT BNP MEMBERS AND ON THE RIGHT PERCENT OF NON-WHITES IN LEICESTER

This stigma, Wacquant says, is particularly heavy for areas which exhibit ethnic and class inequalities (2008). Historically, the arrival of non-white population coincided with the dawn of manufacturing decline which marked a turning point in lives of many British working class families. Thus, it seems likely that in cities where a significant proportion of white workers has experienced a negative change of their circumstances and where previously thriving areas are no longer seen as a desirable place to live, non-white residents would be blamed for the situation. Building on existing accounts we hypothesise that:

Hypothesis 3: The increase in the proportion of non-white residents between 1991 and 2001 is associated with increased BNP membership among white British adults.
Hypothesis 4: Regions affected by de-industrialisation measured by population decline would be more likely to have higher levels of BNP membership.

Social Distance

Beyond the issues of the size and rates of change, we would like to test for asymmetries in prejudice depending on the social distance between white and non-white residents. Contact theory holds that ethnic prejudice stems from ignorance about other ethnic groups and that by bringing the groups into personal contact erroneous ideas can be corrected and hostilities alleviated. However, in order to be effective, contact must meet a set of specific conditions. One of the four facilitating conditions originally proposed by Allport is that groups should be of equal status in their situation, allowing individual members of different groups to see other people as equals (1954). Undermining this condition is the social distance which can arise as a result of high status majority group individuals interacting with low status minority members (or the other way round). Social distance is important; after all, contact would be structured differently between white workers of

Immigration Removal Centres and their prisoners compared to white and non-white students at the university or compared to an Indian shop owner on a council estate and unemployed white customers. While residents will most likely see lower status groups with contempt, in a situation in which the minority group is on average better off in terms of status, it could trigger equally hostile reactions, because non-whites would be seen as having improved their life circumstances at the expense of the deprived white residents. Although status can be operationalised in different ways we choose educational attainment, partly because of the availability of data, but also because in the British context educational attainment seems to be particularly strongly connected to social status.

Apart from the impact of differences in the proportion of uneducated whites and non-whites we anticipate that the presence of a large group of non-white residents with no qualification is likely to affect the dependent variable. Threat theories of ethnic competition predict that it should be stronger among those who compete for the same resources, and in the case of people with little educational attainment, it is likely that the main dimension of ethnic competition will be for sources of employment. Consequently, a higher proportion of uneducated non-whites will threaten the economic prospect of uneducated whites and encourage them to join the BNP. To have a strong evidence of this mechanism, one would need to know whether uneducated whites are amongst those who react to the presence of uneducated ethnic minorities most strongly. In a strict sense the aggregate nature of our data does not allow such an analysis. Nevertheless, this problem could be partially tackled by creating an interaction term for the proportion of uneducated residents within small scale neighbourhoods (output areas) and the proportion of non-whites with no educational credentials at the district level. This is the best we could do, since detailed socio-economic Census data by ethnicity is not available at the small scale

level of output areas. With reference to educational attainment of ethnic minorities we expect that:

Hypothesis 5: Social distance, captured by the difference in proportions of uneducated whites and non-whites, will be associated with higher BNP membership.

To reflect the reality of ethnic competition over resources, *we* hypothesize that:

Hypothesis 6: White Britons would be more likely to join the BNP if they live in a neighbourhood inhabited by a large proportion of uneducated persons, which is located within a district with a substantial proportion of non-whites with no qualifications.

Cultural Threat

Lastly, researchers working on prejudice and ethnic hostilities have distinguished between economic and cultural threat (McLaren 2003, Ivarsflaten 2005, Schneider 2008). There is an on-going debate regarding the extent to which prejudice is rooted in economic versus cultural threats, where the former is a set of material resources including benefits, jobs and housing and the latter are perceived primarily in terms of different religious practices, language differences or distinctive habits and values (McLaren 2003). Interviews with members and sympathisers of far right groups in Britain provide some indications that support for the British National Party is driven by considerations about cultural homogeneity. According to Matthew Goodwin's research on BNP activists, one of the common motivations why people get involved with a far right party was a concern over a growing number of immigrants whose presence threatened what the interviewees perceived to be 'the British way of life' (2011). This tendency is also visible in quantitative research - Biggs and Knauss report that BNP membership has been shown to be unaffected by unemployment, yet has been connected to the presence of higher numbers of Muslim residents within the district (2012). Proximity to distinctively Muslim religious

establishments seems to be a good operationalisation of cultural threat. Mosques are a reoccurring theme in Rhodes' interviews with BNP supporters, where some far right sympathizers describe mosques as 'drip feeding' for the Asian community and 'evidence of inherent difference and reluctance to accept the dominant cultural values of our nation' (2012). In this part of the analysis, we would like to examine whether:

Hypothesis 7: Proximity to distinctively Muslim architectural landmarks is associated with higher probability of white Britons joining the BNP.

We decided that both mosques and madrasahs should be included in this category due to their visibility and the fact that they attract a number of distinctive-looking (if not only in terms of clothing) individuals on regular basis.

DATA AND METHODS

Our dependent variable is the percentage of BNP members per population eligible for membership, which is the number of members within a district divided by the total population identified as white British adults. To our knowledge this analysis is the third study (Biggs and Knauss 2012, Goodwin et al. 2013) exploiting the unique dataset which emerged in 2008 when a disgruntled far right activist published a complete BNP membership list, thought to date back to November or December 2007. The list contained addresses of 13,009 individuals and it was possible to assign output areas, wards and districts to 12,536 of them [79] by using an online geography matching tool called GeoConvert. Such matching allows merging membership data with detailed socio-economic and demographic characteristics of 218,038 small neighbourhoods (output areas) and 408 districts in England, Scotland and Wales available from the 2001 Census (Office of National Statistics, 2001; General Register Office for Scotland, 2001). For the sake of

[79] Biggs and Knauss report that the remaining 473 records were either missing a postcode, located abroad or based in Northern Ireland, which is not included in the analysis (2012).

clarification, whenever we refer to small neighbourhoods in this analysis we mean the output areas. Districts are used as an umbrella term for London boroughs, metropolitan boroughs, non-metropolitan boroughs, districts and unitary authorities. Between these two measures there are wards, which are used in the analysis of cultural threat. Digitised maps for districts (Figure 11) and neighbourhoods (Figure 16 and Figure 17) were obtained from Census and accessed using R maptools package.

Following the work of Biggs and Knauss we use multilevel binomial logistic regression which estimates the underlying probability of BNP membership, varying across neighbourhoods. As this chapter is based on their model, we control for the set of variables used in their analysis. Hence, at the output area level we control for the proportion of men, middle aged residents (aged between 30 and 65), individuals with no qualification, individuals with university qualifications, unemployed, people falling within class schema divided into five categories, house owners, those renting housing from councils, those

Unit	Obs	Mean	SD	Min	Max	Max
Output Areas						
People	218,038	262	97	50	4,156	4,156
Area	218,038	105	708	0.01	79,734	79,734
Wards						
People	10,072	7,880	4,823	106	35,102	35,102
Area	10,072	2,276	6,819	13	192,918	192,918
Districts						
People	408	139,960	94,500	2,153	977,087	977,087
Area	408	56,179	148,879	290	2,572,222	2,572,222

TABLE 16 DESCRIPTIVE STATISTICS OF THE GEOGRAPHIC UNITS USED IN THE ANALYSIS

living in overcrowded housing, population density, residents living in communal establishments, proportion non-white and a square of non-white proportion due to previously reported non-linear effects of non-white proportion within a neighbourhood. At the district level we control for unemployment, square of unemployment (due to non-linear

effects), proportion of non-white residents and segregation of non-white residents measured by Index of Dissimilarity[80], which is formally defined as:

$$ID = \frac{1}{2}\sum_{1}^{n}\left|\frac{n_i}{\sum n_i} - \frac{w_i}{\sum w_i}\right|$$

where n_i and w_i are the non-white and white population in neighbourhoods (output areas).

Further independent variables include the interaction between proportion of non-white and Index of Dissimilarity (included by Biggs and Knauss to compensate for the fact that the highest levels of segregation occur where the minority proportion approaches zero), a binary variable for presence of ethnic riots in 2001, proportion of labour vote in 2005 general elections and dummy variables for Scotland and Wales.

Because geographic distribution of BNP membership together with residuals clustering in East Midlands and the North West indicate the presence of spatial correlation, we use techniques of exploratory spatial data analysis (Moran I, Moran scatter plot, LISA maps) available in GeoDa software to assess the extent of spatial clustering. Calculating spatial autocorrelation of BNP membership at the level of small neighbourhoods and districts gives values of *I=.02* for output areas and *I=.42* for districts. We choose to carry further analysis on the district level due to the higher extent of clustering at this scale (and also because attempting a spatial analysis of 218,038 output areas would be computationally too demanding). The tables of Moran scatter plots for dependent and independent variables at district level are presented in Figure 18. Both proportion of non-white and segregation of non-white residents display a high degree of spatial autocorrelation (*I=.65* and *I=.69*

[80] The index score can be interpreted as the proportion of non-whites who would have to move to another neighbourhood in order to equalize their distribution with whites.

respectively) giving reason to suspect that spatial autocorrelation of BNP membership at district level is caused by grouping responses mechanism. Although one could think that feedback may be theoretically more attractive, it is hard to see how social interaction and influence could work on a larger scale of districts, while the impact of ethnic composition and segregation at district level seems plausible.

At this point one could ask why we should limit considering spatial lags to only three variables. The choice of lagged variables is driven by theoretical considerations. While subjective perception of ethnic minorities may be affected by what white Britons see while traveling across neighbouring areas, levels of unemployment in other districts are less likely to be of their immediate concern. Although changing in recent years, employment still seems to be a fairy local affair - data collected by Census 2001 suggests an overwhelming majority of people in England work within 20 km from their place of residence (Figure 19).

To examine the impact of the demographic change we needed to link 1991 and 2001 Census data. This required some additional work because district boundaries changed in that period, making it impossible to link observations directly. The solve this issue, we used Chris Brunsdon's pycno package in R which applies pycnophylatic interpolation to estimate the number of white and non-white population in each cell of a fine grid applied on the 1991 map of Britain. Next, estimates from cells were summed over the new set of boundaries. Figure 20 illustrates a sample procedure of obtaining estimates for changing boundaries with pycnophylatic interpolation.

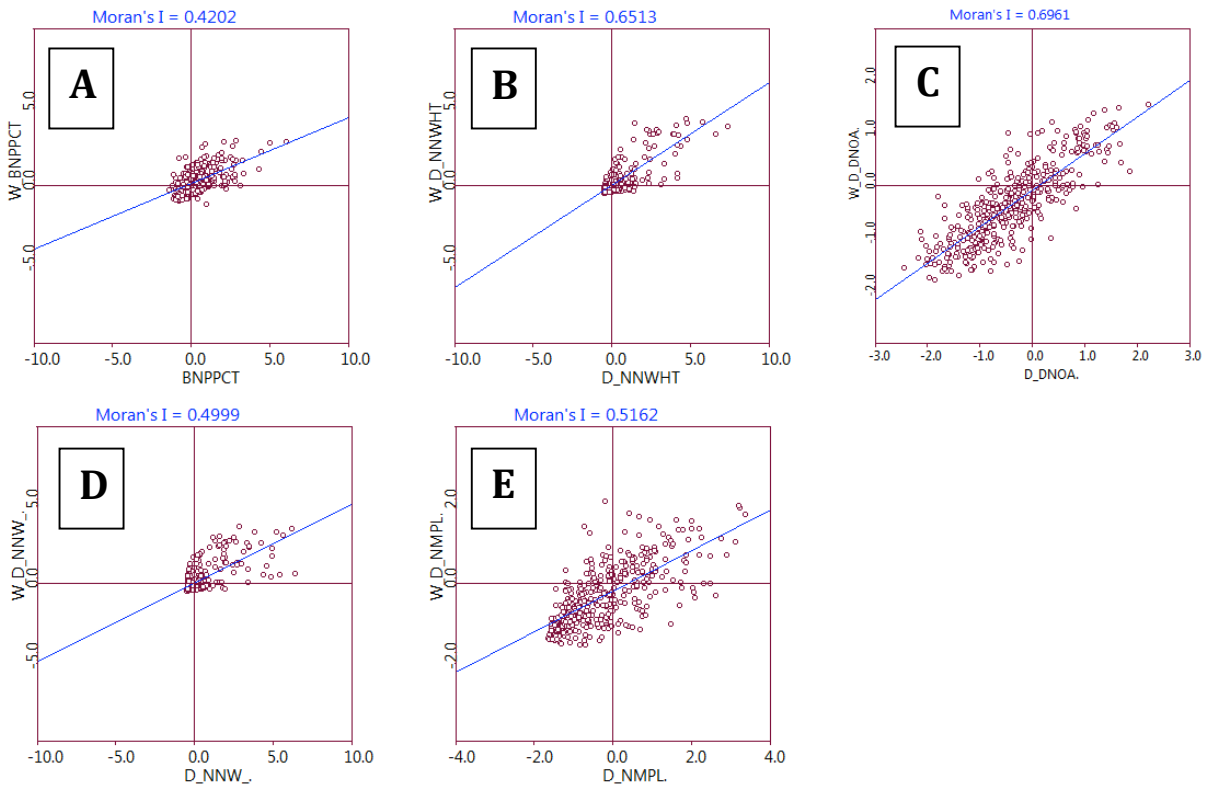
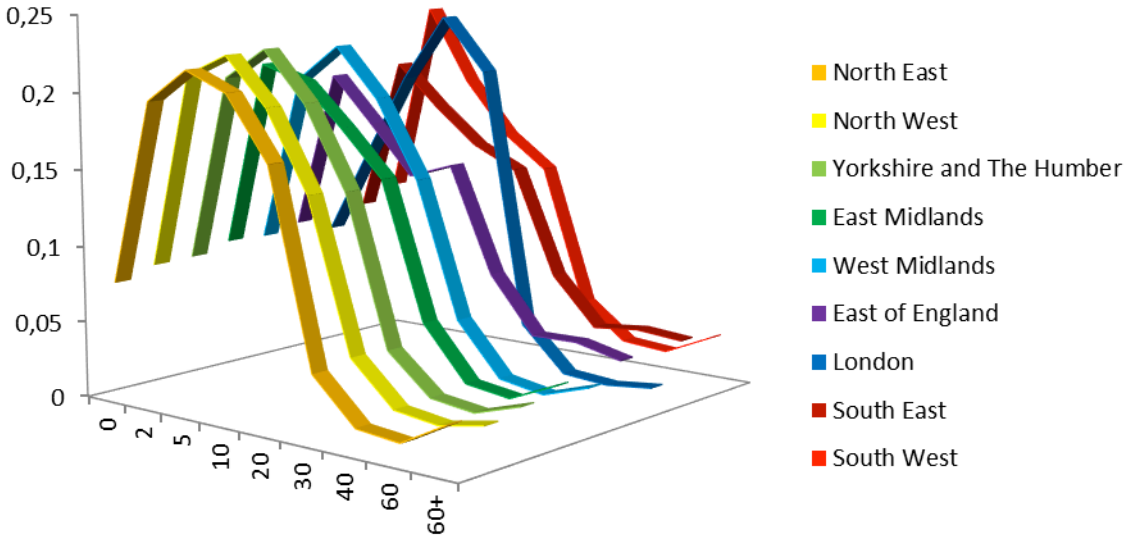


FIGURE 18 MORAN SCATTER PLOTS FOR DISTRICTS (A) PER CENT BNP, (B) PROPORTION NON-WHITE, (C) SEGREGATION, (D) INTERACTION BETWEEN PROPORTION OF NON-WHITE AND SEGREGATION AND (E) UNEMPLOYMENT.



SOURCE: OFFICE OF NATIONAL STATISTICS 2001

FIGURE 19 DISTANCE TRAVELLED TO WORK IN KM

For the social distance part of the analysis data on educational qualifications by ethnicity at district level was obtained from the Census website (2001). In the model we also control for the proportion of uneducated non-whites. Uneducated non-whites are more likely to have a limited command of the English language and show poor integration into the British society, both factors likely to encourage BNP membership among whites.

Lastly, the list of Muslim places of worship was obtained using a 2001 multi-faith directory authored by Paul Weller (Weller 2001). Having started to work on the data, it has been realised that obtaining reliable estimates on the number of operating mosques would be difficult and that different organisations use different numbers (ranging from conservative estimates of less than less than 350 mosques reported by Paul Weller for 2001 or 900 mosques reported in 2005 by Winder to over 1,600 used by the BNP and Muslims in Britain website in 2011[81]).

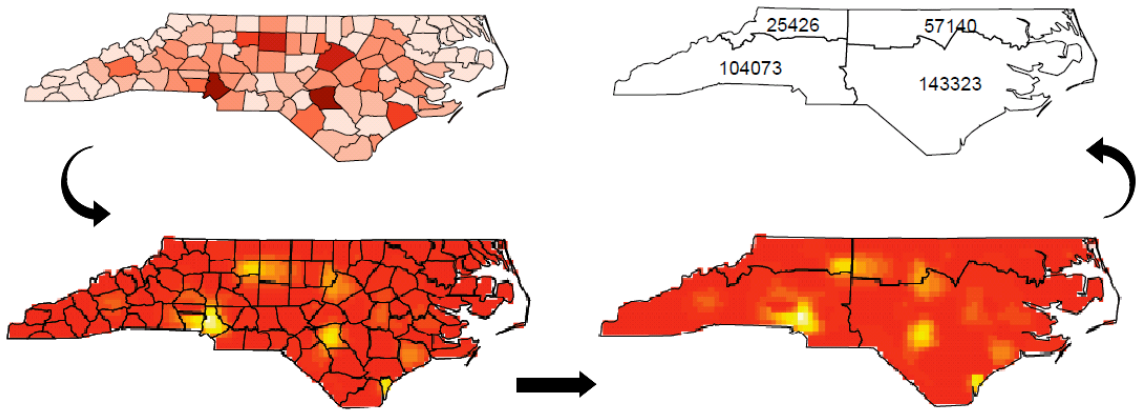


FIGURE 20 SAMPLE PROCEDURE OF OBTAINING ESTIMATES FOR CHANGING BOUNDARIES

In any case, we concluded that the number of 390 mosques reported by Weller is most likely underestimated. After reviewing sources of information about mosques in the United Kingdom, it has been decided that the Muslims in Britain database from 2011 looked like

[81] Although these reports are a decade apart, we find it hard to believe that within just 10 years the number went up by 1300.

the most reliable source of information about Muslim establishments[82]. Eventually, for this study we compiled a list of 775 mosques and madrasahs with a high confidence indicator score (on the website they were assigned to the class of *'reasonably recent first-hand knowledge'* and *'well known with plenty of corroborating information to support our data'*). These establishments were coded according to the output area, ward and district in which they were located.

RESULTS

Let us start by analysing patterns of spatial autocorrelation in the Base Model developed by Biggs and Knauss (2012). In order to explore local autocorrelation of non-white proportion in districts a LISA (Local Indicators of Spatial Autocorrelation) cluster map was created for 499 random permutations. LISA maps are different from normal mapping in that they supplement the visual aspect with quantitative information indicating which clusters are statistically significant (here at .01 level) when compared to a null hypothesis of pure randomness[83]. A map in Figure 21 reveals that there are 5 distinct hotspots of positive autocorrelation: Inner London, Calderdale, Bury, districts surrounding Birmingham (Dudley, Walsall, Sandwell) and districts surrounding Leicester (Blaby, Hinckley & Bosworth, Oadby & Wigston). These regions are the nuclei of clusters of positive spatial autocorrelation and are likely to affect surrounding areas. Lagged variables for proportion of non-white and segregation of non-white are constructed according to previously described first-order queen contingency criterion. Together with an

[82] The website contains community generated content where readers can include mosques in their areas and others can verify that a given Muslim centre is still operating. We believe that the way the website operates gives the Muslims in Britain database an advantage over official 'Places of Worship' register. According to Mr Naqshbandi, one of the administrators of the website, the official register lists some of the institutions which no longer operate; it also underestimates the number of unofficial, small places of religious gatherings.
[83] As is well known, simple visual interpretations of the map are often inadequate because the human mind is conditioned to find patterns and clusters even when the data is truly random.

interaction[84] term for lagged non-white and lagged-segregation they are included in Model 1.

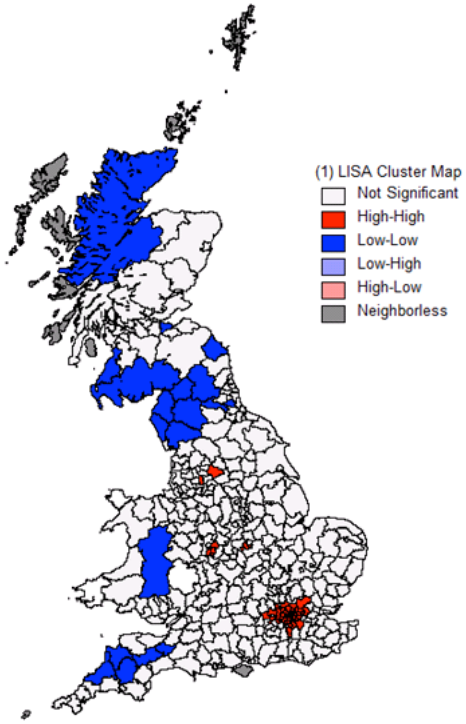


FIGURE 21 LISA MAP SHOWING AUTOCORRELATION OF PROPORTION NON-WHITES

Tables 18 and 19 report results of multilevel binomial logistic regression with addition of spatially lagged variables. Although lags of proportion of non-white and index of segregation are not significant on their own, the coefficient for the interaction between the two is significant at .05 level. Hence, we have confirmed Hypothesis 1, which asserted that there is an interaction between the probability of BNP membership and the proportion and segregation of non-white residents in districts surrounding the one for which predictions are made. The results obtained are similar to that of Biggs and Knauss, emphasising the impact of a large and highly segregated non-white population both within the district and in its district-level neighbourhood. Figure 22 shows how variables related to ethnic

[84] Including an interaction term between segregation and proportion of non-white is modeled after a method developed by Biggs and Knauss (2012), which aims to alleviate the misleadingly high values which the index of dissimilarity takes in districts inhabited by few non-white residents.

composition and segregation (both within the district and in the districts surrounding the one for which predictions are made) can influence the dependent variable while other variables are set to median level.

Model 1 can be compared to the Base Model developed by Biggs and Knauss by using AIC score which helps to identify the model with the best fit to truth and relatively few parameters. The reduction of about 19 scores between Base Model and Model 1 suggests that including spatially lagged variables led to a significant improvement of the model fit[85]. What are the practical implications of our finding? Hypothesis 1 implies that two identical districts may have different percentages of BNP membership, arising as a result of their different spatial location. Additionally, an interaction term for lagged proportion of non-white and lagged segregation is almost as strong as the proportion and segregation of non-white within a given district.

Moving on to patterns of spatial heterogeneity, let us observe that Hypothesis 2, if correct, would imply that the positive difference in proportion of non-white residents within a given district and districts bordering it would be a significant predictor of BNP membership. Not taking this observation into account could lead to underestimation of BNP potential in predominantly white areas, a pattern which has already been observed in Figure 11. To measure spatial heterogeneity, let us construct a new independent variable called 'highest difference in proportion of non-whites' which is defined in the following way. First we use contingency a matrix **W** and multiply it with matrix where the entries $y_1 \dots y_n$ are the values for each of the 408 observations to obtain a matrix $\boldsymbol{M}$, where each row i contains values of all neighbours of observation i.

[85] In other words, we are not just picking up a random noise; including additional parameters actually improved the model.

$$\boldsymbol{M} = \mathbf{W}\begin{bmatrix} y_1 & \cdots & 0 \\ \vdots & \ddots & \vdots \\ 0 & \cdots & y_n \end{bmatrix}$$

Next, we take a maximum of each row vector m_i and define the highest difference in proportion of non-whites as

$$y_i^{max} = \begin{cases} max(m_i) - y_i, & \text{if } max(m_i) - y_i > 0 \\ 0, & \text{otherwise} \end{cases}$$

To give more substance to this definition, let's go back to the example of Charnwood, a district with 8% of non-white population, which is surrounded by Leicester (36%), North West Leicestershire (1%), Rushcliffe (4%), Melton (1%), Harborough (2%), Blaby (5%) and Hinckley & Bosworth (2%). Hence, the highest difference in proportion of non-white for Charnwood equals 0.28 (because we subtracted 0.08 from 0.36). On the other hand, the value for Newham (61%) is equal to 0 because it is not bordered by any district with higher percentage of non-white residents.

Our prediction as to the existence of a relationship between highest difference in proportion of non-whites and residuals from multilevel model by Biggs and Knauss is confirmed by grouping data into five quintile classes, according to the highest difference in proportion of non-whites (see Table 17). As can be seen, the mean value of residuals in Class 1, which can be thought of as hotspots of high ethnic diversity (districts such as Luton, Leicester, Birmingham), is significantly different from the mean of residuals for districts in Class 5, which represent predominantly white areas bordering highly diverse districts (Class 5 includes districts of Barking and Dagenham, Epping Forest, Spelthorne, Blaby and Bromley). Descriptive statistics of lagged variables are presented in Table 21.

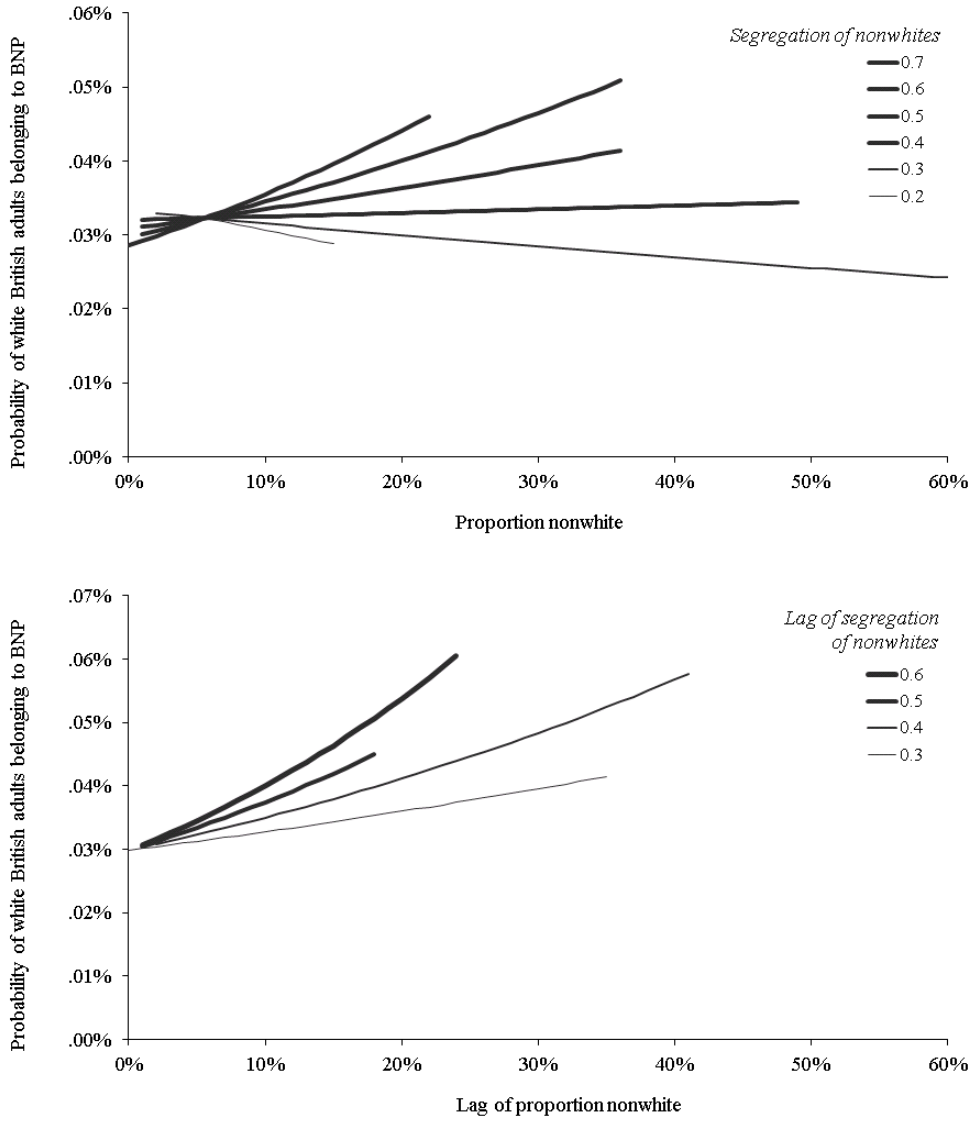


FIGURE 22 ON THE TOP THE EFFECT OF NON-WHITE PROPORTION AND SEGREGATION WITHIN A DISTRICT, ON THE BOTTOM THE EFFECT OF LAGGED NON-WHITE PROPORTION AND LAGGED SEGREGATION ON BNP MEMBERSHIP WITHIN A DISTRICT. ESTIMATES BASED ON MODEL 1.

Highest difference in proportion of non-whites	**Residuals**	
Quintile	*Mean*	*SD*
1	-1.12	13.54
2	0.76	10.14
3	-0.31	10.66
4	0.79	15.2
5	19.31	21.6
Total	**1.99**	**15.47**

TABLE 17 RESIDUALS BY QUINTILES OF HIGHEST DIFFERENCE IN PROPORTION OF NON-WHITES. DIFFERENCE BETWEEN 1ST AND 5TH QUINTILE IS STATISTICALLY SIGNIFICANT (P-VALUE<.001)

In Model 2 an independent variable for the highest difference in proportion non-whites between a district and its surrounding districts is included. The result shows that this variable is a significant predictor of BNP membership with a reduction in AIC score equal to 25 points, which suggests that Model 2 may be even more adequate than Model 1. The mean of the highest difference in proportion non-whites is 6.01 percentage points. The fact that this value is close to zero is a reflection of the overall positive auto-correlation. However, if we move from the 10th percentile of the highest difference in proportion non-whites (0 percentage points) to the 90th percentile (19 percentage points) while keeping all other independent variables fixed at their median, the difference in BNP membership prediction changes from 0.02 % to 0.05%.

Finally, Model 3 incorporates findings from Model 1 and Model 2. As can be seen, both the interaction coefficient for lagged non-white proportion times segregation and the highest difference in proportion non-whites are significant. Interestingly, coefficients for non-white concentration at district level and the interaction between non-white proportion and segregation went out of significance in Model 3. At this stage it would be tempting to make a bold statement about alleged unimportance of presence and segregation of non-whites within the district. Yet, a result of a t-test of joined significance allows rejecting the null hypothesis, meaning that we cannot say that the three variables are jointly insignificant. Proportion of non-white at district level is highly correlated *(r=.79)* with the variable for lagged non-white and the interaction terms are functions of the two variables, hence it is possible that the loss of significance can be attributed to multicollinearity. In addition, we have tested a model where insignificant variables for proportion non-white, segregation and the interaction term were excluded, but in comparison to Model 3 its AIC only increased by 7 scores, suggesting that it was a worse fit.

Binomial logistic regression	***Base***			***Model 1***		
	odds	*s.e.*	*p*	*odds*	*s.e.*	*p*
Neighbourhood						
Logged population density	.95	.01	.00 ***	.95	.01	.00 ***
Living in communal establishments	.36	.06	.00 ***	.36	.06	.00 ***
Aged 30 to 65	1.95	.37	.00 ***	1.90	.36	.00 **
Male	1.14	.34	.65	1.15	.34	.63
Education: no qualifications	1.43	.23	.02 *	1.38	.22	.04 *
Education: university degree	.18	.04	.00 ***	.18	.04	.00 ***
Unemployment	1.14	.33	.66	1.13	.33	.67
Class: managerial & professional	.75	.15	.14	.71	.14	.09
Class: intermediate occupations	1.04	.28	.88	.99	.27	.98
Class: small employers & self-employed	1.17	.30	.52	1.17	.29	.54
Class: lower supervisory & technical	1.30	.43	.43	1.30	.43	.42
House: owned	.85	.07	.04 *	.85	.07	.04 *
House: rented from council	.63	.05	.00 ***	.63	.05	.00 ***
Overcrowded housing	2.32	.48	.00 ***	2.28	.47	.00 ***
Nonwhite proportion	2.52	.75	.00 **	2.41	.71	.00 **
Nonwhite proportion squared	.15	.07	.00 ***	.16	.08	.00 ***
Authority						
Nonwhite proportion	.17	.17	.08	.08	.10	.04 *
Nonwhite segregation	.79	.26	.47	.69	.22	.25
Interaction: Nonwhite and segregation	1022.98	2501.59	.00 **	843.77	2234.09	.01 *
Unemployment	6887.56	39194.64	.12	8895.29	49112.58	.10
Unemployment squared	.00	.00	.03 *	.00	.00	.04 *
Lagged nonwhite proportion				.34	.45	.41
Lagged nonwhite segregation				1.00	.21	.99
Interaction: Lagged nonwhite and lagged segregation				815.84	2271.05	.02 *
Highest difference in proportion nonwhite Ethnic riot, 2001	1.56	.38	.07	1.48	.35	.10
Constituency and nation						
Labour vote, 2005	1.48	.19	.00 **	1.42	.18	.01 **
Wales	.69	.07	.00 ***	.73	.07	.00 **
Scotland	.37	.04	.00 ***	.39	.04	.00 ***
Random effects (standard deviation)						
Authority	.375	.017	.00 ***	.359	.017	.00 ***
AIC score		94783.15			94764.20	
R^2		.135			.137	
Unexplained variance						
Neighbourhood		83.0%			83.0%	
Authority		3.5%			3.3%	

N = 218,038 neighbourhoods; 408 authorities

*odds: odds ratio; s.e.: standard error; p: p-value for 2-tailed test *** p < .001, ** p < .01, * p < .05*

TABLE 18 PROBABILITY OF WHITE BRITISH ADULTS BELONGING TO THE BNP

Binomial logistic regression	***Model 2***			***Model 3***		
	odds	*s.e.*	*p*	*odds*	*s.e.*	*p*
Neighbourhood						
Logged population density	.95	.01	.00 ***	.95	.01	.00 ***
Living in communal establishments	.36	.06	.00 ***	.36	.06	.00 ***
Aged 30 to 65	1.88	.36	.00 **	1.91	.36	.00 **
Male	1.16	.34	.61	1.15	.34	.64
Education: no qualifications	1.37	.22	.05 *	1.38	.22	.04 *
Education: university degree	.18	.04	.00 ***	.18	.04	.00 ***
Unemployment	1.13	.33	.68	1.13	.33	.68
Class: managerial & professional	.70	.14	.08	.71	.14	.09
Class: intermediate occupations	.97	.26	.92	.98	.27	.93
Class: small employers & self-employed	1.14	.29	.60	1.17	.29	.54
Class: lower supervisory & technical	1.29	.43	.44	1.30	.43	.42
House: owned	.85	.07	.04 *	.84	.07	.04 *
House: rented from council	.63	.05	.00 ***	.63	.05	.00 ***
Overcrowded housing	2.24	.46	.00 ***	2.31	.48	.00 ***
Nonwhite proportion	2.36	.70	.00 **	2.38	.70	.00 **
Nonwhite proportion squared	.17	.08	.00 ***	.17	.08	.00 ***
Authority						
Nonwhite proportion	.09	.09	.02 *	.79	1.13	.87
Nonwhite segregation	.89	.28	.73	.78	.25	.45
Interaction: Nonwhite and segregation	2095.73	4961.52	.00 **	73.87	200.93	.11
Unemployment	20514.91	112999.20	.07	32095.76	175562.60	.06
Unemployment squared	.00	.00	.03 *	.00	.00	.03 *
Lagged nonwhite proportion				.03	.04	.02 *
Lagged nonwhite segregation				1.04	.21	.84
Interaction: Lagged nonwhite and lagged segregation				690.18	1895.69	.02 *
Highest difference in proportion nonwhite	4.16	1.11	.00 ***	6.05	3.46	.00 **
Ethnic riot, 2001	1.54	.36	.07	1.59	.37	.05 *
Constituency and nation						
Labour vote, 2005	1.43	.18	.01 **	1.37	.18	.01 *
Wales	.72	.07	.00 **	.73	.07	.00 **
Scotland	.38	.04	.00 ***	.39	.04	.00 ***
Random effects (standard deviation)						
Authority	.357	.017	.00 ***	.353	.017	.00 ***
AIC score		94757.70			94756.47	
R^2		.137			.138	
Unexplained variance						
Neighbourhood		83.0%			83.1%	
Authority		3.2%			3.1%	

N = 218,038 neighbourhoods; 408 authorities

*odds: odds ratio; s.e.: standard error; p: p-value for 2-tailed test *** p < .001, ** p < .01, * p < .05*

TABLE 19 PROBABILITY OF WHITE BRITISH ADULTS BELONGING TO THE BNP

Binomial logistic regression	***Model 4***			***Model 5***		
	odds	*s.e.*	*p*	*odds*	*s.e.*	*p*
Neighbourhood						
Logged population density	.98	.00	.00 ***	.98	.00	.00 ***
Living in communal establishments	.35	.06	.00 ***	.35	.06	.00 ***
Aged 30 to 65	2.07	.39	.00 ***	2.04	.38	.00 ***
Male	1.25	.37	.44	1.27	.37	.42
Education: no qualifications	1.34	.21	.07	1.34	.21	.06
Education: university degree	.19	.04	.00 ***	.19	.04	.00 ***
Unemployment	1.13	.33	.68	1.12	.33	.70
Class: managerial & professional	.71	.14	.09	.71	.14	.09
Class: intermediate occupations	.99	.27	.98	.98	.27	.94
Class: small employers & self-employed	1.65	.37	.03 *	1.61	.36	.04 *
Class: lower supervisory & technical	1.27	.42	.48	1.26	.42	.49
House: owned	.80	.06	.00 **	.80	.06	.00 **
House: rented from council	.62	.05	.00 ***	.62	.05	.00 ***
Overcrowded housing	2.46	.51	.00 ***	2.41	.50	.00 ***
Nonwhite proportion	2.45	.72	.00 **	2.51	.74	.00 **
Nonwhite proportion squared	.18	.09	.00 ***	.17	.08	.00 ***
Authority						
Nonwhite proportion	.24	.28	.22			
Nonwhite segregation	.82	.27	.54			
Interaction: Nonwhite proportion and segregation	609.27	1493.42	.01 **			
Unemployment	5733.37	32667.11	.13	24625.25	138018.54	.07
Unemployment squared	.00	.00	.04 *	.00	.00	.02 *
Increase in the share of non-whites	.65	1.42	.85	13.36	13.20	.01 **
Population growth						
Ethnic riot, 2001	1.58	.39	.06	2.01	.47	.00 **
Constituency and nation						
Labour vote, 2005	1.49	.19	.00 **	1.50	.19	.00 **
Wales	.70	.07	.00 ***	.68	.07	.00 ***
Scotland	.38	.04	.00 ***	.36	.03	.00 ***
Random effects (standard deviation)						
Authority	.359	.017	.00 ***	.357	.017	.00 ***
AIC score		94771.854			94776.377	
R^2		.137			.135	
Unexplained variance						
Neighbourhood		82.7%			82.8%	
Authority		3.5%			3.7%	

N = 218,038 neighbourhoods; 408 authorities

*odds: odds ratio; s.e.: standard error; p: p-value for 2-tailed test *** p < .001, ** p < .01, * p < .05*

TABLE 20 PROBABILITY OF WHITE BRITISH ADULTS BELONGING TO THE BNP

TABLE 21 DESCRIPTIVE STATISTICS OF LAGGED VARIABLES AT DISTRICT LEVEL

Variable	Mean	SD	Min	Max
Proportion non-white	0.06	0.09	0.00	0.61
Segregation	0.45	0.11	0.19	0.79
Interaction proportion non-white x segregation	0.03	0.03	0.00	0.21
Lagged proportion non-white	0.05	0.07	0.00	0.69
Lagged segregation	0.44	0.13	0.00	0.69
Lagged interaction proportion non-white x segregation	0.02	0.03	0.00	0.13
Highest difference in proportion non-whites	0.06	0.08	0.00	0.46

TABLE 22 CORRELATION MATRIX

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Proportion nonwhite	1.00						
(2) Segregation nonwhite	-0.27	1.00					
(3) Interaction: Nonwhite and segregation	0.93	-0.04	1.00				
(4) Lagged proportion nonwhite	0.79	-0.41	0.64	1.00			
(5) Lagged segregation	-0.18	0.36	-0.07	-0.18	1.00		
(6) Interaction: Lagged nonwhite and lagged segregation	0.71	-0.27	0.63	0.94	-0.03	1.00	
(7) Highest difference in proportion nonwhite	0.26	-0.37	0.16	0.72	-0.12	0.73	1.00

Overall, Model 3 is an improvement of the Base Model. Figure 23 shows LISA cluster maps of residuals (499 random permutations, significance level .01) of the dependent variable in the Base Model and Model 3. The clustering of underestimations disappeared for districts of Blaby, Melton, Leicester, Rugby, Lincoln, South Derbyshire, North Warwickshire, Lancaster, Craven, Ribble Valley, Pendle, Calderdale, Burnley and Hyndburn and appeared in North Kesteven. Interestingly, 13 out of 14 of these districts fall into the fifth and highest quintile of BNP membership. Thus, by including spatially lagged variables we managed to both alleviate a data problem by reducing spatial autocorrelation of residuals and capture a substantive finding of how spatial autocorrelation can affect levels of ethnic hostility.

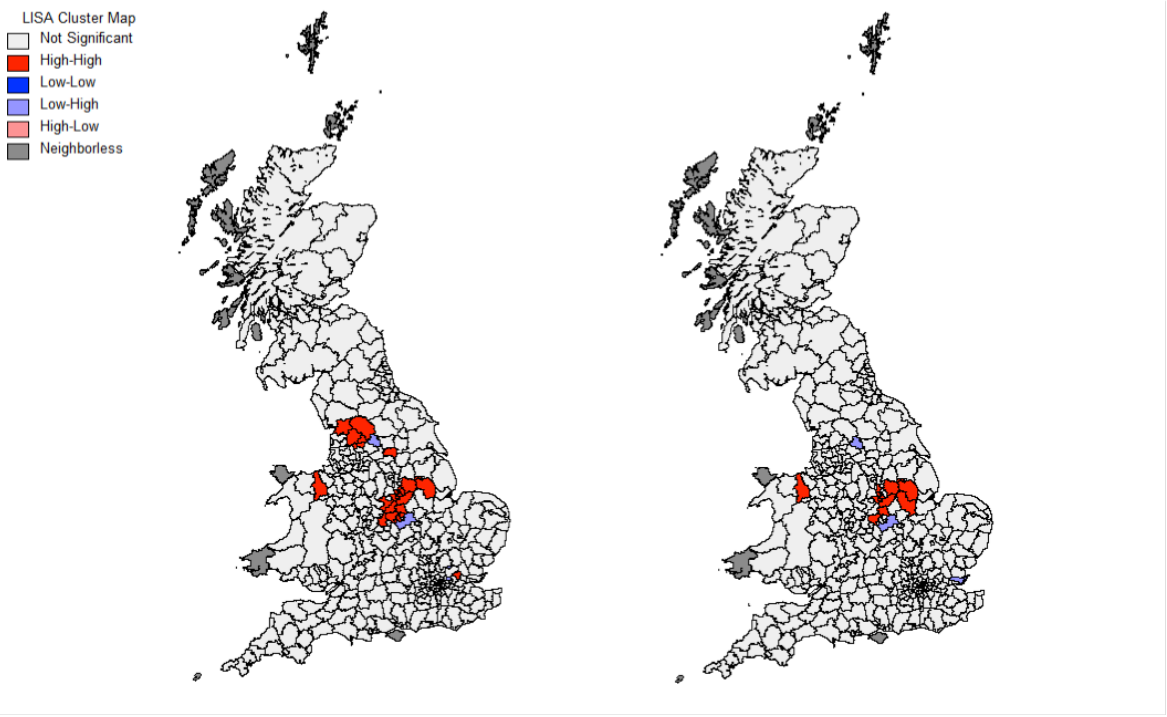


FIGURE 23 LISA MAPS SHOWING AUTOCORRELATION OF RESIDUALS FROM THE BASE MODEL AND MODEL 3.

As for the demographic change, between 1991 and 2001 the highest increase was observed for London boroughs, in particular for Newham, Harrow and Redbridge which witnessed over 15 percentage point increase in non-white population. Outside of London a relatively high increase of non-white population occurred in Slough (0.10), Birmingham (0.08), Luton (0.08) and Leicester (0.07). As shown in Model 4, an increase in the proportion of non-whites is not a significant factor when added to the previous Base Model, however adding this term does improve the goodness of fit slightly (AIC reduced by 11 scores). The fact that this variable is not significant could be because districts which had the highest proportion of non-white population in 2001 are roughly the same *(r=.96)* as those which had the highest increase of non-white proportion (Figure 24), hence by adding the increase in proportion non-white we are effectively doubling the term for proportion of non-white.

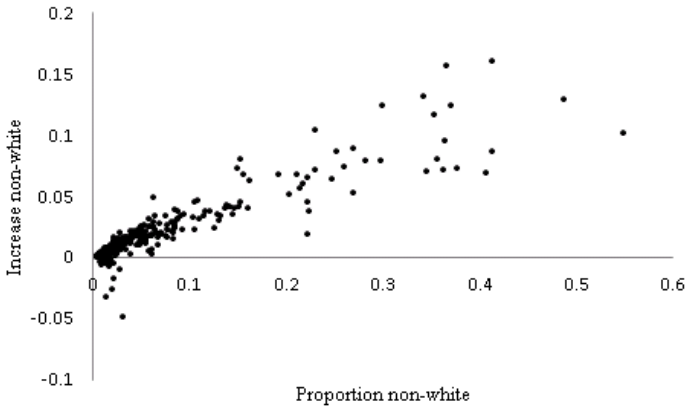


FIGURE 24 THE RELATIONSHIP BETWEEN PER CENT OF NON-WHITE AND GROWTH OF NON-WHITE AS A SHARE OF POPULATION

The reason why these two variables are related is probably a mixture of higher birth rates among ethnic minorities and the fact that new arrivals are most likely to settle in communities which have a high concentration of their fellow countrymen. What would happen if we take just the growth of non-white as a share of population? Model 5 reveals that when taken on its own this factor becomes a significant predictor of BNP membership and a reduction of 7 AIC scores suggests a better fit than the Base Model used by Biggs and Knauss. It seems that to some degree we can use growth of non-white population interchangeably with the absolute level of non-white population.

With response to the question of de-industrialisation, regression results have shown that population growth, which is defined as the total number of residents in 2001 divided by the total number of residents in 1991, is not a significant predictor of BNP membership. Additionally, we tried to use white population decline, but re-defining population decline in this way did not yield significant results.

Model 6 reveals that the presence of mosques is a significant predictor at ward level. A separate regression was also run for the number of mosques at the district level but the results were not significant and are therefore not reported. One interpretation could be that reaction to new Muslim establishments is more of a local affair which is picked up at ward

level and not so much at the larger scale of a district. A quick survey of BNP's website reveals that the party is committed to supporting protests and local initiatives which attempt to boycott opening of new mosques. Recently, the party publicised a story 'a victory for democracy after plans for a controversial mosque were refused following widespread local opposition' with 'more than three thousand locals signing a petition to close down the site' (BNP 2011). It seems that the BNP is attempting to exploit people's prejudice and channel residents' opposition to granting building permissions for new mosques. According to BNP's website, a local activist set up a stall in the South Birmingham ward of Billesley and while talking to locals he 'stressed the importance of residents attending the next ward meeting'. The activist was also praised for giving out 'mosque-awareness' leaflets and urging people to sign an anti-mosque petition (BNP, 2011).

Let us observe that Muslim religious establishments are still relatively rare, with 60% of districts and 93% of wards having no mosques or madrasahs at all. One the other hand, there are 7 districts with more than 20 buildings and the district of Birmingham is leading the list with 70 religious buildings. Relatively high values are reported for the districts of Bradford (36), Kirklees (34), Leicester (27) and Tower Hamlets (25). Arguably, the influence of mosques and madrasahs may not be linear so I used a logarithm of the original variable which is expected to better reflect the fact that the difference between there being a 7^{th} and 8^{th} mosque in an area is expected not to be quite the same as the difference between no mosques and just one. Because zero values were common, Box-Cox transformation which shifted all the values by 1 had been used before applying logarithmic transformation. Nevertheless, the substantive effect of mosques is rather small. Controlling for other factors, moving from a ward with no mosques to one with a maximum number of

22 mosques changes the probability of a white Briton belonging to BNP from 0.03% to 0.04%.

Moving on to the question of social distance we note that controlling for proportion of uneducated population by ethnicity reveals a curious pattern of asymmetry in the effect of social distance measured by the proportion of uneducated members of each group. Although lack of formal qualifications among whites tends to be associated with low educational attainment among non-white population of a given district, there are some notable asymmetries displayed in Figure 25. To calculate these differences, we first subtract the proportion of uneducated whites from uneducated non-whites in each district. If this difference is positive, we create a variable called 'more whites with no qualification than non-whites' and if it's negative we take the absolute value and call it 'less whites with no qualification than non-whites'. Missing values are replaced by zeros.

Contrary to what was expected it is the 'more whites with no qualification than non-whites' variable which has the greater range with the maximum value of .20 attained for the district of Barking and Dagenham where almost 4% of white residents had no formal qualification, compared with only 24% of non-white people in the same category. The highest value for 'less whites with no qualification than non-whites' was recorded for a Scottish district of Angus (.09), where 32% of white inhabitants have no qualification, compared to 41% of non-white persons. In the same time, it is worth pointing out that the 'more whites with no qualification than non-whites' variable has greater standard deviation (.05) than 'less whites with no qualification than non-whites' (.01), indicating higher variability of this variable. Regression results shown in Model 7 indicate two things. First, social distance seems to be a significant predictor of far right support, with membership highest in districts with a substantial proportion of uneducated non-whites and relatively

few whites without any educational qualifications, a situation captured by the 'less whites with no qualification than non-whites' coefficient.

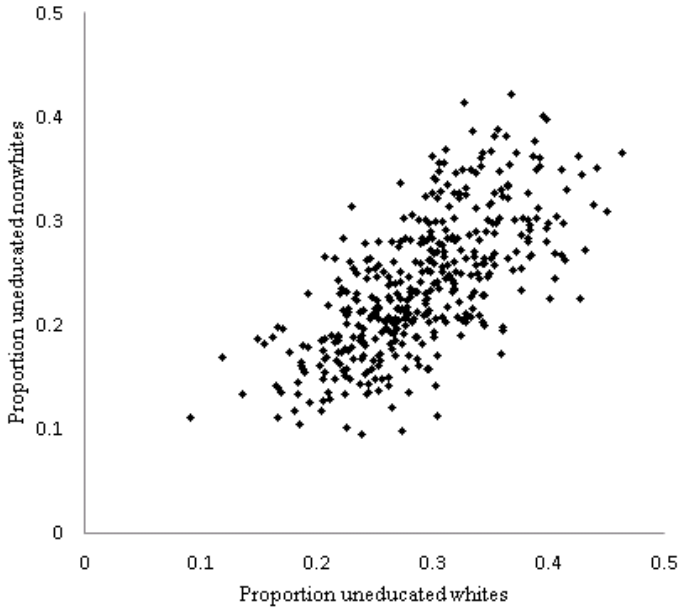


FIGURE 25 THE ASSOCIATION BETWEEN WHITE AND NON-WHITE POPULATION WITH NO EDUCATIONAL QUALIFICATIONS

Secondly and perhaps less obviously, a higher percentage of uneducated whites relative to non-whites is also associated with elevated BNP membership. The odds ratio for 'more whites with no qualification than non-white' is markedly lower than the corresponding odds ratio for 'less whites with no qualification than non-whites'. The coefficients are statistically different from one another ($p < .01$).

TABLE 23 DESCRIPTIVE STATISTICS OF SOCIAL DISTANCE VARIABLES AT DISTRICT LEVEL

Variable	Mean	SD	Min	Max
Proportion of whites with no education	0.24	0.07	0.10	0.42
Proportion of non-whites with no education	0.29	0.06	0.09	0.46
less whites with no qualification than non-whites	0.00	0.01	0.00	0.09
more whites with no qualification than non-whites	0.06	0.05	0.00	0.20

It should be reiterated that our measures of social distance are ecological and hence no inferences should be made regarding individual characteristics of BNP members[86].

Furthermore, the statement given by Hypothesis 5 is confirmed, with coefficients for proportion of non-white residents with no educational qualification within district and the interaction term for proportion of uneducated non-white within district and proportion of uneducated residents within neighbourhood both reaching significance level. Figure 26 shows how these variables influence the probability of white Britons belonging to the BNP. As can be seen, the probability is highest in neighbourhoods inhabited by a high proportion of residents with low educational attainment which are located within districts with substantial proportions of uneducated non-whites. It has been shown in previous analysis by Bowyer (2008) and Biggs and Knauss (2012) that education at neighbourhood level is associated with BNP membership. However, here we have shown that this relationship is mediated by the presence of uneducated non-whites that we explain through the scope of ethnic threat theory.

In our final model, presented on page 176, we include all statistically significant variables from the analysis so far: lagged proportion non-white, lagged segregation non-white and the interaction term for lagged proportion non-white times lagged segregation, the highest difference in proportion non-whites (spatial effects), logged mosques at ward level (cultural threat), variables for social distance as well as the proportion of uneducated non-whites and interaction term for proportion of uneducated non-whites at district level times proportion uneducated at output area level (social distance).

The results show that although the lagged variables for non-white proportion, segregation and interaction between the two fall out of significance (they are jointly insignificant at .05

[86] For instance, we cannot say that higher prevalence of BNP membership in an imaginary district inhabited by an unusual mixture of 10% uneducated whites, 90% white professors, 70% uneducated non-whites and 30% non-white professors, suggests that white professors vote for the BNP.

level, contrary to district level variables where we can reject the null hypothesis of joined insignificance), the rest of them remain significant predictors of BNP membership among white Britons. In comparison to the Base Model, the AIC score of the final model is reduced by 55 scores.

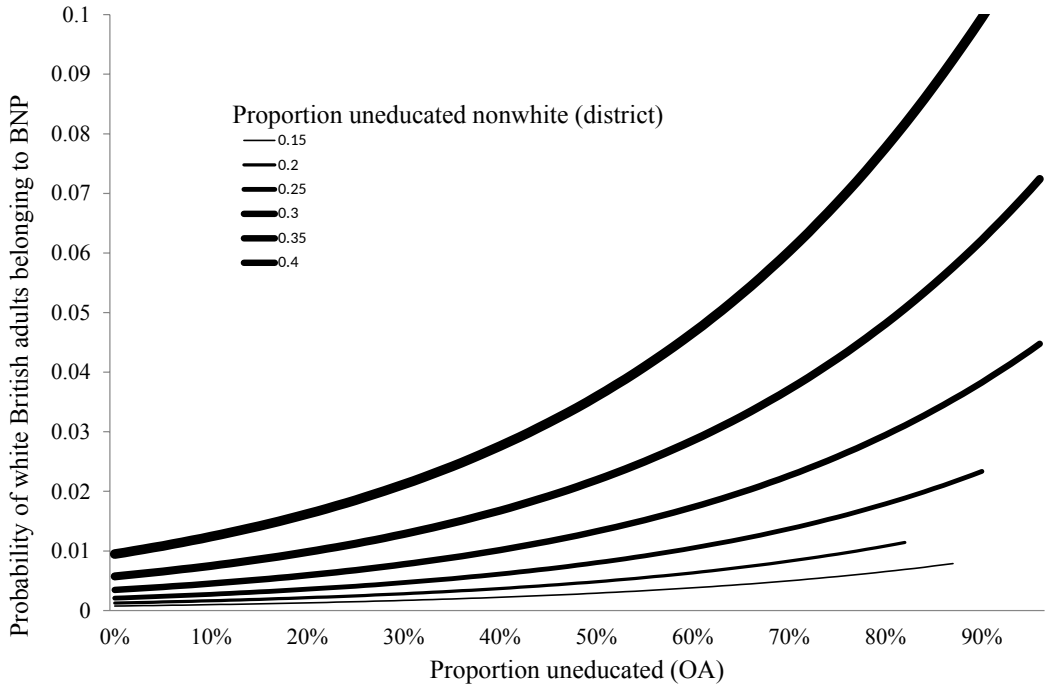


FIGURE 26 THE EFFECT OF EDUCATION AT NEIGHBOURHOOD (OA) LEVEL AND EDUCATION OF NON-WHITES AT THE DISTRICT LEVEL ON BNP MEMBERSHIP WITHIN A DISTRICT

Interestingly, we can see that the odds for the interaction between proportion of now-white and segregation at the district level are also reduced from 1023 to 49; the same applies to the proportion of unemployed at the district level (Model 7 reveals that this reduction is due to an introduction of variables measuring the proportion of uneducated non-whites and social distance between uneducated non-whites and whites).

DISCUSSION

Quantitative analysis of residual mapping confirms that although spatially auto-correlated residuals have not been eliminated by this inclusion, the overall extent of clustering has

been reduced due to inclusion of variables capturing spatial effects. In the same time, we hope to have shed light on a less explored social base of far right support, which is found in predominantly white districts located next to districts with high proportion of non-white residents. Because presence of ethnic minorities in the United Kingdom is associated with urban areas, we suspect that the spatial heterogeneity effect, measured by the highest difference in proportion of non-white, is strongest for rural regions which border ethnically diverse urban areas. What may be special about these areas?

This finding can be interpreted in the context of work of Garland and Chakrabort who argue that the image of the British countryside as the very essence of national identity has been repeatedly exploited by the far right. For instance, the countryside has been described as a place of refuge for the white British who fled cities in search of a refuge, 'a place to make a fresh start away from the sordid, squalid town and cities of Blair's new Babylon' (BNP manifesto cited in Garland and Chakrabort 2004). Yet, as the readers are warned, this idyllic place could soon be transformed. In 2002 we could read on the party's website that 'one cannot help but notice the presence of new housing development all over the British countryside destroying the character and in most cases the sense of community in the areas affected'. Incidentally, we suspect that at least to some extent, presence of far right in the British countryside may be a consequence of geographic mobility.

Binomial logistic regression	***Model 6***			***Model 7***		
	odds	*s.e.*	*p*	*odds*	*s.e.*	*p*
Neighbourhood						
Logged population density	.98	.00	.00 ***	.98	.00	.00 ***
Living in communal establishments	.35	.06	.00 ***	.35	.06	.00 ***
Aged 30 to 65	2.12	.40	.00 ***	2.07	.39	.00 ***
Male	1.21	.36	.52	1.24	.36	.47
Education: no qualifications	1.33	.21	.07	2.69	.94	.00 **
Education: university degree	.18	.04	.00 ***	.21	.05	.00 ***
Unemployment	1.09	.32	.76	1.23	.36	.48
Class: managerial & professional	.71	.14	.09	.69	.14	.06
Class: intermediate occupations	1.00	.27	.99	.96	.26	.88
Class: small employers & self-employed	1.66	.38	.03 *	1.57	.36	.05 *
Class: lower supervisory & technical	1.28	.42	.46	1.22	.41	.55
House: owned	.80	.06	.01 **	.80	.06	.00 **
House: rented from council	.63	.05	.00 ***	.62	.05	.00 ***
Overcrowded housing	2.42	.50	.00 ***	2.45	.51	.00 ***
Nonwhite proportion	2.14	.64	.01 *	2.45	.73	.00 **
Nonwhite proportion squared	.19	.09	.00 ***	.18	.09	.00 ***
Authority						
Nonwhite proportion	.27	.27	.20	.31	.32	.26
Nonwhite segregation	.82	.27	.55	.59	.20	.13
Interaction: Nonwhite and segregation	417.46	1022.54	.01 *	366.38	888.22	.01 *
Unemployment	4785.83	27251.11	.14	6.87	41.65	.75
Unemployment squared	.00	.00	.04 *	.00	.00	.17
Nonwhite with no qualifiations				10.15	7.63	.00 ***
More whites with no qualifications than non-whites				96.05	195.94	.03 *
Less whites with no qualifications than non-whites				7.92	5.65	.00 **
Logged mosques	1.08	.03	.00 **			
Ethnic riot, 2001	1.58	.39	.06	1.68	.40	.03 *
Constituency and nation						
Labour vote, 2005	1.49	.19	.00 **	1.43	.18	.01 **
Wales	.70	.07	.00 ***	.70	.07	.00 ***
Scotland	.38	.04	.00 ***	.39	.04	.00 ***
Random effects (standard deviation)						
Authority	.38	.017	.00 ***	.367	.017	.00 ***
AIC score		94762.88			94758.46	
R^2		.138			.137	
Unexplained variance						
Neighbourhood		82.7%			82.8%	
Authority		3.5%			3.5%	

N = 218,038 neighbourhoods; 408 authorities

*odds: odds ratio; s.e.: standard error; p: p-value for 2-tailed test *** p < .001, ** p < .01, * p < .05*

TABLE 24 PROBABILITY OF WHITE BRITISH ADULTS BELONGING TO THE BNP

Binomial logistic regression	***Final Model***		
	odds	*s.e.*	*p*
Neighbourhood			
Logged population density	.98	.00	.00 ***
Living in communal establishments	.36	.06	.00 ***
Aged 30 to 65	2.08	.39	.00 ***
Male	1.21	.36	.52
Education: no qualifications	2.67	.93	.00 **
Education: university degree	.20	.05	.00 ***
Unemployment	1.18	.35	.57
Class: managerial & professional	.66	.13	.04 *
Class: intermediate occupations	.90	.25	.70
Class: small employers & self-employed	1.58	.36	.05
Class: lower supervisory & technical	1.23	.41	.54
House: owned	.80	.06	.01 **
House: rented from council	.62	.05	.00 ***
Overcrowded housing	2.37	.49	.00 ***
Nonwhite proportion	2.02	.60	.02 *
Nonwhite proportion squared	.21	.10	.00 **
Authority			
Nonwhite proportion	.95	1.36	.97
Nonwhite segregation	.67	.23	.24
Interaction: Nonwhite and segregation	36.56	131.06	.15
Unemployment	225.23	1330.61	.36
Unemployment squared	.00	.00	.11
Lagged nonwhite proportion	.06	.09	.07
Lagged nonwhite segregation	1.02	.21	.93
Interaction: Lagged nonwhite and lagged segregation	163.65	466.91	.07
Maximum positive difference	5.42	3.08	.00 **
Highest difference in proportion of nonwhite	54.68	108.88	.04 *
Nonwhite with no qualification	5.88	4.46	.02 *
Less white with no qualification than nonwhite	4.30	3.00	.04 *
More white with no qualification than nonwhite	1.69	.39	.02 *
Ward			
Logged mosques	1.08	.03	.00 **
Interaction term			
Nonwhite with no qualifications (district) and nonwhite with no qualification (neighbourhood)	.05	.06	.01 *
Constituency and nation			
Labour vote, 2005	1.36	.18	.02 *
Wales	.74	.07	.00 **
Scotland	.41	.04	.00 ***
Random effects (standard deviation)			
Authority	.35	.017	.00 ***
AIC score		94729.20	
R^2		.142	
Unexplained variance			
Neighbourhood		82.8%	
Authority		3.1%	

N = 218,038 neighbourhoods; 408 authorities

*odds: odds ratio; s.e.: standard error; p: p-value for 2-tailed test *** p < .001, ** p < .01, * p < .05*

TABLE 25 PROBABILITY OF WHITE BRITISH ADULTS BELONGING TO THE BNP

Secondly, to provide a definite answer to the question of whether membership is affected by demographic changes in the proportion of non-white or rather the absolute levels, one would need to find a way of disentangling the two variables. At the district level they tend to be highly correlated. However, it is possible that less correlation would be observed in a finer scale of local neighbourhoods or wards. Indeed, analyses reporting positive effect of demographic changes in the proportion of ethnic minorities, such as that undertaken by Hopkins, focus on smaller geographic scales (in his case Census Tracts). Finding no effect at the district level may be because peoples' local environments influence their attitudes more than the ethnic composition at the district level. Hence, we may have encountered a problem of capturing the right scale which has been previously reported by van Dyke and Soule (2002).

Additionally, a reason why increase in proportion of non-white residents is insignificant may be because in the recent years BNP membership has been driven not so much by the increase in the proportion of non-whites but the influx of white immigrants from Eastern Europe, an event which would not have been picked by the 2001 Census. According to the Home Office, between 2004 and 2007 over 200,000 Eastern Europeans entered the United Kingdom in what turned out to be one of the largest migration waves in recent British history (*Guardian*, May 21, 2010). When trying to find evidence that demographic changes in the ethnic composition are a predictor of BNP membership among white British, it seems important to account for the post-2004 Eastern European migration[87].

Next, we have provided evidence of social distance playing an important role in mediating the levels of BNP membership. Although we may have predicted that more uneducated

[87] It could also be used as a test of cultural vs. economic threat perspectives. White Easter Europeans do not strike as culturally different (at least in terms of their looks or religious practices) but they present economic competition similar to that posed by non-white individuals.

non-whites would be associated with higher level of support for the far right, the interesting part of this finding is that even in districts with lower percentage of uneducated non-whites than whites, the sheer difference is still positively associated with BNP membership. With regards to the percentage of uneducated non-whites within a district, to a certain degree it may be interpreted in term of cultural threat. Non-white people with no formal qualifications are more likely to be relatives or individuals who migrated from rural, relatively impoverished areas of the Commonwealth and who are hence more religious and exhibit traditional attitudes and customs. Finally, the significance of the interaction term may be interpreted as a possible evidence of economic thread, where uneducated residents feel threatened by higher percentage of non-whites with similar level of skills to theirs.

With reference to cultural thereat measured by a logged number of mosques at different geographic scales, we found that proximity to Muslim establishments is positively associated with BNP membership at the ward level. Yet, one should be cautious not to exaggerate its effect because it is very small. While it is true that a small proportion of White Britons may feel culturally threatened by Muslim establishments and subsequently seek BNP membership to express their views, the scale of this association is much smaller than what was initially expected. A question may be asked whether cultural threat could have been operationalised in a more appropriate way. Taking into account the amount of anti-Muslim rhetoric and the fact that previous studies reported that proximity to Muslims is a predictor of far right support (Goodwin et al. 2013, Biggs and Knauss 2012), it can be argued that presence of Muslim religious establishments should be, if anything, one of the best ways to operationalize cultural threat. Nevertheless, in the future research, it would be useful to try obtaining better and more reliable data on Muslim religious establishments.

PAPER 5 LASTING LEGACIES: DO AREAS THAT SUPPORTED THE NATIONAL FONT IN THE 1970S STILL SUPPORT CONTEMPORARY FAR RIGHT?

Having considered how space can play a role in affecting support for a far right party, we will now turn to the analysis of another kind of lagged variable, namely the effect of organisational continuity in time. In his book entitled *The New British Fascism*, Matthew Goodwin claims that the contemporary BNP builds on the existing legacy of other far right groups, in particular that of the National Front (Goodwin 2011). This questionable lineage is often cited as one of the reasons why despite recent electoral gains, the British National Party enjoyed only a limited success in comparison with some other far right parties across Europe [88]. Here, we build on a theory advocated by Goodwin, Ford and Cutts and analyse whether organisational continuity remains a significant predictor of party support after controlling for socio-economic factors. As we are going to show, although there is a weak positive relationship between the support for the National Front and the BNP, it disappears once socio-economic control variables are introduced. This finding allows us to question whether one can talk about a genuine historical legacy effect.

In recent years we have seen a revival of the so-called legacy hypothesis of far right support in the United Kingdom which asserts that contemporary far right parties are drawing on legacies of activism from an earlier, more violent and extremist era (Goodwin, 2011). As reported by Goodwin and colleagues this pattern has been described in the case of Vlaams Block in Antwerp and the Austrian Freedom Party in Carinthia, but also in

[88] There are certain parties which are free from this connection. For instance, according to Duncan Morrow *Freiheitliche Partei Österreichs* (Freedom Party of Austria) has never fully rejected the historical legacy of the far right, engaging in conscious 'flirtations with former Nazis' and serving as 'a political vehicle for integrating former Nazis' while gaining wider political acceptance in the same time (Morrow in Hainsworth 2000). However, obviously United Kingdom is very different from Austria in that the British national identity is largely build around the theme of struggle against fascism and Nazism. For instance, according to one poll from 2005, respondents perceived the country's defiance to Nazi Germany as the second most important component of the British national identity, a feature which only gave way to British commitment to the freedom of speech (Goodwin 2011)

Britain (Goodwin et al. 2013, Mudde 2007, Husbands 1983). Looking at the current BNP membership, Matthew Goodwin suggests that:

> *One possible explanation for the geographical distribution of members is that regions where membership is strongest have long been targeted by the extreme right, and have tended to provide disproportionately high levels of support for these parties* (2011)

Especially in parts of Midlands the BNP is thought to be benefiting from earlier campaigns of the far right which is manifested by the substantial degree of spatial overlap between areas known to support the far right in the 1970s and those which currently represent strongholds of the BNP (2011, also Goodwin et al. 2013).

This line of argument is developed further by Goodwin et al. who place the legacy effect within a theoretical framework of supply and demand for far right parties. Academics, they argue, have devoted much attention to explaining the demand for these parties, finding that it is affected by factors such as levels of education or proximity to ethnic minorities. Yet, as the authors suggest, in doing so they might have overlooked the question of supply driven by a legacy of far right activism in a given area.

The results presented by Goodwin and colleagues indicate that when dummy variables for organisational continuity are introduced into the model, presence of the National Front in the 1970s is a predictor of contemporary BNP membership. The authors report that 'membership of the modern BNP is significantly elevated (17% higher) in authorities where the old NF was active in the 1970s, holding other socio-economic and supply-side variables constant' (2013). Additional support is provided by survey studies which reveal

that while the National Front [89] support was concentrated among young, employed men from skilled working class backgrounds (Harrop et al. 1980), current BNP support is drawn predominantly from older, less educated working-class men (Ford and Goodwin 2010), which opens a possibility that BNP's support at least in part comes from matured 'old guard' of the National Front.

What could be the reasons for the alleged long-running support in some regions? Could it be explained merely as a combination of socio-economic factors such as deprivation, lack of employment opportunities and lower educational attainment, or is there really something distinctive about them, possibly an indication that far right organisations have operated in these regions, with more or less success, throughout the last decades? An answer is provided by Christopher Husbands in his book *Racial Exclusionism and the City*, a source which influenced current writing on the legacy effect in the United Kingdom. In his attempt to explain the rise of the National Front in the 1970s, Husbands provides detailed local histories [90] of party strongholds and hypothesizes that areas supporting the NF were a special class of 'demoralised' working-class neighborhoods with a long-standing tradition of ethnic exclusionism developed independently of the economic factors. According to Husbands, parts of East End Hackney, Enfield, Lewisham, Slough, Bradford, Lancashire, Leicestershire and Wolverhampton experienced a 'common decline or degradation not merely of their economic circumstance but also their local culture' and as a result at various times they had been successfully targeted by a wide range of far right fractions from the anti-Semitic British Brothers' League, Oswald's British Union of

[89] The fact that National Front is the only other episode in British electoral history when a far right party gained noticeable support makes it a good candidate for a party representing legacies of extreme right activism from an earlier era.

[90] The historical analysis and rich accounts of local life provided by Husbands often go as far as the middle of 19th century. The author identifies the development of the Labour movement around the time of 1906 General Elections as a decisive moment when autonomous working-class politics have been born and local political traditions established.

Fascists and Socialists, Union Movement, British National Party, British Campaign to Stop immigration to the Anti-Immigration Society and the National Front. Additionally, over a period of time far right organisations often overlapped in membership and transformed from one party to another, allowing suspecting that the far right never really closed its units in some of these places.

In the light of these arguments, we predict that support for the National Front in the 1970s will be positively associated with current BNP support, even when controls for socio-economic characteristics are introduced. In contrast to Goodwin et al. who used three supply variables (far right legacy in the 1970, BNP electoral success since 2005, contemporary BNP activism) we will focus exclusively on the 'legacy effect' variable, which they define as 'a binary measure of wards that are located within parliamentary constituencies where the BNP's main processor – the old NF – stood candidates at general elections during the 1970s'. In particular, if the legacy effect of the organisational continuity measured by electoral performance in the 1970s is true, we expect that:

Hypothesis 1: Past support for a far right party (the National Front) is associated with higher electoral achievements of contemporary far right party (the British National Party).

DATA AND METHODS

Although Goodwin (2011) and Goodwin et al. (2013) advocate their legacy effect hypothesis in reference to far right party membership, here we choose to concentrate on analysis of voting, mostly because our measure of NF support in the 1970s is based on electoral performance[91]. The dependent variable is the BNP electoral performance in England in Wales measured as percent of vote for the BNP in the 2005 Westminster

[91] We have also examined the impact of the legacy effect on BNP membership which gave very similar results.

elections recorded in 569 parliamentary constituencies in England and Wales [92]. Electoral data comes from the British Parliamentary Constituency Database 1992-2005 compiled by Pippa Norris and it is combined with socio-economic controls for unemployment, class, ethnic minority residents, house ownership and region dummies obtained from the 2001 Census. Electoral results from the 1970s were taken from Fredericks Craig's standard reference book covering parliamentary elections in the 1970s (Craig 1984). The independent variables compiled from this source are percent of votes cast for the NF among those who went to the polls in February 1974, October 1974 and May 1979. Although we would prefer to denominate BNP and NF vote by white British adults, data on ethnic composition of the 1979 electoral wards was not easily available and we used the share of the total vote instead.

The innovation of this study in comparison to that by Goodwin et al is that by using GIS tools we were able to directly estimate levels of past NF electoral performance within current district and parliamentary constituencies. Thus, we were not limited to measurement through dummy variables which are used in the study by Goodwin et al (2012) but could introduce exact measures of past time support. This may be important, since areas where about 7 per cent of the population cast a vote for the far right (such as Hackney South and Shoreditch) are arguably different from those where the NF received a modest score of less than 0.5 per cent of the total vote. To operationalize support for NF in the 1970s, the peak election year from the three elections taking place in the 1970s was chosen. In Table 26 descriptive statistics for all three elections are provided. Although the highest results were attained in October 1974, I assume that results from May 1979 provide a more suitable measure of NF support in the 1970s. The National Front is present

[92] Scotland has been excluded from the analysis due to unavailability of shapefiles necessary to link the 1970 NF vote to the 2005 BNP vote. This should not affect the analysis in a significant way, since BNP voting, let alone NF voting in Scotland has been negligible.

in 389 constituencies (i.e there are 389 constituencies where NF candidates stood for elections), has the highest mean value of 0.716 and also the highest correlation *(r=.11)* with BNP vote in 2005.

TABLE 26 DESCRIPTIVE STATISTICS FOR DEPENDENT AND INDEPENDENT VARIABLES

Variable	Minimum	Maximum	Mean	SD	N>0	r
Dependent Variable						
BNP May 2005	0	17.007	0.891	2.074	117	1.000
Independent Variables						
NF Feb 1974	0	7.867	0.271	0.925	87	0.059
NF Oct 1974	0	7.599	0.433	1.1	141	0.066
NF May 1979	0	7.017	0.716	0.916	389	0.105

N = 569

Following Jackman and Volpert (1996) who emphasised that electoral success of the far right is left-censored at zero due to the fact that it cannot be observed in units where no far right candidate stands, we use a Tobit model which utilizes a maximum likelihood estimator for left-censored variables. Since a similar argument can also be applied to NF vote, we include a dummy variable for constituencies where no NF candidate stood. The dummy is expected to be weakly positive. Consider that constituencies with no NF candidate might have had some residual levels of far right support, yet this potential was not realised due to a lack of an appropriate candidate. Hence, in constituencies where NF got no votes, we know that the level of NF support is likely to be underestimated.

RESULTS

As can be seen in Figure 27, there is a weak and positive correlation between contemporary BNP vote and NF vote. The graph also reveals two distinctive clusters which seem to be jointly responsible for the relatively low value of this correlation. One is a group of predominantly urban constituencies such as Tower Hamlets, Hackney South and Shoreditch or Newham with strong support for the NF and no BNP vote; the other a

group of rural districts such as Pendle or Burnley where BNP achieved a high result, while NF was not present. As we already know from previous sections, it seems that BNP succeeded at building a base of support in rural areas, while NF was essentially an urban phenomenon[93].

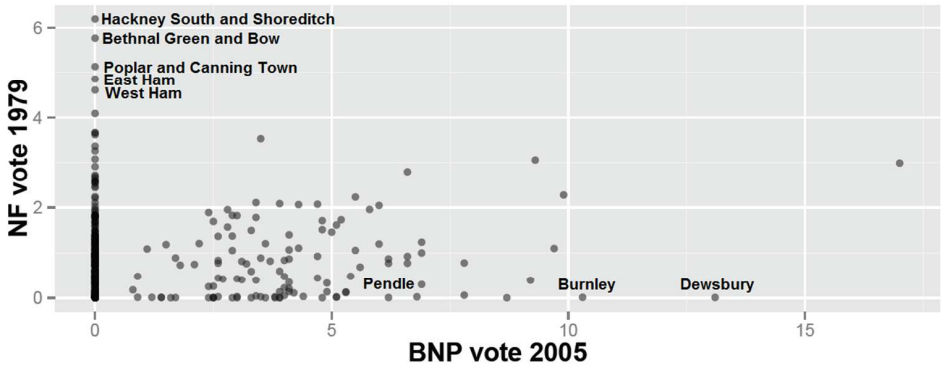


FIGURE 27 RELATIONSHIP BETWEEN NF AND BNP VOTE

The results of Tobit regression are presented in Table 27. To account for the existence of the two distinct clusters described above, we introduce a squared term. The NF vote reaches marginal statistical significance (.08) when it is regressed on its own together with a squared term and a dummy for no candidate standing (Model 1). Testing for joint significance (NF vote, NF vote squared, no candidate standing) allows rejecting a null hypothesis of these three variables being insignificant together. This relationship disappears after introduction of control variables which have been previously shown to be associated with far right voting (Model 2). The results for membership analysis are very similar and show that NF is not predictive of current BNP membership when the legacy effect variable is added to a multilevel binomial regression such as that presented by Biggs

[93] Importantly, this finding does not automatically mean that contemporary BNP members in rural areas are different people from urban NF voters in 1970s. While a possible explanation is that rural areas with the high prevalence of far right sympathies represent migration out of increasingly diverse cities such as Leicester or London, either because of governmental housing policy (such as that described by (Young and Willmott 1957) or white flight mechanisms, the only way to answer this question would be by analysing longitudinal patterns of migration.

and Knauss (2012). Incidentally, it is likely that the significance of the legacy effect reported by Goodwin and colleagues (2013) came from the fact that they used binary variables for supply side variables, including their 'legacy effect' variable which was coded as 1 for wards that were located within parliamentary constituencies where NF stood candidates at general elections during the 1970s and 0 otherwise. When we run a similar regression with binary variables (Model 3 and 4), results similar to those reported by Goodwin et al were obtained, including a finding that BNP voting was affected by NF variable which led to an elevation of 12% (compared to 17% reported by Goodwin et al.) in the dependent variable, holding other socio-economic variables constant.

DISCUSSION

Before discussion the implications of this analysis, let us highlight some possible shortcomings which should be addressed in future research. First, the variables for the National Front vote and the British National Party vote were measures as the percent of the total vote instead of the percent of white adults who voted for the far right. This is an important difference because in the last 30 years the ethnic composition of some constituencies, notably electoral wards in London, has changed significantly. In other words, it is not surprising that the electoral ward of Tower Hamlets doesn't vote for the BNP because over 60% of its residents are members of ethnic minorities. In the future, it would be good to obtain estimates of the ethnic composition of the 1970s electoral wards.

Secondly, there is the problem of the negative coefficient for the class of small businessmen and self-employed, because it is of the opposite sign to what could have been expected. Controls for class do not feature prominently in electoral studies of the BNP (Borisyuk et al. 2007, Bowyer 2009) and when they do (Ford and Goodwin 2010; Goodwin et al. in Eatwell and Goodwin 2010), emphasis is put on the higher levels of support among the working class (skilled manual and semi-/unskilled manual and

residual). In the same time, the class of small businessmen and self-employed has been shown to be positively associated with BNP membership (Knauss and Biggs 2012) and a parallel analysis of membership has shown that including the legacy effect variable (whether a dummy or exact levels of NF voting) does not change this relationship. The only conclusion is that this result needs further investigation. It is not straightforwardly contradicted by findings reported by Ford and Goodwin (2010) or Goodwin et al (2013) because in both studies the authors examined a set of individual-level data, whereas we use aggregate data measured at the constituency level. Furthermore, Ford and Goodwin (2010) and Goodwin et al. (2013) used a different class coding scheme (NRS versus NS-SEC).

Yet perhaps the most important question is why percent of votes cast for the NF is thought to be a better representation of the legacy effect than a dummy variable. First, the measure of organisational continuity used by Goodwin et al (2013) is derived from electoral records. The variable is coded as one if there was a candidate standing in any of the elections in the 1970s and zero otherwise. Yet, electoral results must be positively correlated with the number of activists involved in campaigning, organising events and canvassing. Putting a single candidate on the ballot is usually not enough to persuade 7 percent of the electorate to cast a vote for a given party. Moreover, we suspect that within a subset of constituencies where the National Front put forward their candidate, electoral outcome was largely determined by differences in the human and organisational resources necessary to persuade the people to vote for the NF candidate.

Ultimately, it seems that another unexplored route of investigation organisation continuity could bring interesting results in the future. Looking at Figure 27, one cannot help noticing that it is striking that some of the constituencies which strongly supported the National Front in the 1970s had barely any BNP voters in 2005. Combine this observation with the changing ethnic composition of these wards and the geographic mobility exemplified by

the white the flight mechanism seems like an alternative way to understand the organisational continuity of the far right in the United Kingdom.

Tobit regression	**Model 1**				**Model 2**				**Model 3**				**Model 4**			
	coeff	s.e.	p		coeff	s.e.	p		coeff	s.e.	p		coeff	s.e.	p	
NF vote	2.25	1.27	0.08	†	0.70	1.13	0.54									
NF vote squared	-0.51	0.33	0.12		-0.13	0.30	0.65									
No candidate standing	-1.05	0.22	0.39		-1.13	1.00	0.26									
NF dummy variable									2.47	0.91	0.01	*	1.52	0.79	0.06	†
Unemployment					-45.32	28.03	0.11						-47.68	27.73	0.09	†
Class: managerial & professional					-15.89	26.28	0.55						-13.05	25.39	0.61	
Class: intermediate occupations					4.07	26.94	0.88						7.05	26.35	0.79	
Class: small employers & self-employed					-83.42	28.62	0.00	**					-81.49	27.94	0.00	**
Class: lower supervisory & technical					-97.79	61.14	0.11						-94.43	59.64	0.11	
Nonwhite proportion					4.13	4.78	0.39						5.05	4.35	0.25	
Education: no qualifications					48.22	19.73	0.01	*					50.52	19.07	0.01	*
Education: university degree					-0.12	25.78	0.67						-12.31	25.75	0.63	
House: owned					27.58	8.61	0.00	**					27.20	8.52	0.00	**
House: rented from council					18.07	8.33	0.03	*					18.06	8.29	0.03	*
Wales					-5.99	2.02	0.00	**					-6.02	2.03	0.00	**
Constant	-6.18	1.11	0.00	***	-13.01	20.85	0.53		-7.31	1.03	0.00	***	-16.15	20.15	0.42	
Log likelihood	-562.05				-482.73				-563.85				-482.94			
Pseudo R	0.01				0.14				0.01				0.15			
Obs summary																
Lef-censored observations	452				452				452				452			
Uncensored observations	117				117				117				117			

N=569 constituancies *** p<.001, ** p<.01, * p<0.05, † p<.01

TABLE 27 BNP VOTE IN CONSTITUENCY

CONCLUSION

In this thesis we have sought to investigate a number of factors associated with two different types of engagement in extremist politics observed in the United Kingdom over the last decade. Before reiterating how our findings have contributed to the existing body of knowledge about mobilisation for extremist politics, let us discuss potential limitations which apply to the work presented in Papers 1 to 5.

This analysis is largely based on two unique datasets on mobilisation for extreme politics in the United Kingdom, which brings a question of whether these findings can be generalised to other cases outside of the United Kingdom. With regards to rioting, our research can be defended on the grounds that it provides a rare evidence into what factors are associated with participation outside of the United States, since much of the research has been dominated by analysis and re-analyses of American race riots. Although we do not claim that similar factors explained American rioting, the fact that out data allowed analysis across small neighbourhoods instead of cities allows to question some of the earlier work in this field. With regards to the question of generalisation of our findings on far right support, let us observe that researchers often face a trade-off between carrying out cross-national analyses and a more detailed sub-national analyses of one country. The problem with cross-national analyses is that they are often at risk of committing an ecological fallacy, which we want to avoid when studying this particular research question. After all, political behaviour and preferences are more likely to be rooted in experiences of deprivation or immigration in one's local area than they are in national indicators. Also, cross-national analyses face the problem of choosing which cases to select. This problem is well illustrated by research of right wing radical parties carried out by Norris, where a lot of the findings reported by the authors went against some of the previously established

evidence which was based mostly on studies of right wing parties in Western Europe (2005). Norris included some cases which are arguably falling far apart from right wing radical parties in Western Europe – the authors included parties from Israel or Eastern Europe. While we do not claim that out findings will be applicable to Israel or Eastern Europe, we hoped to show some of the mechanisms which rooted in theoretical work and which found confirmation (or were refuted) in sub-national analysis in the United Kingdom. Similar findings may be observed, particularly in countries of Western Europe, where far right parties with long lineage recently came out of political wilderness (one example of such party would be Front National in France).

The second warning relates to internal validity and the implications on the causal interpretations of the findings. Much of our analysis focuses on contextual effects where we implicitly assume that the local environment affects individuals' political behaviour. Yet, we know that individuals are not passive and they can make choices on where to live which are based on their preferences and beliefs, or opportunities available (such as employment). This leads to issues with establishing causality, where estimates of contextual effects may be subjected to selection bias. While the ideal scenario to overcome this concern would be the experimental design, opportunities for conduction such research are limited. In fact, in Paper 5 the finding suggests a possible effect of selection bias (hence bias is treated as an issue of substantive interest which should be researched further with longitudinal data). The paper which is perhaps most vulnerable to selection bias is Paper 3 on attitudes to immigrants, where the association between contextual variables and the outcome variable could be partly explained by previous residential decisions of individuals in our sample (for instance we could suspect that those who were most negative toward immigrants moved to whiter areas). To our defence, we know that majority of residential moves takes place over relatively small distances (hence within

constituency), secondly we cite a study of Kaufmann and Harris where the authors employed YouGov to carry out a survey which shows that movers and non-movers are not significantly different with regards to a number of characteristics associated with attitudes to immigrants and diversity (2015)

What have we learned?

Firstly, let us stress that riots remain an enduring sociological puzzle: what causes the rules regulating public order to collapse, as people start acting violently, destroying property and stealing goods? The London riot of 2011 is an important case because it cannot be easily categorised as an ethnic riot, the subset of events which dominate the literature. This is not to say that ethnicity was insignificant: rioters were more likely to come from neighbourhoods with greater ethnic fractionalisation and with a higher proportion of people of Caribbean descent. Nevertheless, it should be stressed that rioters came from no single ethnic group, and ethnicity did not shape their choice of targets. The London riot of 2011 is also valuable for yielding unique data on where rioters lived and on public attitudes towards the police.

Our findings confirm that rioters came from economically deprived areas and from boroughs where policing had less legitimacy. The novel findings are that rioters came from areas with high ethnic diversity and with low organisational density. This we interpret as evidence for social disorganisation. Secondly, we followed the research agenda set by McPhail (1971, 1994) and focused on dynamics of rioting by looking at how people mobilised for the rioting, which factors contributed to riot escalation and changes in the profile of participants in time. We found further evidence for the role of relations with the police – neighbourhoods which fell into areas characterised by good relations with the police has notably lower probability of joining rioting in the early days. In order to study mobilisation, we constructed measures of diffusion based on distance, similarity in terms

of deprivation profile and lastly – a novel measure tapping into diffusion via social ties – school catchment network. We found evidence that rioting diffusion was related to all these measured, although in different ways. In particular, we suggest that future studies investigate diffusion via indirect ties. While we did not find that it is a measure which can replace the commonly used measures of spatial diffusion, it is nevertheless an important venue for future research, where more questions should be raised about the exact mechanisms explaining what social similarity means for mobilisation.

Our contribution to the literature on riots is to challenge—echoing Piven and Cloward (1992) and Useem (1998)—the rejection of economic deprivation and of social disorganisation as potential explanations for rioting. As sociologists in the 1970s defined the new field of social movements, they rigidly demarcated protest from crime (Oliver 2008). Protest now would be explained by resources rather than deprivation, and by organisation rather than its absence. This perspective yielded tremendous insights, but also introduced blind spots. Our results show that collective contention can, sometimes, emerge from poverty and disorganisation. This raises a hard but crucial question for sociology: when do people riot rather than participate in more legitimate and orderly forms of collective contention? Answering this question will require investigating rioting across different social contexts. Our analysis also provides further support to the notion that breakdown in relations between community and the police may be an important source of grievances which, in some circumstances, may give rise to rioting. We are not the first to raise this point; however, we are the first to provide evidence of the impact of citizens' opinion about policing *prior* to the outbreak of rioting.

Secondly there is the question of far right support which become urgent due to political advances of radical right-wing parties across Europe. In our exploration of far right support in the United Kingdom we first turned to the question of attitudes. While there has

been a lot of research on attitudes towards immigrants, most studies look at national levels or rather coarse sub-national levels which are not well suited for answering the question of whether people who live in areas experiencing immigration are most concerned about it. We have tried to address this by focusing on a smaller scale of parliamentary constituency (although we suggest that future research tries to find data on even smaller geographical units [94]). Our results suggest that the process of accommodating change may be challenged in immigrant-dense communities which experience further demographic change associated with immigration. Additionally, we confirm that ethnic distinctions seem to best correspond with categories used to classify immigrants.

The next level of commitment to far right politics is engagement with a political party representing far right sentiments, such as the British National Party. Here, our contribution is to show that spatial effects deserve serious consideration, something that has been explored by Rydgens and Ruth (2013) in their analysis of voting patterns for Sweden Democrats. In the final model of BNP membership, the measure of heterogeneity in the proportion of non-whites at the district level proved to be a significant predictor of BNP membership, showing that ethnic composition in surrounding areas does affect predictions made for a given district. We have confirmed that cultural threat is a predictor of far right support, although in case of Muslim religious establishments the substantive effect is rather small. In the light of a growing amount of studies linking higher levels of ethnic hostility with proximity to South-Asian immigrants and Muslims more generally, this is a surprising and important finding. Furthermore, we have also provided some evidence of the influence of economic threat, with inhabitants of neighbourhoods with high proportion of uneducated residents being more likely to belong to the BNP if their neighbourhood is located within a district with high overall proportion of uneducated non-whites.

[94] A potential venue is the newly released ESS data which contains questions on immigration and is available at small NUTS 3 level for some countries (not for the United Kingdom).

Importantly, the analysis of spatial effects, combined with discussion on organisational continuity provides indication of a possible white flight mechanism, whereby white Britons who fit the profile of far right party supporters were more likely to move out of increasingly diverse cities such as Leicester. With availability of appropriate longitudinal data, it is possible to analyse patterns of geographic mobility among the lower-class middle-aged whites to see whether there is evidence of such mechanism. This hypothesis can be addressed in future research, also as a possible route of investigation for organisational continuity.

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APPENDIX

CONSTRUCTION OF DIFFUSION VARIABLES

Systemic spatial diffusion

To calculate systemic spatial diffusion, we require information about distances between neighbourhoods. Centroids were used to denote neighbourhoods' centres and calculations were done in R using *sp* package.

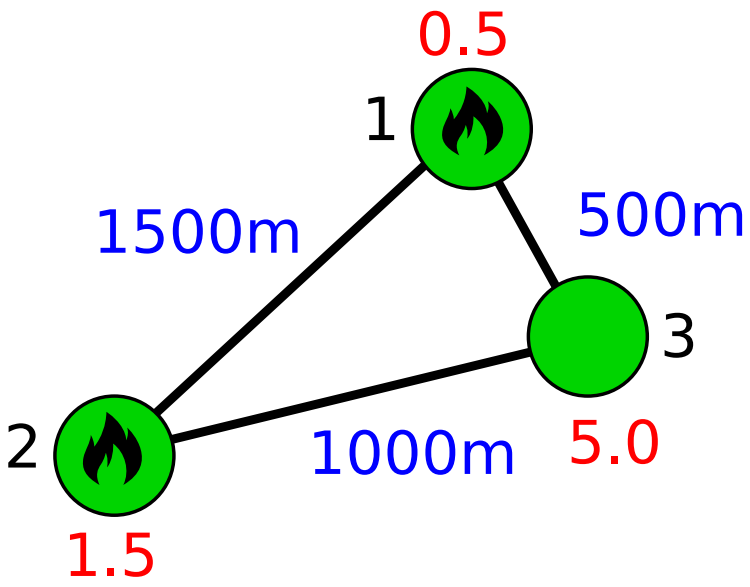


FIGURE 28 GREEN CIRCLES REPRESENT NEIGHBOURHOODS (DENOTED AS 1, 2, AND 3). DISTANCES ARE PRINTED IN BLUE AND INDEX OF DEPRIVATION IN RED. NEIGHBOURHOODS WITH RIOT MOBILISATION ON THE PREVIOUS DAY ARE MARKED WITH A FLAME.

Based on information in the illustration above (Figure 28) we can define a distance matrix S and vector v_{t-1} denoting which neighbourhoods were affected by riot mobilisation on the previous day.

$$S = \begin{bmatrix} 0 & 1500 & 500 \\ 1500 & 0 & 1000 \\ 500 & 1000 & 0 \end{bmatrix}$$

$$v_{t-1} = \begin{bmatrix} 1 \\ 1 \\ 0 \end{bmatrix}$$

Using the formula for systemic spatial diffusion we calculate this variable as follows:

$$D_{3(t)} = \sqrt{\begin{bmatrix} 0 & \frac{1}{\sqrt{1500}} & \frac{1}{\sqrt{500}} \\ \frac{1}{\sqrt{1500}} & 0 & \frac{1}{\sqrt{1000}} \\ \frac{1}{\sqrt{500}} & \frac{1}{\sqrt{1000}} & 0 \end{bmatrix} \times \begin{bmatrix} 1 \\ 1 \\ 0 \end{bmatrix}}$$

Systemic social similarity diffusion

The definition of social proximity is analogous to spatial proximity, however this time we calculate distances in terms of neighbourhoods' deprivation indices. We take absolute values of difference (this is analogous to distances and cannot be negative) and define matrix *P* as follows

$$P = \begin{bmatrix} 0 & 1 & 4.5 \\ 1 & 0 & 3.5 \\ 4.5 & 3.5 & 0 \end{bmatrix}$$

Using formula for systemic social similarity diffusion we calculate this variable as follows

$$D_{5(t)} = \sqrt{\begin{bmatrix} 0 & \frac{1}{\sqrt{1}} & \frac{1}{\sqrt{4.5}} \\ \frac{1}{\sqrt{1}} & 0 & \frac{1}{\sqrt{3.5}} \\ \frac{1}{\sqrt{4.5}} & \frac{1}{\sqrt{3.5}} & 0 \end{bmatrix} \times \begin{bmatrix} 1 \\ 1 \\ 0 \end{bmatrix}}$$

School catchment networks diffusion

Let us start with city X where there are three schools (blue, purple and orange) and six neighbourhoods (1 to 6). In two neighbourhoods (1 and 2) we know that there has been a

riot mobilisation on the previous day. This is a many-to-many mapping between schools and neighbourhoods and is represented in Figure 28.

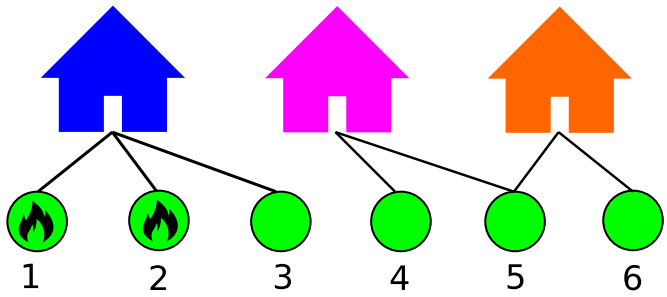


FIGURE 29 SIMPLIFIED CITY, HOUSES REPRESENT SCHOOLS, GREEN CIRCLES REPRESENT NEIGHBOURHOODS. EACH LINE SHOWS THAT AT LEAST 10% OF YOUTH ATTENDS A GIVEN SCHOOL

Next, we check which neighbourhoods are connected via schools; the following mapping is depicted in Figure 29. This mapping can be represented in matrix form, giving rise to matrix W (see the next page). Vector w_s is obtained by multiplying matrix W by a vector with entries equal to 1, this can be understood as column sums of matrix W. Substantively, the i^{th} entry of w_s represents the number of neighbourhoods connected to neighbourhood i via matrix W. Vector v_{t-1} represents neighbourhoods with riot mobilisation of the previous day.

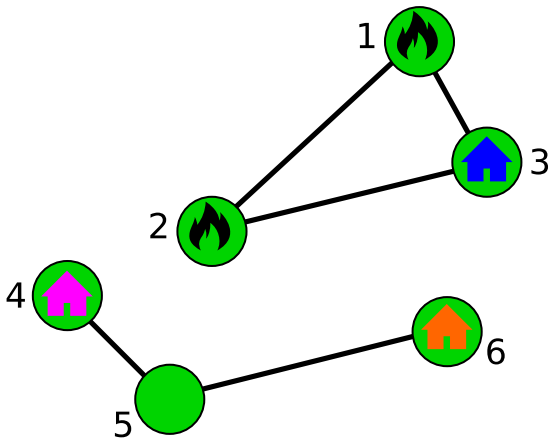


FIGURE 30 SCHOOL CATCHMENT AREAS NETWORKS. HOUSES REPRESENT SCHOOLS AND GREEN CIRCLES REPRESENT NEIGHBOURHOODS. NEIGHBOURHOODS AFFECTED BY RIOT MOBILISATION ARE MARKED WITH A FLAME

$$W = \begin{bmatrix} 1 & 1 & 1 & 0 & 0 & 0 \\ 1 & 1 & 1 & 0 & 0 & 0 \\ 1 & 1 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 & 1 & 1 \\ 0 & 0 & 0 & 0 & 1 & 1 \end{bmatrix}$$

$$w_s = W \times e = \begin{bmatrix} 1 & 1 & 1 & 0 & 0 & 0 \\ 1 & 1 & 1 & 0 & 0 & 0 \\ 1 & 1 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 & 1 & 1 \\ 0 & 0 & 0 & 0 & 1 & 1 \end{bmatrix} \times \begin{bmatrix} 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \end{bmatrix} = \begin{bmatrix} 3 \\ 3 \\ 3 \\ 2 \\ 3 \\ 2 \end{bmatrix}$$

$$v_{t-1} = \begin{bmatrix} 1 \\ 1 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix}$$

Finally, to calculate school catchment diffusion $D_{6(i,t)}$ we multiply matrix W by vector v_{t-1} and normalize it by vector w_s to account for the varying number of neighbourhoods connections. The final vector can be interpreted as the proportion of neighbourhoods connected via matrix W that had a riot mobilisation of the previous day.

$$D_{6(t)} = \frac{W * v_{t-1}}{W \times e} = \frac{\begin{bmatrix} 1 & 1 & 1 & 0 & 0 & 0 \\ 1 & 1 & 1 & 0 & 0 & 0 \\ 1 & 1 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 & 1 & 1 \\ 0 & 0 & 0 & 0 & 1 & 1 \end{bmatrix} \times \begin{bmatrix} 1 \\ 1 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix}}{\begin{bmatrix} 1 & 1 & 1 & 0 & 0 & 0 \\ 1 & 1 & 1 & 0 & 0 & 0 \\ 1 & 1 & 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 & 1 & 0 \\ 0 & 0 & 0 & 1 & 1 & 1 \\ 0 & 0 & 0 & 0 & 1 & 1 \end{bmatrix} \times \begin{bmatrix} 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \end{bmatrix}} = \frac{\begin{bmatrix} 2 \\ 2 \\ 2 \\ 0 \\ 0 \\ 0 \end{bmatrix}}{\begin{bmatrix} 3 \\ 3 \\ 3 \\ 2 \\ 3 \\ 2 \end{bmatrix}} \approx \begin{bmatrix} 0.67 \\ 0.67 \\ 0.67 \\ 0 \\ 0 \\ 0 \end{bmatrix}$$

METHOD FOR OVERCOMING THE PROBLEM OF CHANGING BOUNDARIES

This method was used in paper 3 titled **"Too many immigrants: What shapes people's perception and attitudes towards immigrants"**. In his 2006 article published by the AJS, Downey argues that use of geographic information system techniques allows to address methodological issues encountered by sociologists. Among such issues Downey lists the modifiable areal unit problem (i.e. the problem of changing boundaries), which happens when we want to compare spatially referenced observations over changing geographic boundaries.

To overcome the problem of changing boundaries I downloaded 2001 Census statistics for ethnicity (by country of birth), residential population, area and educational attainment for Output 218,038 output areas, which are the smallest unit of analysis available from 2001 Census. Importantly, output areas are used as building units for higher geographical units (wards, constituencies, local authorities), meaning that they are always fully nested within a higher unit. Census statistics were merged with boundary data for output areas, I also used boundary data for 2011 Westminster boundaries available from Census website.

My method was to use R to build 2011 Westminster constituencies out of 2001 output areas. Specifically, I used *rgoes* package to find a centroid for 2001 output areas (excluding Northern Ireland which was not used for this analysis). Then, I used overlay function from sp package to determine which 2001 output area centroids fall into which 2011 constituency boundaries. Next, I aggregated statistics from output areas that fell into same constituencies. Same procedure was used to obtain 2011 statistics to ensure consistency.

FIGURE 31 LEVELS OF WHITE FOREIGN BORN AND NON-WHITE IN 2001 IN WESTMINSTER CONSTITUENCIES

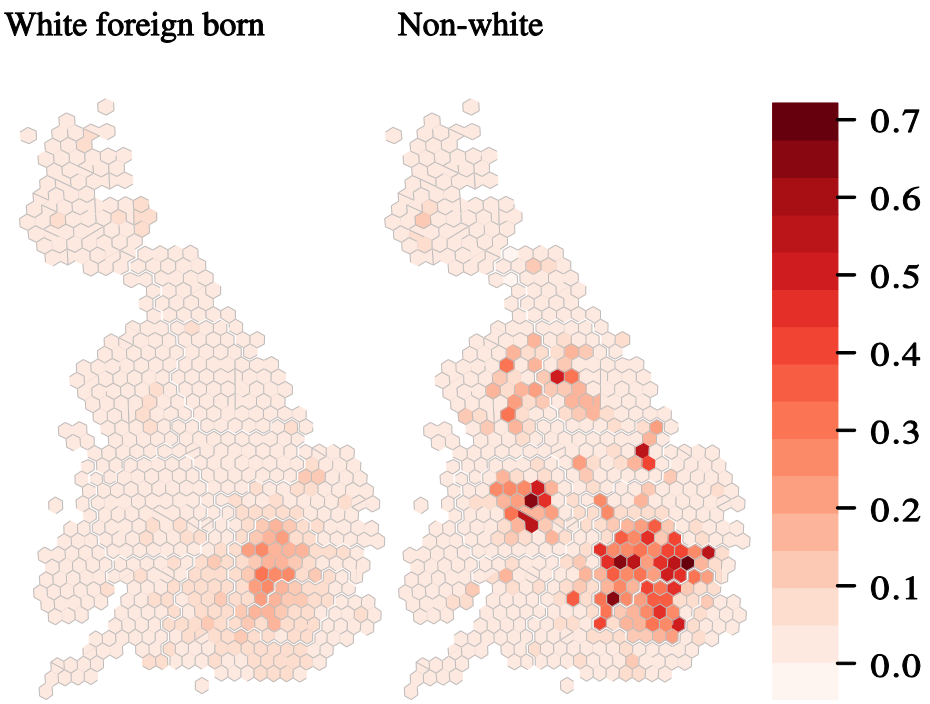


FIGURE 32 CHANGE IN WHITE FOREIGN BORN AND NON-WHITE BETWEEN 2001 AND 2011 IN WESTMINSTER CONSTITUENCIES.

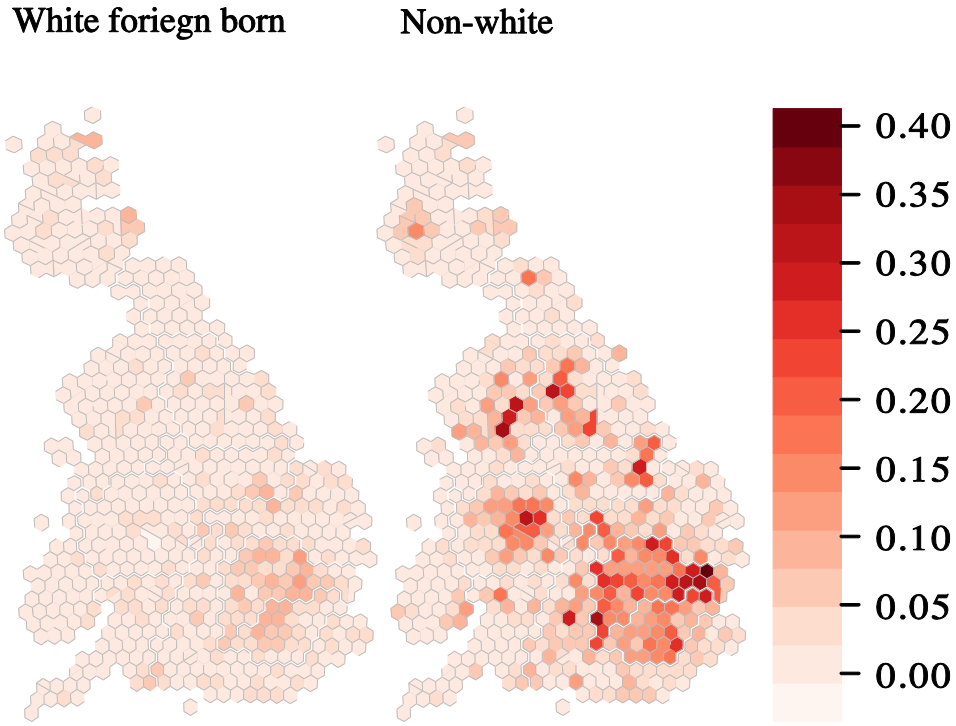


FIGURE 33 LEVELS OF SKILLED AND UNSKILLED (AMONG OTHER THAN WHITE BRITISH) IN 2001 IN WESTMINSTER CONSTITUENCIES

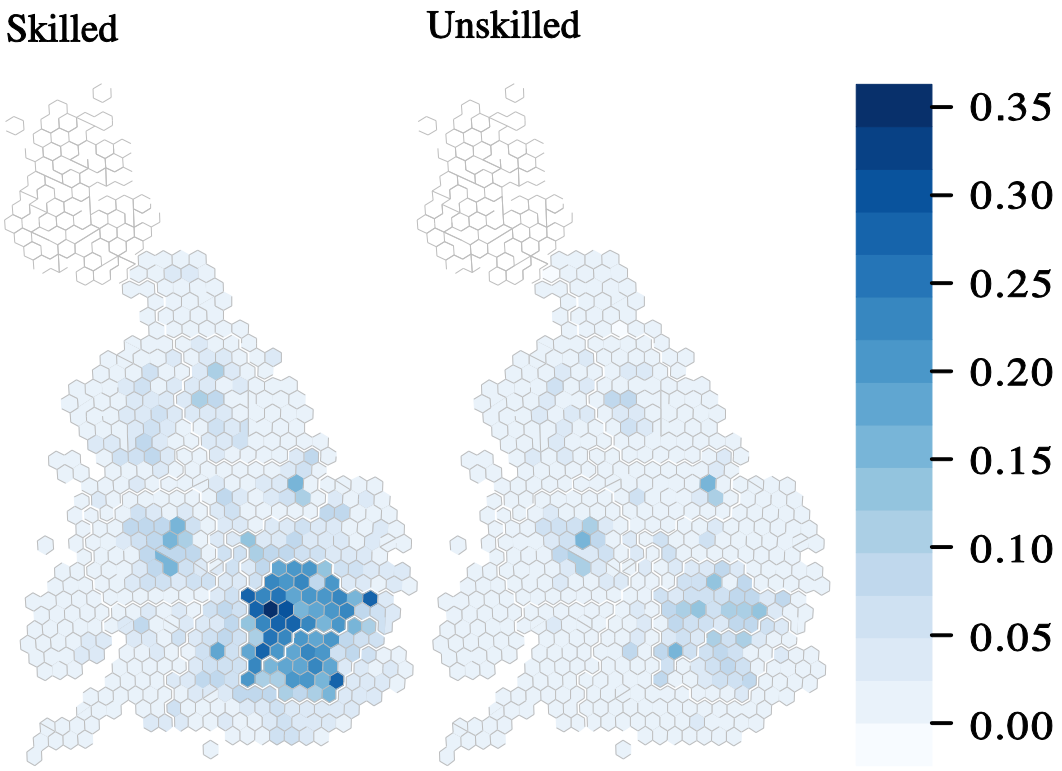


FIGURE 34 CHANGE IN SKILLED AND UNSKILLED (AMONG OTHER THAN WHITE BRITISH) BETWEEN 2001 AND 2011 IN WESTMINSTER CONSTITUENCIES

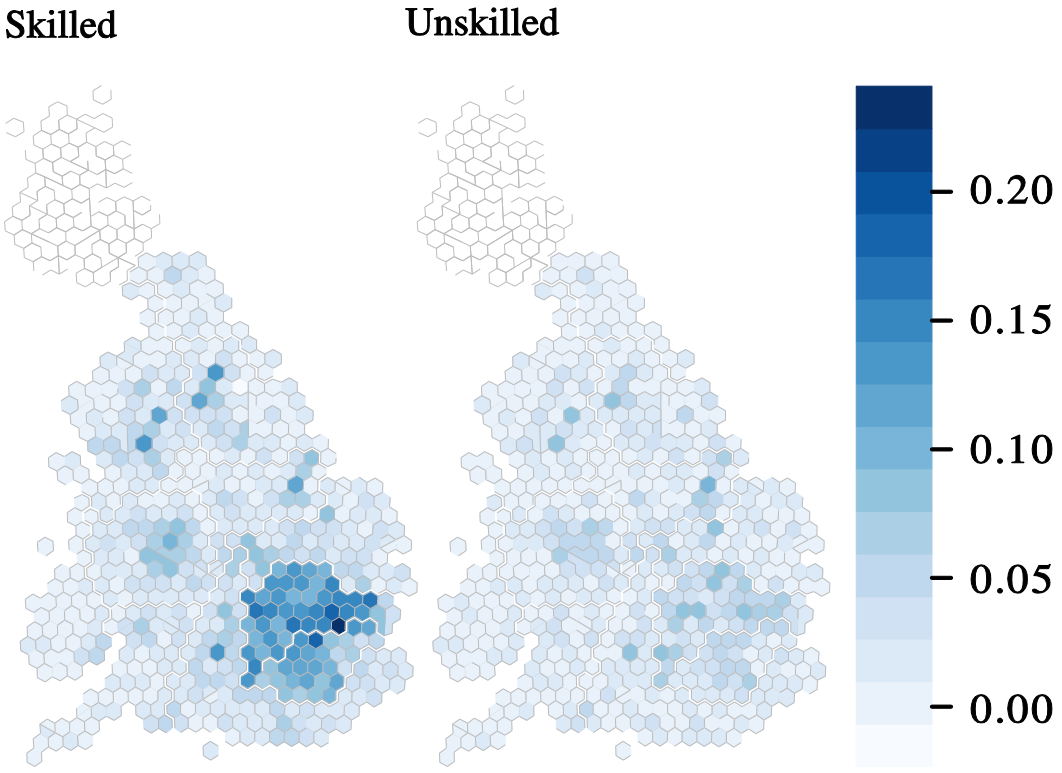


FIGURE 35 LEVELS OF NON-MUSLIM AND MUSLIM (AMONG OTHER THAN WHITE BRITISH) IN 2001 IN WESTMINSTER CONSTITUENCIES

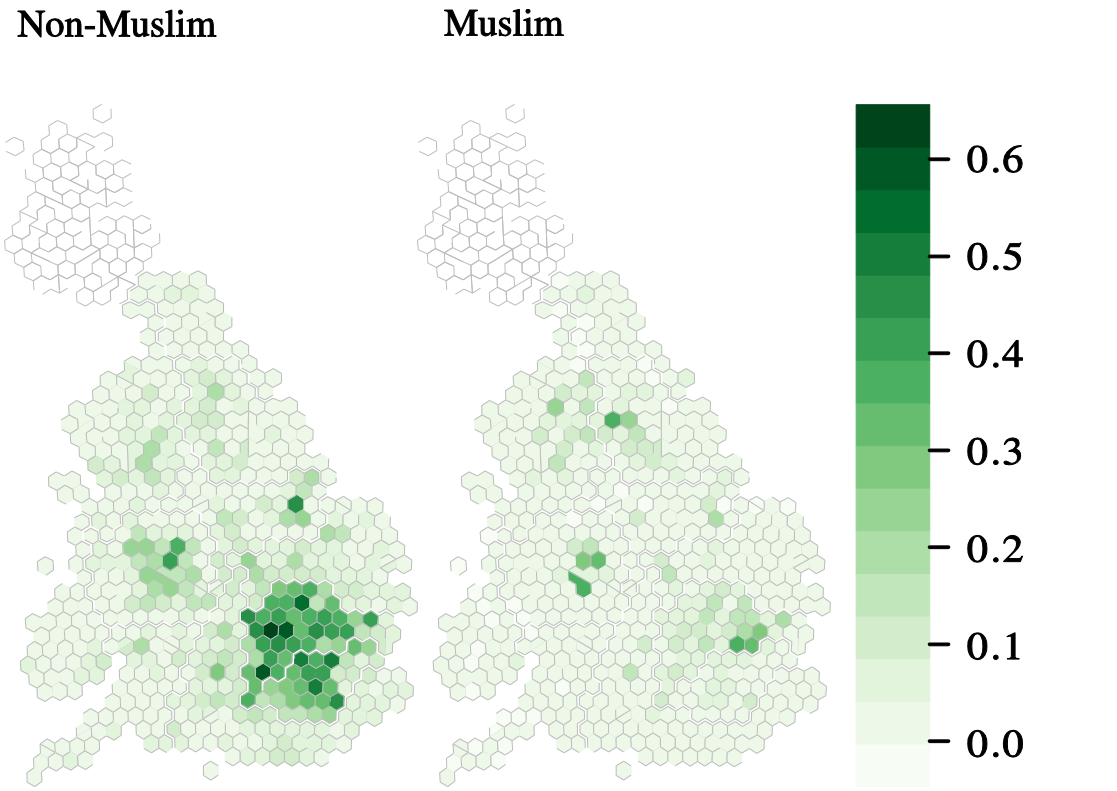


FIGURE 36 CHANGE IN NON-MUSLIM AND MUSLIM (AMONG OTHER THAN WHITE BRITISH) BETWEEN 2001 AND 2011 IN WESTMINSTER CONSTITUENCIES

