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SCIENCES

Shaping Ethnic Inequalities

The production and reproduction of social and spatial inequalities among ethnic minorities in England and Wales

Carolina Viviana Zuccotti

Thesis submitted for assessment with a view to
obtaining the degree of Doctor of Political and Social Sciences
of the European University Institute

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Para mis viejos

Para Mati

Para Sigi y Moni

Para mis ancestros

Abstract

This thesis is about the *production and reproduction of social and spatial inequalities among ethnic minorities in England and Wales*. More specifically, I study how the interaction of different forms of inequality shapes the opportunities of individuals in a series of outcomes. The main source of inequality explored here is that which derives from ethnicity and migration status. Alongside this, two dimensions of inequality are also explored: social origins and the characteristics of the neighbourhood of residence.

The analysis, carried out for second generation ethnic minorities (Indian, Pakistani, Bangladeshi, Chinese, Caribbean and African) and the white British, is based on rich individual, household and neighbourhood-level data: the ONS Longitudinal Study, a dataset that links census information for a 1% sample of the population of England and Wales and to which it is possible to attach household and neighbourhood information, and aggregated census data (1971-2011).

I show that ‘ethnic penalties’ in the labour market are, partly or totally, penalties related to the socio-economic origins of ethnic minorities, usually less advantaged as compared to that of the white British. This suggests that scholars in migration might overestimate the ‘ethnic gap’ if social origins are not considered. A second crucial finding is that the geographical space is a source of production and reproduction of ethnic inequalities. Three outcomes support this. First, I found evidence of ethnic enclave and place stratification spatial models: most ethnic minorities, but particularly individuals with lower educational and occupational attainments and Pakistani and Bangladeshi populations, are less likely than the white British to improve the neighbourhood in which they were raised, both in terms of deprivation levels and in terms of the share of non-whites. Second, I found evidence of neighbourhood effects: having been raised in areas with a high share of co-ethnics has a negative effect on the labour market outcomes of some groups, mainly Pakistani and Bangladeshi. Third, I found evidence of increasing spatial segregation: between 2001 and 2011, non-whites, and in particular Pakistani populations, increased their spatial clustering and their likelihood of sharing the space with other co-ethnics.

Acknowledgments

I have reached the end of the thesis, finally! I am sitting in what looks like one of the nicest cafés in the main street of Brighton, my new home since mid-January. It's Sunday, and a mix of feelings invades me: happy feelings, sad feelings, nostalgic feelings, existential feelings. "How did I get here?" I have asked myself more than once. Although I never found the correct answer, trying to think of one now is, I believe, a good way to start writing these acknowledgments; in particular, because it makes me think of all the people that have accompanied me, to a greater or lesser extent, in this journey.

I don't remember exactly when I decided I wanted to do a Ph.D. However, I do know that the idea of becoming a Doctor emerged while doing my early research experience, at the Instituto de Investigaciones Gino Germani, based at the Faculty of Social Sciences of the University of Buenos Aires. Back in 2002, around halfway my studies in Sociology, I found myself knocking at Professor's Raúl Jorrat door, my first academic mentor and the person who introduced me to sociological research. I told him that, parallel to my studies, I wanted to do some 'practical experience': the next day I became a member of the CEDOP, the Centro de Estudios de Opinión Pública, where not only I learnt the 'day to day' of survey research, but also I was able to develop small research projects thanks to UBACyT and CONICET research grants, who Prof. Jorrat supervised. Thank you so much Raúl for having received me in your office, for your initial input, for encouraging me to continuing developing my career, and for all the crucial recommendation letters you wrote for me. In the CEDOP I also had the opportunity to meet other very valuable people. Professor Darío Canton gave me the first opportunity to publish a small research work in one of the books he co-authored with Prof. Jorrat: "Elecciones en la Ciudad (1864-2005)"; and he also showed me that scientists can be a bit artists as well. Thank you, Darío, for that and for all the nice chats in La Opera. A very special thank you goes also to my dearest friend and colleague Teresa, who I met while working at the CEDOP. Thank you also to Manuel, my friend and colleague of pizzas and projects, Majo, Natalia, Eli and Daniela, my official partner of breakfasts in Marcelo T.

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In 2006 I had my first academic experience in Europe. You see, for Argentineans, and probably for South Americans in general, Europe is one big place with many tiny countries in it. So we tend to say Europe, rather than a single country, once we have crossed the ocean. However, I have to say that my experience has actually been very European, if you think that in nine years-time I lived in four different countries, both from the North and South of Europe; and if you consider that I only met Argentineans before 2006, and now I know people from at least 20 different nationalities. I have to admit it: I have become a bit European myself... and I have loads of people to be thankful for around Europe.

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1 CHAPTER 1: Introduction

1.1 Motivation: an interesting topic in an interesting context

1.1.1 An interesting topic

This thesis is about the *production and reproduction of social and spatial inequalities among ethnic minorities in England and Wales*. More specifically, it studies how the interaction of different forms of inequality shapes the opportunities of individuals in a series of outcomes.

My interest in ethnic minorities or immigrants is of relatively long duration, and the same can be said about the appeal for me of urban sociology and the relationship between social and spatial processes. Even longer is my commitment to the study of social inequalities. But if I had to identify the single most fascinating aspect of the discipline of sociology, it would be the idea that there are patterns of behaviour in society, ways of doing and thinking that, when identified, can allow us to predict what could happen to individuals in certain contexts and under certain circumstances. These patterns of behaviour are connected to what Emile Durkheim has called *social facts*. In simple terms, a social fact can be understood as a social force that, while being the product of individualities, has a separate and independent effect on individuals. Think for example of *ethnicity*: we know that being black is not the same as being white in terms of finding a job or buying a house. Ethnicity, therefore, is a social force that ‘makes a difference’ that affects individualities and that has a social nature: the fact that ethnicity plays a role in our societies today is the product of years of slavery, discrimination and mutual adaptation, that is, of social history and interactions between individuals. The same can be thought of *social origins* or the social class of the family of origin, a concept that refers to the distribution of socio-economic resources in a society, which are the product of work relations. Social origins, as ethnicity, also ‘make a difference’ and have an effect on individualities: individuals who grew up in higher-class families or families with higher socio-economic resources have better chances of succeeding in life, for example in terms of education and work, than individuals raised in families with fewer resources. Similarly, the *social and ethnic composition of the neighbourhood* can also be understood as a force that, while being the consequence of individuals’ choices (and constraints) to access a residence, can have an effect on individuals’ lives. There is evidence, for example, that living in neighbourhoods

with high deprivation, poor amenities, degraded public spaces and limited access can have consequences on various outcomes, such as wellbeing and health.

The objective of this thesis is to explore how these three social forces affect individuals on a variety of outcomes and, most importantly, how and to what degree they are interrelated. In particular, I pay special attention to the role of *ethnicity*, and how this interacts with the other two elements. In so doing, this thesis takes an innovative approach to the understanding of social inequalities. In fact, not only *ethnicity*, *social origins* and *neighbourhood composition* are crucial pillars of the social structure of a society, but also they are **sources of inequality** in society and, most importantly, they have the potential to **reproduce social inequalities** over time. By studying them together this thesis adds a fresh and more complex view to the debate on equality of opportunities, especially those that concern ethnic minority groups.

1.1.2 An interesting context

The result of long-term research interests, this thesis is also the product of having found an excellent setting in which to develop the interests. The UK offers a very favourable environment for studying ethnicity, the main source of inequality explored in this thesis. Three primary reasons drive this statement. First, the UK has a strong mix of non-white ethnic groups that come from a variety of countries and bring diverse cultures: Caribbean, Asian and African minorities are the biggest groups – constituting nowadays around 12% of the population – and are also the ones studied in this thesis. The advantage of studying varied groups in one destination is that it allows one to explore different patterns of integration at the same time (although this does not necessarily imply that the receiving context is the same for all groups) and also to examine differences connected with the groups themselves. Furthermore, ethnic minorities have a relatively long presence in the country, which permits me to identify second generations, that is, those who were born and/or raised in the UK. Following assimilation theories, it has been widely argued that in order to see how immigrants are doing in a certain destination country, the study of the second generation is of vital importance. The reason is that these individuals have been exposed, practically from the beginning of their lives, to the majoritarian population, to the local culture and, most importantly, to mainstream institutions such as the educational system. This should situate them more or less as the majoritarian population is situated, or at least, should put them in a more favourably position as compared to their own parents. This implies that finding

disadvantages among second generation minorities is probably a relatively good indicator of poor integration (as compared to finding disadvantages among the first generation).

Second, in the UK, the ‘ethnic minority’ or ‘migrant’ issue has long been at the heart of political and public discourse. Gripping debates have been generated by various disturbances such as those that occurred in 2001 in northern England, and in 2005 around the bombing of the London underground. These led to statements like ethnic minorities live ‘parallel lives,’ or that multiculturalism policies lead to extremism and encourage, therefore, terrorism. The need to control immigration and, at the same time, to promote integration have characterized UK policies practically from the beginning of the mass arrivals, and are still part of the daily public discourse, which renders migration research even more compelling and current.

Last but not least, studying the UK case I was able to make a good match between specific research questions and data to answer them. As described in Chapter 2, I use very unusual and rich data that not only encompasses a large number of ethnic minorities, but also allows me to explore changes over time and combine individual data with geographical information.

In the remaining part of this introduction, I discuss in more detail the three forms or dimensions of inequality studied in this thesis and their theoretical foundations, and briefly introduce the main analytical chapters (Section 1.2); then I provide a brief overview of ethnic minorities in UK, with particular attention paid to their geographical patterns in the country and to their socio-economic position (Section 1.3); finally, I review the main migration and integration policies developed in the UK in the past 50 years (Sections 1.4) and wrap up the chapter (Section 1.5).

1.2 Three sources of inequality: a guiding theoretical framework for this thesis

This study combines approaches from different literatures: migration, social stratification and inequality and urban studies. Its driving assumption is that inequality has different sources. The main source of inequality explored here is that which derives from ethnicity and migration status. Alongside this, two other bases of inequality are also explored: family background or social origins and the characteristics of the neighbourhood in which individuals live. These three dimensions are, to a greater or lesser extent, present in all chapters.

Inequalities based on *ethnicity and migration status*, the main focus of this thesis, can be explained in different ways; the migration literature has emphasized two: on the one hand, discrimination; on the other, the cultural values of ethnic minorities. In a way, these two mechanisms point to a crucial process of ethnic integration: the relationship between opportunities, preferences and constraints. I will develop this idea in the following paragraphs.

The main guiding theoretical framework of the ‘ethnicity strand’ of the thesis is based on literature from the United States on assimilation and its variants ([Alba and Nee 1997, pp. 291](#); [Alba and Nee 2003](#); [Burgess 1925](#); [Gordon 1964](#); [Massey 1985](#); [Massey and Denton 1985](#); [Park and Burgess 1969](#); [Portes and Zhou 1993](#); [Zhou 1997](#)), as well as on more local debates on ethnic penalties ([Heath and Cheung 2007](#)). Broadly speaking, assimilation refers to a process – which occurs over time and generations – by which ethnic barriers dissolve or, at least, become less important in a society. Although in its initial formulations this concept generated a great deal of controversy in the American literature for being considered simplistic and unidirectional – and even if some could argue that assimilation does not apply to the UK because of the ‘multicultural character’ of British society ([Rattansi 2011](#)) – I believe it can be useful for the purposes of this thesis, if we understand it in two different but interrelated ways. First, assimilation can refer to all those behaviours that might be understood to improve integration into the host society: intermarriage, acquisition of the local language, socio-economic and educational improvements, participation in social clubs, etc. This also includes assimilation in the territory, or ‘spatial assimilation’, that is, the process through which ‘assimilation gains’ are transformed into ‘residential gains’: for example, moving to an area with a higher share of majoritarian population, in this case, the white British.

Second, assimilation can be understood as the process (or the culmination of a process) through which ethnic minorities acquire opportunities that can be equalized to that of the majoritarian population, in this case the white British. This idea of ‘equal opportunities’ emerged in later reformulations of the concept of assimilation ([Alba and Nee 2003](#)) as well as in more developed theories, such as segmented assimilation ([Portes and Zhou 1993](#); [Zhou 1997](#)) and other theoretical models that have dealt with spatial assimilation, like place stratification and ethnic enclave spatial models¹. These new theoretical developments have emphasized the fact that

¹ Although the most recent debate between assimilation (Alba and Nee) and segmented assimilation (Portes and Zhou) has been crucial for the development of migration theory and theories of integration of foreigners, in practice I believe they both emphasize the fact that integration might not necessarily be unidirectional, as the initial

integration of ethnic minorities is not necessarily unidirectional, and that either due to *preferences* (for example, cultural values, community factors, motivation, etc.) or *constraints* (for example discrimination in the labour or housing markets), the classical model of integration might be interrupted or might follow different directions.

This conceptualization of assimilation is very much linked to what Heath and Cheung (2007) have termed ‘ethnic penalties’. This concept, discussed in more detail in Chapter 3, refers to any remaining difference between ethnic minorities and majoritarian populations after crucial individual and background factors have been taken into account. An ethnic penalty thus connotes that there is something intrinsic to being an ethnic minority that explains why they differ with respect to the majoritarian population, in this case the white British. In this context, *preferences* and *constraints* might explain the notion of ‘ethnic penalties’ and, therefore, why some groups might be doing better in the labour market, or why some are more spatially segregated, or why some are penalized if have been raised in neighbourhoods with many co-ethnics: why, in short, ethnic inequalities persist over time. Conversely, the disappearance of ‘ethnic penalties’ points to the idea that ‘equal opportunity’ has been achieved, which also implies that factors other than ethnicity are at play. This leads me to two other sources of social inequality: social origins and neighbourhood.

Inequality based on *social origins*, considered in most of chapters, stems from the fact that individuals are raised in families with different resources and that the mechanisms that allocate individuals in certain parts of the social structure vary across social classes (Blau and Duncan 1967; Boudon 1973; Goldthorpe 2000). Overall, being raised in a household with more economic resources usually exerts a positive effect on individuals, independent of their ethnic background. For example, individuals with high-status parents are usually more likely to go to better schools, to achieve higher educational levels, to access better social networks and to have financial support at their disposal. Although this type of inequality has in fact been acknowledged as part of the reformulation of assimilation theories (Alba and Nee 2003), given the volume of literature on social mobility and social stratification, it would be unfair to subsume the role of social origins to migration theory. Rather, this thesis emphasises that social origins – studied in practice through the parental social class and household resources in origin – have a determining role in

formulations of assimilation (i.e. Gordon) have argued. In particular, Alba and Nee (2003) allude very explicitly to this idea of divergent trends of integration that is at the core of the segmented assimilation theory. I therefore do not take a position in this debate, but just use the ‘bits’ that these (apparently contradictory) theories have in common.

shaping opportunities and should therefore be considered independently from ethnic factors, even if they are highly related. In this sense, if one wants to better isolate the specificity associated to belonging to a particular ethnic minority group, the variation in terms of social origins that exist across these groups needs to be considered.

The final type of inequality this thesis deals with is inequality based on the characteristics of the *neighbourhood* in which individuals live and on the geographical distribution of groups. On the one hand, neighbourhoods are important because they plausibly have an impact on individuals living in them. A voluminous literature treats not only the role that living in certain neighbourhoods has on various outcomes (see for example: [Galster et al. 2007a](#); [Galster 2010](#); [Musterd and Andersson 2006](#); [Musterd, Ostendorf and De Vos 2003](#)), but also the impact of living in areas with a high concentration of ethnic minorities or co-ethnics (see for example: [Clark and Drinkwater 2002](#); [Urban 2009](#); [Van Kempen and Şule Özükren 1998](#)). On the other hand, spatial segregation – the spatial concentration of individuals that share certain socio-economic or ethnic characteristics – has also been a matter of concern for researchers, as it prevents individuals from interacting with others that are different, with possible negative consequences for trust and social cohesion ([Uslaner 2012](#)).

These three bases of inequality are found, with more or less salience, in all the analytical chapters (Chapters 3-6). In particular, the role of social origins in shaping ethnic inequalities is developed in **Chapter 3**. This chapter seeks to disentangle to what extent the so-called ‘ethnic penalties’, that is, disadvantages associated with the fact of belonging to a certain ethnic minority group, are actually ‘social origins penalties’ related to the fact that second generation ethnic minorities are typically raised in households and neighbourhoods with fewer resources relative to the majoritarian population. In so doing, this chapter adds a fresh view on already-existing discussions on the social mobility of ethnic minorities in the UK. The three remaining analytical chapters are more centred on the link between ethnic and spatial inequalities.

Chapter 4, based on aggregated census data only, explores recent trends on spatial segregation of ethnic minorities in England (2001-2011). Using as a starting point the quite-polarized discussions around whether ethnic minorities are more or less segregated now than before – and by means of studying various dimensions of segregation in an innovative way – this chapter adduces evidence for both tendencies and, most importantly, reveals important differences based on ethnicity.

Chapter 5 examines neighbourhood effects. Specifically, it asks to what extent having been raised in a neighbourhood with a high share of co-ethnics has an impact on labour market outcomes in later life among second generation ethnic minorities.

Chapter 6, finally, tests contrasting theories that seek to explain the link between assimilation gains and residential gains: spatial assimilation, place stratification and ethnic enclave. In other words, it analyses to what extent an improvement in socio-economic and cultural terms translates into an improvement in terms of the characteristics of the neighbourhoods in which individuals live. In so doing, this chapter also tests whether all ethnic groups, including the white British, have the same residential opportunities given equality of conditions.

1.3 Ethnic minorities in the UK

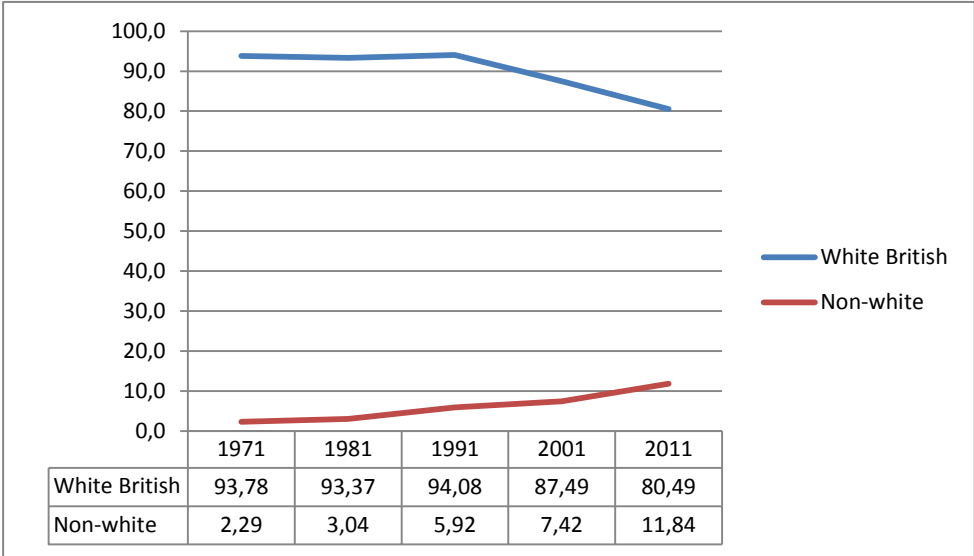
As noted above, I have chosen the UK to carry out this thesis thanks to the large number of ethnic minorities, the co-existence of many diverse groups and the possibility of studying second generation immigrants. This section gives an overview of these figures and presents as well information on population growth, a bit of history of arrivals and some relevant contextual information: the location of ethnic minorities and the situation of first and second generations in the labour market.

1.3.1 Arrival and population growth

Immigration to the UK – at least on a large scale – started after the Second World War. As happened in many other Western European countries (i.e. Germany, France, Austria, The Netherlands and Belgium) the initial settlements were a consequence of the high demand for labour force, which could not be satisfied by the local population, and which was needed in order to reconstruct the economy of the country and incentivize growth. Most of these countries first recruited immigrants from other European countries: in the case of the UK, the Irish and Poles came in the greatest numbers. But in the face of the persistence of the labour shortage, other sources of manpower from outside Europe started to appear. The arrival of non-white ethnic minorities – mainly with black and Asian origins – started in the late 1940s and continued in the following decades. As shown in Figure 1.1, between 1971 and 2011 the population of non-white ethnic minorities in England and Wales, which from 1991 onwards includes also those born in

the UK, went from being 2.3% of the population to almost 12%, with the highest increase occurring in the last decade. As can be seen from the graph, this process was accompanied by a parallel decrease of the white British population.

Figure 1.1: White British and non-white in England and Wales* (1971-2011); % of total



* For Chinese in 1971 and 1981 data refers to the UK.
 Source: Author’s own calculations based on aggregated census data (obtained from: casweb.mimas.ac.uk and www.neighbourhood.statistics.gov.uk).

The initial pull of immigration to the UK, at least the one that involves the groups studied here, was thus mainly (although not solely) economic, rooted in the need for foreign labour in a context of economic recovery (Panayi 2010). These post-war labour shortages, which motivated the arrival of thousands of foreigners especially before the installation of controls in 1962, tended to take two distinct forms (Robinson and Valeny 2005). First of all, local shortages were created because of rapid economic growth in certain local labour markets. This growth had two effects: on the one hand, some industries simply could not find enough local offers to meet their demand, and therefore were forced to rely on immigrant workers to fill their vacancies. This was the case, for example, for the car industry in Essex, West Midlands and Oxford. On the other hand, new growth industries offering attractive jobs were filling their vacancies with local people at the expense of leaving other industries offering less attractive jobs with empty vacancies. These empty vacancies were occupied, later on, by immigrants, keen to maximize their income regardless of work conditions. Foundry work in West Midlands as well as low-level occupations in hospitals and transport services in London, are examples of these vacancies.

The second form of local shortages originated as a consequence of the transformation of the economy, where the reduction of labour costs, translated into the proliferation of poor working conditions, was used as a means to increase productivity. This facilitated the incorporation of immigrants who not only were willing to accept jobs that the local population rejected, but who were trying to find ways to escape racial discrimination, which limited the opportunities in the labour market ([Rattansi 2011](#); [Robinson and Valeny 2005](#)). Examples of this are the textile industry of Lancashire and the woollen textile industry of Yorkshire.

Immigrants, then, either came to fill empty spaces by constituting ‘replacement populations’ ([Peach 2005](#); [Phillips 1998](#)), or to create new opportunities, by filling positions that could not be fully covered by the local population: they spearheaded a process that Robinson and Valeny ([2005](#)) have described as ‘ethnic succession’.

The main sources of manpower in these post-war waves came from the black and Asian New Commonwealth. Immigrants from the West Indies were in fact among the first to immigrate, and their arrival was the consequence of an active recruitment organized through missions sent to the Caribbean, and in some cases also facilitated by the governments of origin ([Robinson and Valeny 2005](#)). Most Caribbean immigrants came from Jamaica, although there were large numbers from all Caribbean islands. The natural peak of post-war West Indian was between 1955 and 1957, and a sharp rise occurred right before the introduction of the immigration controls in 1962. In fact, before 1962 immigrants from the Commonwealth were granted citizenship rights upon arrival, which gave them freedom to enter at will, and also voting rights ([Heath et al. 2013](#); [Sunak and Rajeswaran 2014](#)).

Contrary to other migrants in Europe who were part of similar programs of active recruitment of workers – the so-called ‘guest worker programs’ (which, for example, brought Turks to various northern European countries, including Germany, France and Belgium) – the Caribbean was a skilled population and that had been exposed to British institutions and values, including the English language and participation in the armed forces. However, with the exception of nurses recruited under the newly created National Health Service, most of the jobs that Caribbean persons performed were blue-collar and manual-labor, many of these located in the public sector, such as London Transport ([Cheung and Heath 2007b](#); [Peach 2005](#)).

The next major groups to arrive were South Asians, Indians and Pakistanis in particular. This immigration was more voluntary, and far less of it came from direct recruitment ([Robinson and Valeny 2005](#)), although it was also a response to the changing economy. In the case of many South Asians, economic motivations were also combined with processes of dislocation and displacement. On the one hand, the partition of India in 1947 attracted displaced Indian Sikhs and Muslim Punjabis; on the other, East African countries, where many Indians (and to a lesser extent Muslim Pakistani) were already working under the British government, gained independence in the 1960s and expelled Indians and Pakistani from their territories ([Heath et al. 2013](#)). This was, for example, the case of Kenya and Uganda, where South Asians, in particular Indians, were in qualified occupations, including white-collar jobs in the government, but also in entrepreneurship and business activities. The Indian community was, in fact, among the most skilled, and they managed to use those skills in the UK: their role as doctors is well known, although they also occupied positions in car and engineering industries and transport and communication ([Robinson and Valeny 2005](#)). The first Indians and Pakistanis to arrive were male (this differentiates them from the Caribbean group, which had a large proportion of women migrating as nurses), and much recent migration of these groups had taken the form of family reunion. Pakistanis also participated in the transport sector, like British Rail, and were particularly present in textile and woollen industries located in the centre and north of England. However, Pakistanis as well as Caribbean people were in general less skilled than Indians, and performed in less-qualified occupations, a difference that is still present nowadays.

Bangladeshi, African and Chinese's waves, smaller in number, followed these initial waves of immigration. Bangladeshi immigration, which occurred after the mass arrival of Indians and Pakistanis, had its peak in the 1970s, when men arrived to the UK attracted by low-wage occupations (mainly in London, where most of them are located nowadays). Women and dependents followed this arrival, expanding the population during the 1980s. As with the other South Asian groups, the migration of Bangladeshis was also in part a response to displacement processes, in particular the one generated by the war of independence against Pakistan in 1971, and earlier the partition of India. Moreover, this group also established connections with the UK, in particular through their work in the British merchant navy ([Heath et al. 2013](#)).

Black Africans have a long history of small-scale settlement in the UK, which started in the late 1940s. However, the higher peak occurred, as for Bangladeshis, in the 1970s, following the political instability and waves of independence across the African continent, mostly Sub-Saharan

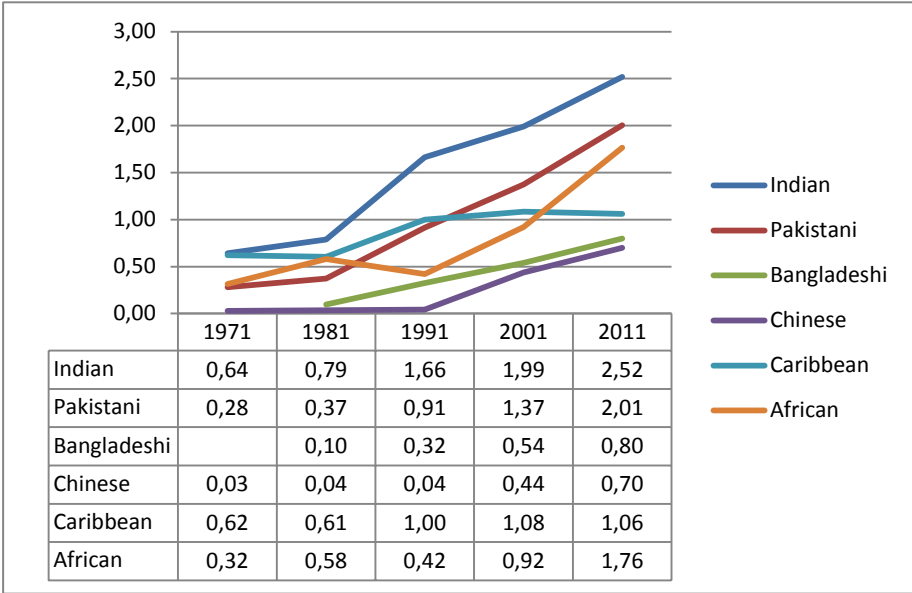
Africa. This is a quite-diversified group in terms of culture and background, and they also come from different countries: most of them have their origins in Nigeria, but sizeable proportions are from Ghana, Tanzania, Zambia and Zimbabwe. Africans are also diverse in terms of their motivations to migrate. Although, as with the other groups, economic improvement was an important reason for migration, many Africans also migrated to the UK to study. This makes them one of the most qualified ethnic minorities, together with Indians ([Cheung and Heath 2007b](#); [Dobbs, Green and Zealey 2006](#); [Peach 2005](#)).

Chinese, finally, came predominantly from UK's former dependency, Hong Kong, and to a lesser extent from Singapore, Malaysia and South Africa. As with Indians, some of them were also former members of the (in this case Chinese) diaspora to countries of the British Empire. The first Chinese arrived to the UK as seafarers sojourning at the major seaports of the UK; later on, the collapse of the rural rice economy in Hong Kong and the influx of refugees of Communist China, together with the British need for economic recovery after the Second World War, generated an immigration of Chinese who started specializing in the catering industry. These migrants, who together with Caribbean and South Asian populations have been considered as replacement populations, were also subject to the same immigration laws, like the 1962 Commonwealth Immigrants Act that imposed restriction on entry of immigrants ([Luk 2009](#)). Chinese however, continued to arrive through family reunion and a peak occurred in the mid-1980s, when negotiations with China over the return of Hong Kong began. These migrants, who came not only from Hong Kong but also from other South-East Asian countries, tended to be much more skilled and educated than their predecessors ([Cheung and Heath 2007b](#)), a fact that facilitated their entrance. Another feature of Chinese immigration is that contrary to the other groups, they have tended to be quite dispersed in the space, something that emerges in Chapter 4.

In order to have an idea of the numbers and weight of the various ethnic minority groups in the UK, Figure 1.2 and Figure 1.3 show the percentage of ethnic minorities as a share of the total and non-white population respectively for the period 1971-2011. Numbers are based on country of birth for 1971-1981 and on ethnic self-identification for 1991-2011, and are calculated for England and Wales. An exception is the Chinese, for whom data based on country of birth also applies to 1991, and for whom data for 1971-1981 refers to the entire UK (and not only to England and Wales). Note also that Bangladeshis in 1971 are measured together with the

Pakistanis, since Bangladesh did not exist before 1971²; and consider as well that the measurement of ethnicity based on the country of birth might lead to an underestimation of ethnic minorities, especially in 1981, when the number of second generation ethnic minorities (the children of immigrants) probably started to be more relevant in size.

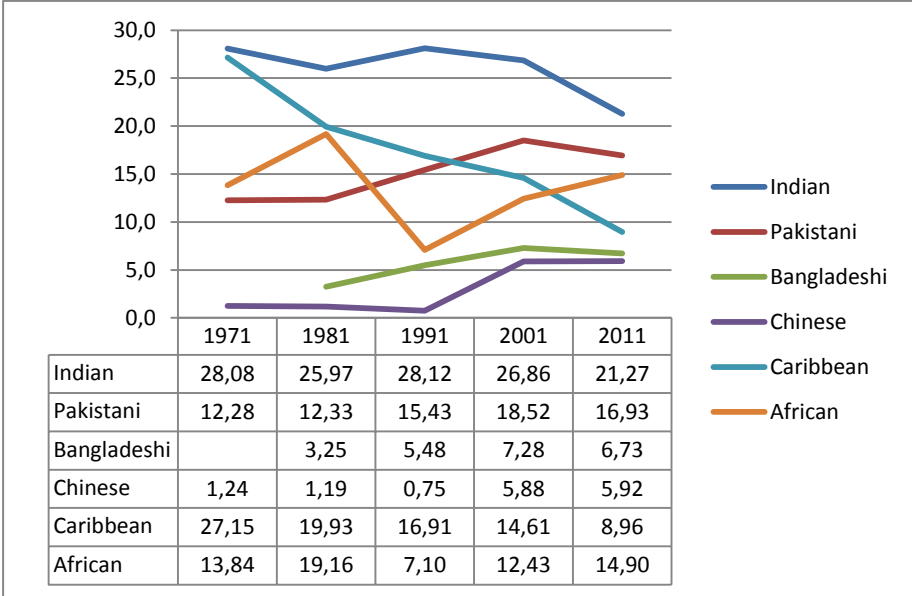
Figure 1.2: Ethnic minorities in England and Wales* (1971-2011); % of total population



* For Chinese in 1971 and 1981 data refers to the UK.
 Source: Author’s own calculations based on aggregated census data (obtained from: casweb.mimas.ac.uk and www.neighbourhood.statistics.gov.uk).

² Refer to the section “Non-white and (co-)ethnic concentration quintiles” under “Neighbourhood variables” in Chapter 2 for more details on how ethnic categories were created.

Figure 1.3: Ethnic minorities in England and Wales* (1971-2011); % of non-white population



* For Chinese in 1971 and 1981 data refers to the UK.
 Source: Author's own calculations based on aggregated Census data (obtained from: casweb.mimas.ac.uk and www.neighbourhood.statistics.gov.uk).

Caribbeans and Indians are the most numerous groups in 1971 and 1981, constituting respectively around 0.6% of the total population (circa 300000 members) in 1971, and a bit more for Indians in 1981. These groups represent also the highest proportion with respect to the total non-white population: together, they comprise around 60% of non-white ethnic minorities. Over time, however, Caribbean and Indian populations have followed different patterns of growth. While the Indian population has continued to grow steadily, constituting the most numerous ethnic minority group in all subsequent years (reaching almost 1.5 million in 2011), the Caribbean population became quite stable after 1991, maintaining their proportion with respect to the total population in around 1% and systematically decreased their relative share in the non-white population. This, however, might be related to the fact that there are now more individuals who identify themselves as of mixed origin, in particular ‘white Caribbean’, who are not considered in this figure. As a matter of fact, in the UK, intermarriage between blacks and whites is more common than intermarriage between Asians and whites, and this has probably led to the rise in individuals who consider themselves as having a mixed origin (and a decrease of individuals who identify themselves as solely Caribbean or African). Note however, that for the purposes of this

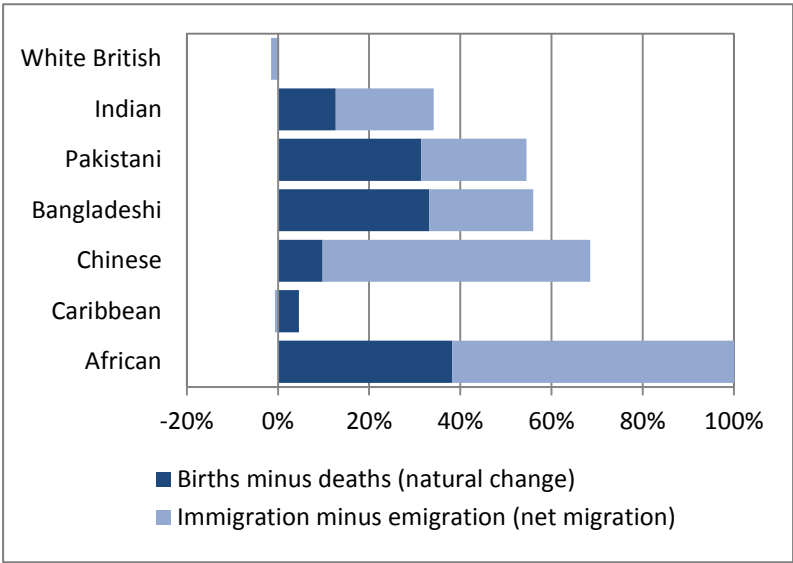
thesis individuals who identify themselves as 'half white' are excluded from the analysis (see Chapter 2 for more details).

Pakistani and Bangladeshi populations, on the other hand, are lower in number (in particular Bangladeshi), but, like Indians, they have also grown steadily since 1981; and the same is true with regard to their relative share within the non-white population (which has grown from 3% to 7% for Bangladeshi and from 12% to 17% for Pakistanis). In particular, the Pakistani is the second most numerous ethnic minority group in the most recent decades: there are more than one million Pakistanis living in England and Wales in 2011. African and Chinese groups, finally, start growing rapidly in 1991; in 2011 Africans constituted the third most important ethnic minority group³.

An important aspect to consider regarding the growth of non-white ethnic minority groups is the components of this growth. In fact, while at the beginning of the period most of this population's growth was associated with new arrivals (including those for whom family reunion was relevant), in more recent years new births have started play a greater role: these are the so-called second generations, that is, individuals who identify themselves as belonging to a certain ethnic minority, but who were born in the UK. Figure 1.4 shows the components of population growth for different groups between 2001 and 2011.

³ The peak observed for Africans in 1981 is puzzling, since I would have expected the value to be inflated in 1971, where the measure for identifying Africans is less precise (see Chapter 2 for details on this).

Figure 1.4: Components of relative growth; ethnic minorities and white British in England and Wales (2001-2011)

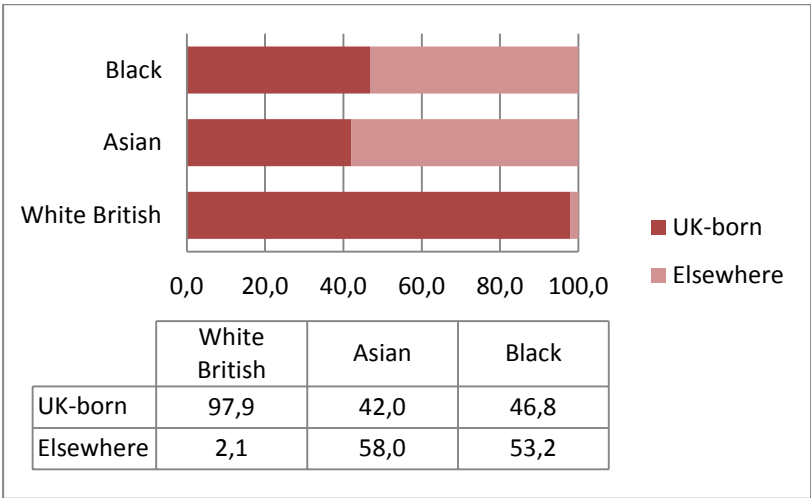


Note: the percentages refer to the growth relative to 2001. Source: Figure 1 in Simpson (2013). Census briefs: www.ethnicity.ac.uk.

The first striking finding is that the white British population had a negative growth: this means that the population in England and Wales between 2001 and 2011 grew thanks to new arrivals and new-borns from ethnic minority families (note that this pattern is also evident in Figure 1.1). Here we can also see that Pakistani and Bangladeshi populations grew mostly thanks to new births, the Caribbean (for whom, however, the growth rate is the lowest). Indian, Chinese and African populations, on the other hand, grew mostly thanks to new arrivals (in particular the Chinese), although natural change was an important component for this groups too: almost 40% of African population growth was linked to new births, a value that is very similar to that of the Pakistani and Bangladeshi populations.

Additional information can be seen in Figure 1.5, which shows the percentage of UK- and non-UK born individuals by ethnic group in England and Wales (2011). We can see that more than 40% of individuals who have identified themselves as either Asian or Black were born in the UK.

Figure 1.5: UK-born and elsewhere-born individuals by (grouped) ethnic group (2011); England and Wales

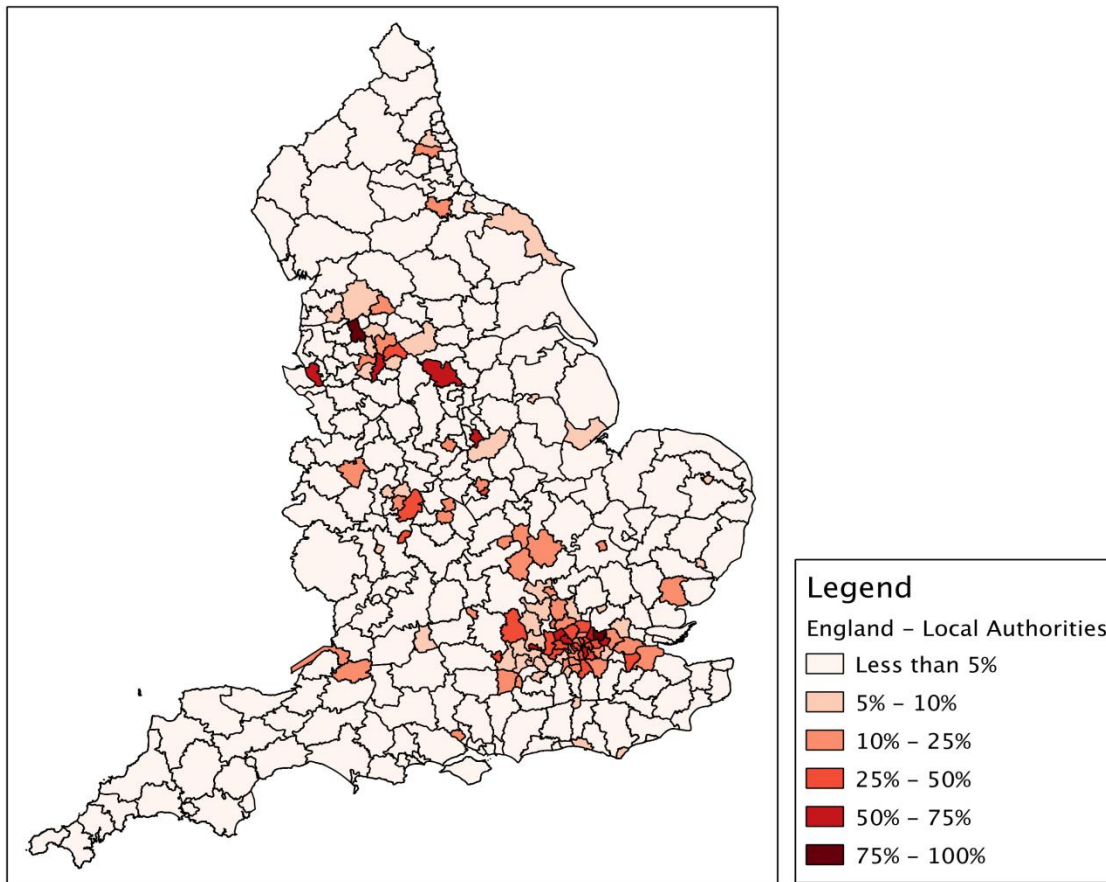


Source: Author’s own calculations based on aggregated census data (obtained from: www.neighbourhood.statistics.gov.uk).

1.3.2 The geography of ethnic minorities

The geography of ethnic minorities in the UK, a crucial component of this thesis, has been very much determined by the location of jobs. Upon arrival, most ethnic minorities established themselves in the north and central areas of the UK, and mainly in metropolitan areas ([Simpson and Finney 2009](#)): London, in particular, was the main point of attraction, but also urban areas in the East and West Midlands (Birmingham and Leicester), North West (Great Manchester) and Yorkshire and the Humber (Bradford and Leeds). As can be seen in Map 1.1, this is still the main location of non-white ethnic minorities nowadays: in fact, migration chains and institutionalization, expressed, for example, in the emergence of supermarkets with typical products or in the creation of churches, has led to the persistence of these patterns of settlement, and hence, to the spatial segregation of ethnic minorities ([Massey 1985](#)). Currently 80% of non-white ethnic minorities live in metropolitan areas and 50% in London only. Black and Bangladeshi populations are the groups who are most likely to be found in this city, while Indian and Pakistani and Chinese populations are most dispersed. Furthermore, of all the groups, the Chinese most predominantly live in non-metropolitan areas.

Map 1.1: Non-white ethnic minorities in England (2011)



Source: Author's own calculations based on aggregated census data (obtained from: www.neighbourhood.statistics.gov.uk; UK geographies available at: geoportal.statistics.gov.uk).

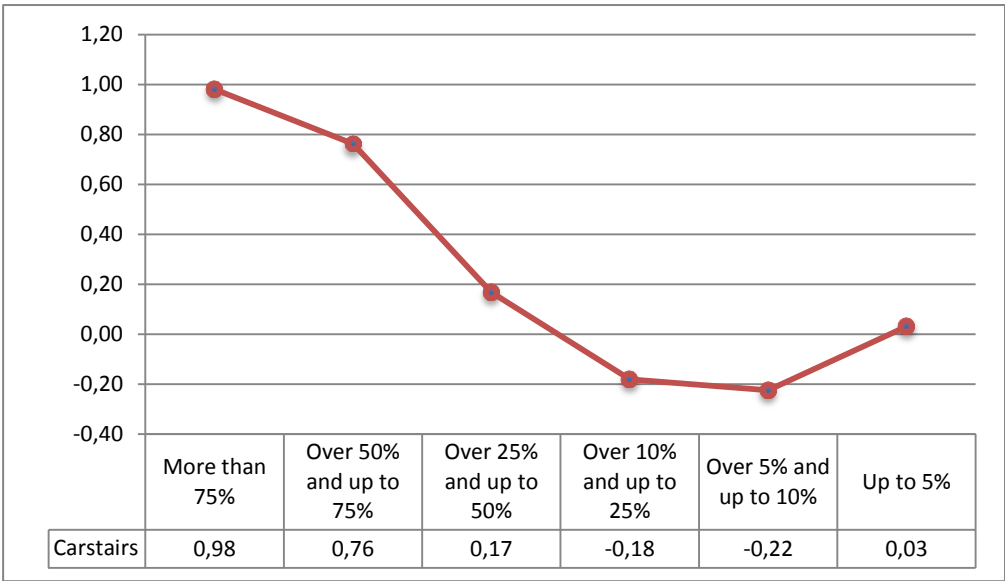
In addition to the spatial concentration (whose characteristics are further studied in Chapter 4), an important aspect of these settlements, which has been constant over the decades and applies (to a greater or lesser extent) to all ethnic minority groups, is that areas with a high concentration of ethnic minorities have usually been areas with high levels of deprivation.

The initial settlement of most non-white migrants in metropolitan areas was marked by poverty and hostility (Phillips 1998; Rattansi 2011). Immigrants were located either in poor private accommodations or in the worst of owner-occupied houses; and the same apply to public housing, to which they gained access in the mid-1960s. Spatial segregation based on ethnicity started therefore to emerge as a problem, and this was reinforced by white suburbanization. Moreover, the link between race and deprivation became evident, not only in terms of public perception, but also as a factor that would generate a legacy of disadvantage in the years to come.

Many minorities were found to be trapped in marginal areas in regions of industrial decline, which would later on affect their opportunities in terms of employment and housing (Phillips 1998).

Figures 1.6-1.8 show different aspects of the relationship between segregation of ethnic minorities and deprivation. Figure 1.6, based on my own calculations for 2011, shows the average Carstairs deprivation score⁴ (Norman, Boyle and Rees 2005) for areas with different shares of non-white ethnic minorities⁵. The values observed in Figures 1.7 and 1.8 show results separated by ethnic group.

Figure 1.6: Average Carstairs deprivation score for areas with different shares of non-white ethnic minorities (England; 2011)



Descriptive characteristics for Carstairs:

Mean:	0.03	Percentile 25:	-1.52
Minimum:	-4.71	Percentile 50:	-0.48
Maximum:	11.37	Percentile 75:	1.12
		Percentile 95:	4.28

Source: Author’s own calculations based on aggregated census data (obtained from: www.neighbourhood.statistics.gov.uk and from Prof. Paul Norman).

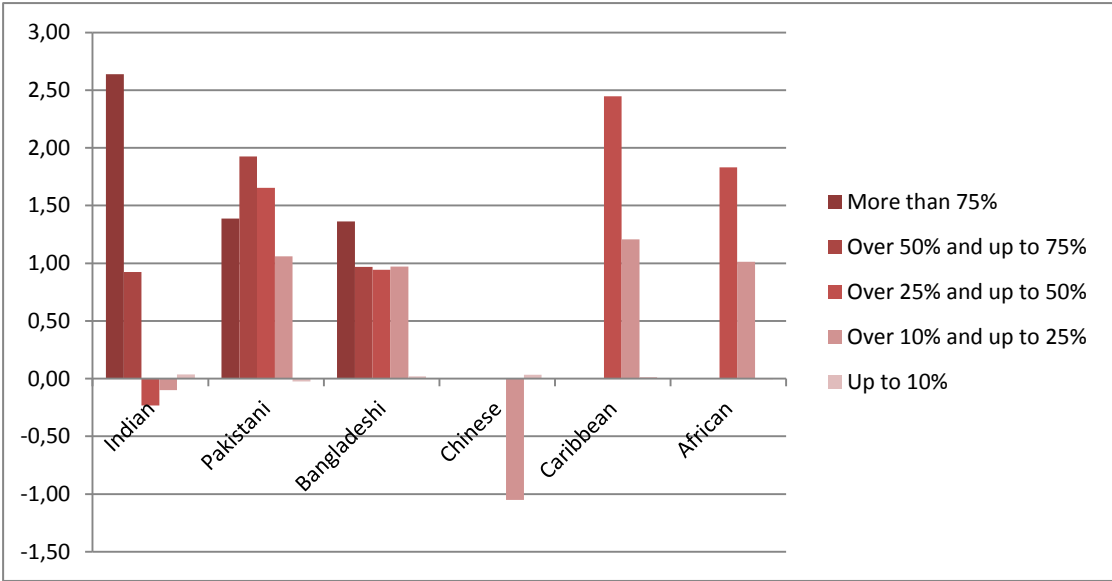
⁴ The Carstairs deprivation score is a summarizing measure based on four variables: proportion of male unemployment, proportion of overcrowded households, proportion of households with no car/van and proportion of individuals with low social class. The more positive the values, the higher the deprivation. Refer to Chapter 2 for details on how the Carstairs deprivation index is constructed.

⁵ For all figures, areas for which ethnic and deprivation data is obtained are Lower Layer Super Output Areas, which have an average of 1500 individuals.

We observe in Figure 1.6 that areas with a higher share of non-white ethnic minorities have, on average, a higher deprivation score than areas with a lower share of non-whites. Interestingly, however, areas with the lowest deprivation score are not the ‘whitest’ areas, but those that have between 5% and 25% of ethnic minorities. This might reflect regional effects: in particular, London and its surroundings have a very high number of non-white ethnic minorities and, at the same time, relatively low deprivation levels. Note also that although areas with a high share of ethnic minorities (more than 50%) do not reach extreme levels of deprivation on average, the values (0.98 and 0.76) are still contained in the half most deprived.

Figure 1.7 presents average Carstairs deprivation scores for areas with different shares of, in this case, co-ethnics. Moreover, the table included below presents the distribution of ethnic minority groups in each of these areas.

Figure 1.7: Average Carstairs deprivation score for areas with different shares of co-ethnics (England; 2011)



Members ethnic minority groups living in areas with different shares of co-ethnics (column %)

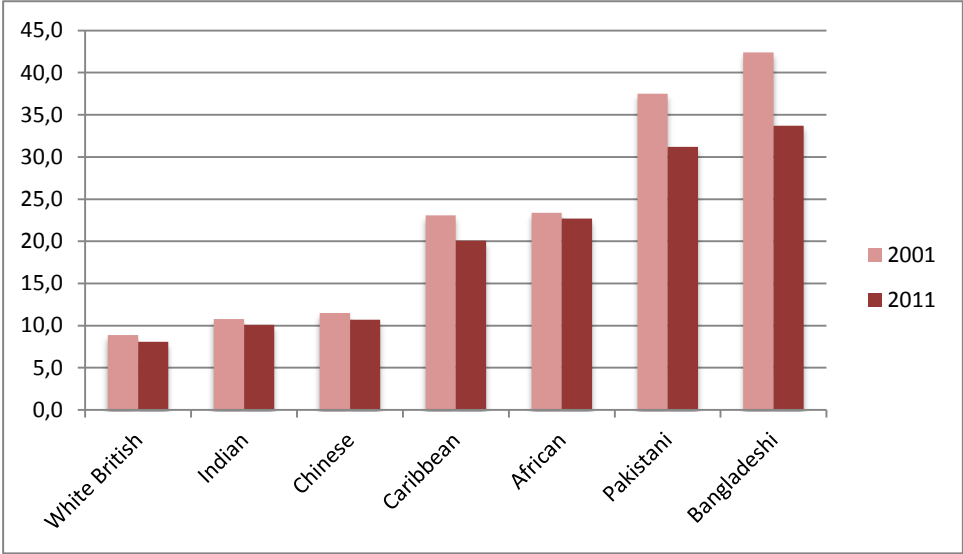
	Indian	Pakistani	Bangladeshi	Chinese	Caribbean	African
More than 75%	2.0	3.2	0.9	-	-	-
Over 50% and up to 75%	4.3	12.2	5.2	-	-	-
Over 25% and up to 50%	19.6	22.2	15.8	-	0.3	5.3
Over 10% and up to 25%	21.4	22.9	20.3	4.1	19.2	29.8
Up to 10%	52.8	39.5	57.8	95.9	80.5	64.9

Source: Author’s own calculations based on aggregated census data for England and Wales (obtained from: www.neighbourhood.statistics.gov.uk and from a Prof. Paul Norman).

The first clear outcome of Figure 1.7 is that the Chinese are in a much better relative position as compared to the other groups: most of them are located in areas which have average levels of deprivation (values close to zero): these are areas where the number of co-ethnics is 10% or less. Moreover a small number of Chinese who live in areas with a relatively higher share of co-ethnics seem to be particularly advantaged in terms of deprivation. Next to Chinese, Indians also enjoy a favourable situation, overall: more than 90% live in areas where deprivation levels are below the mean. In some cases these are also areas where the concentration of Indians is relatively high: for example, areas where there are 25%-50% of Indians (and where almost 20% of Indians live) have on average a deprivation score of -0.23. This is a pattern that only applies to this group, as can be seen from the figure. However, Indians who live in areas with a very high share of co-ethnics are in a much worse position: these areas have much higher deprivation levels, in particular those areas that are more than 75% Indian in make-up (almost all of them located in Leicester). Caribbean and African groups, which, like the Chinese, are in general more spread out in the space, present more intermediate patterns. Those living in areas with 25%-50% of co-ethnics have one of the worst deprivation conditions, although there are very few members living in these areas (0.3% of Caribbean and 5% of African). However, around 20% of the Caribbean and 30% of the African population that lives in areas where there are 10%-25% of co-ethnics, are in the half- (or even quarter-) most-deprived areas. Note, however, that most Caribbeans and Africans (although to a lesser extent) live in areas of 10% of co-ethnics or less, and these also tend to be less deprived.

The Pakistani and Bangladeshi finally, are the two worst positioned groups. Except for those living in areas where the share of co-ethnics is 10% or less (around 40% of Pakistani and 60% of Bangladeshi), the rest lives in areas that are above the mean deprivation level, and also in the worst half. But there are also clear differences between both. Pakistanis are in fact more disadvantaged than Bangladeshis, overall, and this is not only because areas with high concentrations of Pakistanis tend to be more deprived than areas with a high concentration of Bangladeshis, but also because Pakistanis are more likely to live in such areas than Bangladeshis. For example, around 12% of Pakistanis live in areas with 50%-75% of co-ethnics, and these areas have an average Carstairs score of 1.93; for equivalent 'Bangladeshi areas' – where only 5% of Bangladeshis live – the average deprivation score is of 0.97.

Figure 1.8: Percentage of ethnic minorities that live in the 10% most-deprived areas (IMD)



Source: Figure 1 (adapted) in Jivraj and Khan (2013). Census briefs: www.ethnicity.ac.uk.

Figure 1.8 offers additional evidence on the relationship between ethnicity and area deprivation. Adapted from Jivraj and Khan (2013), it shows the percentage of white British and each ethnic minority group living in the 10% most-deprived areas, for 2001 and 2011, measured in this case with the Index of Multiple Deprivation. Here we can see that the ordering of groups is similar, with Indian and Chinese (resembling the white British) as the more advantageous groups, and Pakistani and Bangladeshi as the most disadvantageous ones. Moreover, this figure also shows that all groups are less likely to be in deprived areas in 2011, as compared to 2001. In particular, the decrease has been the greatest for the Pakistani and Bangladeshi populations.

1.3.3 Economic activity and social class: an overview for 2011

This section gives an overview of the economic activity and social class of white British and UK and non-UK born ethnic minorities. The tables presented here show information for the *entire population* of England and Wales, constituting therefore the best available figures of labour market outcomes of first- and second generation ethnic minorities (defined here as non-UK and UK born).

Table 1.1 and Figures 1.9 and 1.10 show the economic activity of ethnic minorities in England and Wales (ages 16-74) in two versions: an extended version (Table 1.1), where a distinction is made between all possible situations of economic activity; and a reduced version (Figures 1.9 and 1.10) where I have identified the most relevant outcomes for the purposes of this thesis. Note that in all figures and tables present in this section, ethnic minorities are divided between non-UK and UK born, while for the white British no distinction is made. The definition of ethnicity is based on a self-reported question, as explained in Chapter 2.

A first outcome from Table 1.1 is that levels of activity vary across ethnic groups and generation: among the white British, around 70% are active, while Pakistani and Bangladeshi populations tend to have the lowest levels of activity in both generations. In the first generation, this is likely to be driven by women: we can see that these groups have the highest shares of individuals looking after the home or a family (see Chapter 3 for gender-based tables); in the second generation, students play the most important role, although these groups still continue to have the highest shares in the category of individuals looking after the home or a family. Also, first-generation Chinese have particularly low activity levels; in their case however, this is mainly driven by students. Note also that among the second generations most ethnic groups have very high shares in the student categories. Another outcome of interest is that, with the exception of the African population, all ethnic minority groups increase their levels of activity between the first and second generations, reaching levels that resemble more those of the white British, and even surpassing them (as it is the case of Indian and Caribbean populations).

In order to have more meaningful outcomes and comparisons, Figure 1.9 shows the share of the following categories for each (non-UK and UK born) ethnic minority group and the white British: employed; short-term unemployed (unemployed for 1 year or less); long-term unemployed (unemployed for more than one year); and some inactive groups (looking after home or family, long-term sick or disabled and other). As will be explained in Chapter 2, in this thesis employment is calculated as a share of the total active population plus the three above-mentioned inactive groups. This wider definition of employment, in which some non-employed (inactive) groups are included in the reference category, is meant to capture variation observed in the categories of inactivity that might be speaking of ‘discouraged workers’ or other sources of inequality that prevent individuals from going to work (in particular women doing housework).

Table 1.1: Economic activity in 2011 (extended)

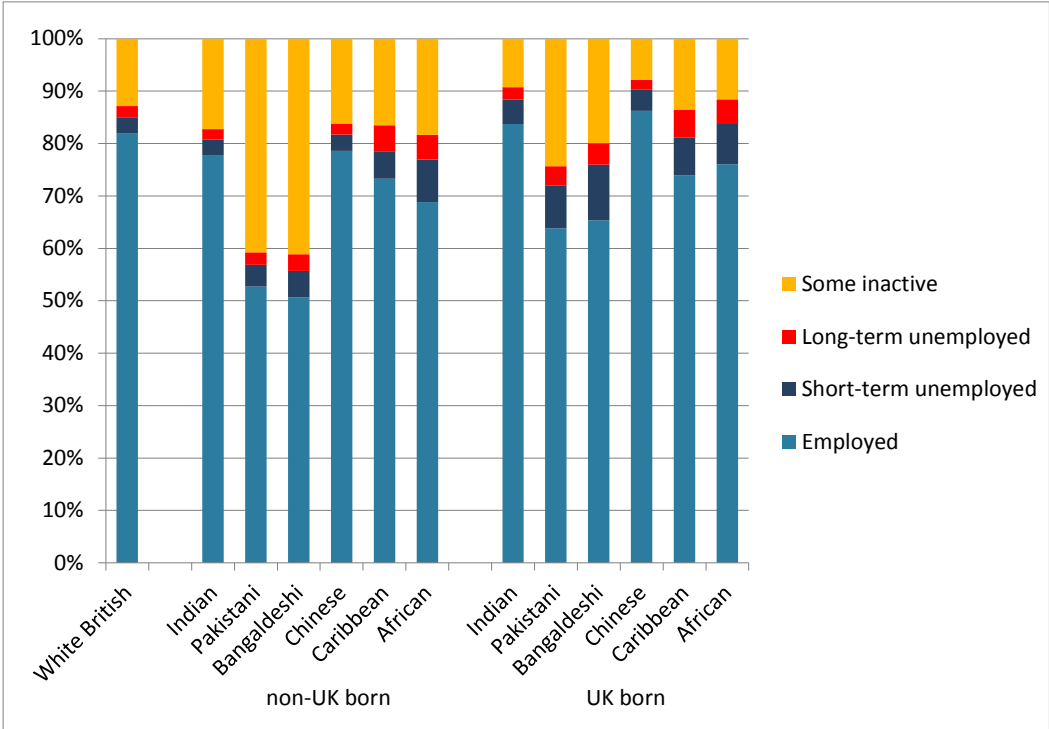
	White British	Indian	Pakistani	Bangladeshi	Chinese	Caribbean	African
Non-UK born							
Economically active							
Employee: pt	14.2	12.5	11.6	18.8	9.1	12.8	12.6
Employee: ft	39.0	39.1	18.2	14.4	26.7	33.5	32.9
Self-employed	9.7	10.5	13.7	8.6	9.9	6.5	6.2
Unemployed	4.0	3.9	5.3	6.8	3.0	7.3	9.6
Ft student	3.0	4.3	3.9	6.3	4.2	2.6	9.7
Economically inactive							
Retired	15.7	11.1	7.4	5.9	6.4	21.6	2.7
Student	4.6	4.9	6.2	5.3	31.2	3.7	12.4
Looking after home or family	3.8	6.8	19.6	20.3	5.3	3.1	5.6
Long-term sick or disabled	4.4	3.5	6.0	5.5	0.9	4.7	2.6
Other	1.7	3.5	8.1	8.1	3.3	4.1	5.6
Total active	69.8	70.2	52.8	54.9	52.9	62.8	71.0
Total inactive	30.2	29.8	47.2	45.1	47.1	37.2	29.0
Total activity	33157467	719208	441844	199307	281423	193407	581079
UK born							
Economically active							
Employee: pt	14.2	11.7	13.3	13.9	9.7	13.8	9.0
Employee: ft	39.0	44.0	24.5	23.1	42.5	42.1	31.8
Self-employed	9.7	8.3	8.0	3.5	7.3	6.5	6.4
Unemployed	4.0	5.4	8.5	9.1	4.1	10.5	7.7
Ft student	3.0	7.1	7.8	12.3	7.7	6.3	12.2
Economically inactive							
Retired	15.7	0.3	0.2	0.2	0.9	0.7	0.4
Student	4.6	16.2	20.1	25.5	22.4	8.6	25.3
Looking after home or family	3.8	3.1	9.4	6.5	2.3	3.1	1.8
Long-term sick or disabled	4.4	2.0	3.2	2.1	1.1	4.9	2.3
Other	1.7	2.0	4.9	3.7	2.0	3.5	3.1
Total active	69.8	76.4	62.1	61.9	71.3	79.3	67.1
Total inactive	30.2	23.6	37.9	38.1	28.7	20.7	32.9
Total activity	33157467	377859	292935	86661	53449	259943	103557

Note: The figure for white British refers to both UK and non-UK born.

Source: Author's own calculations based on data from the Office for National Statistics © Crown Copyright 2014

Population: 16-74 years old

Figure 1.9: Economic activity: main categories

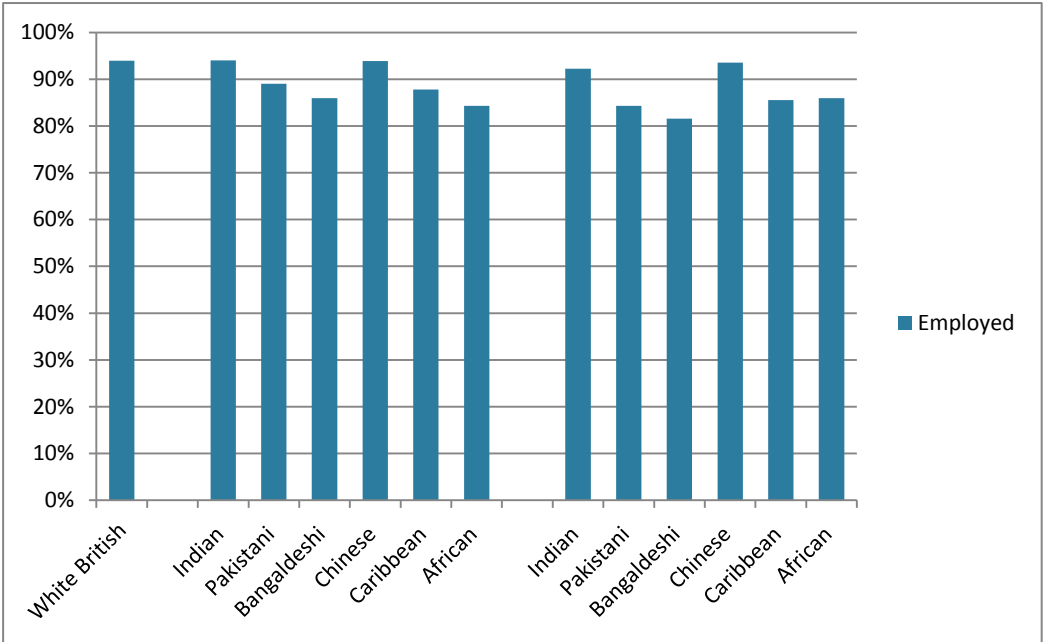


Source: Author’s own calculations based on data from the Office for National Statistics © Crown Copyright 2014
 Population: 16-74 years old (but most of them are 18-64 since students and retired are excluded)

Figure 1.9 shows that the level of employment of ethnic minorities is in general lower, compared to that of the white British. An exception, however, are second generation Indians and Chinese, who not only are advantaged with respect to the white British in the second generation, but their employment levels among the first generation, although lower, are still very similar to those of the white British. On the contrary, groups that consistently have the lowest employment levels are Pakistani and Bangladeshi, in particular those in the first generation, who have around 30% points difference with respect to the white British. For these two groups we can see that the weight of the “some inactive” category (which refers mainly to women doing housework) is very strong. Among the second generation, who have still a considerable gap of around 20% with respect to the white British, the category referring to inactive people continues to be relevant; however, we can see that short- and long-term unemployed gain considerable weight as well. Caribbean and African populations, finally, are in an intermediate position, with a disadvantage that varies between 6 and 13%. This gap, however, is mainly connected to their higher unemployment levels, which are actually the highest among those in the first generation.

I have also explored how the groups distribute when using the classical definition of employment, that is, the one calculated as a share of the total active population. This can be seen in Figure 1.10. The patterns are very similar to those observed in Figure 1.9: Indian and Chinese have the most similar employment levels to the white British; while the other groups present more disadvantages. However, while Pakistanis and Bangladeshis are the most disadvantaged in the second generation, as in the previous figure, Africans and Bangladeshis take the lead among those in the first generation. Note also that measured in this way, employment levels of most second generation groups (in particular Indian, Pakistani, Bangladeshi and Caribbean) are higher compared to those of the first generation. This is related to the fact that in the second generation the level of unemployment is higher for most groups, but their level of inactivity lower.

Figure 1.10: Employed (as a share of the total active population)

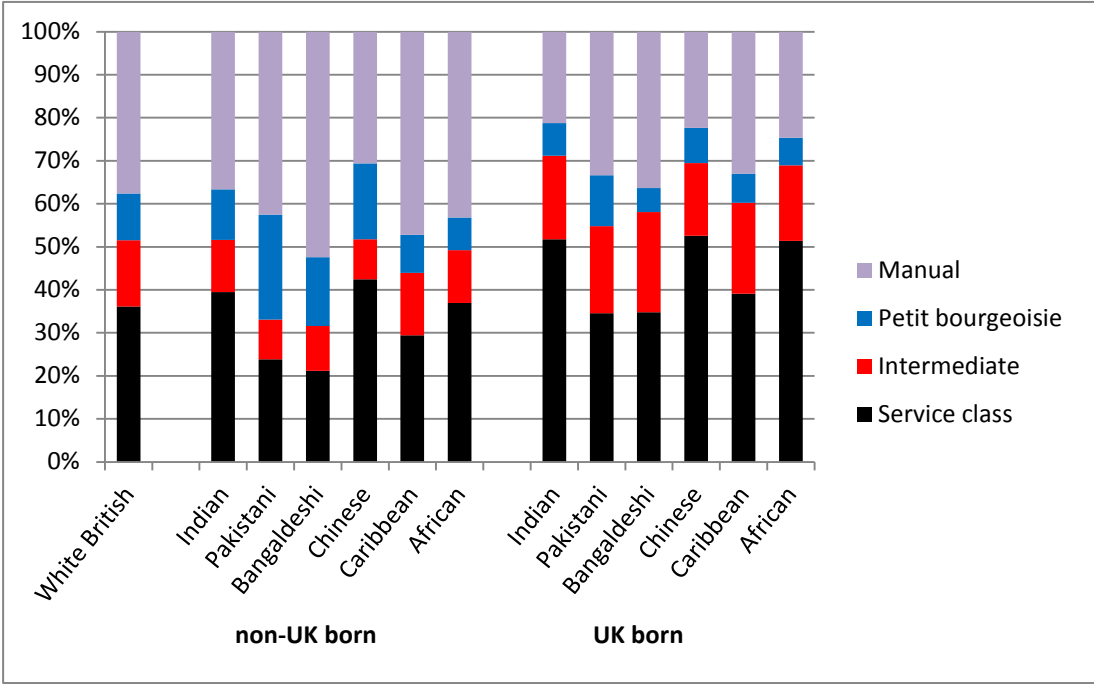


Source: Author’s own calculations based on data from the Office for National Statistics © Crown Copyright 2014
 Population: 16-74 years old (but most of them are 18-64 since students and retired are excluded)

Moving to the study of occupation or social class of individuals, Figure 1.11 shows the distribution of these by ethnic minority group and generation, using the National Statistics Socio-economic Classification (NS-SEC), the classification used in the analytical chapters of this thesis. This measure is available for all individuals who have or had a job in the past; however, it is not available for full-time students who might be working or have worked in the past, or for the

long-term unemployed. Figure 1.11 shows (grouped) NSSEC categories⁶: service class (categories 1 and 2); intermediate (category 3); petit bourgeoisie (category 4); and manual (categories 5, 6 and 7). This shorter version is also the one used in Chapter 6.

Figure 1.11: Social class (grouped categories from NS-SEC)



Source: Author’s own calculations based on data from the Office for National Statistics © Crown Copyright 2014
 Population: 16-74 years old (but most of them are 18-64 since students and retired are excluded)

Figure 1.11 shows that the share of ethnic minorities in the highest-status positions – the service class – increased from one generation to the next. In fact, among those born in the UK, groups have a similar (Pakistani, Bangaladeshi and Caribbean) or a much higher participation in the service class (Indian, Chinese and African), as compared to the white British. Specifically, while around 36% of the white British have a service class position, the percentage varies between 35% and 39% for the Pakistanis, Bangaladeshis and Caribbeans and is of around 52% for Indians, Chinese and Africans. Note also that the advantage for these three groups, although smaller, is also observed in the first generation: they might be representing more recent migrants entering the country through the points-based system, in which high qualifications are particularly

⁶ NSSEC categories are: 1) Higher managerial, administrative and professional occupations, including large employers; 2) Lower managerial, administrative and professional occupations; 3) Intermediate occupations; 4) Small employers (<25 employees) and own account workers; 5) Lower supervisory and technical occupations; 6) Semi-routine occupations; 7) Routine occupations

appreciated (also recall from Figure 1.4 that these three groups are the ones that grew the most thanks to new arrivals).

The UK-born minorities also increased their share in intermediate positions and decreased their share in manual ones. Furthermore, an interesting pattern emerged in that they are less frequently self-employed than those who arrive, as can be seen from the high percentage of self-employment among Pakistanis, Bangladeshis and Chinese, in particular. This might be an indication that ethnic entrepreneurship – which can very often be seen by the naked eye as one transits neighbourhoods with a high share of minorities – is not so much the choice of those who are born and possibly attend school in the UK, but rather a most feasible option for those who arrive.

1.4 Migration and integration policies and the public debate on ethnic minorities in the UK

This thesis deals with theoretically relevant but also very delicate and socially sensitive topics. In fact, immigration and the integration of ethnic minorities in the UK has been a matter of concern not only for academics, but also for politicians and policy-makers.

In the UK, efforts to secure fair treatment for minorities has gone hand-in-hand with the aim of restricting immigration ([Cheung and Heath 2007b](#); [Heath and Yu 2005](#)): these two contradictory elements have characterized government policies practically since the first arrivals of immigrants. Most recently, the tension between ‘fair treatment’ and ‘restriction’ has been further exacerbated by concerns about ‘radicalization’ of British Muslims and the ‘fail of multiculturalism’, which has made the British context particularly interesting for research. Are immigrants self-segregating? Does this lead to radicalization and extremists attitudes? Should immigration be reduced? How should be integration improved? These and other questions are among the ‘hot’ topics in the British public debate, and I hope this research will provide some empirical evidence with which to respond to some of them.

1.4.1 Migration policy: a bit of history

The initial migration legislation was developed in the UK during the post-war period, and it had a marked liberal quality. Members of the colonies were free to enter the UK thanks to the possibility of becoming British citizens through the 1948 British Nationality Act. But as immigration increased, so did concerns regarding the massive flow of non-white populations. Discrimination became a key issue: black populations, in particular, found difficulties both in the labour and housing markets. Along with this, widespread public support for restrictions on immigration also became evident, as well as crude racial stereotyping, which could be observed for example in a report commissioned by ministers, which referred to black populations as irresponsible and mentally slow ([Cheung and Heath 2007b](#); [Panayi 2010](#); [Wray 2011](#)). This generated increasing concern in the government, and the reaction of the main political parties, in spite of their different approaches, was in the same direction. In fact, although Conservatives were relatively hostile to newcomers and the Labour party more liberal and multicultural in their rhetoric, in general both agreed on the need to limit immigration ([Cheung and Heath 2007b](#)).

The first important example of immigration restriction was the 1962 Commonwealth Immigration Act, which emerged as a result of indecision rather than of acceptance of ethnic minorities, in a context of increasing concern. The 1962 Act, opposed by the Labour Party, prevented entrance to those who had passports issued from colonial countries, which was an implicit racial bias, and established a voucher system for intending migrants ([Wray 2011](#)). In fact, we saw before that in anticipation of this Act, immigration of Caribbean and some Asian groups peaked right before 1962. However, the implementation of this Act, presented as an emergency measure, did not have the expected effects, since immigrants continued to arrive through the – improperly controlled – voucher system and through family reunion. Later on, new legislation in 1965 restricted the vouchers to 8500 per year; however, immigrants were still allowed to bring their family with them, for which new migrants continued to arrive. In 1968, a new Act limited for the first time the entrance to the UK of British passport holders' that did not have a direct relationship to the UK. This was directed mainly towards Asians located in East Africa, who had started to arrive following their expulsion from countries that had recently become independent, like Kenya. These were Indians, and to a lesser extent Pakistani, many of whom were working for the British government in Africa. Eventually, however, this restriction also became flexible, since the UK let many to enter ([Heath et al. 2013](#)).

The 1971 Immigration Act followed this up and introduced the concept of ‘patriality’, which granted free entrance to the country only to individuals who had at least one parent or grandparent born in the UK. This was replaced 10 years later, by the 1981 British Nationality Act, which created the concept of British citizenship (replacing therefore the 1948 citizenship of the United Kingdom and Colonies, prevalent up until then) and gave citizenship to all those who had previously held a right to enter the country through partiality. The Act also created the concepts of British Dependent Territories Citizenship and British Overseas citizenship, although none of these granted the right to enter the UK. The 1981 Act ‘brought the citizenship legislation into line with immigration legislation’ ([Cheung and Heath 2007b: pp. 513](#)) and was considered racially discriminatory as it directly curtailed immigration from the New Commonwealth ([van Oers 2014](#)).

The year 1997 witnessed a shift in policy approach towards immigration, with the establishment of the ‘New Labour’. These changes were expressed in new approaches towards the desirability of immigration and how it should be controlled, and were part of a wider international context of European enlargement and increasing movements of individuals across borders, as well as of an ageing population and labour shortages ([Kicinger 2013](#); [Wray 2011](#)). In striking contrast to the preceding policy, the Labour government was open to contemplate the benefits of immigration: ‘restriction’ was therefore replaced by ‘regulation’. In this context, skilled migrants and international students were particularly welcome: in 2000 and 2001 two schemes were created to attract qualified individuals, even if they did not have a work offer; and overseas students were also given the possibility of working in the UK after finishing their graduate studies. However, with a few exceptions for mainly fixed-terms jobs, unskilled workers were less welcome in the UK, which made the liberal approach to immigration more restricted: it was actually a programme of managed migration, rather than a program of free migration ([Wray 2011: pp. 141](#)). In fact, this regulation was necessary for the stability of the government, given the historical resentment of at least part of British society towards immigration ([Robinson and Valeny 2005](#)). Along the same lines, the struggle against illegal migration as well as the increased regulation of asylum seekers, also part of the new governmental strategies, were also measures intended to win support for the liberalization of migration ([Kicinger 2013](#)).

Following these measures, in 2007 a non-statutory and advisory non-departmental public body was created with the objective of advising the Government on where migration can fill skills gaps within the United Kingdom economy: the Migration Advisory Committee. Composed mainly of

economists, this body would help to ‘attract the people with the right skills to the United Kingdom’⁷ by means of detailing shortage occupation lists every year. One year later, and still in line with a policy that predominantly privileges the entry of skilled workers, a Point-Based System was created which, as in other countries such as Australia, Canada or the US, gives points according to the qualification of individuals: higher points mean more chances of entering the country. Most recently, the 2014 Immigration Act has added additional restrictions in particular towards illegal immigrants. In the words of the Immigration Minister Mark Harper, the Act ‘will stop migrants abusing public services to which they are not entitled, reduce the pull factors which draw illegal immigrants to the UK and make it easier to remove people who should not be here’ ([UK Home Office 2013](#)).

1.4.2 Integration policies and the ‘multiculturalism debate’

But as immigration restrictions have increased over time, the integration of those who are already settled has improved since the arrival of immigrants after World War II. More recently, however, increasing concerns about the mechanisms of integration, or the ‘success’ of the multiculturalist model in the UK, have emerged, following the 2001 and 2005 .

The first important legislation regarding equality of treatment of ethnic minorities was the 1965 Race Relations Act, which made discrimination in public spaces (such as pubs, restaurants and cinemas) unlawful ([Cheung and Heath 2007b](#)). Following this, the 1968 Race Relations Act prohibited discrimination in labour markets, in particular, those pertaining to access to and maintenance of employment, and also in housing, including discrimination pertaining to housing access (whether rental or purchase) and in the tenant-landlord relationship. These first two acts were replaced by the 1976 Act, which extended the definition of discrimination to include indirect discrimination ([Cheung and Heath 2007b](#); [Rattansi 2011](#)). ‘Indirect discrimination can be thought of as any case where, even in the absence of a deliberate intention to discriminate, practices and procedures applying to everyone have the effect of putting people of a particular racial group at a disadvantage’ ([Cheung and Heath 2007b: pp. 514](#)). This Act also established a new monitoring authority, the Commission for Racial Equality, created with the objectives of promoting equality of opportunity, working towards the elimination of discrimination, enhancing

⁷ For further information refer to: <http://webarchive.nationalarchives.gov.uk/20100411133104/http://www.ukba.homeoffice.gov.uk/aboutus/working-withus/indbodies/mac/mac-milestones/howthamacwasestablished/>

interaction between different racial groups and keeping under review the functioning of the Act. The implementation of the 1976 Act 'served to curb the worst excess of racial exclusion and improved minority group rights as citizens in gaining access to resources such as jobs, housing, health, education and social services' ([Phillips 1998: pp. 1684](#)).

Some years later, the Race Relations (Amendment) Act 2000 extended further the 1976 Act by prohibiting discrimination in public authorities, in particular the police; it also placed as a duty of specific public authorities working towards the elimination of discrimination ([Cheung and Heath 2007b](#); [Meer and Modood 2013](#)). In 2006, a new Equality Act extended the prohibition to cover discrimination based on religion; moreover, it created the Equality and Human Rights Commission, still active nowadays, which replaced the Commission for Racial Equality. Like its predecessor, this Commission was established with the objective of promoting equality of opportunity, although its duties are aimed at tackling discrimination on all grounds: age, race and ethnicity, gender, disability, sexuality and religion and belief ([Meer and Modood 2013](#)). More recently, finally, the Equality Act 2010, which replaced the 2001 Act, included the illegalization of discrimination based on racial grounds by public authorities including the Home Office, immigration authorities and the entrance clearing service. Moreover, it also placed a duty on public bodies carrying out immigration functions to promote the elimination of unfair treatment and promote good relations between individuals of different racial groups.

These developments in terms of increasing the rights of ethnic minorities have occurred under the umbrella of what has been defined as a 'multicultural' approach to ethnic minority integration. In the words of Rattansi ([2011](#)), multiculturalism 'usually refers to policies by central states and local authorities that have been put in place to manage and govern the new multiethnicity created by non-white immigrant populations, after the Second World War' (pp. 12). In fact, on top of creating measures to tackle discrimination, the British government has also developed policies and funding programmes (predominant from the 1980s to the 1990s) aiming at incorporating ethnic minorities while respecting their cultural differences. The setting up of community associations of ethnic minorities, often fully or partially funded by the minorities themselves, and many with provision of buildings by local authorities ([Finney and Simpson 2009b](#); [Rattansi 2011](#)), is an example of this approach. Also, school dietary and dress guidelines were extended to allow for some non-standard British rules, such as provisions of halal meat for Muslims or wearing the turban for Sikhs ([Finney and Simpson 2009b](#); [Heath and Demireva 2013](#)). In the educational sphere, the Swann Report (1985) was also an important improvement in

terms of multiculturalism. This report emerged as the result of a 6-year inquiry carried out as a response to observed underachievement in school among ethnic minorities. Considered the most influential text on policymakers and the policy process nationwide in terms of education, its creation, and its subsequent acceptance by all major political parties, conferred official legitimacy on multicultural education ([Hessari and Hill 1990](#)).

However, as multicultural policies emerged, concerns around them did as well. According to Rattansi ([2011](#)) the, symbolically, most powerful move against multicultural and anti-racist initiatives was the Thatcher government's abolition in 1986 of the Left-leaning Greater London Council, committed at promoting equality, especially in education. This was combined with media attacks on Labour-controlled local authorities with a strong public commitment to multiculturalism, especially in London; and also with misleading explanations regarding the 1981 riots of black youth in Brixton and other parts of England, which put the blame on the spatial concentration of economic disadvantages rather on discrimination from public institutions. These concerns became even stronger after the 2001 riots in Brixton and other cities in the north of England, this time involving the Muslim population, as well as right-wing white population and the police. Right after these events, the government initiated an investigation to determine the cause of the riots. Although several causes were identified – including economic deprivation, housing discrimination and increasing separation and antagonism between ethnic minorities and whites – the emphasis in some of the reports was put on the fractured nature of communities and social isolation, with the result that Asians and whites were leading 'parallel lives' and self-segregating, processes that were closely linked to their spatial concentration ([Rattansi 2011](#); [Uslaner 2012](#)). This emphasis immediately directed attention to the role of multicultural policies: 'parallel lives' meant indeed that multiculturalism was leading to social divisions rather than to 'integration in the diversity', and was therefore failing.

This discourse became even stronger after the 2005 London underground bombings and, especially, after it became known that (except for one) the perpetrators were educated Muslims born in the UK ([Wray 2011](#)). Above all, it was a speech in 2005 by the chairman of the Commission for Racial Equality, Trevor Phillips, that established the basis for a huge debate. In this speech, Phillips argued that British society was 'sleepwalking' its way towards segregation, and that it was becoming more divided by race and religion; moreover, he said that some districts were on their way to becoming 'fully fledged ghettos – black holes in into which no-one goes without fear and trepidation' ([Rattansi 2011: pp.75](#)). But in particular, he also emphasised that

multiculturalism had to accept a large share of the blame, since too much focus had been put on the ‘multi’ and not enough on the common culture. He said: ‘We have allowed tolerance of diversity to harden into effective isolation of communities, in which some people think special separate values ought to apply’ (ibid. pp. 76). Multiculturalism, segregation, violence and terrorism were therefore linked in the public imagination, helped by the right-wing media, as well as by influential politicians, both from Labour and Conservative parties.

Following these events, concrete measures such as the above-mentioned additional restrictions on new arrivals and the increasing limitations for acquiring British citizenship via naturalization ([van Oers 2014](#); [Wray 2011](#)) were implemented. Moreover, increasing measures were established to combat terrorism. These were expressed in various Terrorism Acts and in the so-called CONTEST program, the official counter-terrorism strategy initiated in 2006, which according to [Pantazis and Pemberton \(2009\)](#) have helped to undermine the relations between the Muslim community and the wider society.

At the same time, however, a general concern about ‘integration’ and ‘social cohesion’ of communities also started to emerge in the public debate, which was further developed with the concept of ‘interculturalism’, as opposed to multiculturalism (although some authors have argued that ‘community cohesion’, ‘interculturalism’ and ‘multiculturalism’ follow similar principles and - hence - are not really contrasting policies; see for example: [Bagguley 2014](#); [Modood and Meer 2012](#)). In this emergent discourse, which was later on materialized in concrete measures⁸ and formalized institutions, such as the Community Cohesion Unit (2002) and the Commission for Integration and Cohesion (2006), a stronger emphasis was given to the need for *dialogue* between the different cultures; a dialogue that should especially be promoted at the *local* level ([Cantle 2012](#)). In other words, “instead of a mere celebration of diversity and different cultures as in versions of classic multiculturalism, what is involved here is the positive encouragement of encounters between different ethnic and faith groups and the setting up of dialogues and joint activities” ([Rattansi 2011: pp.152](#)). In this context, equality of life opportunities, mutual trust, sense of belonging and knowledge of rights and responsibilities, among others, became constitutive elements of what an ‘integrated and cohesive community’ should be. According to [Cantle \(2012\)](#), “cohesion programmes represented the first real attempt in the UK to promote

⁸ For example, the introduction of the duty to promote community cohesion in schools, which in practise meant that all children educated in state-funded schools would be introduced to ‘others’, virtually or actually, and would be provided with positive experiences of difference.

meaningful interaction between communities from different backgrounds and to promote trust and understanding and to break down myths and stereotypes” (pp. 102). However, these policies have also encountered problems, and have been criticized for being too local and not achieving long-term outcomes ([Bagguley 2014](#)).

Parallel to these developments at the policy level, researchers have also made important efforts to investigate if, and to what extent, ethnic minorities are actually moving in the direction of ‘radicalization’ or ‘self-segregation’. Findings are not conclusive in this respect. On the one hand, some authors have argued that there are no ghettos in the UK and that both natural growth and discrimination partly explain ethnic minority concentration ([Finney and Simpson 2009a](#); [Finney and Simpson 2009b](#); [Phillips 2006](#)). In fact, if the presence of discrimination is a plausible explanation for the lack of integration, this contradicts the idea that multiculturalism – by exacerbating cultural differences – is leading to self-segregation ([Heath and Demireva 2013](#)). In this respect, increasing residential segregation and self-segregation of ethnic minorities, especially of Asian populations, has even been labelled as a ‘myth’ ([Finney and Simpson 2009b](#)). Moreover, the idea that ethnic minorities prefer to have friends of their own ethnic group has also been challenged ([Finney and Simpson 2009b](#)); and evidence of the positive orientation of ethnic minorities towards integration, together with high levels of British identification and low levels of hostility towards white people has been shown as well ([Heath and Demireva 2013](#); [Uslaner 2012](#)).

On the other hand, these same studies, and some others, concur on the existence of strong bonding ties, especially among the Asian population. This has been observed, for example, in high rates of intra-group marriage and friendships ([Heath and Demireva 2013](#)); qualitative studies have also provided evidence that some ethnic minorities are motivated to live alongside other co-ethnics. While fear of discrimination is certainly part of the picture, cultural preferences and the possibility of enjoying ethnic local amenities such as supermarkets and restaurants with certain kinds of food, churches, social centres, etc. ([see also Carling 2008 for more examples](#); [Phillips 2006](#)) have emerged as important factors. Carling ([2008](#)), clearly countering the work of Simpson and colleagues, has even stated that ethnic minorities in Bradford *are* self-segregating and spatial segregation *is* increasing; and he goes as far as to warn that this might lead to social polarization if counter-policies are not implemented.

1.5 Wrapping up and moving forward...

The ethnic and social diversity in the UK is high: not only there are individuals with different ethnic backgrounds and migration histories, but also ethnic minorities differ in terms of their location and socio-economic background. Although the *multiculturalist* approach to ethnic minorities is based on the idea that ethnic minorities should have a 'space' for maintaining their own culture, following a more *assimilationist* approach, receiving countries should also aim at promoting a more equal society where immigrants and their descendants have the same opportunities of educational and occupational achievement as the majoritarian population. This tension between 'letting them live their lives' and 'incorporating them' has permeated the public discourse practically since the arrival of immigrants, and has also influenced research in the past years. Whether ethnic minorities are doing well or poorly is something that should be tested empirically; whether their situation in the destination country is improving or not is something that demands structured research, both quantitative and qualitative.

By exploring different sources of inequality, this thesis not only offers a fresh view and updated data on well-discussed topics such as the labour market integration of ethnic minorities or their levels of spatial segregation, but also responds to questions that are still unanswered for these groups in the UK: these are the role of co-ethnics in the neighbourhood and the link between social and spatial integration. The contrasting evidence shows that there is no single response the question of how second- generation ethnic minorities are doing in the UK. Variation based on the outcomes under study, as well as on the ethnic groups, is too great to give a straightforward response: in particular, differences between ethnic minority groups are as important as differences found between some of these groups and the white British, which points to how varied the patterns of integration are. However, common findings for specific ethnic minority groups found across all chapters call attention to processes that might require extra attention from the government in the coming years. The desire to keep the culture of origin and, at the same time, to integrate and relate to mainstream institutions – which is the individual's perspective of the tension between 'multiculturalism' and 'assimilation' – is and will be, I believe, a crucial element in these debates.

2 CHAPTER 2: The ONS Longitudinal Study: Data Structure and Variables

2.1 Part 1: Data structure

2.1.1 Introduction

This chapter presents the data used for Chapters 3, 5 and 6: in these three chapters, individual-level data from the ONS Longitudinal Study is used in combination with aggregated census data, for the years 1971, 1981, 1991, 2001 and 2011. Moreover, it gives a detailed description of the variables used and provides a comparative overview of the designs, which are similar in many but not all ways, as well as insight into the main advantages and limitations of the data.

2.1.2 What is the ONS Longitudinal Study?

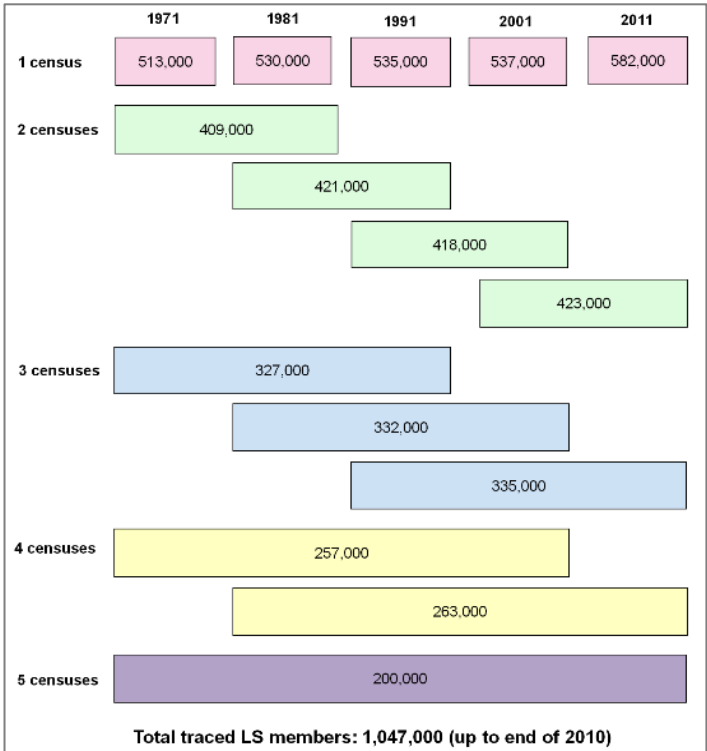
The ONS Longitudinal Study (ONS-LS) is a unique dataset that links census information for a 1% sample of the population of England and Wales. In other words, the dataset consists of a set of census records for individuals linked between successive censuses (1971, 1981, 1991, 2001 and 2011). The original sample was selected from the 1971 Census, and incorporated data on individuals born on one of four selected dates. The sample was updated at each successive census by taking individuals with the same four dates of birth in each year and linking them to existing data ([Hattersley and Creeser 1995](#)).

Life event information has been added to the ONS-LS since the 1971 Census. New members enter the study through birth and immigration and existing members leave through death and emigration. Furthermore, some individuals might exit the study (e.g. someone who went to live abroad for a period) and then re-enter at a later census point. In this regard, it is important to recall that individuals are never ‘removed’ from the dataset, nor do they actively ‘leave’ from it.

A bit more than 500,000 individuals can be found in each census point; however, information for people who participated in more than one census point is more limited. For example, there are

about 400,000 people who have information in two census points, on average; while people who have information in all five census points total around 200,000. In total, around 1,000,000 records are available nowadays (see Figure 2.1).

Figure 2.1: The ONS Longitudinal Study



Entrants between 1971 and 2011
 Births: 294,000
 Immigration: 193,000
 Exits between 1971 and 2011
 Deaths: 262,000
 Embarks: 43,000

Source: ONS

A fascinating feature of this data – in addition to its large sample – is that both household and aggregated census data can be attached to each individual and for each census point. On the one hand, the ONS-LS has, on top of the ‘members file’ (which is the main file), a ‘non-members file’ that contains information on members of a household in which the individual lives at the point that he/she is ‘interviewed’⁹ (in 2011 there were approximately 1.2 million ONS-LS non-members linked to ONS-LS members). On the other, it is also possible to attach aggregated census information measured at the Ward level, a geographical unit that has an average of 4000 individuals. This provides a reasonable idea of the ‘neighbourhoods’ in which individuals live at different moments of their lives. In this regard, an important feature of this data is that rather

⁹ Remember that the ONS Longitudinal Study is an ad-hoc dataset based on census records. Hence, individuals are *not interviewed for the ONS-LS*, but as part of the census occurring every ten years (in other words: selected census records based on census interviews are matched to create the ONS-LS).

than collecting information through retrospective questions (as cross-sectional studies do), the particular structure of the ONS-LS – which resembles that of a panel – allows for collecting both individual and contextual information at the point that individuals are actually selected or ‘interviewed’. The analysis present in Chapters 3, 5 and 6 exploits such a structure, and creates different household and neighbourhood environments for individuals at different time-points.

2.1.3 Defining *origin* and *destination*: the structure and sources of data

2.1.3.1 Age structure

In order to select individuals studied in Chapters 3, 5 and 6, I follow a design used previously by Platt (2005a; 2005b; 2007), which uses both individual and household-level information at each census point. Specifically, the cases studied here are individuals who were between 0 and 15 years old in 1971, 1981 and 1991 and lived with at least one parent (mother and/or father) at that time-point. These individuals are then followed up in 2001 and 2011 – the two years in which I study *outcomes* – when they are aged 20-55. The main rationale behind this selection is that it allows for separating between the initial socio-economic and neighbourhood conditions in which individuals are presumably raised – *origin* characteristics – and their outcomes in later life, that is, their socio-economic and neighbourhood conditions when they are adults – *destination* characteristics. All three chapters follow this rationale.

Figure 2.2: Origin and destination; age structure of the data

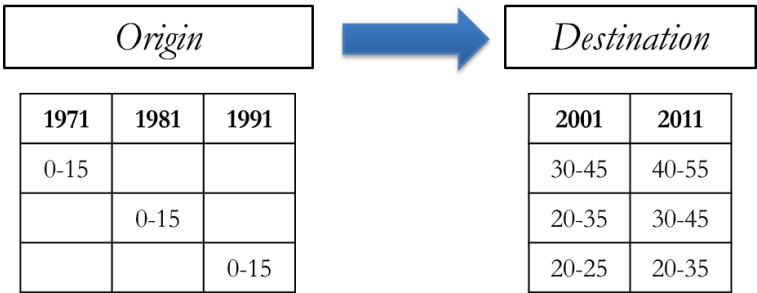


Figure 2.2 shows the age structure that I have used to select the cases. As can be seen in the figure, individuals that are between 0 and 15 years old in 1971 are followed in *destination* when they are between 30 and 55; individuals that are between 0 and 15 years old in 1981 are followed in *destination* when they are between 20 and 45; finally, individuals that are between 0 and 15 years

old in 1991 are followed in destination when they are between 20 and 35. Note that individuals that are between 0 and 9 years old in 1991 are followed only in 2011, since they are still too young (below 20 years old) in 2001. Note that based on this age structure, the same individual might appear more than once in *origin* and *destination* (e.g. an individual that is 5 years old in 1971, 15 years old in 1981 and 45 years old in 2011). I explain this in more detail in the next section.

2.1.3.2 Data sources: individual, household and neighbourhood data

As said before, there are three types of data collected and three sources, which can be seen in Table 2.1, together with their status. First of all, we have the ‘members’ file, which is the main ONS-LS file that contains the individuals under study, whom I follow in the five census points. From this file, I obtain individual-level information (like age, ethnicity, education or social class), which is measured in *destination* (2001 and 2011).

Table 2.1: Sources and types of data

Sources	Status	Type of data collected
ONS-LS ‘Members’ file’	Main file	Individual-level data collected in destination (2001-2011)
ONS-LS ‘Non-members’ file’	Secondary file	Household-level data collected in origin and destination (1971-2011) and attached to the ‘member’s file’
Aggregated Census data	Secondary file	Neighbourhood-level data collected in origin and destination (1971-2011) and attached to the ‘member’s file’

Second, there is the ‘non-members file’ (a secondary file) which contains information on other household members of the household of the ONS-LS member at any given census (like parental social class or partner’s ethnicity): some of these variables are collected in *origin* (when individuals are young: 1971, 1981 and 1991) and some in *destination* (2001 and 2001), and they are attached to the ‘members’ file’ for the five census points.

Finally, there is aggregated census data (also a secondary file), which has information on neighbourhood characteristics measured at the Ward level. This data is also collected both in *origin* and *destination* and is attached to the ‘members’ file’: this way, individuals have neighbourhood information in each census point they have participated. Note that aggregated

census data is not ONS-LS data, but external data collected by myself and other researchers¹⁰ and then attached to the ONS-LS by the ONS team¹¹.

2.1.4 Unit of analysis and samples

In all three chapters (Chapters 3, 5 and 6), the unit of analysis is not the individual but the pair of origin-destination variables. This implies that, potentially, each individual could have up to 6 measurements; 1971-2001; 1971-2011; 1981-2001; 1981-2011; 1991-2001; 1991-2011. The total number of cases allowing for up to 6 measurements per individual (which also means that individuals have at least one measurement in origin and one measurement in destination) is 1,966,881. Of these, 472,925 (24%) are unique individuals.

But given the age restrictions observed in Figure 2.2, the maximum number of observations per individuals is lower; in fact, individuals can be between 0 and 15 years of age in one or two census-census points, but not in three. This reduces the possible number of measurements to up to four, and applies to Chapter 3 and 5. In Chapter 6 an extra requirement is that individuals are both present in 2001 and 2011, for which the maximum number of measurements is two. This is better understood with an example.

Consider an individual who has participated in 4 census points and has complete information in all of them. The information we study from this individual is as the one shown in Table 2.2. Given that the individual is younger than 16 in two census points, we measure the origin variables twice: in 1981 and in 1991. Furthermore, as this individual has also participated in 2001 and 2011, we measure outcomes in these both years. In Chapters 3 & 5 individuals need to have at least one measure in *origin* and one measure in *destination*, for which this individual will appear four times in the dataset. In Chapter 6, individuals need to have at least one measure in *origin*, but two measures in *destination*, for which this individual will appear only twice in the data.

¹⁰Sources: Ethnic composition in the neighbourhood was obtained from <http://casweb.mimas.ac.uk/> and <https://neighbourhood.statistics.gov.uk/dissemination/>. Carstairs deprivation data was obtained from Prof. Paul Norman, also a user of the ONS-LS data.

¹¹ For a detail on the variables collected in origin and destination, as well as their status as dependent or independent variables, refer to Table 2.8.

Table 2.2: The unit of analysis: example

Unit of analysis	Origin		Destination	
	1981	1991	2001	2011
	age=3	age=13	age=23	age=33
Chapters 3 & 5				
Unit 1	X		X	
Unit 2	X			X
Unit 3		X	X	
Unit 4		X		X
Chapter 6				
Unit 1	X		X	X
Unit 2		X	X	X

Given the age and destination-year restrictions, the so-called *initial samples* are the following: for Chapters 3 & 5 the total sample is 432,756, of which around 40% are ‘unique’ individuals. For Chapter 6 the total sample is 195,328, of which around 70% are unique individuals. Note that the sample for Chapter 6 reduces to around half: part of this reduction is because some individuals have only one value in destination, for which I drop them from Chapter 6¹²; but most of this difference in the number of cases occurs because individuals that are measured twice in destination in Chapters 3 & 5 are measured only once in Chapter 6. This is also the reason why in Chapter 6 much more cases are ‘unique’.

In the chapters themselves, the *initial samples* reduce to cover: 1) the ethnic groups under study, that is, second generation ethnic minorities and the white British; 2) individuals who comply with certain parental characteristics: in the case of the white British, individuals both of whose parents were born in the UK (or one, for single-parent households) and in the case of ethnic minorities, individuals both of whose parents were born abroad (or one, for single-parent households); excluding therefore individuals who have “mixed parents” (i.e. one parent born abroad and one born in the UK) as well as white British with foreign-born parents (or one, for single-parent households) and ethnic minorities with UK-born parents (or one, for single-parent households)¹³; 3) individuals with valid information on all variables present in the analytical models (see Table 2.8 below for details on this). These are the so-called *final samples*. Both types of samples, as well

¹² Note also that all individuals that have a value in origin also have a value in destination.

¹³ Refer to Tables 2.9 and 2.10 for a distribution of these categories and a comparison between individuals with mixed and non-mixed parents.

as the number of unique individuals in each of them are shown in Table 2.3, separated by chapter.

Note that there are variations in the chapters in terms of the groups covered and the age structure of the population. As regards groups covered, Chapters 3 and 6 include both ethnic minorities (EM) and white British (WB) in the analysis, while Chapter 5 studies only ethnic minorities. Note also some variations in terms of the ethnic groups: while in Chapter 3 the six most numerous non-white ethnic minority groups are covered (Indian, Pakistani, Bangladeshi, Chinese, Caribbean and African); in Chapters 5 and 6 Chinese are left outside. The reason for this is that in Chapter 5 I use a measure of co-ethnics living in the origin neighbourhood that is not available for Chinese; following this, and for comparative purposes, Chapter 6 only includes groups that were studied in Chapter 5, since the topics of both chapters are very much related.

Table 2.3: Initial and final samples: pooled and unique cases

Chapter	Sample		All pop.	Groups			Parenthood		Variables	
				WB	6 EM	5 EM	All types	Not mixed	All	Valid values
Chapter 3	Initial	Pooled	432756	X			X		X	
		Unique	169923							
	Final	Pooled	369477		X	X		X		
		Unique	143661						X	
Chapter 5	Initial	Pooled	432756	X			X		X	
		Unique	169923							
	Final	Pooled	14287			X		X		
		Unique	6300						X	
Chapter 6	Initial	Pooled	195328	X			X		X	
		Unique	139338							
	Final	Pooled	161168		X	X		X		
		Unique	115951						X	

Source: Author's own calculations based on ONS-LS

Regarding the age structure, Chapters 3 & 5 include the population between 20 and 45 years old. This is because I study outcomes in both 2001 and 2011, and I wanted to make the populations more equal (recall from Figure 2.2 that people between 46 and 55 years old are only present in 2011). Chapter 6 studies outcomes only in 2011, for which I use the total number of cases available. Table 2.4 contains the age distributions for each chapter.

Table 2.4: Age distributions by origin and destination years; initial sample

Age	Chapters 3 & 5						Chapter 6		
	2001			2011			2001		
	1971	1981	1991	1971	1981	1991	1971	1981	1991
20		5037	5338			6253	4263	4510	
21		5722	5940			6036	4857	5043	
22		5147	5259			5484	4447	4532	
23		4400	4536			5272	3804	3910	
24		4216	4277			5127	3653	3726	
25		4502	4559			5783	3929	3963	
26		5180				5645	4510		
27		5530				5007	4846		
28		5695				4837	5033		
29		5771				5021	5086		
30	5812	5968			4855	5138	5149	5278	
31	6056	6136			5552	5776	5370	5439	
32	6525	6642			5122	5229	5781	5877	
33	6404	6521			4486	4610	5696	5809	
34	6493	6539			4253	4346	5757	5811	
35	6693	6777			4645	4658	5976	6049	
36	6665				5282		5997		
37	6852				5641		6195		
38	6984				5827		6294		
39	6638				5809		6022		
40	6330			5911	6065		5756		
41	5989			6073	6157		5463		
42	6273			6477	6607		5714		
43	6038			6370	6518		5493		
44	5898			6422	6485		5336		
45	5484			6520	6631		4954		
Total	101134	89783	29909	37773	89935	84222	90953	78691	25684

Source: Author's own calculations based on ONS-LS

As additional information, Tables 2.5 and 2.6 show the distributions of ethnic minorities and white British in origin and destination years and in terms of the number of census-points in which they have participated, respectively. These are shown for *initial samples* of Chapters 3 & 5 and Chapter 6.

Table 2.5: Ethnic groups by origin and destination years; initial sample

	Chapters 3 & 5						Chapter 6		
	2001			2011			1971	1981	1991
	1971	1981	1991	1971	1981	1991			
White British	96429	83007	26738	35725	82890	75018	87107	73364	23268
Indian	773	1564	689	358	1680	2053	698	1412	617
Pakistani	296	928	482	178	1,059	1489	265	780	394
Bangladeshi	25	204	202	12	241	639	23	182	176
Chinese	51	188	109	28	198	270	45	163	91
Caribbean	878	689	179	382	799	636	734	552	148
African	99	107	54	85	124	255	87	85	36
Total	98551	86687	28453	36768	86991	80360	88959	76538	24730

Source: Author's own calculations based on ONS-LS

Table 2.6: Ethnic groups by number of census points in which the individual has participated; initial sample

	Chapter 3 & 6				Chapter 6		
	2	3	4	5	3	4	5
White British	4965	73128	159990	161724	3808	74747	105184
Indian	205	2013	3518	1381	161	1709	857
Pakistani	312	1702	1888	530	211	914	314
Bangladeshi	171	698	424	30	152	210	19
Chinese	41	278	425	100	91	611	732
Caribbean	193	868	1370	1132	62	98	48
African	108	322	213	81	34	205	60
Total	5995	79009	167828	164978	4519	78494	107214

Source: Author's own calculations based on ONS-LS

From Tables 2.5 and 2.6 we can see that, following historical settlement patterns, ethnic minorities are much more likely to be found in 1981 and 1991, than in 1971, compared to the white British; moreover, they tend to participate in fewer census points, on average. Given these different distributions, all statistical models present in the chapters control for origin and destination years and for number of census points in which the individual participated.

A final important note is that in addition to origin and destination year controls, the statistical models present in the three chapters use 'clustered standard errors', which helps to correct the possible bias emerging from the multiple appearances of individuals in the data. This method was used previously by Platt ([2005b](#); [2007](#)) when analysing the same data. Moreover, I have added

two Annexes at the end of the thesis with the following information. Annex B shows some descriptive statistics of a random sample of ‘unique’ individuals chosen from the *initial samples* used in Chapters 3 & 5 and Chapter 6, and compares it with the same statistics obtained from the pooled data. Annex C explores more in detail variations based on origin and destination years by means of replicating key analytical models in the chapters for the various origin/destination years. Note that although some of these models still use clustered standard errors (those that replicate models in Chapters 3 & 5), the number of multiple observations decreases to a maximum of two, because I select either one origin year or one destination year (in the case of replications made for Chapter 6 there are no multiple observations per individual when running the models for different origin years, given that I only have one destination year).

2.1.5 A brief comment on attrition and sampling

As regards the issue of attrition, present in all data that have a panel-like structure, the following problems can be posed. On the one hand, we could ask: are individuals who have information both in origin and destination different from those who have information in origin only? If the reasons why individuals that are present in both in origin and destination are related to any of the outcomes under study, and if we do not measure these reasons, it could be argued that the results are biased, because they are based on a self-selected sample. As a response to this question, although not all individuals are present in all census points, all individuals that have information in origin (be it 1971, 1981 or 1991) have also information in destination (be it 2001 or 2011), which means no attrition in this respect.

On the other hand, and only for Chapter 6, we could also ask: are individuals who have information in origin, 2001 and 2011 different from those who have information in origin and 2001 only; or in origin and 2011 only? Here the data shows that not all of individuals who have information in 2001(2011) have also information in 2011(2001). I have therefore calculated some descriptive statistics to see how different these groups are. Table 2.7 shows the distribution of people with a Level 4+ of education and in the service class for various groups and years: those who have information in 2001 only, those who have information for 2011 only; and those who have information for both years (here I show the distribution for 2001 and 2011: the first to compare with 2001 only; the second to compare with 2011 only). The table is calculated with the age restrictions used in Chapter 6 (i.e. individuals between 0 and 15 in each origin year, and with

at least 20 years of age in 2001), but in this case it is based on a data that has only one measurement per person.

Table 2.7: Individuals with Level 4+ education and service class by ethnic group and destination year; sample with one measurement per individual (%)

	White British	Indian	Pakistani	Bangladeshi	Caribbean	African
Level 4+						
2001 only	19.4	33.2	21.0	15.0	18.2	40.8
2011 only	27.3	47.3	29.0	28.3	27.7	57
Both (2001)	21.9	37.8	27.4	19.9	26.3	50
Both (2011)	32.7	50.4	35.0	31.3	35.5	61.5
Service class						
2001 only	35.0	43.9	27.9	20.8	32.5	44.4
2011 only	36.4	50.9	36.1	32.7	36.8	42.9
Both (2001)	38.1	48.1	32.4	32.1	39.9	53.5
Both (2011)	41.1	51.6	36.0	34.8	43.9	55.3
Totals						
Level 4+						
2001 only	16173	229	205	70	49	42
2011 only	14693	347	393	138	86	56
Both (2001)	133424	1991	1114	332	184	220
Both (2011)	134182	2037	1132	339	187	228
Service class						
2001 only	14578	189	147	60	36	32
2011 only	13541	324	321	113	77	51
Both (2001)	124944	1677	826	246	155	176
Both (2011)	128379	1934	972	279	170	219

Note: Both (2001) and Both (2011) refer the percentage of people who have level 4+ or a service position for the specified year and who are present in census points 2001 and 2011.

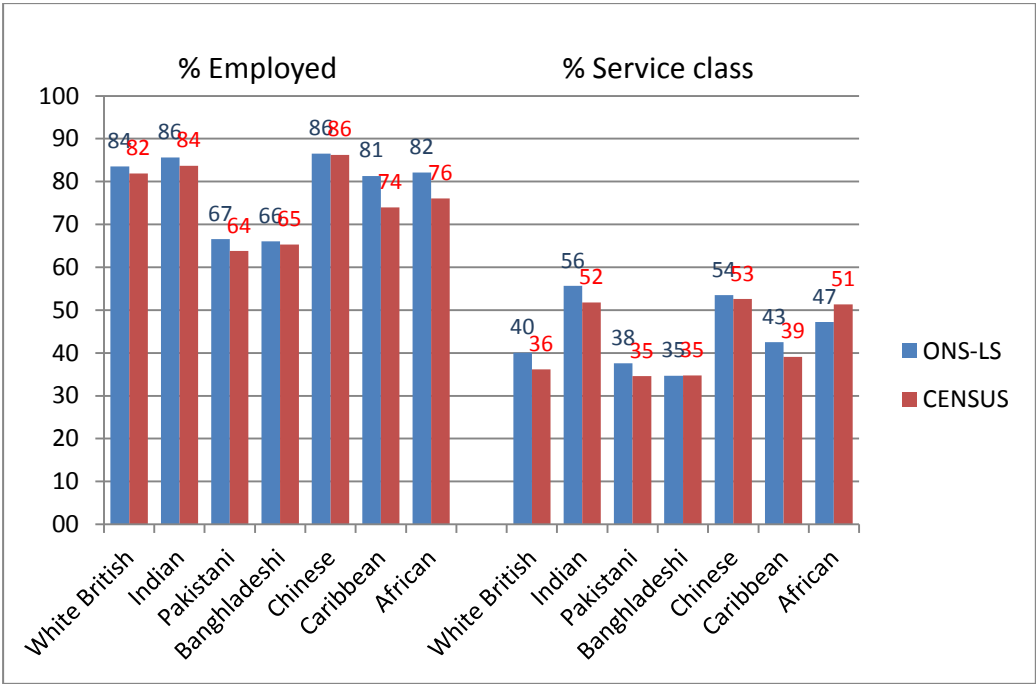
Source: Author's own calculations based on ONS-LS

If we compare the educational level of individuals who are present both in 2001 and 2011 with those who are present in either 2001 or 2011, a first pattern to note in Table 2.7 is that the former are more educated and are more often in the service class than the latter, which speaks of a positive selection. But for the purposes of Chapter 6, the most interesting outcomes arise as we compare ethnic minorities with the white British. In fact, Table 2.7 shows that for most groups the positive selection is even stronger; this gives them some advantage over the white British. Given the results from Chapter 6, where I found a penalty in the probability of moving to whiter

areas for ethnic minorities, the values from Table 2.7 suggest that this penalty might actually be higher, given that I am leaving outside the less-educated/lower-status minorities.

Finally, as additional information connected to sampling, is interesting to see to what extent the distributions of cases in ONS-LS follows the distribution of the ‘real population’. Figure 2.3 compares the levels of employment (vs. unemployed and some inactive groups) and of service class positions (vs. other occupations, present or past) for each ethnic minority group in 2011 using two sources of information: the ONS-LS and the census table obtained from the Office for National Statistics, which refers to the entire population of England and Wales. In practice, I am comparing the outcomes observed in Table 3.4 from Chapter 3 (but pooling genders) with the outcomes for UK born individuals observed in Figures 1.10 and 1.11 from Chapter 1. Note that the main difference between the two populations is that in the case of the census data I am not considering foreign-born individuals who arrived at a young age in the UK (i.e. the so-called generation 1.5). Figure 2.3 shows that the distribution of employment and service positions for the various groups in the ONS-LS tends to follow the distribution observed in the census; however, in most of cases, there seems to be a positive selection of individuals in the ONS-LS.

Figure 2.3: Employment and access to the service class by ethnic group: census data and ONS-LS compared (%) (2011).



Source: Author’s own calculations based on ONS-LS and aggregated census data

2.2 Part 2: Variables

2.2.1 List of variables

Table 2.8 shows the list of variables used in the analyses. These are divided between individual-level variables, household-level variables, neighbourhood-level variables and other variables. Moreover they are classified according to whether they are measured in *origin* (1971, 1981 and 1991), *destination* (2001 and 2011) or in both; and according to whether they are independent or explanatory variables (IV), dependent or outcomes variables (DV), or if they have both roles (this only applies to Chapter 6: here the same variable acts as IV if measured in *origin* and as DV if measured in *destination*).

Table 2.8: Variables

	Origin	Destination	Chapters		
			3	5	6
Individual-level					
Ethnic group		X	IV	IV	IV
Education		X	IV	IV	IV
Employment		X	DV	DV	
Social class		X	DV	DV	IV
Partner's ethnicity		X		IV	IV
Age		X	IV	IV	IV
Gender		X	IV	IV	IV
Household-level					
Parental social class	X		IV	IV	IV
Tenure	X		IV	IV	IV
Number of cars	X		IV	IV	IV
Number of persons per room	X		IV	IV	IV
Neighbourhood-level					
Co-ethnic concentration quintile	X			IV	
Non-white concentration quintile	X	X			IV/ DV
Deprivation quintile	X	X	IV	IV	IV/ DV
Other variables					
Origin year	X		IV	IV	IV
Destination year		X	IV	IV	IV
Number of census points		X	IV	IV	IV

2.2.2 Individual-level variables

2.2.2.1 *Ethnic group and second generation*

The analyses contained in Chapters 3, 5 and 6 are made for six ethnic minorities: **Indian, Pakistani, Bangladeshi, Caribbean, African** and **Chinese** (the latter group only for Chapter 3); moreover, Chapters 3 and 6 also include the **white British**. The construction of the groups is based on two variables: ethnic self-identification and country of birth of the parent(s).

Ethnic self-identification is measured in 2011 and, when missing, self-identification in 2001 is used. In 2011 the question is formulated as follows: “What is your ethnic group?” The options are: White (English/Welsh/Scottish/Northern Irish/British; Irish; Gypsy or Irish traveller; other White); Mixed/multiple ethnic groups (White and Black Caribbean; White and Black African; White and Asian; any other Mixed/multiple ethnic background, open question); Asian/Asian British (Indian, Pakistani, Bangladeshi, Chinese; any other Asian background, open question); Black/African/Caribbean/Black British (African; Caribbean; any other Black/African/Caribbean background, open question); Other ethnic group (Arab; any other ethnic group). Note that the ‘Gypsy or Irish traveller’ and ‘Arab’ categories were not separately specified in the 2001 Census form. The parental country of birth is measured in *origin*, that is, when individuals are between 0 and 15 years old. I differentiate between individuals with both parents born in the UK (one parent, in the case of single-parent households) and those with both parents born abroad (one parent, in the case of single-parent households).

In this study, white British are those who identify themselves as white British/English/Scottish/North Irish and have both parents (or one parent, in case of individuals raised in single-parent origin households) born in the UK. Ethnic minorities, on the other hand, are those who identify themselves as belonging to each of the main ethnic groups and have one (in case of single-parent origin households) or two parents born abroad. Individuals in mixed households, that is, individuals in households where one parent is born abroad and the other in the UK are therefore excluded from the analysis. White British with foreign-born parents (or a foreign-born parent in case of single-parent households) and ethnic minorities with UK-born parents (or a foreign-born parent in case of single-parent households) are also excluded. Finally, note as well that individuals who consider themselves as ‘half white’ in terms of ethnic identity are not part of this study either. These decisions aim at having a ‘cleaner’ version

of ‘white British’ and ‘second generation migrants’. In particular, my sample of ethnic minorities includes individuals who define themselves as belonging solely to a single ethnic group and who have parents who immigrated to the UK (note that among single-parent households we cannot know this for sure, since the country of birth of the missing parent is not available¹⁴). Table 2.9 shows the distribution of ethnic groups in origin households with different characteristics.

Table 2.9: Individuals in various origin households by ethnic group; initial sample (column %)

	White British	Indian	Pakistani	Bangladeshi	Caribbean	African	Chinese
Both UK-born	81.3	1.3	2.4	1.6	2.1	1.4	1.3
Both foreign	1.1	89.8	86.4	87.0	59.3	62.6	88.8
Both mixed	5.2	3.6	3.1	1.5	2.5	3.7	4.2
Single UK-born	11.8	0.4	0.6	0.8	11.8	5.0	0.0
Single foreign	0.5	4.9	7.4	9.1	24.3	27.4	5.7
<i>Total</i>	<i>511563</i>	<i>8843</i>	<i>5555</i>	<i>1718</i>	<i>4576</i>	<i>956</i>	<i>1043</i>

Source: Author’s own calculations based on ONS-LS

Table 2.9, based on the *initial sample* of Chapters 3 & 5, shows that most individuals were raised in households where both parents are present: in the case of the white British, these are two UK-born parents; in the case of ethnic minorities, these are two foreign-born parents. These proportions, however, are much smaller for black populations: in fact, more than 30% of black Caribbean and Africans were raised in single-parent households (mostly foreign). As a robustness check, I have explored for each chapter whether including a dummy for single-parent households changed the results of the main analytical models: it did not. Moreover, and under the assumption that having been raised in a single-parent household might affect ethnic minorities and white British differently, I have also estimated interaction effects between ethnicity and single-parent households in the study of employment (tables available upon request). Again, I did not find substantive differences between groups. This topic is not further explored in the thesis; although I am aware that it would certainly deserve more attention in future research.

Only for those who had information on both parents, I have also explored some basic socio-economic characteristics of those who belong to mixed and non-mixed households, in order to determine if those raised in non-mixed households are different from those raised in mixed ones. In particular, it could be argued that ethnic minorities with non-mixed parents are negatively

¹⁴ Notice, however, that most individuals that declare themselves as ‘half white’ have at least one UK-born parent.

selected (because the parents have decided to marry or cohabit with another foreigner, usually a co-ethnic), while white British with non-mixed parents are positively selected (because the parents have decided to marry or cohabit with another UK-born). Table 2.10 shows the percentage of individuals who have low class parents (Manual + No earners/no code) and individuals who have reached the service class according to whether they have mixed parents or not.

Table 2.10: Parental social class and access to the service class for mixed/non-mixed parents; initial sample (column %)

	White British	Indian	Pakistani & Bangladeshi	Caribbean & African	Chinese
Low parental class					
Non-mixed	42.6	56.1	76.7	59.7	34.7
Mixed	36.4	42.4	55.8	32.4	22.7
Service class					
Non-mixed	37.8	51.2	34.7	41.4	51.8
Mixed	45.0	42.2	23.6	38.5	43.5
Totals					
Low parental class					
Non-mixed	476499	8374	6862	4686	982
Mixed	26765	321	199	148	44
Service class					
Non-mixed	400521	6190	4432	3833	677
Mixed	22649	154	55	78	23

Note: The non-mixed category here includes all categories that are not mixed, but excludes (as it is excluded in the thesis) white British with foreign-born parents (or one, in case of single-parent households) and ethnic minorities with both (single) UK born parents (perhaps it would have been useful to include Caribbean and African in 'Single UK' households in the 'Mixed' category, but it is not possible at this point).

Source: Author's own calculations based on ONS-LS

The results show that having mixed parents benefits ethnic minorities in terms of the parental social class, which is higher on average; interestingly, the white British also benefit from this. However, as we look at the results on the social class of individuals, we observe that while the white British with mixed parents are doing better than those with non-mixed parents, among ethnic minorities the opposite occurs: they are in the service class in a higher proportion if they have non-mixed parents. If we compare ethnic minorities with the white British, we can see that although having non-mixed parents puts them in a worst relative position in terms of parental social class, they are in a much better position with regard to the acquired social class. This

evidence suggests that the negative selection of ethnic minorities only occurs at the parental level, but not at the individual level (note however that the number of cases is very small for individuals with mixed parenthood).

Following the same arguments, leaving outside individuals who consider themselves as ‘half white’ might also imply that I am leaving outside a positively selected sample of individuals who either consider themselves as ‘half white or half British’ or who have a white (British) parent, with the benefits this might incur (this is the case mostly of ‘white Caribbean’). All these differences based on the ethnicity of the individuals, the parental country of birth and whether only one or both parents are present in the origin household, are issues that have not been delved into in this thesis, but which for sure would deserve more detailed analyses. I shall just say that the results presented in the coming chapters represent how the *majority* of individuals and groups is doing.

Finally, another important clarification needs to be made. We saw in the previous section that this study covers individuals that were between 0 and 15 years old in any of the three origin years, and that lived with at least one parent at the time of measurement. This means that we could have two types of individuals: those who were born in the UK, and those who arrived at age 15 or earlier. While, in the case of ethnic minorities, the former can be strictly called second generation, the second has been referred to as generation 1.5. Note that in the chapters, I refer to both of them as “second generation.” Table 2.11 shows the distribution of the groups depending on whether they were born in the UK or abroad, by origin year.

Table 2.11: Individuals born in the UK, by ethnic group and origin year (%)

	White British	Indian	Pakistani	Bangladeshi	Caribbean	African	Chinese
1971	98.8	61.1	64.1	54.1	89	91.8	74.7
1981	98.7	81.6	72.3	42.2	97.6	84.7	77.6
1991	98.8	95.2	83.8	51.9	97.4	64.2	79.9
Totals							
1971	132123	1130	474	37	1260	184	79
1981	165321	3205	1976	443	1484	229	379
1991	100622	2665	1946	836	805	299	369

Source: Author’s own calculations based on ONS-LS

Table 2.11 shows that most of individuals in the sample are born in the UK; however, important differences remain, based on the origin year and on the ethnic group. In particular, Bangladeshis, who are among the most recent immigrants in the UK, have high proportions of individuals born abroad (around half of them). Moreover, Asian groups measured in 1971 are less likely to be born in the UK.

Although the models control for origin year, they do not control for whether individuals were born abroad or not. Why might this be relevant? Thinking of ethnic minorities, a main difference between those born in the UK and those born abroad is that the former entered the educational system from the beginning, while the latter may have, but did not necessarily do so: therefore, not only is it possible that their school socializations varied (those who arrived at later ages might not even have a schooling experience in the UK at all), but this might make a difference for employers, who might be unable to recognize a foreign title (even if this is a primary/lower secondary school title). Given the figures in Table 2.11, we might think that Bangladeshis are the most affected by this. In order to explore this issue, I have tested in the main analytical models whether including a dummy for individuals born in the UK made a difference in the results: it did not. Moreover, I have also estimated key models for UK born individuals only: although I found differences in the models with respect to those present in the thesis, the main results do not change substantively (tables available upon request). This does not necessarily mean that those born in the UK are doing exactly the same as those born abroad: from a theoretical point of view, we could expect that the former are doing better. However, differences might not be as big; or perhaps we would need more cases in order to make a proper test (which might be particularly relevant for Pakistani and Bangladeshi populations). This remains to be explored in the future.

2.2.2.2 *Education*

The level of education of individuals is measured with the following scale:

- No academic or professional qualifications
- Other qualifications/level unknown (other qualifications – e.g. City and Guilds etc.; other professional qualifications)
- Level 1: CSEs (grades 2-5), GCSEs (grades D-G), 1-4 CSEs (grade 1), 1-4 GCSEs (grades A-C), 1-4 O levels, NVQ level 1, Foundation GNVQ
- Level 2: 5+O levels, 5+CSEs (grade1), 5+GCSEs (grades A-C) etc, 1 A level, 1-3 AS levels, NVQ level 2, Intermediate GNVQ

- Level 3: 2+ A levels, 4+ AS levels, Higher School Certificate, NVQ level 3, Advanced GNVQ
- Level 4+: First degree, Higher degree, NVQ levels 4-5, HNC, HND. Qualified Teacher status, Qualified Medical Doctor, Qualified Dentist, Qualified Nurse, Midwife, Health Visitor

In this classification, Level 1 refers to individuals that have reached primary education or lower levels of secondary education; levels 2-3 represent intermediate levels of secondary education; and level 4+ represents higher education. In all chapters, individuals with “no” and “other” classifications are pooled together; moreover, in Chapters 3 and 4, which have less number of cases, I pool together these two with those who have Level 1 education, and also merge Levels 2 and 3.

2.2.2.3 *Employment*

Employment is measured as the percentage of people who are currently employed with respect to unemployed and (some) inactive groups: individuals doing housework, long term disabled and other inactive. The reason for including inactive groups in the comparison category is that they might be speaking of additional disadvantages, like being discouraged in the search of employment or being constrained in the possibilities of working.

Table 2.12 shows the distribution of various active/inactive positions by ethnic group. In particular, it shows that Pakistani and Bangladeshi men are more likely than the white British to be in other inactive groups, and Pakistani and Bangladeshi women are much more likely to be doing housework or being permanently sick. Note also that ethnic minorities are generally more likely to be students as compared to the white British, which is a product of the younger age composition of these groups. However, students are excluded from the analyses present in Chapters 3, 5 and 6 (by default, they are part of Chapter 4, based on aggregated census data).

Table 2.12: Economic activity by ethnic group; initial sample

	White British	Indian	Pakistani	Bangladeshi	Chinese	Caribbean	African
Men							
Employed	84.8	78.5	67.9	69.4	79.2	72.8	65.7
Unemployed	5.1	6.1	10.1	10.8	4.2	11.0	9.1
Retired	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Student	3.7	10.5	11.2	12.4	16.6	6.2	18.8
Housework	0.9	0.5	2.0	1.6	0.0	1.6	0.0
Perm. sick	3.5	1.9	3.1	2.1	0.0	3.3	3.2
Other	1.9	2.6	5.7	3.7	0.0	5.1	3.2
Total	193516	3539	2110	621	380	1578	309
Women							
Employed	73.6	71.3	45.7	43.8	73.1	71.0	68.3
Unemployed	3.4	4.2	6.2	9.0	2.8	7.3	8.2
Retired	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Student	4.6	11.1	10.5	8.4	12.5	7.4	12.4
Housework	12.8	8.9	25.8	27.1	7.0	8.2	4.2
Perm. sick	3.3	2.1	4.5	3.5	2.3	2.8	2.5
Other	2.3	2.5	7.2	8.2	2.3	3.4	4.5
Total	204116	3444	2268	691	431	1962	404

Source: Author's own calculations based on ONS-LS

2.2.2.4 *Social class*

The social class of individuals is measured with the National Statistics Socio-Economic Classification (NS-SEC). This classification is based on the Erikson and Goldthorpe class schema ([Erikson and Goldthorpe 1992](#)) and was constructed to measure the employment relations and conditions of occupations. Although occupationally based, the NS-SEC seeks to identify typical 'employment relations'. Among employees, there are quite diverse employment relations: they differ in terms of income, economic security and prospects of economic advancement (labour market situation), and also in terms of location in systems of authority and control at work (work situation).

Within the NS-SEC, there are three main forms of employment relations. In the service relationship, "the employee renders service to the employer in return for compensation, which can be both immediate rewards (for example, salary) and long-term or prospective benefits (for

example, assurances of security and career opportunities). The service relationship typifies Class 1 and is present in a weaker form in Class 2”([Office for National Statistics 2010: pp. 3](#)). In the labour contract, “the employee gives discrete amounts of labour in return for a wage calculated on the amount of work done or time worked. The labour contract is typical in Class 7 and, in weaker forms, in Classes 5 and 6” (ibid). Finally, the intermediate form “combines aspects from both the service relationship and labour contract, and are typical in Class 3” (ibid).

Table 2.13: The NS-SEC and applications to Chapters 3, 5 and 6

	NSSEC	Chapters 3 & 5	Chapter 5	Chapter 6
1	Higher managerial, administrative and professional occupations, including large employers	Service class	Avoidance of lowest occupations	Service class
2	Lower managerial, administrative and professional occupations			
3	Intermediate occupations	(Comparison category)	(Comparison category)	Intermediate
4	Small employers (<25 employees) and own account workers			Petit bourgeoisie
5	Lower supervisory and technical occupations		Manual	
6	Semi-routine occupations			
7	Routine occupations			
8	Never worked and long-term unemployed	(Excluded)	(Excluded)	(Excluded)
-	Full-time students (active or inactive)	(Excluded)	(Excluded)	(Excluded)

Table 2.13 shows the NS-SEC categories and how I have collapsed them. In Chapters 3 and 5, the NS-SEC is one of the dependent variables studied, while in Chapter 6 it is a mediating or independent variable. As a dependent variable, the categories are collapsed to study the “access to the Service class”, which has been used in many studies on ethnic penalties and social mobility in the UK ([Cheung and Heath 2007b](#); [Heath and Li 2010](#); [Platt 2007](#)). The reference categories are all individuals with a valid NSSEC outside categories 1 and 2. These are: intermediate occupations, the petit bourgeoisie and the so-called manual occupations (which however may involve supervisory tasks). Moreover, Chapter 5 also studies ‘avoidance of lowest occupations’: given the strong link between the presence of ethnic minorities in a neighbourhood and the low social class of individuals, I also test to what extent living in areas with more co-ethnics prevents (or not) individuals from having in semi-routine and routine class outcomes (the lowest occupations in the social class scale), even after controlling for other background characteristics.

In Chapter 6, finally, all categories of NS-SEC are explored, but emphasis is put on the difference that makes having a Service class vs. a Manual class.

The NS-SEC is available for those who are currently employed or had a job in the past (and are currently inactive or short-term unemployed): I have considered both measurements as a way to determine the social status of a person, even if he/she is not working at the time. Note that in this classification, long-term unemployed individuals, that is, unemployed who had their last job more than one year ago are a separate category and, therefore, are not assigned an occupation within the NS-SEC: I have excluded them from the analysis of social class. Although this might bring some bias, since ethnic minorities are more likely to be found in this category, I have done robustness checks by assigning long-term unemployed a crude occupation – based on the classification of occupations SOC 2000 and 2010¹⁵ – and the results did not change substantially. I reached similar results by doing the same checks for full-time students who had done a job in the past or declared to work while studying (analyses available upon request).

2.2.2.5 Other individual-level variables

Other individual-level variables are gender (male/female) and age. Note that given the presence of age mismatches, priority was given to the age declared in 2011 and then to the one declared in 2001. I have used this age to create all above-mentioned age filters.

2.2.3 Household-level variables

2.2.3.1 Parental social class

The parental social class is available through a 7-category class schema whose members broadly share similar market and work situations, and which is based upon the 36 categories of the Hope-Goldthorpe scale ([Goldthorpe and Hope 1974](#))¹⁶. The class schema was devised for men, but is widely used for both men and women. The categories are shown in Table 2.14; here it is also possible to see how the reduced version (used in all Chapters) is created.

¹⁵ Refer to: <http://www.ons.gov.uk/ons/guide-method/classifications/archived-standard-classifications/standard-occupational-classification-2000/about-soc-2000/index.html> and <http://www.ons.gov.uk/ons/guide-method/classifications/current-standard-classifications/soc2010/index.html>.

¹⁶ This is the only social class measure available and harmonized for the three origin years (1971, 1981 and 1991).

The parental social class takes the maximum between fathers and mothers (or the value of the father/mother in case of single-parent households). The order of categories used to take this maximum follows that of Table 2.14, with the exception that Class IV and Class II are swapped (I have prioritized the self-employed background, popular among ethnic minorities). Note also that if the parental social class was missing, I considered that of grandparents/aunts/uncles, if present in the household. Finally, to complete missing cases, I have added information on whether there were earners in the household. Interestingly, those with no code very strongly resemble those raised in households with no earnings, so I have pooled them together in the reduced version of parental social class.

Table 2.14: Parental social class

Full version		Reduced version
Class I	Higher grade professionals, self-employed or salaried; higher grade administrators and officials in central and local government and in public and private enterprises; managers in large industrial establishments; and large proprietors.	Professional/managerial
Class II	Lower grade professionals and higher grade technicians; lower grade administrators and officials; managers in small business and industrial establishments and in services; and supervisors of non-manual employees.	
Class III	Routine non-manual (largely clerical) employees in administration and commerce; sales personnel; and other rank and file employees in services.	Routine non-manual
Class IV	Small proprietors, including farmers and small-holders; self-employed artisans; and all other 'own account' workers apart from professionals.	Bourgeoisie
Class V	Lower grade technicians whose work is to some extent of a manual character, foremen and some skilled manual.	Manual
Class VI	Skilled manual wage-workers in all branches of industry.	
Class VII	All manual wage-workers in industry in semi and unskilled grades; and agricultural workers.	
-	No earners in household	No earners/no code
-	No code	

Source: Class schema (and reduced version) based upon the 36 categories of the Hope-Goldthorpe scale (1974)

2.2.3.2 *Other household-level variables in origin*

Other household variables measured in *origin* are tenure, number of cars and number of persons per room, which have the following categories:

- Tenure: owner, social rent and private rent
- Number of cars: 0, 1 and 2+
- Number of persons per room (ppp): over 1.5 ppp; 1.5 ppp; over 1 but less than 1.5 ppp; over 0.75 but less than 1 ppp; 0.75 ppp; over 0.5 but less than 0.75 ppp; and 0.5 ppp

These variables are introduced with the aim of having a better picture of the socio-economic conditions of origin. Note that in the case of the number of cars, I have transformed the continuous variable into a categorical variable with three categories; moreover, I have used a reduced version of the number of persons per room for Chapters 5 and 6, given the low number of cases for some categories (refer to the chapters for a detail on this).

2.2.3.3 *Partner's ethnicity*

Chapters 5 and 6 include the partner's ethnicity in the analysis. This information is obtained in destination, by attaching household information to the individual (note that this is also a self-defined ethnicity, but here I do not replace the ethnicity of 2001 with that of 2011).

Two types of measures are used. In Chapter 5 the analysis is only done for ethnic minorities and I have used a measure that differentiates between having (or not) a co-ethnic partner. A co-ethnic partner is a partner that has exactly the same ethnicity as the respondent: i.e. Indian, Pakistani, Bangladeshi, Caribbean or African. In Chapter 6 I was more interested in estimating the effect of having a white British partner. Therefore, I have differentiated between having a white British partner, a non-white partner or other. A 'non-white partner' is a partner that has declared to be Asian/Asian British, Black/African/Caribbean/Black British or other non-white (including Arab in 2011). The category 'other' includes those who self-declare to be white (but not British) and those who have mixed/multiple ethnicity. The two variables with their categories are therefore the following. For Chapter 5: no partner, co-ethnic and other (includes white and non-white); for Chapter 6: no partner, white British, non-white and other (includes other white and mixed/multiple ethnicity)

2.2.4 Neighbourhood-level variables

Neighbourhood-level variables classify neighbourhoods for each individual in each census point in terms of deprivation and number of ethnic minorities. The variables were constructed by means of linking aggregated census data obtained at the Ward level to individuals in the ONS Longitudinal Study in each of the census-census points. Specifically:

- i. Using aggregated census data, census Wards were first classified according to: their level of deprivation; the number of non-white ethnic minorities; and the number of each ethnic minority group in them (only for five minority groups: Indian, Pakistani, Bangladeshi, Caribbean and African). This led to 7 aggregated census variables (note that due to a limitation imposed by the Office for National Statistics, only quintiles were created).
- ii. In the second place, this information was attached to individuals (job carried out by the Office for National Statistics). This means that each unit of analysis in the ONS-LS has been allocated in each census point: a (population weighted) deprivation quintile, a (population weighted) non-white concentration quintile and a (population weighted (co-) ethnic concentration quintile.

In what follows, I describe how neighbourhood data on ethnicity and deprivation was created, before its linkage to ONS-LS data: the focus is then on point i), although we will see that for the co-ethnic concentration variable, both information on aggregated census data and ONS-LS data was needed.

2.2.4.1 *What are Wards? Main characteristics and population*

The Ward is the key building block of UK administrative geography, being the geographical unit used to elect local government councillors in metropolitan and non-metropolitan districts, unitary authorities and the London boroughs in England and unitary authorities in Wales. Wards can be very varied in terms of the population they contain and their size. In general, the smallest and most populous ones are in metropolitan areas, where the majority of ethnic minorities are found; while in the countryside, where people are more dispersed, Wards tend to be bigger and less populated. Wards are also subject to change over time. In fact, the fundamental principle of ward/division organization is electoral equality, meaning that within a higher administrative area,

each elector's vote bears a similar weight. As population sizes in Wards should be approximately equal within a certain higher administrative area, and because people are constantly moving, so the boundaries need frequent review and alteration. In some years several hundred electoral wards or divisions are affected, and in the extreme case of 2002 no fewer than 1,549 got changed ([Office for National Statistics; from http://www.ons.gov.uk/ons/guide-method/geography/beginner-s-guide/administrative/our-changing-geography/boundary-changes/index.html](http://www.ons.gov.uk/ons/guide-method/geography/beginner-s-guide/administrative/our-changing-geography/boundary-changes/index.html)).

Table 2.15 shows, for each census point and for all and non-white (NW) population respectively, three sets of information: the total population and the total number of Wards in which they are found (set 1), the characteristics of Wards in terms of the size of their populations (set 2) and the distribution of populations across Wards (set 3). In set 2 we see the average population in Wards, the minimum and maximum population in Wards and percentiles 50, 75 and 90, which should be read as follows: “up to 50/75/90% of Wards have a population of X individuals or less”. The third set of descriptives (set 3) shows three percentiles that should be read as follows: up to 50/75/90% of Wards contain X% of the population; moreover, the number of individuals living in the most populated Wards (these are those above percentile 90: for example, in 1991, Wards that have a population of 10789 or more) are shown.

There are various elements worth noting in Table 2.15. First of all, the number of Wards has changed dramatically between 1971 and the rest of the census-census points: from 1981 onwards Wards have reduced to almost half, moving from 16063 in 1971 to around 8570 in 2011. With the reduction of Wards, the average population in each of them has, as expected, increased. However, the maximum number of total individuals in each Ward has not: on the contrary, even though Wards are very unequal in terms of the population they contain, they have tended to become slightly more equal after 1971. Moreover, note that the maximum number of non-white population per Ward has increased over time, approaching the maximum number observed for the total population. This is a first indication of the weight of non-white population in England and Wales. Other important information contained in Table 2.15 is that non-whites are concentrated in a smaller number of Wards as compared to the entire population (mainly in metropolitan areas, as shown in Chapter 2). Moreover, they are also more likely to be found in the most populated Wards.

Table 2.15: Characteristics of Census Wards

	1971			1981			1991			2001			2011		
	All	NW	All	NW	All	NW	All	NW	All	NW	All	NW	All	NW	
Set 1															
Population	47496022	1086366	48521382	1473659	49890476	2952022	52041636	3859855	56075912	6642117					
# Wards	16063	11914	9300	9222	9509	9340	8850	8610	8570	8563					
Set 2: population in Wards															
Average	2957	68	5217	158	5247	310	5880	436	6543	775					
Min.	1	0	1	0	77	0	106	0	136	0					
Max.	40719	10238	41875	8683	31617	18856	35102	25398	36412	27950					
Percentile 50	876	4	4108	32	4247	37	4821	48	5251	104					
Percentile 75	4216	24	6796	94	6955	144	7688	194	8726	443					
Percentile 90	8796	107	11032	327	10789	721	11890	1026	13196	2085					
Set 3: distribution of population															
Percentile 50	5.1%	3.5%	21.2%	6.8%	22.5%	2.9%	24.5%	2.6%	24.8%	3.1%					
Percentile 75	23.8%	12.7%	46.9%	16.2%	48.8%	9.3%	50.1%	8.7%	50.1%	10.7%					
Percentile 90	55.3%	25.0%	71.9%	31.3%	73.4%	25.2%	75.0%	24.1%	75.1%	30.7%					
Pop. in most populated Wards	21254850 (45%)	737704 (68%)	13660399 (28%)	594185 (40%)	13258812 (27%)	1278567 (43%)	13025249 (25%)	1917118 (50%)	13981709 (25%)	3628410 (55%)					

Source: Author's own calculations based on aggregated Census data for England and Wales (from <http://casweb.mimas.ac.uk> and www.neighbourhood.statistics.gov.uk).

An important note is that no lookups are available to make the translation from the ‘Ward geography’ of a certain year to the ‘Ward geography’ of another year. This means that the neighbourhood information attached to individuals at each census point is based on different census geographies. As a consequence, if an individual belongs to a neighbourhood with the worst deprivation level (Quintile 5) in 1991 and then moves to a Quintile 3 in 2001, we cannot really disentangle if this change is the product of: a residential movement, an improvement of the Ward itself, or a change in the limits of the Ward. This is a limitation of the data, which however has only a small impact in terms of my research questions.

2.2.4.2 Non-white and (co-)ethnic concentration quintiles

In order to create the non-white and ethnic concentration quintiles I used the best available measure of ethnicity for each census point: in 1971 and 1981 this is the country of birth; from 1991 onwards, this is the ethnic self-identification. Unfortunately, the question on ethnic identity is not present in the first two census-census points, although it is likely that an important part of ethnic minorities in these years are born abroad (therefore being either first or 1.5 generations, that is, young children that emigrated with their parents). The information used to create these quintiles was obtained at: <http://casweb.mimas.ac.uk/> (for 1971, 1981 and 1991) and <http://www.neighbourhood.statistics.gov.uk/> (for 2001 and 2011).

Table 2.16 shows the variables I used to create the non-white and ethnic concentration quintiles in each census point. Note that for the creation of “co-ethnic concentration quintiles” I have attached the neighbourhood variable to the (self-declared) ethnicity of individuals in the ONS LS: Indian, Pakistani, Bangladeshi, Caribbean and African (it was not possible to have a co-ethnic concentration measure for Chinese). Two comments on this: first of all, in 1971 it is not possible to exclude East Africa, from where many Indians come from. This means, on the one hand, that in 1971 I only capture neighbourhoods where Indians live with others that come from India, but not from East Africa; and, on the other, that African neighbourhoods (attached to self-identified African) might have some Indians as well. Secondly, in 1971 Bangladesh was still not an independent state, but was part of Pakistan. Therefore, Bangladeshi neighbourhoods in 1971 are neighbourhoods where people come from Pakistan (which are then attached to self-identified Bangladeshi). Note, in any case, that Bangladeshis in 1971 are very few.

Table 2.16: Non-white and (co-)ethnic concentration: variables and categories used in each census point

Neighbourhood	Country of birth		Ethnic self-identification*		
	1971	1981	1991	2001	2011
Non-white	All countries in New Commonwealth	All countries in New Commonwealth + Pakistan	Indian + Pakistani + Bangladeshi + Caribbean + African + Chinese + Asian other + Black other + Other ethnic group	Indian + Pakistani + Bangladeshi + Caribbean + African + Chinese + Asian other + Black other + Other ethnic group	Indian + Pakistani + Bangladeshi + Caribbean + African + Chinese + Arab + Asian other + Black other + Other ethnic group
Indian	India	India	Indian	Indian	Indian
Pakistani	Pakistan	Pakistan	Pakistani	Pakistani	Pakistani
Bangladeshi	Pakistan	Bangladesh	Bangladeshi	Bangladeshi	Bangladeshi
Caribbean	America	Caribbean	Caribbean	Caribbean	Caribbean
African	Africa	Africa other	African	African	African

Notes:

New Commonwealth (1971): India, Pakistan, Ceylon, Africa (Ghana, Kenya, Malawi, Nigeria, Rhodesia, Sierra Leone, Tanzania, Uganda, Zambia and other African Commonwealth, including Ascension Island, Botswana, British Indian Ocean Territories, Gambia, Lesotho, Mauritius, Seychelles, St Helena, Swaziland and Tristan da Cunha), America (Barbados, Guyana, Jamaica, Trinidad and Tobago and other and unspecified countries in America, including Bahamas Islands, Barbuda, Bermuda, British Honduras, Cayman Islands, Falkland Islands, Leeward Islands, Redonda, Turks and Caicos Islands, Windward Islands and West Indies), Far East (Hong Kong, Malaysia, Singapore and other countries in Asia and Oceania) and other (Cyprus, Gibraltar, Malta and Gozo and other).

New Commonwealth (1981): India, Bangladesh, Africa East (Kenya, Malawi, Tanzania, Uganda and Zambia), Africa rest (Botswana, Lesotho and Swaziland, Zimbabwe, Gambia, Ghana, Nigeria and Sierra Leone), Caribbean (Barbados, Jamaica, Trinidad and Tobago, West Indies Associated States, West Indies (so stated)), Far East (Hong Kong, Malaysia, Singapore), Mediterranean (Cyprus, Gibraltar and Malta and Gozo) and other (Sri Lanka, Mauritius, Seychelles and other).

* The definition of ethnicity is the same as the one used for individuals in the main file of the ONS LS. For a detail on how this question is formulated refer to the section above: "Ethnic group and second generation".

Both non-white and ethnic concentration quintiles are population-weighted. In simple terms, this means that for each census point, each ethnic group – defined either in terms of country of birth or ethnic self-identification – is divided into five equal parts in terms of their population: Quintile 1 refers then to areas where the 20% less concentrated live, while Quintile 5 refers to the 20% of the members of the same group that live in areas with the highest concentration of that group. Note that although the quintile is quite an imprecise measure, which does not allow exploring, for example, threshold effects, it has the advantage of being a relative measure, particularly useful if one is pooling years and if Wards limits change over time.

The steps to create the quintiles are the same for all census-census points and are the following:

- a) For each group, I calculate their percentage in each Ward (as a percentage of the total population in each Ward) and then sort these percentages from low to high. Example: for 1981 I calculate the percentage of individuals born in India in each Ward and then I sort these percentages from low to high.
- b) For each group, I calculate the proportion in each Ward as a proportion of the entire population of that group in England and Wales. Example: for 1981 I divide the number of Indian in a certain Ward by the total number of Indian in England and Wales, and I do this for all Wards.
- c) Finally, I divide the distribution in b), which is sorted according to a), into 5 equal parts: the first 20% (Quintile 1) comprise areas with lowest concentration of the group; the last 20% compose the areas with the highest concentration. Following the example, Quintile 5 for Indian contains the 20% of Indian that live in the most concentrated Indian neighbourhoods in 1981.

In order to have an idea of how quintiles look like, Table 2.17 shows the average share of ethnic minorities in each quintile for each census point. Note that the year 1971, for which not only Wards are much more but also some variables are less precise, looks quite in line with the rest of the census-census points. Notice also that, as would be expected from the increase in population, Quintile 5 means different things in different census-census points. But most importantly, it also means different things for different groups. Specifically, the average share of ethnic minorities in Wards in Quintile 5 is much higher for Asian than for the Black population (we will see in Chapter 4 that this is connected with higher segregation). This implies that when studying neighbourhood effects, the probability of contact among co-ethnics in Quintile 5 is more likely to

happen for Indian, Pakistani and Bangladeshi than for Caribbean and African (although I will go back to this issue in Chapter 5, I shall recall here that this might explain, at least in part, why no effect is found for the black population; unfortunately, I was not able to attach more detailed neighbourhood characteristics to the ONS-LS).

Table 2.17: Average share of ethnic minorities (non-white and individuals groups) in non-white and ethnic quintiles respectively, by census points

	Non-white	Indian	Pakistani	Bangladeshi	Caribbean	African
1971						
Quintile 1	0.46	0.10	0.03		0.06	0.04
Quintile 2	2.73	0.76	0.83		1.82	0.45
Quintile 3	7.26	1.89	2.28		3.98	1.05
Quintile 4	12.94	4.55	5.07		6.56	2.05
Quintile 5	23.46	13.07	14.14		11.99	4.24
1981						
Quintile 1	0.81	0.20	0.06	0.01	0.10	0.15
Quintile 2	3.37	0.90	1.22	0.32	1.54	0.70
Quintile 3	9.38	2.62	3.50	0.93	3.62	1.93
Quintile 4	16.34	6.37	7.31	2.71	6.28	3.86
Quintile 5	28.21	15.73	14.09	14.54	10.71	8.60
1991						
Quintile 1	1.15	0.28	0.12	0.05	0.15	0.07
Quintile 2	10.25	3.31	3.79	1.16	2.85	1.51
Quintile 3	22.00	9.00	9.42	3.60	6.12	3.41
Quintile 4	35.14	19.49	17.68	10.87	10.24	5.49
Quintile 5	55.04	40.54	34.67	34.02	16.83	9.23
2001						
Quintile 1	1.46	0.36	0.20	0.08	0.17	0.15
Quintile 2	13.23	3.36	4.30	1.58	2.73	3.02
Quintile 3	26.87	8.73	11.53	5.09	5.87	6.44
Quintile 4	41.81	19.35	21.85	15.32	10.08	10.67
Quintile 5	63.75	39.57	42.90	42.04	15.76	18.29
2011						
Quintile 1	2.59	0.52	0.30	0.14	0.19	0.33
Quintile 2	18.15	3.51	5.49	1.69	2.17	3.26
Quintile 3	33.02	8.04	13.27	5.56	4.44	6.24
Quintile 4	49.39	17.84	24.79	12.91	7.60	10.61
Quintile 5	71.45	38.83	49.30	34.01	12.46	18.45

Source: Author's own calculations based on aggregated Census data for England and Wales (from <http://casweb.mimas.ac.uk> and www.neighbourhood.statistics.gov.uk).

2.2.4.3 Deprivation quintiles

Neighbourhood deprivation is measured with the Carstairs scale. Initially developed by [Carstairs and Morris \(1991\)](#) for the 1981 Census in Scotland, “the scores are described as a measure which reflects those material resources which provide access to ‘those goods and services, resources and amenities and of a physical environment which are customary in society’” ([McLoone 2004, pp.1](#)). The Carstairs index was calculated later on for England and Wales, and also has been used widely in previous studies, including some based the ONS Longitudinal Study. The Carstairs scores (and their transformation into quintiles) used in this thesis have been created and made available by Prof. Paul Norman ([Boyle, Norman and Rees 2004](#); [Norman 2010](#); [Norman and Boyle 2014](#); [Norman, Boyle and Rees 2005](#); [Norman and Riva 2012](#)).

The Carstairs score is a summarizing measure based on four variables: proportion of male unemployment, proportion of overcrowded households, proportion of households with no car/van and proportion of individuals with low social class, which are constructed in the following way:

- Proportion of male unemployment: Unemployed male 16-74 / Active males 16-74
- Proportion of overcrowded households: (Households Over 1 and up to 1.5 persons per room + Households over 1.5 persons per room) / All households
- Proportion of no car/van ownership: No car or vans in household / All households
- Proportion of low social class: (Lower technical + Semi-routine + Routine occupations) / All persons

As with measures of non-white and (co-)ethnic concentration, Carstairs quintiles are also population-weighted: the total population is divided in five equal parts: Quintile 1 covers the least deprived areas where 20% of the total population resides; Quintile 5 contains the most deprived areas where one fifth of the population lives.

It is important to recall that deprivation could have different meanings in different years: for example, while having no car in 1971 was probably not such a strong indicator of deprivation, it is probably more so in 2011, when cars are considered much more available. However, the main aim of this variable is to classify individuals in a relative way within each year. Even if deprivation scores vary across years, the measure is still valid for acknowledging the relative position of

individuals in each census point: note that this is achieved through the creation of population-weighted quintiles. The same argument can be made with respect to the other neighbourhood variables, subject to change due to the increase in the number of ethnic minorities over time.

Table 2.18: Average Carstairs scores and average percentages of each variable in quintiles, by census points

	Score	% Male unemployed	% Overcrowded	% No car/van	% Low class
1971					
Quintile 1	-2.19	1.80	0.49	7.44	9.34
Quintile 2	-0.73	2.73	0.98	11.07	12.74
Quintile 3	0.19	3.40	1.25	13.74	14.53
Quintile 4	1.28	4.19	1.64	16.92	16.29
Quintile 5	3.93	6.25	2.79	24.16	19.22
1981					
Quintile 1	-3.33	5.11	1.39	18.69	10.76
Quintile 2	-1.55	6.99	2.01	25.56	17.82
Quintile 3	0.19	9.54	2.61	34.16	22.40
Quintile 4	2.55	13.26	3.68	45.57	27.06
Quintile 5	6.88	20.70	6.55	58.59	35.45
1991					
Quintile 1	-3.32	4.81	2.38	7.90	8.93
Quintile 2	-1.53	6.80	4.03	12.96	15.43
Quintile 3	0.19	9.29	5.62	19.97	19.47
Quintile 4	2.56	13.20	8.07	29.75	23.82
Quintile 5	6.93	21.32	14.38	44.88	29.19
2001					
Quintile 1	-3.19	1.98	0.57	10.07	19.33
Quintile 2	-1.52	2.75	0.89	16.33	24.11
Quintile 3	0.22	3.72	1.21	23.71	28.63
Quintile 4	2.51	5.20	1.77	32.32	35.21
Quintile 5	6.74	8.01	3.98	45.60	42.91
2011					
Quintile 1	-3.16	2.59	1.23	9.08	17.14
Quintile 2	-1.39	3.59	1.94	15.40	23.05
Quintile 3	0.42	4.73	2.84	22.14	28.02
Quintile 4	2.70	6.40	4.40	30.41	32.58
Quintile 5	6.29	8.98	9.50	43.42	33.97

Source: Author's own calculations based on aggregated Census data for England and Wales (provided by Prof. Paul Norman)

Table 2.18 shows the average Carstairs scores and the average percentages of each constituting variable for each quintile and census point. We can see that except for 1971, average Carstairs scores for each quintile tend to be quite stable across census-census points (in 1971 scores are smaller). However, the composition of quintiles based on the average percentage of these variables in Wards is quite varied, and there seem to be no very clear-cut patterns. For example, while in 1981 and 1991 areas in Quintile 5 had an average of 20% male unemployed, in 2001 and 2011 this drops to around 8%. Similar description can be made on the other variables; however, no clear patterns emerge.

2.2.5 Other variables

Finally, all models control for ‘other’ variables, which are: origin and destination years and number of census points in which the individual participated. A description of these was shown earlier in this chapter.

Important notes:

Some cell counts, percentages and totals shown in the tables created with ONS-LS data have been modified in order to comply with publication rules established by the Office for National Statistics. These modifications, however, do not affect the main findings derived from the regression models.

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This work contains statistical data from ONS, which is Crown Copyright. The use of the ONS statistical data in this work does not imply the endorsement of the ONS in relation to the interpretation or analysis of the statistical data. This work uses research datasets, which may not exactly reproduce National Statistics aggregates.

3 CHAPTER 3: ‘Ethnic Penalty’ or ‘Social Origins Penalty’?

3.1 Introduction

It is well-known that social origins influence the educational and labour market outcomes of individuals. This is reflected in the fact that individuals with higher social origins typically have higher educational and occupational attainments than individuals with lower social origins. This concern, central in the literature on social stratification, has been less highlighted in the migration literature. In fact, while the origin of individuals in terms of parental education and occupation has increasingly been incorporated in studies of ethnic inequalities in education (see also [Brinbaum and Cebolla-Boado 2007](#); [Dustmann 2008](#); [Dustmann, Frattini and Lanzara 2012](#); [Heath, Rothon and Kilpi 2008](#); [Kalter, Granato and Kristen 2007](#); [Kristen and Granato 2007](#); [Silberman, Alba and Fournier 2007](#); [Van De Werfhorst and Van Tubergen 2007](#); [Wood et al. 2009](#)) its treatment has been much more limited in the study of labour market outcomes. Moreover, little has been said about the role of other social origin variables – at the household and neighbourhood levels¹⁷ – that might impact on labour market outcomes.

The migration literature has defined ‘ethnic penalties’ in labour market outcomes as any remaining difference between ethnic minorities and the majoritarian population after education (and in some cases, other background characteristics such as marital status and length of stay in the country) have been taken into account ([Heath and Cheung 2007](#)). Ethnic penalties can mean different things, for example, that ethnic minorities do not have enough information on jobs, or that they lack the necessary networks to best-match their qualifications to occupations, or that there is discrimination in the labour market. But more strictly speaking, the term ‘ethnic penalty’ implies that there is something about being an ethnic minority that explains differences with respect to the majoritarian population. This chapter argues that before defining a difference as an

¹⁷ Note that in the introduction (Chapter 1) I did not include the neighbourhood variables in the ‘social origins’ definition. The reason why I do it here is twofold. First, because the focus of this chapter is not on the origin neighbourhood but on family social background, and that is what the title points at; second, because the neighbourhood variable used here (neighbourhood deprivation) might still be seen as a ‘social origins’ variable. In the other analytical chapters, the characteristics of the neighbourhood in which individuals live are the main factors of interest, and this is emphasised accordingly.

ethnic penalty, we have to consider as well other background characteristics – especially social origin factors – that may influence the observed labour market outcomes.

Most studies on ethnic penalties in the labour market have used education as the crucial explanatory variable (i.e. [Algan et al. 2010](#); [Cheung and Heath 2007b](#); [Crul and Vermeulen 2003](#); [Heath and Li 2010](#)). In fact, one could argue that education is the main predictor of labour market outcomes, and that most parental (and other social origins) effects on these occur through the positioning of individuals in the educational system (i.e. in an *indirect* way). However, it is also well-known that parents exert a *direct* effect on their children's outcomes, in particular on occupation, for example by helping them to search for employment or providing them with contacts ([Blau and Duncan 1967](#); [Breen 2004](#); [Breen and Jonsson 2005](#); [Bukodi and Goldthorpe 2011](#); [Goldthorpe 2000](#); [Kuha and Goldthorpe 2010](#)). And the same argument can be made of other variables like neighbourhood deprivation or household socio-economic level, as having an influence on labour market outcomes.

This remaining effect has been assumed to work equally for the majoritarian population and ethnic minorities in most studies on labour market outcomes of second generations in Europe. In other words, studies on ethnic penalties implicitly make two assumptions: first, that social origins are equal for ethnic minorities and the majoritarian population; and second, that its effect is equal for both groups. However, these assumptions are not realistic. Ethnic minorities differ from the majoritarian population in terms of their parental backgrounds – usually, these are of a lower status – and also in terms of the contexts in which they are raised – usually, more deprived. That is to say, in the presence of very different first generation social starting points in a country that is highly stratified (as is the UK), we would not necessarily expect all groups to end up in the same place, even after controlling for education ([Platt 2007](#)). As well, the migration literature has provided evidence of patterns of behaviour among ethnic minorities that make the classical mechanisms of social reproduction (see [Boudon 1973](#); [Goldthorpe 2000](#)) less applicable to them, suggesting therefore the presence of ethnically-specific social reproduction mechanisms. Thinking in terms of the classical status attainment model ([Blau and Duncan 1967](#); see [Figure 3.1 below](#)), these ethnically-specific mechanisms might lead ethnic minorities to get different returns to education and to experience differently the effect of the parental social background (and/or other social origins), as compared the majoritarian population.

Previous studies on ethnic penalties in the UK ([Cheung and Heath 2007b](#); [Heath and Li 2010](#)) have shown that the fortunes of second generation ethnic minorities in the labour market are very much varied, and are dependent as well on the outcomes we consider. While results are generally quite pessimistic with respect to the chances of being employed, they are more diverse when the quality of the occupation is considered. In particular, emphasis has been put on Pakistani and Bangladeshi populations, as those who experience the highest penalties in the labour market. Alongside this literature, a smaller body of research ([Heath and McMahon 2005](#); [Heath and Ridge 1983](#); [Platt 2005a](#); [Platt 2005b](#); [Platt 2007](#); [Zuccotti 2014](#)) has attempted to amplify the understanding of some of the second generation's outcomes in the labour market, by evaluating the contribution of parental background. These studies found that some ethnic minority groups tend to be more socially mobile than the white British, with their achievements depending more on education and less on social origins. However, in the context of a non-meritocratic society such as the UK, social mobility and less dependence on social origins can be detrimental for ethnic minority groups given that they might not be able to gain from higher-status parental backgrounds, thus generating an ethnic penalty (this is the case, for example, for Caribbean and Pakistani men).

Building upon this literature, this chapter analyses the role that education and social origins play in the study of penalties (or gains) that ethnic minorities experience in the labour market of England and Wales. Specific research questions are:

1. Do social origins help explain ethnic penalties in labour market outcomes?
2. Do social reproduction patterns vary by ethnic group?
 - Do ethnic minorities get different returns to education?
 - Does the direct effect of the parental social class on labour market outcomes vary by ethnic group?
 - And hence: do ethnic penalties depend on the level of education and parental social class?

There are several ways in which this chapter advances our previous knowledge. First, it adds a fresh view on the relationship between ethnic penalties and social reproduction processes by combining approaches from the social stratification and migration literatures. In so doing, it challenges the traditional measurement of ethnic penalties in labour market outcomes. Second, it updates and discusses previous findings on ethnic inequalities with more recent and rich data: general trends are delineated for 2001 and 2011 thanks to the recent availability of the ONS

Longitudinal Study. Third, this study sheds light on groups of which less is known, like Pakistani, Bangladeshi (many times studied together), African and Chinese. The ONS Longitudinal Study – by constituting 1% sample of the the population of England and Wales – is, to my knowledge, among the best datasets in the UK to study social mobility of ethnic minorities, and has been used before for the same purposes. Fourth, this chapter explores access to employment and access to a certain social class separately, diverging then from previous studies on social mobility of ethnic minorities that studied both outcomes together. Finally, the study shows results separately for men and women, revealing gender differences worth considering.

3.2 Previous studies in the UK

In the UK, the children of immigrants – considered here as second generation ethnic minorities¹⁸ – have followed different patterns with respect to their incorporation into the labour market. A main finding is that, like their parents, they are less likely to be employed when compared to the white British. This result has been found for groups with relatively higher resources such as Indians and Caribbeans, and groups with lower ones, such as Pakistanis and Bangladeshis ([Cheung and Heath 2007b](#)).

The study of occupational attainment (which, for the purposes of this chapter, I will use interchangeably with social class) shows that the two most advantaged groups are the Indian and African, which have higher chances of accessing service class positions; that is, managerial and professional occupations ([Cheung and Heath 2007b](#); [Heath and Li 2010](#)). All other characteristics being equal, Indian men are more likely to be in service class positions as compared to the white British, and women have improved their chances of this over time, performing on the level of the white British. This group is quite unique in showing this pattern, and some explanations have pointed to the positive effect of ‘ethnic capital’ at the group and also at the individual level, promoted by selected residential proximity ([Platt 2007](#)). Africans (both men and women) also tend to have higher probabilities of accessing service class occupations than the white British. Regarding equality of characteristics; however, it has also been found that among the most educated (which covers a high percentage of Africans) this has not been the case, due to lower returns to education (although an improvement over time is observed).

¹⁸ Note that this study also includes the so-called generation 1.5, that is, those who were born abroad but arrived at a young age

The other groups presented more gender differences in the same studies ([Cheung and Heath 2007b](#); [Heath and Li 2010](#)), with men being typically disadvantaged. Among the Caribbean population, and on equality of characteristics, women usually have a better chance of being in the service class than the white British, which might point to self-selectivity into the labour market; men, on the other hand, have usually been disadvantaged, although with improvements over time. Pakistani and Bangladeshi persons, finally, usually studied together, are among the most disadvantaged groups next to Caribbean men; women in these studies, however, present an advantage with respect to the white British, but in a context of a very low employment rate, and probably a high selectivity into the labour market. Some studies that have looked at these groups separately (although not by gender), have found them equally disadvantaged in their probabilities of accessing service class occupations ([Platt 2005b](#); [Platt 2007](#)), accompanied by a high degree of clustering in low qualified occupations ([Platt, Longhi and Nicoletti 2012](#)).

These findings, however, are quite limited in the analysis of ‘unequal chances’ in the labour market, given that the parental social class has hardly been a part of the story. As argued before, the inclusion of parental background in the analysis and, in particular, assuming that social reproduction processes might vary between ethnic groups, might not only help explain differences between minorities and the majoritarian population, but also might lead to finding divergent ethnic penalties – or gains – depending on the parental social class of individuals.

In the UK, various authors have considered the perspective of social mobility ([Heath and McMahon 2005](#); [Heath and Ridge 1983](#); [Platt 2005a](#); [Platt 2005b](#); [Platt 2007](#); [Zuccotti 2014](#)). Among the most relevant ones we find those of Platt, who used the same data as the one used in this chapter, the ONS Longitudinal Study, which has the highest number of cases to study this topic. The author shows that given similar social backgrounds, Indian, Caribbean, Black African and Chinese persons are more likely to be found in the service class (i.e. more likely to be in professional and managerial occupations than in other occupations or unemployment), as compared to the white British. This advantage, however, disappears once education is considered, which reveals that the gains in education mediate the parental effect on occupation for these groups. In other words, ethnic minorities are more mobile compared to the white British, who depend more on their parental backgrounds for achieving higher educational levels. Another finding that emerged from these studies is that while Indians are also able to capitalize on higher parental social class, for Caribbeans a higher origin does not bring any advantage (Platt calls this a “within-group meritocracy” in the non-meritocratic British context), creating a penalty

among those with higher social backgrounds. Pakistanis and Bangladeshis, on the other hand, not only are less upwardly mobile than would be expected from their high concentration in lower-origin backgrounds, but also once education is controlled for, being born in a family of intermediate- or working-class origins confers less advantage, as compared to white British. Furthermore, this penalization is also higher at lower educational levels.

Platt's findings, however, were based on an outcome variable that merged access to the labour market and the attainment of certain occupational levels, which might be misleading since penalties tend to be concentrated in access to employment, rather than in access to occupations ([Cheung and Heath 2007b](#)). Moreover these findings are based on households, for which there is no differentiation made between genders. My own previous research on the topic, based on the United Kingdom Household Longitudinal Study (UKHLS: 2009-2010), has advanced on some of these issues. Although the UKHLS has fewer cases, I found (in line with Platt) that the lower social reproduction of Pakistanis, Caribbeans and Africans (based on a linear measure of occupation, the International of Socio-Economic Index, ISEI) has particularly negative consequences for higher educated minorities, who do not gain – as the white British do – from more advantageous origins. These mechanisms, however, apply only to men, but not to women; and are actually not found for Bangladeshi populations (only Bangladeshi women show a disadvantage when the access to the service class is studied, but not when studying the ISEI).

The fortunes of ethnic minorities are very varied, and are dependent as well on the outcomes we consider. While results are generally quite pessimistic with respect to access to jobs – since most ethnic minorities are less likely to be employed as compared to white British – they are more diverse when access to occupations is considered. On one side, we find Indians with quite a good performance and ability to transfer advantaged backgrounds; on the other, we find Pakistani and Caribbean (in particular men), who are particularly disadvantage among those with relatively higher-level backgrounds.

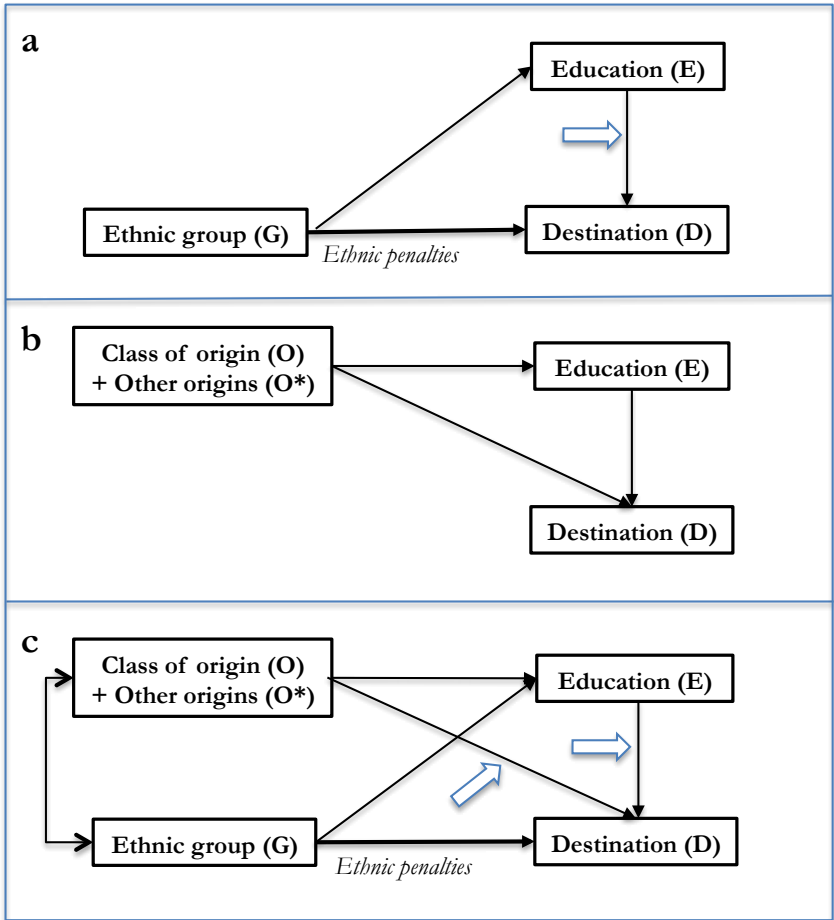
Based on the ONS Longitudinal Study, the analysis below studies both access to the labour market and access to occupations (or social class). Keeping these two outcomes separate is important since gaining employment and getting a particular type of occupation might not be necessarily regulated by the same processes. In particular, parental background probably exerts a stronger effect on the second process. Moreover, I study men and women separately. The gender division is also relevant since the labour market integration of men and women is different across

groups: for example, Pakistani and Bangladeshi women are much more likely to be outside the labour market, and this is a gender-group specificity that should be considered. In a way, this study builds on my previous research and arguments, but with richer data and with partly different outcomes.

3.3 Theoretical background and hypotheses

Figure 3.1 shows three models of analysis. The starting point of this theoretical discussion is Figure 3.1a. This reflects the classical model of analysis of ethnic penalties in the labour market ([Cheung and Heath 2007a](#)), where education (E) is used as a main control variable in the estimation of occupations or other labour market outcomes – denoted here as destination (D) – among different ethnic minority groups (G). In this model, ethnic penalties are the (average) difference between ethnic minorities and white British after education has been taken into account. The content of this ethnic remaining effect can be very varied. Often, it has been attributed to discrimination in the labour market ([Heath and Cheung 2006](#); [Wrench and Modood 2000](#)); however, ethnic penalties can also mean that minorities do not have enough information on jobs, or that they lack the right networks, or that they have different values regarding the role of work that makes them relate differently to the labour market. Within the model of ethnic penalties, different returns to education have also been acknowledged (reflected in the blue arrow). That is, studies have also considered the fact that the ED effect might vary by ethnic group and that ethnic penalties might therefore vary according to the level of education of individuals.

Figure 3.1: Status attainment and ethnic penalties: three models



In what follows, I argue that the model in Figure 3.1a is incomplete, the reason being that a crucial factor is missing: social origins. Look at Figure 3.1b. This shows a reduced version of the classical Blau and Duncan model (1967) – and includes as well some extra controls used in this study. Blau and Duncan showed that the attainment of occupations – or intergenerational reproduction – occurs along two causal pathways: *direct* and *indirect* (see Figure 3.1b). An *indirect* effect occurs because higher-class families (O) more successfully position their children in higher education (E) than lower-class families, and education determines the occupational outcomes (D). A *direct* effect covers all intergenerational reproduction outside education. The contents of this effect may include both genetic and social aspects: for example, parents can influence their children by giving them job advice, helping them to look for a job or providing them with material economic resources; they can also transfer them ability and cognitive skills (not entirely captured by education), offer them social and relational aptitudes and supply them with a wide range of networks and connections. The amount and characteristics of this content vary between

social classes. For example, even if two individuals have achieved the same education, if one of them has parents that belong to the service class and – possibly – has higher economic resources, he/she might be able to attend particularly good universities with good employment connections; or might wait longer to find a more suitable job for his/her capacities; or he/she might be able to use his/her parents connections for better matching jobs, or jobs with a higher remuneration ([see also Bernardi 2012](#)). In addition, there is also a range of origin factors (O^*) that might have a separate impact on individual outcomes as well. I refer here to household and area characteristics – like the number of cars or deprivation of the neighbourhood – which provide evidence of the socioeconomic resources available to the individual. The measurement of these factors is rare in the literature on social mobility, with some important exceptions ([Platt 2005b](#); [Platt 2007](#)).

Look now at Figure 3.1c. This combines Figures 3.1a and 3.1b, and therefore includes the parental social class (and other origin resources) in the analysis of ethnic penalties ([see Kalter, Granato and Kristen 2007 for a similar discussion](#)). The consideration of social origins (in particular the parental social class, typically measured in terms of parental occupation) in the study of differences between second generation ethnic minorities and white British is important for two reasons. On the one hand, because most ethnic minorities and white British have, on average, different social origins: this compositional effect (expressed in the OG/ O^*G arrow), might affect the average ethnic penalty (when encountered). On the other, because the mechanisms of intergenerational social reproduction (for simplicity – and to follow the classical social mobility models – I refer only to the OED model, leaving aside the O^* factors) might vary between groups.

There are three ways in which the total relationship between parents and children can vary. First, this could be through a variation in the OE relationship, which refer to the social reproduction of education, and is of no concern in this study. Second, as stated before, this could be through a variation in the ED relationship, that is, through the existence of different returns to education. Finally, and this is the key aspect of this research, this could also be related to a variation in the OD relationship, that is, in the social reproduction that happens outside education. Differences both in the ED and OD relationships (expressed in the blue arrows) implicitly presuppose that ethnic penalties can vary according to the education and parental social class of individuals, or that opportunities are dependent both on their own education and on social origins. The following paragraphs analyse these statements more in detail. Moreover, four guiding hypotheses

are presented. A summary of these, as well of the mechanisms behind them and the link to the research questions stated in the introduction of this chapter can be seen in Table 3.1.

Table 3.1: Research questions, hypotheses and possible explanations

Research question	Hypotheses	Possible explanations
1	<i>Hypothesis 1: Compositional effect</i>	Ethnic minorities are more likely to have parents with low-status jobs and to be raised in more deprived contexts (both at the household and neighbourhood levels)
2	<i>Hypothesis 2: Social reproduction outside education:</i> <i>a:</i> Lower dependence on the parental social class among ethnic minorities; <i>b:</i> Higher dependence on the parental social class among ethnic minorities <i>Hypothesis 3: Lower returns to education</i>	Higher motivation among the lower classes and/or lack of “extra” parental resources among the higher classes (<i>2a</i>); cultural and community factors, external constraints (<i>2b</i>); discrimination at higher occupational levels (<i>3</i>)

The first hypothesis refers to the compositional effect. We observed in Figure 3.1b that social origins (expressed as the parental social class and other household and area factors) affect occupational outcomes on top of education. If ethnic minorities and white British have different compositions in terms of these variables, the amount of ethnic penalties found by previous research might be biased. Driving this argument is that second generation ethnic minorities tend to have parents – who also immigrated to the country – with lower social backgrounds. It is well-known that upon arrival, first-generation ethnic minorities do worse in the labour market than the majoritarian population ([Algan et al. 2010](#); [Kogan 2006](#); [Van Tubergen, Maas and Flap 2004](#)). In addition to possible underlying discrimination processes ([Allasino et al. 2004](#); [Wood et al. 2009](#)), this is mostly related to the incapacity of immigrants to transfer their own cultural capital – in particular education and language – to the destination society: in many cases, they end up doing jobs that do not correspond to their capacities. The fact that the parents of ethnic minorities are hence often overrepresented in poor quality jobs might have a direct impact on their children’s occupational outcomes and, therefore, might help to explain the disadvantages observed for some groups, like Pakistani, Bangladeshi or Caribbean ([see also Kalter, Granato and Kristen 2007](#)). Moreover, ethnic minorities also tend to live in poorer conditions in terms of housing, and in areas in which the deprivation levels are higher. This fact – related to processes of initial settlement of immigrants in areas where housing prices are lower – might affect their

possibilities of attaining better labour market outcomes as compared to the majoritarian population, helping therefore to complete this compositional effect. Summarizing, I expect that including the parental occupation and other social origins as control variables should help to reduce the ethnic penalties observed for some groups in previous studies ([Cheung and Heath 2007b](#); [Heath and Li 2010](#)) (*Hypothesis 1*).

The next three hypotheses refer to differences in terms of social reproduction, that is, to differences in how the OED model works for the various groups. Specifically, I expect that (at least part of) the mechanisms of social reproduction that apply to the general (white British) population do not apply to some groups, or work for them in different ways. The main concern of this study refers to social reproduction outside education, that is, to the direct effect of the parental social class on labour market outcomes. However, I also explore returns to education, for a more complete analysis.

With regard to social reproduction outside education, two contrasting hypotheses are tested. One states that (after controlling for education) ethnic minorities are less dependent on their parental social backgrounds as compared to the majoritarian population, i.e. the white British (*Hypothesis 2a*); the other states the opposite (*Hypothesis 2b*). Why could we expect a lower dependence of ethnic minorities on their parental social class? According to Goldthorpe (2000), one of the main driving forces behind the stability of the class structure – and the reason why, on average, the children of higher-class parents do better than the children of lower-class parents – is that the individuals' priority is to achieve the class of the parents or, more specifically, to avoid downward mobility (see also [Boudon 1973](#)). In this context, achieving upward social mobility is of secondary concern. However, this reasoning might not apply strictly to some ethnic minorities. It has been argued that immigrants who arrive to a country and decide to stay and – eventually – build a family there, will want to see their children rise in the new society, and will therefore invest in them ([Dustmann 2008](#)). Motivation and high aspirations of parents have been found to be a powerful source when explaining educational mobility among ethnic minorities ([Heath, Rothon and Kilpi 2008](#)). This might well be complemented with a direct motivation to find a good job and to progress in a career. In the case of minorities with lower-class backgrounds (which actually covers the majority), higher motivation might then mean lower dependence on parental backgrounds and possibly overperformance by the children of immigrants. Note that this process might be in part linked to the recovery of family occupational status in the origin country.

Among the higher classes, a lower dependence on the parental background might also occur, although is likely to be promoted by other types of mechanisms (and have, perhaps, negative consequences for ethnic minorities). Going back to Goldthorpe's (2000) suggestion that individuals seek to avoid downward mobility, among the higher classes this is achieved primarily through education. For example, a university degree is necessary if the aim is to continue with a certain family professional tradition. However, higher classes have also a repertoire of strategies on top of education that might influence the labour market outcomes of their children. Parents, for example, might pay for the best universities or have key connections in certain work industries; they might also transfer certain lifestyles and manners, and particular social skills that have a 'signalling' effect in the labour market. These factors – more relevant among those aspiring to jobs with higher qualifications – might play a crucial role when comparing the majoritarian population and ethnic minorities. Even if the parents of ethnic minorities have good jobs, they might lack all or some of these 'extra' properties that individuals from the majoritarian population have presumably gained by having been raised in the local culture (and knowing the social rules better). This, in turn, would presumably make these children more dependent on education, and less dependent on parental backgrounds, with possible negative consequences in terms of ethnic penalties among those with higher social backgrounds. In the words of Platt (2005a), finding a lower dependence on parental background might play against better-positioned minorities in a context in which the occupational status of the majoritarian population, i.e. the white British, depends strongly on that of the parents. Basically, it could mean that these minorities are unable to use class resources for achieving better positions.

Nonetheless, the migration literature has revealed other ethnic-specific mechanisms (especially for those with lower/middle parental backgrounds) that might push the relationship between parents and children in the opposite direction. Goldthorpe (2000) has argued that one reason that the lower social classes tend to reproduce their own social class is that this is considered less "risky" as compared to aiming at a university degree, which would possibly lead to a higher status occupation or social class. But in contexts of discrimination or where the labour market is more selective (or even in contexts of crisis, like the one studied here), ethnic minorities might be pushed to do jobs that are closer to their family tradition or more familiar to them, rather than seeking to rise through their careers. In other words, this rationale of following the parental social background due to its associated lower risk could become stronger among ethnic minorities in an unfavourable context (note that this argument stands in opposition to the 'motivational argument').

Other factors might also contribute to a stronger relationship between parents and children, like cultural factors and the community environment. In fact, even if minorities adapt to the cultural premises of the receiving society, this does not mean that their own cultural backgrounds – and those of their co-ethnics – have lost their effects ([Vermeulen and Perlmann 2000](#)). For example, south Asian communities tend to follow a ‘patriarchal model’ ([Peach 2005](#)) in which concepts such as control, family honour and status are crucial, and in which men are meant to be the main ‘providers’ of the family. Women, then, might be more disadvantaged with regard to access to jobs or more limited in the types of jobs that they can access ([Brah 1993](#); [Dale et al. 2002](#)), making them possibly more dependent on a certain family tradition. Strong relationships with co-ethnics might also lead ethnic minorities to relate more closely to jobs that are typically attached to their family or community. A similar argument can be made among those born in communities with a tradition of ethnic entrepreneurship or in which ethnic niches – that is specialization in certain occupations by a certain ethnic group – are the most common sources of jobs ([Portes 1998](#)). For example, a recent study has shown that Pakistani and Bangladeshi minorities had a higher self-employment rate increase between 1991 and 2001 ([Clark and Drinkwater 2010](#)) than the one that would have been expected given the changes in their demographic characteristics (mainly gains in education). This should probably be reflected in a stronger intergenerational transmission of resources for these groups than the one found in the majoritarian population (although we cannot really know if this is due to discrimination in the mainstream economy or to an election of these minorities). All these mechanisms will be reflected in a stronger intergenerational social reproduction among ethnic minorities, or a stronger OD effect (after controlling for education). This, in turn, will have an impact on the level of ethnic penalties, which will be higher or lower depending on whether or not the suggested higher dependence on the parental social background actually implies a “constraint” for ethnic minorities.

With regard to the value of education in the labour market, previous research has shown that being of Indian, Pakistani/Bangladeshi, Caribbean (for men) or Chinese (for women) ethnic minority status presupposes lower returns to education ([Heath and Li 2010](#)). Although it is not clear from this research how first- and second generation status contributes to this outcome, it can be argued that this is likely to be driven by the first generation, who in many cases cannot convert their foreign educational credentials into matching occupations. In this sense, this problem should not be an issue for the second generations, most of whom have obtained their education in the destination country. However, in the presence of a more discriminatory labour

market at higher occupational levels, this could be a plausible outcome for second generations as well. For the purposes of this study, I will hypothesize that some second generation groups might experience lower returns to education as compared to white British (*Hypothesis 3*), and that this could mean higher ethnic penalties among the more highly educated. In particular, I will explore the value of a degree level for ethnic minorities and white British.

3.4 Data and variables

The analysis is based on the ONS Longitudinal Study, which follows individuals in five time-points (1971-2011), and is done for second generation ethnic minorities (Indian, Pakistani, Bangladeshi, Chinese, Caribbean and African) and white British. Second generations are defined as those who lived with at least one parent between 0 and 15 years of age in any of the three so-called ‘origin’ years: 1971, 1981 or 1991; the definition of second generation includes, therefore, both individuals born in Britain and individuals born abroad, who arrived before age 16. These individuals are then followed in 2001 and 2011, where two outcomes are studied: employment (vs. unemployment and some inactive groups) and access to the service class, which comprises professional and managerial occupations (vs. other social classes/occupations). Note that the social class of individuals can be current or past.

The main independent variables – in addition to the ethnic group – can be divided between individual-level variables and household- and neighbourhood-level variables. Individual-level variables are measured in ‘destination’ (2001 and 2011) and are: age, gender and education. Household- and neighbourhood-level variables are measured in ‘origin’ (1971, 1981 and 1991), that is, when the individual is between 0 and 15 years of age in any of the three time points. They are: parental social class, tenure, number of cars, number of persons per room and neighbourhood deprivation. Other control variables are: origin year, destination year and number of census points in which the individual has participated.

The pooled sample includes individuals between 20 and 45 years old, and I only work with cases that have valid values in all variables, so as to have a common N. More details on the sample, variables and measurements can be found in Chapter 2.

3.5 Descriptive statistics

Table 3.2 shows descriptive statistics of the dependent variables – access to employment and access to the service class – separated by group, gender and also year, to give a general view of the trends in the decade.

Starting with second generation men, Table 3.2 shows that in 2001 Pakistani, Bangladeshi, Caribbean and, to a lesser extent, African men have lower employment levels as compared to white British men, while the other groups have rates more similar to that of the white British. In 2011 we observe an improvement for all groups, which leads to a considerable closing of the gap for Pakistani and Bangladeshi men, in particular. With regard to access to the service class, we observe a similar pattern as with employment for Pakistani, Bangladeshi and Caribbean persons, that is, an initial gap and subsequent improvement. Indian, Chinese and African, persons on the other hand, have higher shares in the service class than white British, a difference that intensified in 2011 only for the former two, while the opposite is observed for Africans.

Among women the story is quite different. First, only Pakistani and Bangladeshi women are very much disadvantaged with respect to access to employment (many of them are inactive), a result that has been maintained over time. In the decade, however, these two groups make important improvements in terms of accessing the labour market, which leads to a reduction in the gap; other groups, however, have seen their participation drop (Chinese and African). With regard to access to the service class, we observe that the Pakistani and the Bangladeshi are the only disadvantaged groups (the others have actually higher shares in the service class as compared to the British) and, again, both improve their situation in 2011.

Table 3.2: Employment and access to the service class by ethnic group, gender and year (%)

	White British	Indian	Pakistani	Bangladeshi	Chinese	Caribbean	African
<i>Men</i>							
<i>Employment</i>							
2001	88.6	85.8	71.3	73.0	91.2	76.0	80.0
2011	87.7	89.1	79.8	82.3	92.6	83.6	87.5
<i>Service class</i>							
2001	39.0	51.6	34.6	36.4	52.7	32.8	52.1
2011	40.9	56.9	37.8	37.0	58.5	40.7	45.1
<i>Women</i>							
<i>Employment</i>							
2001	74.8	77.9	45.1	40.2	90.4	74.9	80.6
2011	79.6	81.9	54.4	52.3	80.9	79.4	77.8
<i>Service class</i>							
2001	34.6	44.3	30.4	28.5	46.6	42.4	52.4
2011	39.3	54.3	37.3	32.4	48.8	44.0	48.9
<i>Totals employment</i>							
<i>Men 2001</i>	88621	1202	655	159	111	674	75
<i>Men 2011</i>	84748	1831	1132	367	202	611	152
<i>Women 2001</i>	92366	1216	716	184	135	846	134
<i>Women 2011</i>	88763	1737	1235	432	220	759	194
<i>Totals service class</i>							
<i>Men 2001</i>	86331	1169	596	151	110	637	73
<i>Men 2011</i>	81017	1757	1018	332	200	577	142
<i>Women 2001</i>	88984	1158	572	137	131	794	126
<i>Women 2011</i>	84582	1645	1023	352	211	713	180

Population: Individuals between 20 and 45 years old
Source: Author's own calculations based on ONS-LS

Ethnic penalties in the labour market, however, are not concerned with average levels, but with differences between ethnic minorities and white British that remain after controlling for key variables that predict labour market outcomes. In fact, the idea behind ethnic penalties is that there is something 'ethnically specific' that produces the gap. As argued before, education has been used as the main control variable, given that it is the most important predictor of labour market outcomes. This research, however, argues that other factors – the social origin of individuals, for instance – might also be at play. The distribution of groups across these social background characteristics is shown in Tables 3.3 (men) and 3.4 (women).

Tables 3.3 and 3.4 show that Asian ethnic minorities are on average younger than the white British, while the black population resembles them more. Ethnic minorities also tend to be more educated. In particular, this is observed among Indians, Chinese and African, who have very high shares in higher education (Level 4+). Looking at their origin characteristics, however, we observe that the proportion of ethnic minorities with parents in Professional/Managerial positions – which could be thought of as a good predictor of higher education – is usually lower. This suggests that ethnic minorities are educationally mobile with respect to parental backgrounds; that is, they are getting more education compared to what would have been expected given their relatively lower parental backgrounds. However, their gains in terms of occupation do not seem to correlate with these educational gains. Different explanations might apply. Discrimination in the labour market is the most straightforward one. However, this chapter argues that the parental social class – and other social origin variables – might have an impact as well. Note, for example, that ethnic minorities are overrepresented in the most deprived areas and, in general, tend to be disadvantaged in other household measures, like the number of cars and number of persons per room (with respect to tenure, only black populations and Bangladeshis are more likely to be in social rental housing, which probably indicates a “London” factor, given that these populations have the highest shares in this city)¹⁹.

¹⁹ One could ask: if these disadvantages at origin affect labour market outcomes, why they do not seem to be affecting education? One response is that discrimination mechanisms in schools might be less strong, for example because many schools have followed a ‘multicultural approach’ to teaching. The other is that the labour market is less meritocratic as compared to the educational system. Notice as well that the parental education – not measured here – is probably higher relative to the parental occupation and ethnic minorities are perhaps less educationally mobile with respect to education. Unfortunately, there is no good measure of parental education in this data.

Table 3.3: Descriptive statistics for men; 2001 and 2011 pooled (% and mean)

	British	Indian	Pakistani	Bangladeshi	Chinese	Caribbean	African
Age							
Mean age	33.5	32.3	31.7	30.0	31.7	35.6	32.1
Education							
None & other	18.3	9.3	18.0	16.2	7.3	17.1	8.8
Level 1	22.2	14.4	21.3	22.6	8.0	26.5	13.2
Level 2	21.0	13.5	17.2	16.5	13.1	22.1	23.3
Level 3	12.5	10.3	8.5	9.9	8.3	7.7	11.5
Level 4+	26.0	52.5	35.0	34.8	63.3	26.5	43.2
Parental social class							
No earners/No code	5.3	7.1	18.0	24.3	10.2	10.7	12.8
Manual (V+VI+VII)	38.6	52.1	60.1	50.8	23.3	52.7	35.7
Routine non-manual (III)	15.8	10.0	4.0	4.6	6.4	20.9	24.2
Petit Bourgeoisie (IV)	11.3	13.4	10.9	13.1	42.5	2.2	0.0
Professional/Managerial (I+II)	29.0	17.4	7.1	7.2	17.6	13.5	27.3
Cars							
No cars	24.7	32.8	44.8	64.3	30.7	58.9	55.1
1 car	54.3	52.3	47.3	31.4	53.0	35.6	38.3
2 cars	21.0	15.0	7.9	4.4	16.3	5.5	6.6
Tenure							
Owner	62.6	85.5	85.5	41.4	62.3	49.4	28.6
Social rent	28.2	7.1	7.9	42.8	22.7	40.2	48.9
Private rent	9.3	7.5	6.7	15.8	15.0	10.4	22.5
Persons per room							
> 1.5 persons	1.9	14.8	24.1	35.2	23.0	14.0	18.9
1.5 persons	1.0	4.9	6.4	8.2	5.8	5.9	6.6
>1 & <1.5 persons	9.3	22.6	29.7	29.7	18.2	26.2	26.4

	British	Indian	Pakistani	Bangladeshi	Chinese	Caribbean	African
1 person	18.9	21.2	18.9	12.7	18.8	23.0	18.5
>= 0.75 & <1 person	29.7	19.6	12.8	8.7	15.3	17.0	17.6
<0.75 person	39.3	16.9	8.1	5.5	18.8	13.9	11.9
Carstairs quintiles							
Q1 (less deprivation)	21.0	4.7	1.8	1.9	13.4	3.1	4.4
Q2	21.4	6.3	3.9	3.6	17.6	6.7	5.7
Q3	20.7	11.4	5.5	6.3	13.1	12.7	15.4
Q4	20.0	20.1	17.0	12.5	22.7	20.9	22.9
Q5 (more deprivation)	16.9	57.5	71.9	75.7	33.2	56.6	51.5
N	173369	3033	1787	526	313	1285	227

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

Table 3.4: Descriptive statistics for women; 2001 and 2011 pooled (% and mean)

	British	Indian	Pakistani	Bangladeshi	Chinese	Caribbean	African
Age							
Mean age	33.55	32.33	30.83	29.20	31.21	35.67	33.77
Education							
None & other	13.4	7.7	18.8	17.0	5.6	7.0	6.1
Level 1	21.9	14.2	18.6	21.6	9.6	23.0	8.2
Level 2	24.0	16.7	18.7	21.4	11.3	21.6	11.3
Level 3	13.2	11.7	12.9	12.0	9.3	12.0	4.6
Level 4+	27.6	49.8	31.1	27.9	64.2	36.4	69.8
Parental social class							
No earners/No code	5.9	5.8	15.0	31.8	11.5	12.8	18.0
Manual (V+VI+VII)	39.2	56.0	63.4	53.1	25.9	50.0	26.2
Routine non-manual (III)	15.7	10.1	2.9	1.6	5.1	21.0	28.4
Petit Bourgeoisie (IV)	11.0	12.9	12.2	9.7	43.7	2.1	3.0
Professional/Managerial (I+II)	28.1	15.2	6.5	3.7	13.8	14.1	24.4
Cars							
No cars	26.1	34.1	44.7	73.2	32.1	57.9	59.5
1 car	53.6	50.9	47.5	24.0	53.0	36.4	37.5
2 cars	20.3	15.0	7.8	2.8	14.9	5.7	3.0
Tenure							
Owner	60.8	84.9	85.4	40.4	58.9	50.0	35.7
Social rent	29.7	8.5	7.5	43.3	28.7	38.3	38.4
Private rent	9.5	6.5	7.0	16.2	12.4	11.7	25.9
Persons per room							
> 1.5 persons	2.0	16.6	24.8	38.1	20.6	15.5	20.4
1.5 persons	1.1	6.1	8.0	8.6	7.6	6.9	7.6
>1 & <1.5 persons	9.8	24.1	32.3	25.3	19.2	25.3	22.6

	British	Indian	Pakistani	Bangladeshi	Chinese	Caribbean	African
1 person	19.1	21.4	18.0	14.9	18.6	21.1	26.5
>= 0.75 & <1 person	29.5	18.0	10.3	9.1	24.2	16.5	12.8
<0.75 person	38.6	13.9	6.6	3.9	9.9	14.7	10.1
Carstairs quintiles							
Q1 (less deprivation)	20.7	5.6	1.6	1.6	11.8	3.1	3.7
Q2	21.0	7.1	3.4	2.6	14.1	6.7	8.2
Q3	20.5	9.8	5.8	6.5	17.2	12.8	20.7
Q4	20.1	17.5	18.0	10.2	21.4	24.0	25.6
Q5 (more deprivation)	17.7	60.1	71.1	79.1	35.5	53.4	41.8
N	181129	2953	1951	616	355	1605	328

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

In what follows, I study access to employment and the attainment of a service class through more sophisticated models, in which the roles of education and social origins are tested together. More specifically, I first study the extent of ethnic penalties in employment and occupation before and after accounting for education and social origins: this addresses Research question 1. Second, I study social reproduction processes with respect to occupation and explore whether the effect²⁰ of the parental occupation and education on the access to the service class varies across groups. This is achieved by adding interaction effects between parental social class and ethnic group and between education and ethnic group, and addresses Research question 2 (note that I also test for returns to education with respect to employment, but have preferred to leave it outside the arguments on social mobility, which are more strictly related to the attainment of occupations). Finally, the analysis also tests for year effects, to explore the extent to which changes have occurred between 2001 and 2011.

3.6 Access to employment

Tables 3.5 and 3.6 show the probability of being employed for men and women respectively and for the different ethnic groups. The coefficients are based on linear regressions with robust (clustered) standard errors and – when multiplied by 100 – refer to the difference in percentage points with respect to white British. All models control for: age, origin year, destination year and number of census points in which the individual participated. The distribution of individuals in the latter three variables can be found in the Table 8.1 in Annex A. Moreover, the full models, where the effect of all control variables is shown, can be found in Tables 8.2 (men) and 8.3 (women). Finally, as a robustness check given that I am working with dichotomous dependent variables, Table 8.7 shows the key models on employment presented here (Model 5 from Tables 3.5-3.6), but estimated with logistic regression with average marginal effects.

²⁰ Please note that the present study is of a largely descriptive nature and does not offer any counter-factual estimates on the causal effects of ethnic background or other key independent variables. The use of “causal” terminology in this thesis (“effect,” “consequences,” etc.) is purely for stylistic purposes, and connected to the aim of acknowledging theory. For example, every time I say that “there is effect of A on B” I will be referring to an association between A and B that is based on a theory that says that A has an impact on B (although, in technical terms, I will *not* be measuring this in terms of a *causal* mechanism).

Table 3.5: Access to employment. Men.

	M1	M2	M3	M4	M5	M6 ³	M7 ³
Ethnic group (ref. white British)							
Indian	0.006 (0.0077)	-0.023*** (0.0074)	0.022*** (0.0077)	-0.013* (0.0075)	0.008 (0.0077)	+	ns
Pakistani	-0.089*** (0.0127)	-0.090*** (0.0122)	-0.047*** (0.0126)	-0.067*** (0.0122)	-0.042*** (0.0124)	+	+
Bangladeshi	-0.045** (0.0205)	-0.047** (0.0194)	0.002 (0.0205)	-0.020 (0.0195)	0.028 (0.0195)	+	ns
Chinese	0.063*** (0.0175)	0.023 (0.0182)	0.066*** (0.0177)	0.026 (0.0181)	0.053*** (0.0181)	ns	-
Caribbean	-0.070*** (0.0142)	-0.077*** (0.0136)	-0.048*** (0.0142)	-0.065*** (0.0136)	-0.035** (0.0137)	+	ns
African	0.014 (0.0268)	-0.029 (0.0254)	0.023 (0.0267)	-0.018 (0.0254)	0.022 (0.0257)	+	+
Adjusted R2	0.013	0.089	0.035	0.095	0.102	0.103	0.072
N	180540	180540	180540	180540	180540	180540	180540
Base model ¹	X	X	X	X	X	X	X
Education		X		X	X	X	X
Parental social class			X	X	X	X	X
Other origins ²					X	X	X
Year*Ethnic group						X	X
Education*Ethnic group							X

1 Controls for: age, origin year, destination year and number of census points.

2 Includes tenure, number of persons per room, number of cars and deprivation quintile at the ward level

3 + means a positive interaction; - means a negative interaction; and ns means a non-significant interaction (p-value \geq .10). The effects refer to the year 2011 vs. 2001 (M6); and to educational Level 4+ vs. Level 1 or less (M7).

* p-value $<$.10 ** p-value $<$.05 *** p-value $<$.01. Robust (clustered) standard errors in parentheses

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

Model 1 or the 'base model' in Table 3.5, which only controls for the variables common to all models (age, origin and destination years and number of census points), shows that Pakistani, Bangladeshi and Caribbean men are less likely to be employed as compared to white British, the former being those with the highest disadvantage. Chinese, on the other hand, have an advantage as compared to the British, while Indians and Africans show no statistically significant differences. When education is included in the analysis (Model 2) – taking us to the classical models of ethnic penalties – we observe that Indians now experience a penalty and, for the Chinese, the initial advantage disappears. Model 3 removes education, and adds the parental

social class instead: given that most ethnic minorities have low social origins, the positive gaps (Indians and Chinese) or absence of penalties (Bangladeshis) is actually of no surprise. Models 4 and 5, finally, include education, parental social class and other social origins in the analysis. Here we observe that the penalty observed for Indians and Bangladeshis in Model 2 disappears, and the Chinese gain again an advantage over the white British in the probability of employment of around 5% points. The existence of a penalty for Pakistanis and Caribbeans, however, does not seem to be affected by the introduction of these variables. Nonetheless, it diminishes considerably for both groups (from 9% points difference to 4% for Pakistanis; and from 7% points difference to 3.5% for Caribbeans).

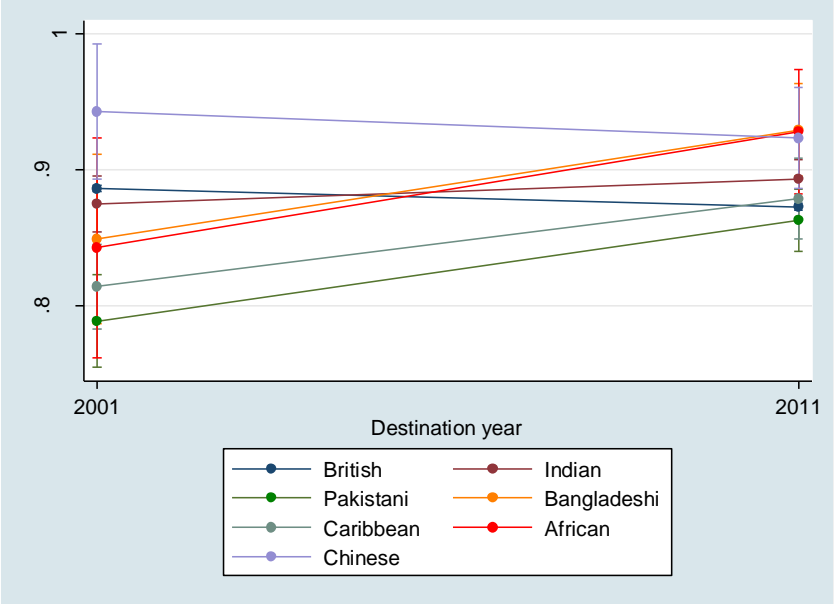
Next, I calculated the interaction effects between ethnic group and the year in which employment was measured (Model 6) and between ethnic group and education (Model 7). The sign of these effects for each ethnic minority (with respect to white British) can be seen in Table 3.5, but a more simple way to look at interactions is to plot them in graphs. Figure 3.2 shows the average changes in the penalties between 2001 and 2011 for all respondents (a) and for those with high (Level 4+) and low (Level 1 or less) levels of education (b). Note that in Figure 3.2b only groups that showed statistically significant interactions are plotted.

The results for all men or average results (Figure 3.2a) show that there was an improvement over the decade. Groups either gained an advantage over white British (Indian, Bangladeshi and African populations) or reduced their penalties to non-existent (Pakistani and Caribbean populations²¹). However, these results change for some groups once we add interaction effects with education. Figure 3.2b shows that although both less-educated and highly educated Pakistanis and Africans improved their situation in 2011, penalties for the least educated are much larger (approximately: between 10% and 20% points difference with respect to white British for Pakistanis; and between 15% and 30% points difference for Africans, although there are very few less-educated Africans). Actually, among those in higher education there is no penalty at all, and a positive gap appears in 2011. This figure also shows that less-educated Chinese mainly drive the advantage in employment observed in Model 5 of Table 3.5 (but note that there are very few less-educated Chinese).

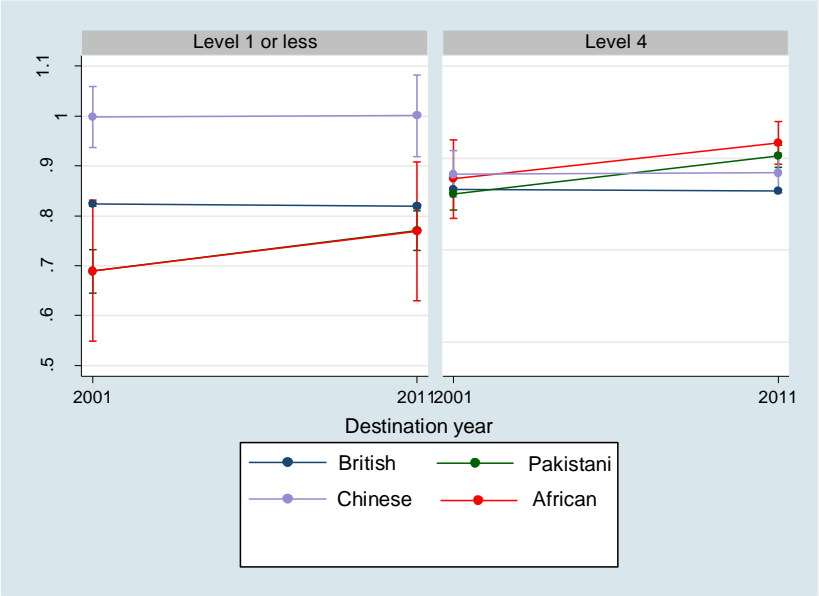
²¹ Recall from Figure 2.3 in Chapter 2 that there might be an effect of positive selection for Caribbean persons: note that the gap between ONS-LS and census data is bigger for this group compared to the white British.

Figure 3.2: Probability of being in employment in 2001 and 2011 (for all and separated by education); predicted values from the regression (confidence intervals 90%). Men.

a. All



b. By education



Note: Figures are based on Models 6 (a) and 7 (b) from Table 3.5. Figure 2b plots only statistically significant interaction effects (p-value<.10). Note that in Graph b the lines for African and Pakistani overlap among those with Level 1 or less education. Population: Individuals between 20 and 45 years old Source: Author’s own calculations based on ONS-LS

Table 3.6 shows the results in the access to employment for women. Model 1, or 'base model', shows that Pakistani and Bangladeshi women are less likely to be employed as compared to the white British. Note that these values are quite high, of around 25% points less probability, and are mainly driven by the high levels of inactivity of this group. Indian and Chinese persons, on the other hand, have an advantage as compared to the white British, and black groups show neither substantive nor statistically significant differences. After adding education into the analysis (Model 2) we observe that, except for Indians and Chinese, all groups now experience a penalty. As for men, Model 3 includes only the parental social class, and Models 4 and 5 add both education and social origin variables. We can see that the penalty observed for Caribbean and African persons in Model 2 disappears in Model 4, which includes the parental background. Note as well that in Model 5, the penalty diminishes for Pakistanis and in particular Bangladeshis: for the latter this goes from 25% (Model 2) to around 18% (Model 5) points difference.

As for men, I also calculated interaction effects with the year in which employment was measured (Model 6) and with education (Model 7), which can be observed in Figure 3.3. The average results for women (Figure 3.3a) show that there was an improvement for Pakistanis and Bangladeshis, while the probability of employment for the Chinese diminished (approaching the British mean). Figure 3.3b, which shows results separated by education (which are statistically significant), shows more interesting results. Penalties for less-educated Pakistani and Bangladeshi women are much bigger (around 25-30% points difference with respect to white British) compared to penalties for the highly educated (around 5-10% points difference). Actually, among Bangladeshi women this penalty practically disappears in 2011. The opposite occurs for Caribbean women, who seem to be advantaged at lower educational levels.

Table 3.6: Access to employment. Women.

	M1	M2	M3	M4	M5	M6 ³	M7 ³
Ethnic group (ref. white British)							
Indian	0.031*** (0.0101)	-0.012 (0.0097)	0.053*** (0.0101)	-0.005 (0.0097)	0.007 (0.0099)	ns	ns
Pakistani	-0.254*** (0.0154)	-0.233*** (0.0139)	-0.201*** (0.0153)	-0.215*** (0.0139)	-0.203*** (0.0142)	+	+
Bangladeshi	-0.268*** (0.0246)	-0.246*** (0.0220)	-0.191*** (0.0250)	-0.216*** (0.0223)	-0.182*** (0.0224)	+	+
Chinese	0.077*** (0.0274)	0.016 (0.0275)	0.088*** (0.0271)	0.024 (0.0271)	0.044 (0.0277)	-	ns
Caribbean	0.006 (0.0144)	-0.033** (0.0138)	0.036** (0.0144)	-0.020 (0.0138)	0.001 (0.0140)	ns	-
African	0.038 (0.0275)	-0.051* (0.0267)	0.051* (0.0272)	-0.036 (0.0265)	-0.008 (0.0268)	ns	ns
Adjusted R2	0.011	0.118	0.035	0.122	0.125	0.125	0.098
N	188937	188937	188937	188937	188937	188937	188937
Base model ¹	X	X	X	X	X	X	X
Education		X		X	X	X	X
Parental social class			X	X	X	X	X
Other origins ²					X	X	X
Year*Ethnic group						X	X
Education*Ethnic group							X

1 Controls for: age, origin year, destination year and number of census points.

2 Includes tenure, number of persons per room, number of cars and deprivation quintile at the ward level

3 + means a positive interaction; - means a negative interaction; and ns means a non-significant interaction (p-value \geq .10). The effects refer to the year 2011 vs. 2001 (M6); and to educational Level 4+ vs. Level 1 or less (M7).

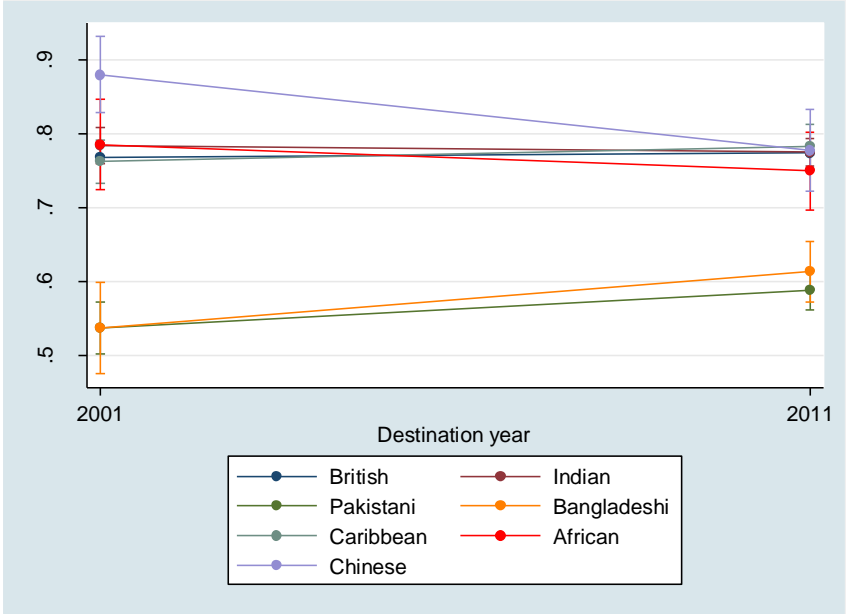
* p-value $<$.10 ** p-value $<$.05 *** p-value $<$.01. Robust (clustered) standard errors in parentheses

Population: Individuals between 20 and 45 years old

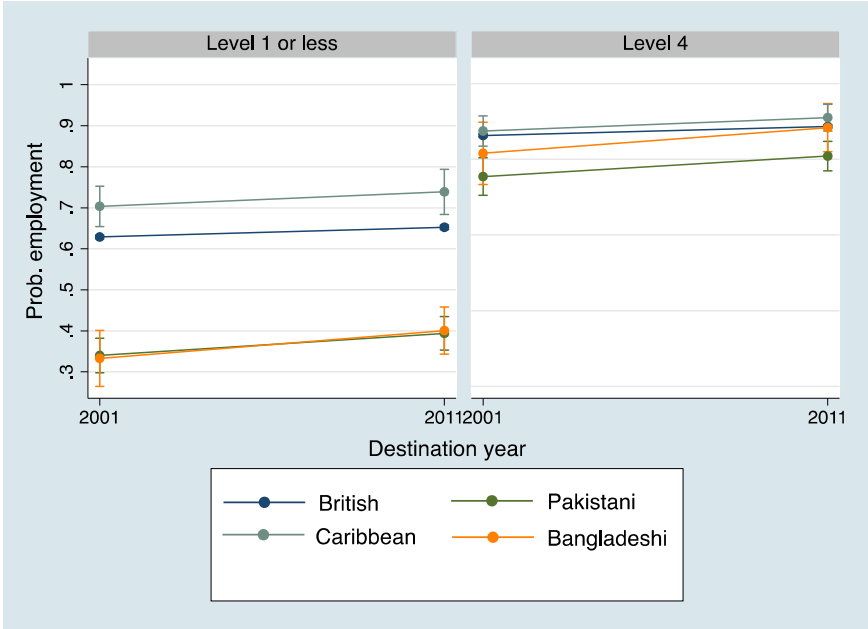
Source: Author's own calculations based on ONS-LS

Figure 3.3: Probability of being employed in 2001 and 2011 (for all and separated by education); predicted values from the regression (confidence intervals 90%). Women.

a. All



b. By education



Note: Figures are based on Models 6 (a) and 7 (b) from Table 3.6. Figure 3b plots only statistically significant interaction effects (p-value<.10).
 Population: Individuals between 20 and 45 years old
 Source: Author’s own calculations based on ONS-LS

Various conclusions can be derived from the analysis of employment. First of all, in response to Research question 1, and confirming *Hypothesis 1*, social origins matter. That is, considering additional social background characteristics has explained completely the ethnic penalty of Indian (men and women), Bangladeshi men, Chinese women (who actually gain an advantage, as men do) and Caribbean women; and partly, the ethnic penalty of Pakistani (men and women), Bangladeshi women and Caribbean men. In other words, this means that the so-called ‘ethnic penalty’ (when only education is considered) is actually a ‘social origins penalty’, that is, a penalty related to the fact that ethnic minorities and white British differ, on average, in their social origins. Second, the period 2001-2011 has been positive in terms of ethnic inequalities as far as employment is concerned, as most of the ethnic penalties in this domain diminished for second-generation ethnic minorities. Third, education is an important moderator of ethnic penalties in employment. Pakistani and African men, and Pakistani and Bangladeshi women have been revealed to be particularly disadvantaged among the lower educated; but at the same time, having acquired higher education seems to be a good barrier against unemployment for them. For these groups a higher education (Level 4+) is more valuable than for the white British.

Having said this, an important note needs to be made. I have replicated the models in Tables 3.5 and 3.6 but for a different dependent variable: the probability of being employed vs. unemployed, hence excluding the inactive population (tables available upon request). Here I find that the penalty does not disappear for Caribbean and African women. These groups have high levels of activity (even higher than those of the white British); however, their levels of unemployment are higher – on equality of characteristics – than those of white British women. The inclusion of social origin variables (slightly) reduces the penalty for Caribbean women, but not for African women.

This difference in terms of measurement of employment probably points to different mechanisms that would deserve further exploration. While among Pakistani and Bangladeshi women, family and cultural pressures probably play a great role in making them not only more likely to be unemployed but also more likely to be inactive than white British women, among black women findings might be pointing to discrimination. In fact, although on equality of characteristics Caribbean and African women are more likely to be active than their counterparts white British, they are less likely to be employed than them (tables that explore activity/inactivity are also available upon request).

3.7 Social class and social mobility

The analysis of social class or occupational attainment is divided in two parts. First, and similar to the analysis of employment, I study the impact of social origins on ethnic penalties in access to the service class, and explore whether changes occurred between 2001 and 2011. Second, I explore whether ethnic minorities differ from white British in terms of social mobility processes. At this point, I add interaction effects between parental social class and group and between education and group. This way, I explore the OED model by looking at how two of its components –ED and OD – work for the various groups.

Tables 3.7 and 3.8 show the results of the first part, for men and women respectively; Tables 3.9 and 3.10 show the results for the second part. Although both analyses are part of the same processes, keeping them separately allows me to emphasize different mechanisms. As with employment, the coefficients in Tables 3.7 and 3.8 are based on linear regressions with robust (clustered) standard errors and, when multiplied by 100, they represent differences in percentage points of each ethnic minority group with respect to the white British. All models control for: age, origin year, destination year and number of census points in which the individual participated. The full models, where the effect of all control variables are shown, can be found in the Tables 8.4 (men) and 8.5 (women) in Annex A. Moreover, Table 8.7 shows Model 5 from Tables 3.7-3.8, but estimated with logistic regression with average marginal effects.

The ‘base model’ in Table 3.7 shows that Indian, Chinese and African men are more likely to be in the service class as compared to white British men, while Caribbean men are less likely. After controlling for education (Model 2), the classical model of ethnic penalties, the positive effects reduce or become non-significant. Moreover, a penalty appears for Pakistani men (while that for Caribbean men persists). Model 3 removes education and adds parental social class. Interestingly, this model shows that most groups do better than the white British, which speaks to their higher gross rates of social mobility. Furthermore, this explains in part the results observed in the subsequent models. In fact, when controlling for education and parental social class (Model 4), the penalty observed in Model 2 disappears for Pakistani and Caribbean persons; and after controlling for other social origin measures (Model 5) a positive effect of around 5% points emerges for Bangladeshis (and re-emerges for Chinese, who are around 6% more likely to be found in the service class as compared to the white British). Note also that Indians are advantaged with respect to the white British in all models. All in all, none of the groups

experience ethnic penalties in the access to the service class, and Indian, Bangladeshi and Chinese persons even experience an advantage over white British. These outcomes are connected with the general lower dependence of ethnic minorities on their parental social class. The last model, finally, adds interactions with year (Model 6). Here we only observe an effect for Africans, which basically reveals that an initial advantage they have in 2001 disappears in 2011 (see Table 8.4 in Annex A).

Table 3.7: Access to the service class. Men.

	M1	M2	M3	M4	M5	M6 ³
Ethnic group (ref. white British)						
Indian	0.155*** (0.0129)	0.027*** (0.0102)	0.206*** (0.0126)	0.060*** (0.0102)	0.078*** (0.0104)	ns
Pakistani	-0.012 (0.0161)	-0.055*** (0.0125)	0.084*** (0.0154)	-0.011 (0.0125)	0.010 (0.0128)	ns
Bangladeshi	0.009 (0.0278)	-0.030 (0.0228)	0.107*** (0.0279)	0.013 (0.0231)	0.056** (0.0233)	ns
Chinese	0.179*** (0.0395)	0.003 (0.0331)	0.211*** (0.0372)	0.033 (0.0324)	0.063* (0.0324)	ns
Caribbean	-0.035* (0.0188)	-0.044*** (0.0163)	0.016 (0.0189)	-0.023 (0.0165)	0.002 (0.0165)	ns
African	0.110** (0.0448)	-0.014 (0.0409)	0.114*** (0.0424)	-0.005 (0.0401)	0.036 (0.0399)	–
Adjusted R2	0.012	0.238	0.079	0.249	0.253	0.253
N	174110	174110	174110	174110	174110	174110
Base model ¹	X	X	X	X	X	X
Education		X		X	X	X
Parental social class			X	X	X	X
Other origins ²					X	X
Year*Ethnic group						X

1 Controls for: age, origin year, destination year and number of census points.

2 Includes tenure, number of persons per room, number of cars and deprivation quintile at the ward level

3 + means a positive interaction; - means a negative interaction; and ns means a non-significant interaction (p-value \geq .10). The effects refer to the year 2011 vs. 2001.

* p-value $<$.10 ** p-value $<$.05 *** p-value $<$.01. Robust (clustered) standard errors in parentheses

Population: Individuals between 20 and 45 years old

Source: Own calculations based on ONS-LS

Table 3.8: Access to the service class. Women.

	M1	M2	M3	M4	M5	M6 ³
Ethnic group (ref. white British)						
Indian	0.128*** (0.0129)	0.021** (0.0108)	0.174*** (0.0126)	0.044*** (0.0108)	0.054*** (0.0110)	ns
Pakistani	-0.021 (0.0164)	-0.038*** (0.0136)	0.064*** (0.0162)	-0.007 (0.0137)	0.004 (0.0139)	ns
Bangladeshi	-0.044* (0.0264)	-0.041** (0.0207)	0.063** (0.0258)	-0.004 (0.0206)	0.027 (0.0209)	ns
Chinese	0.108*** (0.0369)	-0.057* (0.0295)	0.137*** (0.0367)	-0.039 (0.0296)	-0.015 (0.0297)	ns
Caribbean	0.059*** (0.0178)	-0.000 (0.0152)	0.106*** (0.0176)	0.019 (0.0151)	0.039** (0.0152)	ns
African	0.135*** (0.0374)	-0.086** (0.0364)	0.138*** (0.0382)	-0.074** (0.0365)	-0.041 (0.0364)	ns
Adjusted R2	0.007	0.242	0.060	0.248	0.251	0.251
N	180608	180608	180608	180608	180608	180608
Base model ¹	X	X	X	X	X	X
Education		X		X	X	X
Parental social class			X	X	X	X
Other origins ²					X	X
Group*Year						X

1 Controls for: age, origin year, destination year and number of census points.

2 Includes tenure, number of persons per room, number of cars and deprivation quintile at the ward level

3 + means a positive interaction; - means a negative interaction; and ns means a non-significant interaction (p-value >= .10). The effects refer to the year 2011 vs. 2001.

* p-value < .10 ** p-value < .05 *** p-value < .01. Robust (clustered) standard errors in parentheses

Population: Individuals between 20 and 45 years old

Source: Own calculations based on ONS-LS

Moving to women, Model 1 in Table 3.8 shows that Indian, Chinese, Caribbean and African persons are more likely to be in the service class as compared to white British, while Bangladeshis are less likely. After controlling for education (Model 2), the positive effects turn into negative for Chinese and African persons and disappear for Caribbean individuals. On the other hand, the negative effect for Bangladeshis persists and also a negative effect appears for Pakistani women. When controlling for the parental social class only (Model 3), we observe that similar to men, there is an advantage for all ethnic groups, which denotes the overrepresentation of low class origins among the ethnic minorities as well as their higher gross social mobility rates. Model 4, which includes both education and parental social class, reveals that the penalty observed in Model 2 (the classical ethnic penalty model) disappears for Pakistani, Bangladeshi and Chinese

women. Model 5, finally, which controls for other social origins, removes the penalty for African and gives an advantage to Caribbean women. In fact, Caribbean and also Indian persons have around 4-5% points greater likelihood of being in the service class than the white British (as for men, Indian women are advantaged in all models). Finally, no statistically significant interactions are found when adding interactions with year (Model 6).

The first part of the analysis of occupation has revealed that social origins matter, confirming *Hypothesis 1*. In fact, they matter even more than when estimating the access to employment. After controlling for background characteristics, none of the groups suffer penalties in the access to the service class: specifically, the disadvantage observed for some groups when controlling only for education disappears once we control for social origins (this is the case for Pakistani and Caribbean men and for Pakistani, Bangladeshi, Chinese and African women). Moreover, an advantage is observed for some groups: in some cases the parental social class reinforces an advantage already present in the classical ethnic penalties model (Indian men and women); in other cases, it makes it happen (Bangladeshi and Chinese men and Caribbean women).

Part two of this analysis deals with processes of social mobility. This is presented in Table 3.9. As with the previous tables, the coefficients are based on linear regressions with robust (clustered) standard errors. Given that I am studying processes of intergenerational reproduction, I include the main effects for ethnic minorities together with the effect of parental social class (as interaction). Here the interaction effects represent the difference in the effect of the parental social class between a certain ethnic group and the white British. Specifically, I study the effect of having routine non-manual (III), petit bourgeoisie (IV) and professional/managerial (I+II) parents with respect to having lower technical, skilled manual and semi- and unskilled manual parents (V+VI+VII). For example, a positive interaction effect for professional/managerial parental origins among a certain minority means that the effect of having professional/managerial parents (as compared to having manual parents) is higher for that ethnic minority than it is for the white British. Finally, in addition to age, origin and destination years and number of census points controls, all models control for the other origin effects (the base model includes therefore all these variables). In this way, I isolate the effect of the social class of parents. The full models, where the effect of all control variables can be observed, can be found in Table 8.6 in Annex A.

Table 3.9: Access to the service class; models of social mobility. Men.

	M1	M2	M3²
Ethnic group (ref. white British)			
Indian	0.218*** (0.0174)	0.068*** (0.0138)	+
Pakistani	0.099*** (0.0199)	0.000 (0.0161)	+
Bangladeshi	0.236*** (0.0378)	0.096*** (0.0296)	Ns
Chinese	0.231*** (0.0797)	0.033 (0.0695)	Ns
Caribbean	0.079*** (0.0247)	0.018 (0.0214)	Ns
African	0.174*** (0.0673)	-0.005 (0.0598)	Ns
Parental social class - reduced (ref. V+VI+VII)			
No earners / No code	0.024*** (0.0061)	0.025*** (0.0054)	
III (Routine non-manual)	0.077*** (0.0042)	0.045*** (0.0037)	
IV (Pet B)	-0.010** (0.0051)	-0.008* (0.0045)	
I + II (Professional/Managerial)	0.197*** (0.0042)	0.093*** (0.0038)	
Interactions with parental social class			
Indian* No earners / No code	-0.047 (0.0437)	-0.016 (0.0369)	
Indian*III	0.025 (0.0358)	0.010 (0.0310)	
Indian*IV	0.083** (0.0341)	0.059** (0.0281)	
Indian*I+II	0.009 (0.0288)	0.001 (0.0246)	
Pakistani* No earners / No code	-0.067** (0.0331)	-0.041 (0.0266)	
Pakistani*III	0.152** (0.0664)	0.087 (0.0595)	
Pakistani*IV	0.074* (0.0443)	0.043 (0.0372)	
Pakistani*I+II	0.139*** (0.0489)	0.075* (0.0422)	
Bangladeshi* No earners / No code	-0.071 (0.0604)	-0.072 (0.0446)	
Bangladeshi*III	-0.151 (0.1552)	-0.173 (0.1501)	
Bangladeshi*IV	-0.042 (0.0768)	-0.038 (0.0717)	

	M1	M2	M3 ²
Bangladeshi*I+II	-0.150 (0.1010)	-0.147* (0.0815)	
Chinese* No earners / No code	0.183 (0.1311)	0.126 (0.1093)	
Chinese*III	-0.022 (0.1285)	0.001 (0.1100)	
Chinese*IV	0.006 (0.0953)	-0.012 (0.0826)	
Chinese*I+II	0.112 (0.0915)	0.127 (0.0782)	
Caribbean* No earners / No code	0.077 (0.0566)	0.032 (0.0497)	
Caribbean*III	-0.035 (0.0410)	-0.040 (0.0358)	
Caribbean*IV	-0.030 (0.1124)	-0.025 (0.1063)	
Caribbean*I+II	-0.106** (0.0482)	-0.095** (0.0467)	
African* No earners / No code	0.060 (0.1316)	0.055 (0.1249)	
African*III	0.004 (0.0969)	-0.013 (0.0832)	
African*IV	0.554*** (0.0678)	0.768*** (0.0596)	
African*I+II	0.057 (0.0915)	0.113 (0.0885)	
Adjusted R2	0.098	0.253	0.253
N	174,110	174,110	174110
Base model ¹	X	X	X
Education		X	X
Group*Education			X

1 Controls for: age, other origin variables, origin year, destination year and number of census points.

2 + means a positive interaction; - means a negative interaction; and ns means a non-significant interaction (p-value \geq .10). Effects refer to educational level 4+ vs. Level 1 or less.

* p-value<.10 ** p-value<.05 *** p-value<.01. Robust (clustered) standard errors in parentheses

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

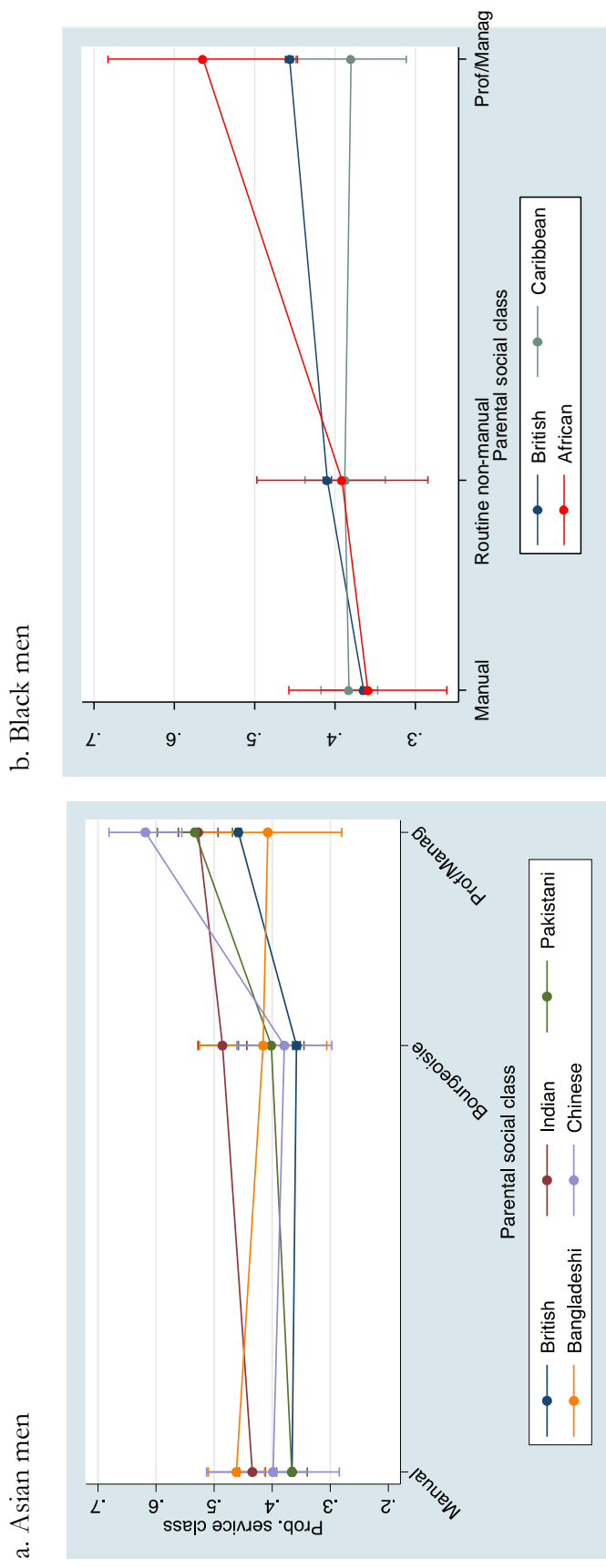
The first outcome to note in Model 1 from Table 3.9 is that the main terms for ethnic minority groups, which refer to individuals with low class parents (V+VI+VII), are positive for all groups. This is additional evidence that ethnic minorities tend to be quite mobile, on average. The interactions, on the other hand, reveal that having parents in class IV (the petit bourgeoisie) vs. having low class parents brings a higher advantage to Indian and Pakistani men than to white

British (note that the effect of the parental social class for the white British is expressed on the main term of parental social class). Moreover, having professional/managerial parents gives an additional advantage to Pakistanis (compared to white British), but a disadvantage to Bangladeshis and Caribbean persons. Model 2 adds education, and we can observe that the advantage among those with lower backgrounds is maintained only for Indians and Bangladeshis. This shows that for most groups, social mobility from lower class parents is achieved through education. The above-mentioned interaction effects (positive for Indians and Pakistanis; negative for Bangladeshis and Caribbean persons) persist after including education. Moreover, a positive interaction effect for Chinese with professional/managerial parents appears. A better way to read these results, however, is to plot them in a graph.

Figure 3.4 shows the probability of being in the service class by ethnic group, for men. I have divided groups based on their most common parental backgrounds: lower technician, skilled manual and semi and unskilled manual parents (V+VI+VII), petit bourgeoisie (IV) and professional/managerial parents (I+II) for Asian (a); lower technician, skilled manual and semi- and unskilled manual parents (V+VI+VII), routine non-manual (III) and professional/managerial parents (I+II) for black populations (b).

We observe that Bangladeshis and Caribbeans follow similar social reproduction patterns: for them, a higher social background (classes I+II) does not afford any advantage, which leads to finding an ethnic penalty among Caribbean persons with higher class parents: specifically, they are around 10% points less likely to reach service class occupations than white British with equivalent parental social class. Bangladeshis, however, are advantaged among those with lower parental social backgrounds, together with Indians. The latter group also derives an advantage among those with parents in class IV, which might be related to the networks created at the neighbourhood level and, as do Pakistanis and Chinese, they also have an advantage among those with high class parents. Note that Chinese and Indians acquire the highest advantages, close to a 10% point difference in the probability of being in the service class compared to the white British. Recall as well that the results for the Pakistani population stands in quite a strong contrast with previous studies ([Platt 2005](#); [Zuccotti 2014](#)), which reveal a much more negative picture for this group.

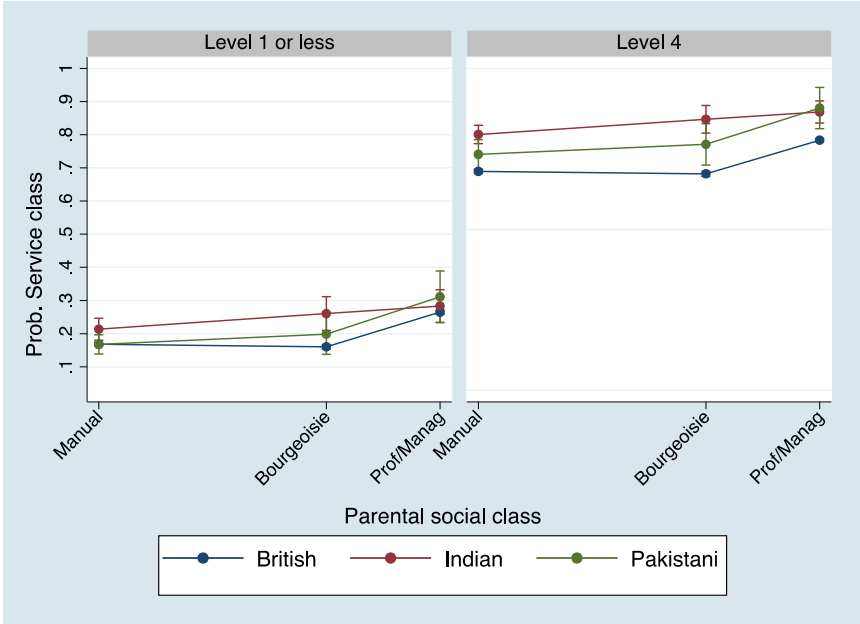
Figure 3.4: Probability of being in the service class by parental social class; predicted values from the regression (confidence intervals 90%).



Note: Figures are based on Model 2 from Table 3.9.
 Population: Individuals between 20 and 45 years old
 Source: Author's own calculations based on ONS-LS

I have also tested for interaction effects with education (Model 3). I found that having Level 4+ (vs. a Level 1 or less) gives a greater advantage to Indians and Pakistanis. Note that by introducing the interaction, the positive effect of having professional/managerial parents diminishes (and becomes statistically non-significant at p -value $<.10$) for Pakistanis (see Table 8.6 in Annex A). I have plotted these results in a graph (see Figure 3.5). Here we can see that, among those who have parents in the petit bourgeoisie, the advantage for Indians is higher among those who reach higher educational levels (level 4+). Among Pakistanis, it seems that the positive effect of higher parental background observed in Figure 3.4 is channelled canalized by the education they acquire.

Figure 3.5: Probability of being in the service class by parental social class and education; predicted values from the regression (confidence intervals 90%). Men.



Note: Figure is based on Model 3 from Table 3.9.
 Population: Individuals between 20 and 45 years old
 Source: Author's own calculations based on ONS-LS

Table 3.10: Access to the service class; models of social mobility. Women.

	M1	M2	M3²
Ethnic group (ref. white British)			
Indian	0.175*** (0.0166)	0.048*** (0.0141)	Ns
Pakistani	0.086*** (0.0200)	0.010 (0.0175)	Ns
Bangladeshi	0.131*** (0.0345)	0.014 (0.0263)	Ns
Chinese	0.224*** (0.0646)	0.005 (0.0538)	Ns
Caribbean	0.150*** (0.0235)	0.036* (0.0199)	Ns
African	0.176** (0.0752)	-0.091 (0.0781)	Ns
Parental social class			
No earners / No code	0.007 (0.0054)	0.009* (0.0048)	
III (Routine non-manual)	0.058*** (0.0040)	0.024*** (0.0034)	
IV (Pet B)	0.014*** (0.0049)	0.005 (0.0043)	
I + II (Professional/Managerial)	0.162*** (0.0041)	0.058*** (0.0036)	
Interactions parental social class			
Indian* No earners / No code	-0.083* (0.0473)	-0.037 (0.0416)	
Indian*III	0.083** (0.0380)	0.023 (0.0352)	
Indian*IV	0.065* (0.0351)	0.003 (0.0310)	
Indian*I+II	0.026 (0.0316)	0.025 (0.0260)	
Pakistani* No earners / No code	-0.059 (0.0371)	-0.036 (0.0307)	
Pakistani*III	0.169** (0.0780)	0.080 (0.0751)	
Pakistani*IV	0.048 (0.0488)	0.006 (0.0391)	
Pakistani*I+II	-0.046 (0.0553)	-0.090** (0.0453)	
Bangladeshi* No earners / No code	0.018 (0.0507)	0.016 (0.0420)	
Bangladeshi*III	0.431*** (0.0986)	0.398*** (0.0872)	
Bangladeshi*IV	-0.054 (0.0806)	-0.033 (0.0761)	

	M1	M2	M3²
Bangladeshi*I+II	0.035 (0.1554)	0.059 (0.1310)	
Chinese* No earners / No code	-0.151 (0.1115)	-0.072 (0.0772)	
Chinese*III	-0.042 (0.1512)	0.121 (0.1224)	
Chinese*IV	0.005 (0.0755)	-0.032 (0.0640)	
Chinese*I+II	-0.086 (0.1130)	-0.023 (0.0884)	
Caribbean* No earners / No code	0.067 (0.0455)	0.047 (0.0417)	
Caribbean*III	0.012 (0.0398)	0.003 (0.0329)	
Caribbean*IV	-0.094 (0.0922)	-0.086 (0.0640)	
Caribbean*I+II	-0.073 (0.0448)	-0.019 (0.0388)	
African* No earners / No code	0.112 (0.1035)	0.065 (0.1026)	
African*III	0.163* (0.0910)	0.169* (0.0945)	
African*IV	0.171 (0.2236)	0.174 (0.1568)	
African*I+II	-0.124 (0.0944)	-0.056 (0.0936)	
Adjusted R2	0.081	0.251	0.251
N	180608	180608	180608
Base model ¹	X	X	X
Education		X	X
Group*Education			X

1 Controls for: age, other origin variables, origin year, destination year and number of census points.

2 + means a positive interaction; - means a negative interaction; and ns means a non-significant interaction (p-value \geq .10). Effects refer to educational level 4+ vs. level 1; in parentheses are the (statistically significant) effects when comparing level 4+ vs. all the others.

* p-value<.10 ** p-value<.05 *** p-value<.01. Robust (clustered) standard errors in parentheses

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

Table 3.10 shows the results on social mobility for women. As for men, the first thing to note in Model 1 is the positive effect that having parents in the lower social classes has for all groups (observed in the main terms for ethnic group): ethnic minority women also tend to be quite mobile, on average. The interactions, on the other hand, reveal that having parents in class IV

(vs. classes V+VI+VII) brings a higher advantage to Indians than to white British persons. Furthermore, having professional/managerial parents gives a disadvantage Caribbean persons, equally to what was found for men. An advantage is also observed among African women with routine non-manual parents. When adding education (Model 2), we observe that the advantage among those with lower backgrounds is maintained only for Indian and Caribbean populations, while for the rest of the groups it becomes statistically non-significant. Education, therefore, is an important mediator of the effect of parental social background, as would be expected. With regard to the interactions, they disappear for Indian (with parents in class IV) and Caribbean (with parents in class I+II) and become negative for Pakistani women with professional/managerial backgrounds. Figure 3.6 shows these results in a graph, separately for Asian (a) and black (b) women.

Figure 3.6 shows that Pakistani women, the only ones who present a statistically significant interaction effect, gain less from advantageous origins (vs. manual origins) as compared to the white British. This creates a gap among those who have advantageous social origins: specifically, they are around 8% less likely to be in the service class compared to the white British. Note how different this result is with respect to Pakistani men, who actually presented a positive interaction effect, gaining more than the white British from higher parental backgrounds. A similar effect is observed for African women with advantageous origins, although the interaction is statistically non-significant in Table 3.10. Finally, I tested for interaction effects with education (Model 3), and I did not find statistically significant negative effects of Level 4+ when compared to Level 1 or less, although there are some indications that the negative effect for Africans might be related to penalties among the higher educated.

Figure 3.6: Probability of being in the service class by parental social class; predicted values from regression (confidence intervals 90%).

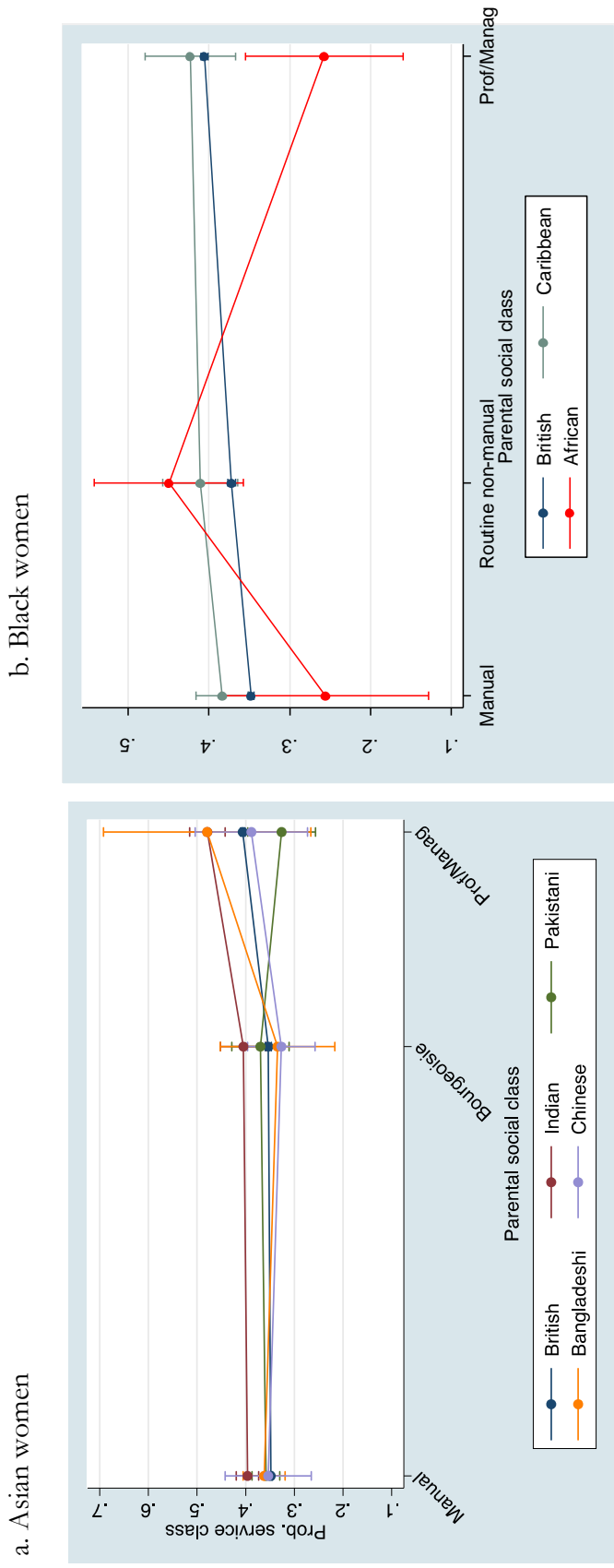


Figure is based on Model 2 from Table 3.10.
 Population: Individuals between 20 and 45 years old
 Source: Author's own calculations based on ONS-LS

Summarizing the results and addressing Research question 2, I found that groups vary with respect to the effect of parental social background, and this also influences ethnic penalties: for Bangladeshi and Caribbean men, and for Pakistani women, a higher parental social class does not confer any advantage. This leads some of them to suffer penalties among those with relatively higher parental social class. Contrariwise, higher parental social backgrounds bring a greater advantage to Pakistani and, in particular, to Indian and Chinese men, as compared to the white British, which turns into higher probabilities of accessing the service class among those with classes IV (Indian) and I+II (Indian, Pakistani and Chinese). Finally, Bangladeshi men are also advantaged among those with low class backgrounds. I therefore find evidence both for *Hypotheses 2a* and *2b*. With regard to *Hypothesis 3*, there are no clear indications for lower returns for a degree: on the contrary, I found evidence of higher returns for Pakistani and Indian men.

3.8 Discussion

This chapter has argued that the role of social origins is crucial for understanding differences between ethnic minorities and white British populations. This was based on two reasons: first, because some ethnic minority groups tend to have parents with low class backgrounds and tend to be more deprived at the household and neighbourhood levels, which might create a ‘compositional effect’; and second, because social reproduction processes – and mainly the direct effect of parental social background on occupation – might vary between groups. These concerns were expressed in two research questions and four hypotheses.

With regard to the first question (Research question 1) and hypothesis (*Hypothesis 1*), I explored whether social origins helped to explain the differences in employment and occupational outcomes between ethnic minorities and white British. Specifically, I asked to what extent the so-called ethnic penalties found for some groups had actually to do with factors related with the (more disadvantaged) socio-economic context in which these ethnic minorities were raised. Although this does not underestimate the fact that ethnic minorities have *indeed* more disadvantaged origins (I come back to this in the conclusions of this thesis), the objective was to better isolate the ‘ethnic penalty’, that is, the (unexplained) gap between minorities and white British that is attributed to particular characteristics of the minorities. The second question (Research question 2) asked whether social reproduction patterns and, more importantly, the direct effect of parental social class on occupation varied by ethnic group (which implicitly meant that ethnic penalties could depend on the parental social class of the parents). Here I developed

three hypotheses: the two most relevant for this study referred to the direct role of the parental background on occupation, and were built in opposition: one expected a lower dependence on parental social background among ethnic minorities (*Hypothesis 2a*); the other expected a higher dependence (*Hypothesis 2b*). The last hypothesis referred to the role of education, and expected lower returns to education for ethnic minorities (*Hypothesis 3*).

Regarding the first question, we saw that most ethnic minorities (African were an exception) have lower parental social classes as compared to white British; we also saw that most of them tended to be in deprived areas and in a worse position in terms of household resources. What is the impact of considering this ‘compositional effect’? The results have shown that social origins matter: in fact, not only they have helped to explain (partly or completely) ethnic penalties in employment and occupation (mainly for Pakistani, Bangladeshi and Caribbean populations), but in some cases it has also widened a positive gap (among Indian and Chinese populations). As regards the first process, that is, the reduction of the (expected) ethnic penalties for some groups, the outcome goes in line with *Hypothesis 1*. The second process – the appearance/widening of a positive gap for other groups – reveals that coming from relatively low social backgrounds has a certain advantage if one belongs to an ethnic minority. This is an interesting finding and possibly points to motivational factors, typical of ethnic minorities who have seen their occupation degraded in the origin country and want to see their children improve in destination and ‘recover’ the initial status. The fact that this applies particularly to Indian and Chinese populations is no surprise, given the good performance that these populations have not only in the UK, but also in other countries such as the US ([Farley and Alba 2002](#); [Kim and Kulkarni 2009](#)).

The role of parental background was, later on, further explored with the analysis of social reproduction patterns. A main argument in this study was that the postulates that Goldthorpe ([2000](#)) uses to explain the stability and reproduction of the social structure for the general population might not always apply to ethnic minorities.

If we look back at Figures 4.4 and 4.6 and assume that parental social class categories have a certain order – from low to high – we could think of social reproduction patterns in terms of how flat these lines are. Steeper lines mean that individuals depend more on the parental social background, while flatter lines mean that the parental social class matters less. In a pure meritocratic world, we would see flat lines: that is, no matter where you come from, you can always have the same probabilities of accessing the service class. This world does not exist, and

we know that parents influence the occupations that their children choose. In this sense, very steep lines mean that those who have parents in with professional/managerial occupations are much more likely to acquire service class occupations, compared to those whose parents are in the lower classes. In the extreme case, we would find all individuals with professional/managerial origins in service class positions, and all low-class-origin individuals in low-class positions. This world, as we know, does not exist either. In reality, our world has a mix of these lines, which depend – for example – on the country we consider ([for example, the UK line has been found to be steeper than Scandinavian lines: Hout and DiPrete 2006](#)) or the gender of the individuals (this study shows, for example, that male lines tend to be steeper than female lines). But this chapter has also argued that lines might depend on the ethnicity of individuals. Specifically, I argued that differences in terms of motivation and aspirations, manners and ways of behaving, constraints related to the economic context and family, community and cultural factors might contribute to the development of divergent social reproduction processes and, therefore, to the development of ethnic-specific lines. A direct consequence of this is, as we saw, that ethnic penalties might depend on the parental social class. For example, if one group with low parental social background has the same probability of being in the service class as the white British with the same social background, but they get lower returns to their social origins (i.e. a less steep line), we will find that a gap is generated among those who have higher social origins.

The analysis has shown that most male minority groups and Pakistani women have different social mobility patterns than the white British. Bangladeshi and Caribbean men and Pakistani women typically have flat lines, depending therefore less on their social origins (in line with *Hypothesis 2a*). However, there is a difference between the groups in terms of ethnic penalties: while for Bangladeshi men, a lower effect of having professional/managerial parents is complemented with a positive gap among those with low backgrounds; for Caribbean men and Pakistani women, it actually means a penalty among those with professional/managerial origins. Indian, Chinese and Pakistani men, on the other hand, have steeper lines and, therefore, seem to be more dependent on parental background (in line with *Hypothesis 2b*). However, rather than being a constraint – as it was mostly argued in the theoretical section – this has given them an advantage over the white British: Indian men have an advantage in particular among those with petit bourgeoisie origins, while Pakistani and Chinese are particularly advantaged among those with professional/managerial origins.

I argued before that ethnic minorities may outperform individuals from the majoritarian population, i.e. the white British, in response to the high aspirations that ethnic minority parents may have of their children ([i.e. Dale et al. 2002](#)). This, I claimed, might explain the success of Indian and Chinese populations and could account as well for the overperformance of Bangladeshi men of lower social origins, and perhaps also that of Pakistani men with higher social origins. Not finding the same results for Pakistani and Bangladeshi women, on the other hand, might speak of gender constraints that these groups experience (in particular the former), especially if we also consider their disadvantage in terms of employment. Finally, with regard to the disadvantages found among some (better positioned) black populations (Caribbean men and to some extent African women) a possible explanation might be the lack of ‘signalling’ resources among ethnic minorities – which the British higher classes would have – but also the existence of selective processes of discrimination connected with skin colour, or with certain occupational niches or sectors of the economy. Note also that for African women this might be linked to lower educational returns (*Hypothesis 3*), although the results are not robust. More research is needed in order to elucidate why some groups gain and others lose from particular social backgrounds.

This chapter has shown that the study of ethnic inequalities in the labour market is more complex than what the literature, at least on the European level, has disclosed. The role of social origins has been revealed to be an important element in understanding how second generation ethnic minorities are faring in England and Wales. Specifically, not considering them in the analysis might lead to an overestimation of ethnic penalties: for example, in the case of employment of Pakistani and Caribbean men, the unadjusted penalty is almost double the penalty adjusted for social origins. Moreover, I have also shown that the average effects with regard to the relative performance of ethnic minorities in the labour market depends both on their levels of education – especially in access to employment – and on their parental social backgrounds.

Finally, I would like to highlight as well a few outcomes connected to this study, which are not directly linked to the research questions. These outcomes will help to put into perspective the results delineated in the coming chapters. First, ethnic penalties in employment diminished for most groups between 2001 and 2011; however, low educated Pakistani men continued to be disadvantaged with respect to the white British in 2011, and Pakistani and Bangladeshi women (especially the low educated) continued to have very low employment levels. Second, in general, employment seems to be a more serious problem for ethnic minorities, compared to the type of

occupation they acquire, in line with previous findings ([Cheung and Heath 2007b](#)). Third, Indians and Chinese are doing very well, both in terms of employment and in terms of access to the highest occupations, sometimes even better than the white British. The same is true for Bangladeshi men and Caribbean women in terms of their social class. Finally, the Bangladeshi population seems to be doing slightly better than the Pakistani population, which serves as an argument to treat them separately.

4 CHAPTER 4: Is Spatial Segregation of Ethnic Minorities Really Decreasing?

4.1 Introduction

The study of the spatial segregation of individuals in terms of their characteristics has received a great deal of attention in the human geography and migration literature. Spatial segregation alludes to the idea that the distribution of a population over space is unequal: in simple terms, it means that inequalities (based, for example, on ethnicity or socio-economic resources) have a spatial ‘translation’ or, more specifically, are produced and reproduced in space. In this regard, one of the reasons why spatial segregation has been a matter of extensive research – and why I believe it is a relevant topic – is because it might contribute to undermining the social cohesion of a society as a whole, by preventing individuals from having contact with others who are different from themselves (see for example [Cantle 2012](#); [Uslaner 2012](#)).

Within the literature on spatial segregation, the spatial location of immigrants and/or ethnic minorities has been of particular interest: in fact, countless studies have shown that ethnic minorities tend to live close to one another (i.e. [Johnston, Forrest and Poulsen 2002a](#); [Johnston, Poulsen and Forrest 2007](#); [Logan and Stults 2011](#); [Logan, Stults and Farley 2004](#); [Musterd 2005](#); [Van Kempen and Şule Özüekren 1998](#)). This pattern is usually attributed to the potential of the neighbourhood to offer all kinds of ‘ethnic’ resources, ranging from the exchange of information, to the development of ethnic entrepreneurship or the possibility of maintaining one’s own culture and speaking one’s own language. According to spatial assimilation theory ([Massey 1985](#)), it is expected that as ethnic minorities spend more time in the destination country, they also start to disperse in its space. This dispersion is typically coupled with an improvement in socio-economic status. In fact, areas with a high concentration of ethnic minorities are also usually areas with high levels of deprivation, and studies conducted in the US have demonstrated that an improvement in socio-economic status implies, in many cases, an improvement in terms of the neighbourhood, which leads to a movement out of the ethnic neighbourhood ([Massey 1985](#); [Massey and Denton 1985](#)). However, other studies (i.e. [Bolt and Van Kempen 2010](#); [Lersch 2013](#)) have shown that this might not be the case, and that either due to preference or constraint,

the classical model of spatial assimilation might not necessarily apply here; ethnic minorities might remain segregated over time (more details on this discussion are to be found in Chapter 6). Using aggregated census data for England (2001 & 2011) at a very detailed geographical level, the objective of this chapter is to give a general overview of the changes in spatial segregation of ethnic minorities within eight defined 'housing market areas' (HMAs) of England between 2001 and 2011. The analysis is done for white British, pooled non-white ethnic minorities and six chosen ethnic minority groups: Indian, Pakistani, Bangladeshi, Chinese, Caribbean and African. It answers the following questions, the second one being the most relevant:

1. What was the spatial distribution of ethnic minorities in England in 2011? Which groups were more segregated and in which HMAs?
2. Did the spatial segregation of ethnic minorities decrease in the period 2001-2011? If so, for which groups and HMAs?

The analysis in this chapter is doubly novel: the first innovative aspect pertains to my choice of housing market areas as the major geographical units to study spatial segregation. HMAs can be defined as relatively self-contained areas that express people's choice of location of a new residence. This means that, when studying changes in spatial segregation in these areas, I am able to control, to some extent, for the fact that individuals are 'constrained' to a geographical space. This allows me to assume that changes are likely to be related (at least in part, since changes also occur due to immigration from abroad) with relocations of individuals within a certain HMA.

The second novel aspect of this chapter is that I look at more than one dimension of segregation. The bulk of the research in this area has relied on the Dissimilarity Index, which is the most common – and easy to use – measure of spatial segregation. This Index, however, measures only one dimension of segregation, the uneven distribution of individuals in a given space. In this chapter, I include three other dimensions: interaction, which refers to the probability of contact between members of a group within a neighbourhood; concentration, that is, the extent to which ethnic minorities occupy a small share of the space; and finally, clustering, that is, the extent to which ethnic minorities live in neighbourhoods that adjoin each other. In order to explore these different dimensions, I use geo-referenced information on the characteristics, location and size of the areas, by means of specialized geographical software.

4.2 Spatial segregation in the UK

Previous studies on spatial segregation in the UK can be divided into two categories. On the one hand, one finds studies that explore spatial segregation through different segregation indices, mainly the Dissimilarity Index, which assesses the evenness of the distribution of a group in space ([1955](#); [Duncan and Duncan 1955a](#)), and to a lesser extent the Isolation Index, which is a measure of potential contact between members of a group in a certain geographical area (for more specific definitions, please refer to the sections below). On the other hand, we find studies that treat spatial segregation by means of creating different ‘ideal types’ of areas, with varied relative shares of ethnic minorities.

In the first group, we find studies that cover three decades of changes: from 1981 to 2011. Starting with the first two decades, **1981-2001**, the most systematic study of spatial segregation was done by Rees and Butt ([Rees and Butt 2004](#)), who compared Dissimilarity indices for three time points, based on 20 metropolitan/non-metropolitan regions (for a discussion on geographical units used to calculate segregation indices, please refer to the next section). They showed that in 1981, the most unevenly distributed groups – that is, groups with the highest Dissimilarity Index – are Caribbean and African, followed by Bangladeshi, Pakistani, Indian and Chinese (see Table 4.1). These authors also noted that between 1981 and 1991, spatial segregation measured in this way increased for all groups; while for the period 1991-2001 it increased only for Pakistani and Bangladeshi, and decreased for the remaining groups (although the relative ordering of groups remained the same, with black populations as the most segregated, in particular African). However, in a departure from common practise in studies on ethnic minorities, this study merged within the main groups those who identify themselves as white and African, white and Caribbean or white and Asian²².

A more recent study, based on definitions of ethnicity that do not include ‘half-white’ populations showed a slightly different picture ([Simpson 2012](#)). The Dissimilarity Indices, based in this case on 348 Local Authorities, showed that although black populations in 1991/2001 also had higher segregation levels than Asians, the difference is smaller as compared to the previous study. As regards changes between 1991 and 2001, Indian, Pakistani and Chinese decreased their uneven distribution, while black populations and Bangladeshi increased it. When using an even

²² In this and the other chapters, individuals who consider themselves as ‘half-white’ have been excluded from the analysis.

smaller geographical unit ([Simpson 2007](#)), the Ward (8850 in England and Wales) or the Output Area (more than 180000 in England and Wales), it is not the black population but the Pakistani and Bangladeshi who have the highest segregation levels, both when measured with the Dissimilarity Index and with the Isolation Index. This is probably related to the fact that black populations – contrary to some Asian groups, like Pakistani or Indian – are mostly located in London, for which their segregation becomes evident even when using relatively big geographical units, such as the metropolitan/non-metropolitan division or the Local Authority.

Table 4.1: Segregation indices of previous findings in England and Wales

	Dissimilarity Index			Change			Isolation Index		Change	
	1981	1991	2001	2011	81-91	91-01	01-11	1991	2001	91-01
<i>Rees and Butt (2004) – metro/non metro</i>										
Indian	42.7	46.1	44.4		3.4	-1.7				
Pakistani	42.0	45.3	45.5		3.3	0.2				
Bangladeshi	48.3	53.3	54.2		5	0.9				
Chinese	23.8	29.7	26.6		5.9	-3.1				
Caribbean	54.1	56.2	53.8		2.1	-2.4				
African	60.6	67.2	65.6		6.6	-1.6				
<i>Simpson (2007)</i>										
<i>Wards</i>										
Indian		65.3	62.1			-3.2		15.6	15.5	15.6
Pakistani		75.1	71.7			-3.4		13.9	17.4	13.9
Bangladeshi		74.2	71.6			-2.6		10.9	13.8	10.9
Chinese		42.2	41.3			-0.9		0.8	1.2	0.8
Caribbean		68.9	67.0			-1.9		7.6	7.3	7.6
African		71.1	70.6			-0.5		4.3	8.2	4.3
<i>Output areas</i>										
Indian			69.0						20.0	
Pakistani			79.0						26.0	
Bangladeshi			88.0						21.0	
Chinese			75.0						3.0	
Caribbean			72.0						9.0	
African			78.0						11.0	
<i>Simpson (2012) – Local Authority</i>										
Indian		57.8	56.1	50.7		-1.7	-5.4			
Pakistani		61.2	61.1	60.8		-0.1	-0.3			
Bangladeshi		60.2	61.0	58.4		0.8	-2.7			
Chinese		32.7	31.9	33.6		-0.8	1.7			
Caribbean		61.9	62.4	58.3		0.5	-4.1			
African		65.3	67.2	54.5		1.9	-12.7			

Regarding findings available for the period under study in this chapter, **2001-2011**, Simpson (2012), who calculated the Dissimilarity Index using Local Authorities as geographical units, showed that in 2011 the most segregated groups are Pakistanis, followed closely by Bangladeshi and Caribbean (see again Table 4.1). Moreover, the tendencies are of a decrease of spatial segregation for most groups, especially African, who reduced their D by almost 13 points, and Indian; only Chinese increased their segregation. A similar study, which like Simpson's work was also part of the "Dynamics of Diversity series" of the 2011 Census (see research outputs in: www.ethnicity.ac.uk), takes a more micro view of segregation, using as well the Dissimilarity Index (Catney 2013). In this case, the Index is based on the Output Area level as a geographical unit (areas of around 300 people) and is calculated for each Local Authority separately. The results of this analysis show that segregation decreased for all ethnic minority groups in most Local Authorities, including those in the largest metropolitan areas. In particular, Bangladeshi and Chinese in Outer London experienced the highest decreases in segregation, followed by the other ethnic minority groups; these outcomes, it is argued, can be linked to processes of suburbanization. Only segregation for Caribbean and African in Inner London went in the opposite direction, although with very small increases.

Other researchers, arguing that the Dissimilarity Index is overly simplistic, have investigated the spatial segregation of ethnic minorities using different methods. I refer to the various works by Johnston, Poulsen and Forrest ([Johnston, Forrest and Poulsen 2002a](#); [Johnston, Forrest and Poulsen 2002b](#); [Johnston, Poulsen and Forrest 2007](#)), who created different typologies of areas – in this case Wards – based on the relative share of ethnic minorities and white populations in each of them. Specifically, they created a 6-category classification, wherein **category I** are areas where 80% or more of the population is white and **category VI** are areas where the non-white population is around 70-80% of the total and one ethnic minority group is: a) more than twice as large as any other, and b) constitutes more than 30% of the population of that group (also defined as a 'ghetto') ([Johnston, Poulsen and Forrest 2007](#)). Among other findings, these studies show that black populations are much more likely than Asian populations to live in areas with white members. Among the latter, Indians and to a lesser extent Pakistanis, are more likely to be found in areas with higher share of whites; furthermore, Bangladeshis are also more likely to be 'encapsulated', that is, to share areas only with other co-ethnics, than the rest of the groups. However, there are no category VI areas in London (i.e. ghettos). On the contrary, analyses done for other metropolitan areas actually show that Indian in Leicester and Pakistanis in Bradford are the basis for the creation of two ghetto-types in these cities. The analyses also show that around

43% of Indian and 36% of Pakistani living in Leicester live in these ghetto-type areas; similarly, 27% of Pakistanis in Bradford live in the Pakistani ghetto.

These authors also offer a different perspective regarding changes between decades. For example, they argue that while between 1991 and 2001 many areas became more mixed, revealing processes that might speak of decreasing spatial segregation, there are also clear tendencies in the opposite direction. For example, in a paper that studies changes between 1991 and 2001, they showed that in London the extreme types are disappearing (types I and V&VI), and both ethnic minorities and white British were more likely to live in ethnically mixed areas in 2001 than in 1991. Similarly, Pakistanis in Bradford were also more likely to live in relatively mixed, white-dominated areas. However, they also presented evidence pointing to an increase of spatial segregation: for example, they showed that between 1991 and 2011, Pakistani in Bradford also increased their probability of being in the Pakistani-dominated type-V area ([Poulsen and Johnston 2006](#)).

Summarizing, both approaches show evidence that Asians are more segregated than black populations (at the micro-level). Moreover, they both present evidence of decreasing spatial segregation for ethnic minority groups as well as of a tendency towards greater dispersion – in particular out of metropolitan areas – and mixing between whites and non-whites. However, a key difference between them is that the second approach is more cautious in their claims and presents some counter-tendencies as well. In this regard, I find the discussion in Carling (2008) very illustrative of these debates. Using the same findings that Simpson and collaborators presented to argue that spatial segregation of ethnic minorities is decreasing, he made a ‘novel interpretation’ and emphasized – as Poulsen and Johnston did with other type of data – that both tendencies of decrease and increase in spatial segregation are present: more importantly, he stated that the latter might even be related to processes of self-segregation of groups, a notion rejected by Simpson and collaborators (these debates arose as a consequence of disturbances occurred in Brighton 2001; see [Finney and Simpson 2009b](#); [Rattansi 2011](#); and the discussion in Chapter 1).

The present study is based on the first approach, that is, I explore segregation indices for various groups. However, rather than focusing on one or two indices – as has been done to date – my analysis is based on more complex and diverse measures, which in the end lead me to conclusions that are more in line with the second approach, and with the work of Carling ([2008](#)).

4.3 Measuring spatial segregation

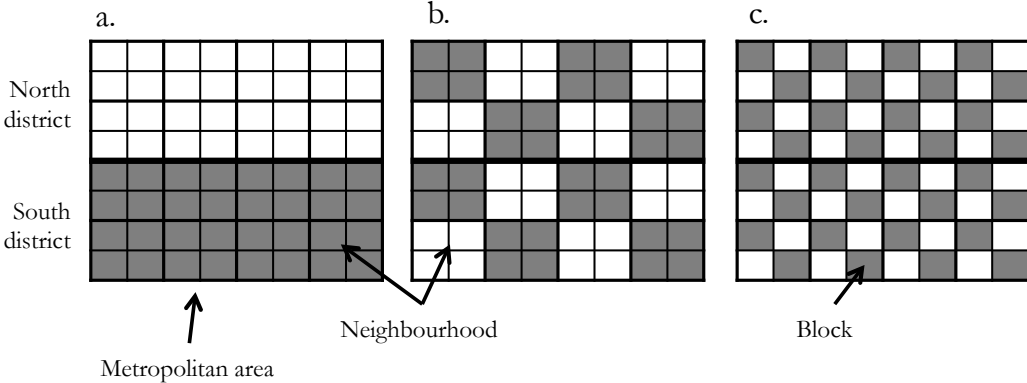
4.3.1 Some issues in the selection of areas

Spatial segregation can be defined as the concentration of people having certain characteristics in common. It alludes to the idea that the distribution of the population in space is unequal: individuals tend to locate close to others who are similar to them, mainly in terms of socio-economic status and ethnicity. While this phenomenon is quite easy to apprehend on an intuitive basis – it is observable to the naked eye – it is very complex to measure. A number of decisions need to be made toward this goal.

The usual way to study spatial segregation is to measure the distribution of individuals across geographical units within a larger area. This means, on the one hand, that we need to choose the area in which segregation will be measured, for example, countries, regions or metropolitan areas; and on the other, that we must define the geographical units in which individuals live. The selection of one or another area level or geographical unit will impact on the conclusions we reach. These issues have been grouped under the Modifiable Area Unit Problem ([Openshaw 1984](#)). For the purposes of this chapter, I discuss the effect of the geographical scale (both of the larger area and smaller geographical unit) and the effect of the size of the geographical unit, which is linked to the density of population ([see also Simpson 2007 for a discussion on these topics](#)).

The problem of *geographical scale* is illustrated in Figure 4.1 ([adapted from Rodríguez Vignoli 2001](#)). The three main squares represent a hypothetical metropolitan area with three possible distributions of its two main populations (represented in white and grey colours) in: districts (North and South), neighbourhoods and blocks. In Figure 4.1a, the white population lives in the North, while the grey population lives in the South. In Figure 4.1b white and grey populations are mixed within districts, but not within neighbourhoods. In Figure 4.1c, finally, white and grey populations are mixed within districts and neighbourhoods, but not within blocks.

Figure 4.1: A hypothetical metropolitan area with three different population distributions



Imagine first that we are interested in studying the wider metropolitan area, and that the smaller geographical unit used for studying segregation is the district (North-South). Here we would find that while Figure 4.1a has very high segregation (there is only one group in each district); Figures 5.1b and 5.1c have very low segregation, since there is equal number of groups in the North and South districts. Consider now that the unit used for measuring segregation is the neighbourhood. Here we would find that both Figures 5.1a and 5.1b have high segregation, since there is no mixing of groups within neighbourhoods, while Figure 4.1c would be a case of low segregation. Finally, consider the block as a geographical unit for studying spatial segregation: here we would find high segregation in all figures, since there is no mixing of groups within blocks.

Imagine now that instead of studying the wider metropolitan area, we choose to study the districts separately, perhaps because we think that they are more relevant as a geographical entity (for example, because they respond to different local governments or housing markets). Both if the geographical unit chosen were the neighbourhood or the block, we would find that Figure 4.1a presents a case of low segregation: each neighbourhood has the same proportion of grey (or white) population, in this case 100%. The segregation results for the other figures would be the same as when considering the larger metropolitan area. Table 4.2 summarizes all these possibilities.

Table 4.2: Spatial segregation outcomes for different geographical scales

Larger area	Figure	Geographical unit		
		<i>District</i>	<i>Neighbourhood</i>	<i>Block</i>
Metropolitan area	Figure 1a	High	High	High
	Figure 1b	Low	High	High
	Figure 1c	Low	Low	High
District	Figure 1a		Low	High
	Figure 1b		High	High
	Figure 1c		Low	High

This brief exercise shows that the areas we select to measure segregation can have an impact on the results we get. In an attempt to test some of this issues, Simpson (2007) showed that the measurement of segregation (with two different indices) with smaller geographical units usually leads to an inflation of segregation, which is what we also observe in the example above (and can also be observed in Table 4.1). Moreover, the relative position of groups also varies (at least when comparing relatively big geographical units with relative small ones): for example, when calculating segregation with Local Authorities, Caribbean and African tend to be the most segregated groups; while when using the Ward or the Output Area, it is the Pakistani and Bangladeshi who have the highest segregation levels.

Let's imagine now that we have selected the geographical units and wider area we want to use. We are confronted with the problem of the *size of the geographical unit*. The main idea behind the selection of geographical units is that they can be considered as spaces of interaction between individuals, and therefore, potential 'neighbourhoods'. This is an assumption that researchers make, and by no means constitutes an absolute truth.

In most geographies available to researchers, we encounter the problem that some geographical units are bigger than others and, therefore, that the density of population varies. There are areas that are very small, with a high population density, and there are areas that are very large, with a low population density. This means that for any geography we use there are very different definitions of what a 'neighbourhood' is, and this could have an impact on segregation. For example, Simpson (2007) showed that excluding areas of low density reduces the Dissimilarity Indices based on Output Areas for all main ethnic minority groups. Further, while we could assume that in denser areas people are more exposed to each other, it might also be the case that

inhabitants of certain cities of a few thousand individuals know each other more or have more interactions than those in a small neighbourhood in London. However, this is very difficult to control.

Some good news regarding the problem of area selection is that there is evidence that the relative position of groups in terms of their segregation levels usually remains the same when using geographical units that, although different, are relatively small (see for example the values for Wards and Output Areas in Table 4.1; and my own calculations made for London in Table 4.5). Therefore, it could be argued that if the objective is to study, for example, which groups are more segregated than others in a certain metropolitan area, the impact of the scale and size of areas should be lower. However, these relative positions are of course not fixed, and there could also be misinterpretations if we are studying changes over time.

Another (more relevant) concern that arises is connected to the comparison of segregation levels of groups in different cities or metropolitan areas, as I plan to do in this chapter. If these cities have different geographies, that is, if, for example, the geographical units in them have different densities of population or different sizes, or if we cannot use the same geographical units in all of them, can we say that segregation of a certain group is higher in one city than in another? Can we say that segregation has increased to a greater extent in one city than in another?

I believe there are two ways of, at least partly, tackling these issues (although they will hardly ever be resolved). The first is to have some theoretical and/or empirical justification that validates the selection of areas, which also implies working with only one type of geographical unit and having a common definition for identifying the wider areas. The second is to measure segregation in more than one way, which in practical terms means capturing different dimensions of segregation and, therefore, using more than one segregation index: in particular those that consider the size and location of geographical units. I discuss both in the next two sections.

4.3.2 The areas selected in this study

In this chapter I use the Lower Layer Super Output Areas (LSOAs) as the lower-level geographical unit; and the 'housing market area' (HMA) as the larger area for which spatial

segregation is calculated. In what follows I describe these geographies in detail, as well as my reasons for choosing them.

4.3.2.1 Lower Layer Super Output Areas

In comparing the 2001 and 2011 censuses in England, one must choose among different lower-level geographies. The most commonly used are the census geographies: the Output Area (OA), the Lower Layer Super Output Area (LSOA) and the Middle Layer Super Output Area (MSOA); and the administrative geographies: the electoral Ward. A detailed account of these in terms of their number in England and approximate population they cover can be observed in Table 4.3

Table 4.3: Most commonly used geographical units in England

Geographical unit	Number of units in England (2011)	Approximate population
OA	171372	100-600
LSOA	32844	1000-3000
MSOA	6791	5000-15000
Ward (2003)	8588	100-30000

The OA is the lowest geographical level at which census estimates are provided. Output Areas, which have between 100 and 600 individuals, were designed to have similar population sizes and be as socially homogenous as possible based on tenure of household and dwelling type. The LSOA and MSOA are aggregations of OAs. Electoral Wards are geographical units used to elect local government councillors in metropolitan and non-metropolitan districts, unitary authorities and the London boroughs in England. As can be seen from Table 4.3, census geographies are quite homogeneous in terms of number of individuals considered, while Wards have very different populations.

Which area should I select then? Given the availability of geographies, I believe that the best geographical unit is the LSOA. Ward and MSOA geographies comprise very variable and/or too-large populations²³. The OA, in contrast, has two disadvantages. First, the average population is too small: in London, it could represent less than a block, which we could hardly define as a ‘neighbourhood’. Second, its use affects the utilization of software for analysing segregation,

²³ Note, however, that the Ward is the only available geographical unit that I was able to use in the other chapters.

given that they are too many and they need large amounts of memory to be processed. So there are both theoretical and practical justifications for selecting the LSOA as a geographical unit, and also for choosing it as the best proxy of ‘neighbourhood’.

The LSOA has an average of 1500 individuals: 32,482 in 2001 and 32,844 in 2011. In their majority (97.5% with respect to the 2001 figure), LSOAs are exactly the same for both years; among the rest, around 2% have been merged or split, and the last 0.5% cannot be comparable across censuses. For comparative purposes, I have only worked with the areas that have not undergone transformations between 2001 and 2011: they are 31,672 for England (note that this did not affect housing market areas, which have complete LSOAs in all cases). Census data on ethnic groups is thus obtained at the LSOA level²⁴. Specifically, for each LSOA I have collected information on the number of individuals from each ethnic group, using the question on self-identification²⁵.

4.3.2.2 *Housing Market Areas*

With regard to the larger areas for which segregation indices are calculated, metropolitan areas are the most commonly used, both in Europe (i.e. [Musterd and Van Kempen 2009](#); [Safi 2009](#)) and in the US (i.e. [Logan and Stults 2011](#); [Logan, Stults and Farley 2004](#); [Massey and Denton 1989](#)). The reason behind this selection is that metropolitan areas are ‘reasonable approximations of housing markets’ ([Iceland, Weinberg and Steinmetz 2002](#)). Why is this important? Spatial segregation occurs because people move in geographical space. These movements are determined both by preferences and constraints, which are themselves linked to contextual factors, such as housing prices, amenities of an area or public subsidies; and individual factors, such as socio-

²⁴ The data to calculate segregation indices was obtained from: <http://www.neighbourhood.statistics.gov.uk/>.

²⁵ In 2011 the question was formulated as follows: “What is your ethnic group?” The options were: White (English/Welsh/Scottish/Northern Irish/British; Irish; Gypsy or Irish traveller; other White); Mixed/multiple ethnic groups (White and Black Caribbean; White and Black African; White and Asian; any other Mixed/multiple ethnic background, open question); Asian/Asian British (Indian, Pakistani, Bangladeshi, Chinese; any other Asian background, open question); Black/African/Caribbean/Black British (African; Caribbean; any other Black/African/Caribbean background, open question); Other ethnic group (Arab; any other ethnic group). Note that the ‘Gypsy or Irish traveller’ and ‘Arab’ categories were missing in 2001. This chapter studies eight groups: white British, pooled non-whites (main non-white groups + other), Indian, Pakistani, Bangladeshi, Chinese, Caribbean and African. Note however that, contrary to the other chapters, based on the ONS Longitudinal Study, I was not able to differentiate between first and 1.5/second generations. The analysis presented here includes, therefore, individuals born in the UK (2nd generation), individuals born abroad and arrived at a young age (generation 1.5) and individuals born abroad and arrived at a later age or as adults (1st generation).

economic level, ethnicity, life stage or location of relatives, friends or a new job²⁶. Residential mobility and spatial segregation are therefore two sides of the same coin. However, relocation decisions typically do not take into account an entire country, rather, individuals mostly remain constrained to certain areas, the so-called 'housing market areas'. Housing market areas are therefore relatively self-contained areas that express people's choice of relocation. This means that when studying changes in spatial segregation within housing markets, we somehow control for the fact that individuals are 'constrained' in their choices to a certain geographical space, or that they tend to 'prefer' that geographical space vs. others. This is important because it allows us to assume that if they need to relocate, they are likely to do so within that geographical area: segregation therefore acquires a more substantive meaning. In other words, if individuals are constrained to an area and segregation increases, we can be more confident in saying that ethnic groups are moving away from each other, or that when houses become available, they still prefer those where other co-ethnics are found. This, of course, is an assumption, and by no means applies to all individuals. Nonetheless, the idea of individuals being 'spatially constrained' has been used in previous studies, although with other purposes (refer to the literature on neighbourhood effects: [Cutler, Glaeser and Vigdor 2008](#); [Evans, Oates and Schwab 1992](#); [Galster 2003](#); [Galster et al. 2007b](#))²⁷.

In the UK, rather than using metropolitan areas as approximations of housing markets, more detailed information is available. A recent study carried out at Newcastle University and funded by the National Housing and Planning Advisory Unit ([Jones, Coombes and Wong 2010](#)) created a map of England that explicitly divides the country into housing market areas. These areas were created by means of analysing three types of information: commuting, migration and housing prices. Unfortunately, no information on ethnicity was used to construct the HMAs, for which I need to assume that ethnic minorities and white British share the same HMA – which might not be the case, since they might have, for example, different commuting and migration patterns. Housing market areas are, therefore, based on data studied for the entire population and represent an average of these (potentially diverse) ethnic patterns.

²⁶ Note that segregation can also occur because individuals remain in an area and others move, as is the case in 'white flight', a process that explains the movement of whites out of ethnic areas.

²⁷ Segregation is also related to new arrivals, which occurs outside the logic of the HMA (based on movements that occur within England). However, if new arrivals occur, and if there is a process of 'white flight', it is still expected that residential moves of the white British (if they do happen) occur within the HMA.

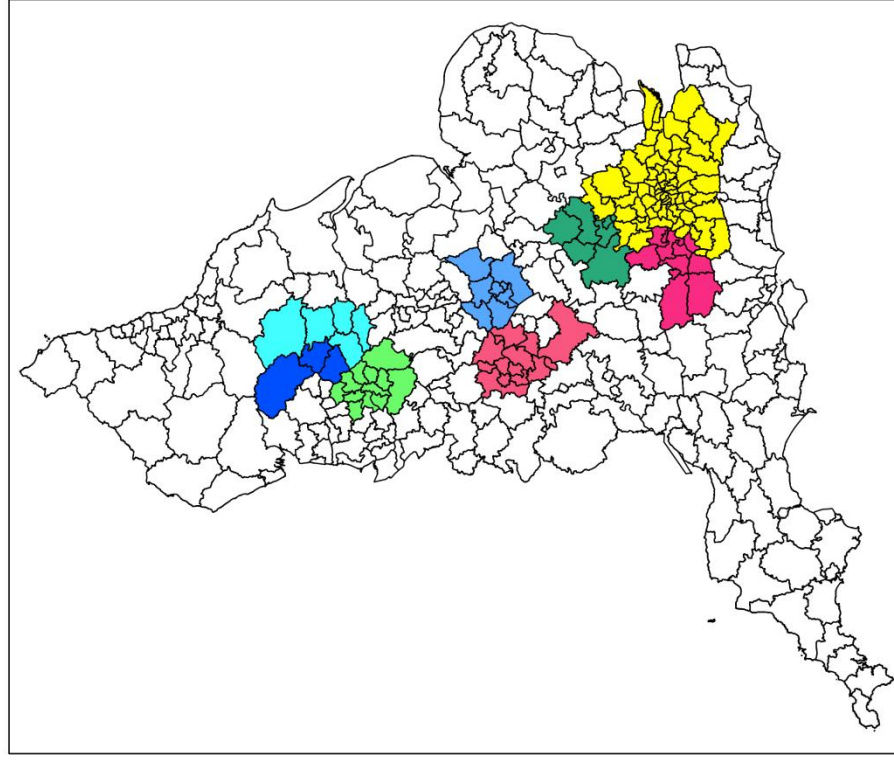
There are two classifications for HMAs: one is more local, while the other is based on larger areas. I use the second one, also called an ‘upper tier’ framework. This is the wider classification that sets the limits of the more local classification. The ‘upper tier’ framework – which divides the country into 75 HMAs – is considered to be the ‘most effective in providing a longer term overview of projected household changes, transport connectivity, housing land availability, housing market change and urban capacity’ ([Jones, Coombes and Wong 2010](#)).

This framework requires that a link be made between HMAs and the smaller geographical units or ‘neighbourhoods’ (LSOAs); that is, we need to be able to classify each LSOA according to the housing market area they belong to. In the study by Jones, Coombes and Wong, there are two versions that link HMAs with commonly used geographical units: the ‘gold standard’ version best-fits each HMA with Wards (2003), which are a geographical unit that contains an average of 4000 individuals; the ‘silver standard’ version, best-fits the Ward-based ‘gold standard’ to Local Authorities (LAs), which are the smallest administrative unit in England (there are 376 LA in total). For this chapter I was not able to use the more precise ‘gold standard version’, since there is no lookup that relates the smaller geographical unit used in this study (LSOA) to the Ward (and hence to the HMAs). I have used instead the ‘silver standard’ version and, therefore, have linked each LSOA to a Local Authority and hence to a specific HMA. This implied, perforce, a loss of information, as Local Authorities do not exactly fit the HMAs, as Wards more accurately do.

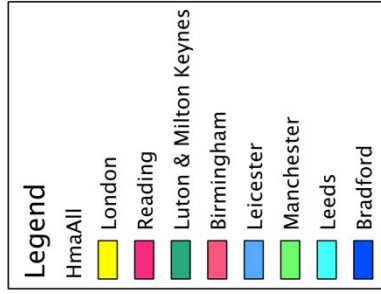
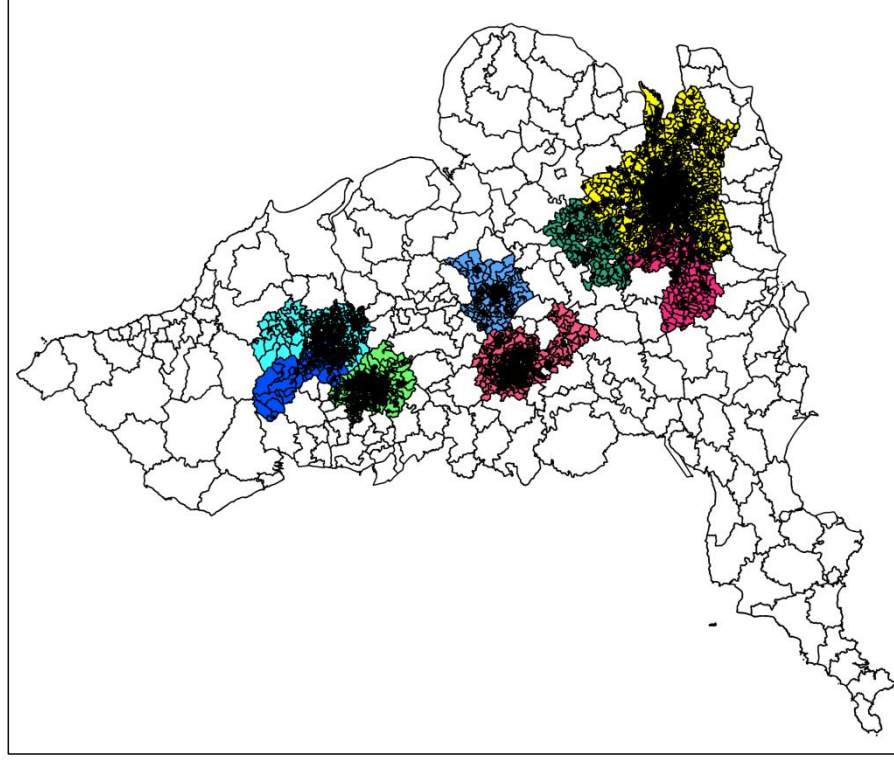
After linking each LSOA or ‘neighbourhoods’ with their respective HMA, I selected the housing market areas that I considered most relevant for studying spatial segregation: out of the 75 HMAs, I study the eight with the highest number of non-white ethnic minorities (comprising, in total, 80% of non-white ethnic minorities). As could be expected, these also follow the main metropolitan areas. The housing market area with the highest number of non-white ethnic minorities is the *London HMA*, followed by the *Manchester HMA*. Other areas are: the *Luton & Milton Keynes HMA* and the *Reading HMA* (next to the London HMA); the *Birmingham HMA* and the *Leicester HMA* in the region of West Midlands; and the *Bradford HMA* and the *Leeds HMA* in the region of West Yorkshire. Map 4.1 shows the location of the selected HMAs in England. In the first case, Local Authorities are used as geographical units (a); in the second, Local Authorities and LSOAs (within HMAs) are used (b). From Map 1b we can see that the smallest LSOAs also match the location of metropolis in England (Table 8.8 in Annex A shows the distribution of Local Authorities within the selected housing market areas).

Map 4.1: Identification of HMAs; geographical units are Local Authorities (a) and Local Authorities + LSOAs (b)

a)



b)



Additional information is shown in Table 4.4, which has descriptive statistics for each HMA in terms of population and land area. Here we can see that London is the biggest and most populated HMA, and also the one with the highest number of small and highly dense LSOAs: around 70% of LSOAs have a land area below the median and a population density above the median. Following London we find Manchester and Birmingham, which have around 60% of highly dense and small LSOAs. Leeds, Leicester and Reading, in contrast, are the HMAs with the lowest number of small and dense LSOAs. As we will see, this will have an impact in segregation indices, which are usually lower for London.

Table 4.4: Descriptive statistics for housing market areas: population and land area (2011)

Housing market area	General characteristics of HMAs			Characteristics of LSOAs within HMAs		
	Population	Number of LSOAs	Land area (km ²)	% LSOAs with land area (km ²) below the median	% LSOAs with population density above the median	Average population of LSOAs
London	12207124	7334	7974.84	70.6	71.5	1664
Reading	1380252	864	2611.72	42.1	43.4	1598
Luton & Milton Keynes	977128	611	2285.81	48.1	48.1	1599
Birmingham	3032813	1881	3102.32	59.6	60.1	1612
Leicester	949342	570	2140.17	40.9	41.8	1666
Manchester	2576017	1609	2259.12	57.2	56.4	1601
Leeds	1806686	1154	2893.01	40.8	39.1	1566
Bradford	764664	460	1903.28	46.1	46.3	1662

4.3.3 Segregation indices

As already mentioned, in this study I employ various segregation indices. The classical way of establishing how spatially segregated a population is by using the Dissimilarity Index (D). According to Massey and Denton (1988), the D served as a ‘standard segregation measure for 20 years’, following the seminal work by Duncan and Duncan (1955), which established its utility compared to other measures available at that time. Later on, however, scholarly debate emerged on the validity of this measure, questioning its capacity to fully capture segregation processes. Studies by Massey and Denton (1987; 1988; 1989), as well as more recent ones (Logan, Stults and Farley 2004; Massey 2012; Safi 2009), have acknowledged the importance of looking at the multidimensionality of segregation. In other words, spatial segregation can and should be

explored through different angles or dimensions. In this chapter, I consider four dimensions of segregation: evenness, exposure, concentration and clustering ([Massey and Denton 1988](#)).

The various dimensions of segregation are measured with indices that can be classified in two ways: absolute or relative, and aspatial or spatial. *Absolute* indices refer to one group, while *relative* indices measure the relative level of segregation of one group with respect to another (usually the majority population). The difference between *aspatial* and *spatial* measures is that the latter require information on size and location of the areas (LSOA) to be computed, while the former does not. Based on Massey and Denton ([1988](#)), who studied the performance of a wide range of indices, and following as well more recent studies ([Iceland, Weinberg and Steinmetz 2002](#)), this study makes use of six indices: Dissimilarity (D) to measure evenness; Isolation (xPx) and Interaction (xPy) to measure exposure; Relative Concentration (RCO) to measure concentration; and Absolute Clustering (ACL) and Spatial Proximity (SP) to measure clustering. Table 4.5 shows the four dimensions, along with the indices and their situation with respect to the above-mentioned classifications.

Table 4.5: Dimensions and segregation indices

Dimension	Index	Type			
		<i>Absolute</i>	<i>Relative</i>	<i>Aspatial</i>	<i>Spatial</i>
<i>Evenness</i>	Dissimilarity (D)	X		X	
<i>Exposure</i>	Isolation (xPx)	X		X	
	Interaction (xPy)		X	X	
<i>Concentration</i>	Relative Concentration (RCO)		X		X
<i>Clustering</i>	Absolute Clustering (ACL)	X			X
	Spatial Proximity (SP)		X		X

The Dissimilarity Index, used to determine *evenness*, measures the distribution of minority population across all units (LSOAs) within a larger area (HMA). Specifically, it can be interpreted as the proportion of a certain (minority) population that would need to change their neighbourhood or LSOA in order to achieve an equal distribution in the HMA; it can also be understood as the proportion of individuals of a certain group that would need to move for each neighbourhood to have the same percentage of that group as the housing market area overall. The formula of this index is shown in Table 4.16, where p_i is the proportion of unit's i

population that is minority, P is the proportion of minority members in the HMA, and T and t_i are the total populations in the wider area (HMA) and geographical unit (LSOA), respectively.

Table 4.6: Dissimilarity Index*

Index	Formula
Dissimilarity	$D = \frac{\sum_{i=1}^n [t_i (p_i - P)]}{[2TP(1 - P)]}$
$T =$ Total population in the HMA. $t_i =$ Total population in geographical unit i . $P =$ The ratio of X (total population of group X in the HMA) to T $p_i =$ The ratio of x_i (total population of group X in geographical unit i) to t_i $n =$ Number of spatial units in the HMA.	

* All formulas are taken from [\(Iceland, Weinberg and Steinmetz 2002\)](#).

What this index measures can be better understood in Figure 4.2 ([adapted from Iceland, Weinberg and Steinmetz 2002](#)), which illustrates how indices capture different dimensions of segregation, and also how high and low segregation look for each index. The eight bigger squares in Figure 4.2 represent housing market areas, while the nine smaller squares within them represent LSOAs; each circle represents an individual, which can be either from the majority population (blue) or from the minority population (red). Figure 4.2a, which illustrates the evenness dimension, shows that a situation of high segregation would be one in which each neighbourhood or LSOA is inhabited by only one group, no matter where these neighbourhoods are located within the larger area; conversely, a situation of low segregation would be one in which each area contains more or less equal quantities of each group. The Dissimilarity Index varies between 0 (even distribution; no segregation) and 1 (completely uneven distribution; high segregation).

The dimension of *exposure* refers to the degree of potential contact between individuals in the same LSOA. The basic assumption is that by virtue of living in the same neighbourhood or residential area, individuals are physically exposed to one another. Thus, exposure indices measure the extent to which individuals have the opportunity to confront each other in a given space and, following Massey and Denton ([1988](#)), they can also be interpreted in terms of

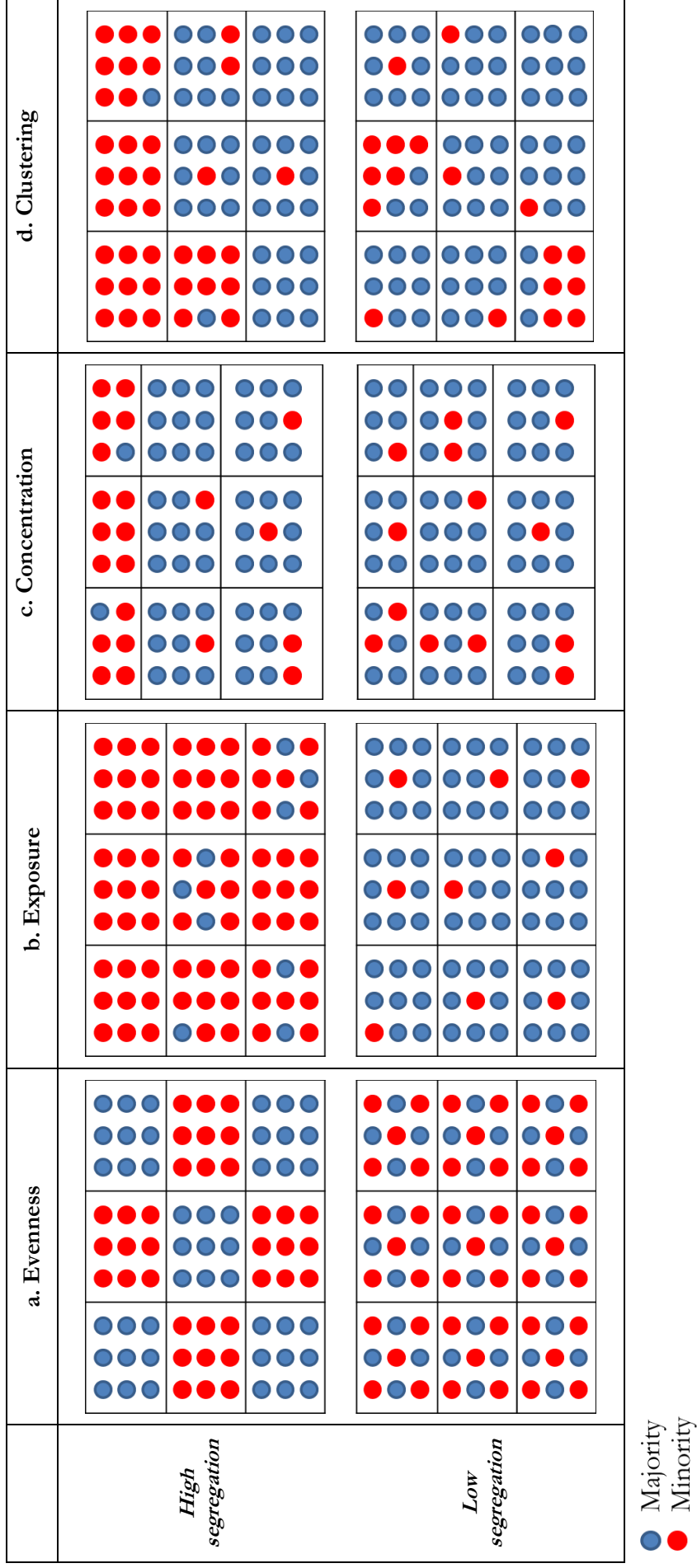
“experienced segregation”. There are two main indices within this dimension: the Isolation Index (xPx) and the Interaction Index (xPy). The first is used to measure the exposure between individuals of the same group; while the second measures exposure between minority and majority/other groups. The formulas of these indices can be observed in Table 4.15, where x_i , y_i and t_i are the numbers of X members (e.g. Pakistani), Y members (e.g. white British) and the total population of unit i , respectively, and X represents the number of X individuals in the wider area (e.g. total number of Pakistanis in the HMA). These indices are interrelated: in the hypothetical situation in which there are only two groups in the HMA, the sum of xPx and xPy will equal 1; if there are more than two groups, then the sum of all intergroup probabilities plus the isolation index will equal 1.

Table 4.7: Interaction and Isolation Indices

Index	Formula
Isolation	$xPx = \sum_{i=1}^n \left[\left(\frac{x_i}{X} \right) \left(\frac{x_i}{t_i} \right) \right]$
Interaction	$xPy = \sum_{i=1}^n \left[\left(\frac{x_i}{X} \right) \left(\frac{y_i}{t_i} \right) \right]$
<p>T = Total population in the HMA. t_i = Total population in geographical unit i. X = Total population of group X in the HMA. x_i = Total population of group X in geographical unit i. y_i = Total population of group Y in geographical unit i. n = Number of spatial units in the HMA.</p>	

A specific feature of these indices is that they are sensitive to the relative sizes of the groups. If the group being compared is relatively large within a certain HMA, then the likelihood that their members will meet someone of the same group is greater (and the likelihood that they will meet someone from another group is smaller). Conversely, if the group is small, their members have a greater likelihood of meeting people from the majority/comparison group. In this regard, a group might be unevenly distributed, but at the same time, be very likely to meet people from the majoritarian or other groups if its number of members is small. This can be better observed in Figure 4.2b.

Figure 4.2: Dimensions of segregation



The upper part of Figure 4.2b presents an area in which the number of minority members is quite large: here we would find high segregation, since they have a greater likelihood of meeting someone from their own group (measured with xPx), and a smaller likelihood of meeting someone from the majority group (measured with xPy). Conversely, the lower part of the figure shows a situation of low segregation, that is, a situation in which there is a great deal of contact between minority and majority members, due to the fact that the former constitute a small share of the total population living in the larger area or HMA. Note finally that this dependence on the sizes of the groups has two other implications. On the one hand, it implies that the Interaction Index is not symmetrical: that is, xPy is different than yPx , unless the two groups cover the entire population. On the other hand, and in terms of comparison over time, it also implies that Isolation and Interaction Indices are affected by population growth: an increase of members of a minority group is likely to lead to an increase in xPx for that group, and a decrease in xPy with respect to the white British. Both the Isolation and Interaction Indices vary between 0 and 1 and can be interpreted as the likelihood of sharing the same area with an individual of the same or different group. For the purposes of this chapter, I use two versions of xPy : one compares each ethnic minority to the white British (xPy_{wb}); the other compares each ethnic minority and the white British to all non-white ethnic minorities (xPy_{nw}).

The dimension of *concentration* expresses the degree to which minority members occupy a small share of a wider geographical area. In practise, this means that ethnic minorities are mainly located in the smaller neighbourhoods (in our case, LSOAs). I measure concentration with a relative index, the Relative Concentration Index (RCO), which measures the concentration of a group relative to a second group, in this case the white British. The Index varies between -1 and 1, where a score of 1 means that the concentration of the minority group exceeds the one of the white British to the maximum extent possible; -1 means the converse; and 0 means that both groups are equally concentrated in the urban space. This index is ‘spatial’ in that it takes into consideration the shape and size of LSOAs (although not their relative position in the wider area). The formula for this index can be seen in Table 4.13, where the geographical units are ordered by geographic size from smallest to largest; a_i is the land area of unit i , and the two numbers n_1 and n_2 refer to different points in the rank ordering of geographical units from smallest to largest: n_1 is rank of the LSOA where the cumulative total population of geographical units equals the total minority population of the HMA, summing from the smallest unit up; and n_2 is the rank of the LSOA where the cumulative total population of

units equals the minority population totalling from the largest unit down. T_1 equals the total population of units from 1 to n_1 , and T_2 equals the total population of units from n_2 to n . As before, X and Y is the number of group X and group Y members in the HMA. “This index takes the ratio of X members' to Y members' concentration and compares it with the maximum possible ratio that would be obtained if X were maximally concentrated and Y minimally concentrated, standardizing the quotient so that the index varies between -1 and 1 (...) The relative concentration index measures the share of urban space occupied by group X compared to group Y ” ([Massey and Denton 1988, pp. 291](#)). Figure 4.2c again shows examples of housing market areas with high and low segregation: in the upper part of the figure, we can see that most minority members are located in the smaller neighbourhoods, while the lower part shows a more equal distribution.

Table 4.8: Relative Concentration Index

Index	Formula
Relative Concentration	$RCO = \frac{\left[\frac{\sum_{i=1}^n \left(\frac{x_i a_i}{X} \right)}{\sum_{i=1}^n \left(\frac{y_i a_i}{Y} \right)} - 1 \right]}{\left[\frac{\sum_{i=1}^{n_1} \left(\frac{t_i a_i}{T_1} \right)}{\sum_{i=n_2}^n \left(\frac{t_i a_i}{T_2} \right)} - 1 \right]}$ <p style="text-align: right;">Spatial units are sorted by land area in ascending order</p>
$T_1 =$	Sum of all t_i in geographical unit 1 to geographical unit n_1 .
$T_2 =$	Sum of all t_i in geographical unit n_2 to geographical unit n .
$t_i =$	Total population in geographical unit i .
$X =$	Total population of group X in the HMA.
$x_i =$	Total population of group X in geographical unit i .
$Y =$	Total population of group Y in the HMA.
$a_i =$	Land area of geographical unit i .
$n =$	Number of spatial units in the HMA.
$n_1 =$	Rank 1.
$n_2 =$	Rank 2.

The last dimension studied is *clustering*. This dimension refers to the degree to which area units inhabited by certain social groups adjoin one another, or cluster, in the space. The more clustered the areas are, the higher the segregation will be. For example, if we compare with the previous measure, it might be the case that minorities occupy the smallest areas in two given cities; but if in one of the cities these areas are also close to one another, segregation in such city will be higher. Figure 4.2d shows very clearly what clustering means: in the upper part of the figure, neighbourhoods where ethnic minorities are located are also next to each other; while the lower part shows that these neighbourhoods are more spread out.

Within the dimension of clustering, Massey and Denton (1988) suggest that Spatial Proximity (SP) in the first place, and then Absolute Clustering (ACL) indices are the best measures²⁸. The ACL, which varies between 0 and (a number close to) 1 and can be interpreted as the average number of members of a certain group in nearby tracts, as a proportion of the total population in nearby tracts. Table 4.14 shows the formula for this index, in which the most important element is c_{ij} , which indicates to what extent areas are close to one another. This element represents the negative exponential of the distances between units i and j , and approximates contiguity by recognizing that the influence of surrounding areas drops off rapidly with distance from the target unit (Massey and Denton 1988).

The SP refers to the average of intra-group proximities weighted by the proportion of each group in the population. It equals 1 if there is no differential clustering between both groups; and is greater than one when member of both groups live nearer one another than each other. I have subtracted 1 from the index, so that it varies between 0 and 1. These are also ‘spatial’ indices, but rather than considering the size of areas (as the RCO), they take into consideration the relative location of the LSOAs in the space: specifically, they measure the extent to which LSOAs where a certain ethnic minority group lives are contiguous. The formula for this index, which can also be seen in Table 4.14, shows that SP is the average of intra-group proximities (P_{xx}/P_{tt} and P_{yy}/P_{tt}) weighted by the fraction of each group in the population.

²⁸ Note that although ACL is not very commonly used, I use it as complementary measure since I was not able to calculate SP at the national level and for London. The SP measures distance between geographical units, and this requires a large amount of disk space to make the calculations, which is not possible to make in areas where the number of LSOAs is very high.

Table 4.9: Absolute Clustering and Spatial Proximity Indices

Index	Formula
Absolute Clustering	$ACL = \frac{\left\{ \sum_{i=1}^n \left[\frac{X_i}{X} \sum_{j=1}^n c_{ij} X_j \right] - \left[\frac{X}{n^2} \sum_{i=1}^n \sum_{j=1}^n c_{ij} \right] \right\}}{\left\{ \sum_{i=1}^n \left[\frac{X_i}{X} \sum_{j=1}^n c_{ij} t_j \right] - \left[\frac{X}{n^2} \sum_{i=1}^n \sum_{j=1}^n c_{ij} \right] \right\}}$
Spatial Proximity	$SP = \frac{(XP_{xx} + YP_{yy})}{TP_{tt}}$ <p style="text-align: right;">where $P_{gg} = \sum_{i=1}^n \sum_{j=1}^n \left[\frac{(g_i g_j c_{ij})}{G^2} \right]$ and $\{g, G\} = \{x, X\}, \{y, Y\}, \{t, T\}$</p>
<p>P = Proportion of group in the HMA, X/T. T = Total population in the HMA. t_i = Total population in spatial unit i. X = Total population of group X in the HMA. x_i = Total population of group X in spatial unit i. x_j = Total population of group X in spatial unit j. Y = Total population of group Y in the HMA. y_i = Total population of group Y in spatial unit i. y_j = Total population of group Y in spatial unit j c_{ij} = c_{ij} the exponential transform of dij [= exp(-dij)] (dij = distance between the centroids of spatial units i and j.) n = Number of spatial units in the HMA.</p>	

Additional information about the relationship between various indices can be found in Table 4.15, which shows the correlation between indices used in this chapter. The correlation coefficients were created by analysing a dataset containing the segregation indices observed in Tables 4.16 and 4.17, that is, those for each ethnic minority group and the white British in each HMA (indices for non-whites were excluded). A first finding from this table is that all indices are related to each other; moreover, there are some particularly high correlations: for example, the evenness measure (D) is very much (positively) correlated with the interaction measures, meaning that groups (within HMAs) that have a high D also usually have a high interaction with non-whites (and a low interaction with white British); the isolation index (xPx) has a high correlation with clustering measures, meaning that groups that are more exposed to each other are also more likely to be clustered in the space. We also observe that the highest the relative concentration

(RCO), the lowest the interaction with the white British, which might be connected to the higher concentration of ethnic minorities in central areas. Finally, note also that a high interaction with non-whites means a low interaction with white British: the coefficient for this relationship is close to one, which is probably due to the fact that these two populations constitute most of the population in each HMA.

Table 4.10: Correlation between segregation indices (2011)

	D	xPx	xPy_wb	xPy_nw	RCO	ACL	SP
D	1						
xPx	0.66	1.00					
xPy_wb	-0.83	-0.65	1.00				
xPy_nw	0.83	0.67	-0.99	1.00			
RCO	0.70	0.52	-0.85	0.82	1.00		
ACL	0.64	0.99	-0.64	0.66	0.51	1.00	
SP	0.56	0.88	-0.66	0.64	0.53	0.90	1.00

Source: Author’s own calculations based on aggregated census data

Given the results in Table 4.15 one could argue that so many indices are not necessary. However, since the seminal work by [Massey and Denton \(1988\)](#) the literature has emphasized the importance of studying different dimensions of segregation. All indices are – hence – equally important. Note that although xPy_wb and xPy_nw are very much related, for descriptive purposes, I have decided to keep both in the coming tables. Finally, note that all segregation indices of my “own calculations” were made with the Geo-Segregation Analyser ([Apparicio, Fournier and Apparicio 2012](#); [Simpson 2013](#)), an open-source software that works with geo-referenced data²⁹.

4.4 What is high and what is low in terms of spatial segregation?

When studying spatial segregation it is important to have some benchmark against which to judge the results. The main objective of this section is to provide examples that can give us a general idea of how spatial segregation indices look like in different contexts, for varied geographies, and

²⁹ Census data was geo-referenced with the help of another open-source software, the Quantum GIS (<http://www.qgis.org/en/site/index.html>). This program was also used to create the maps at the end of the Chapter. The ‘empty maps’ or digital vector boundaries for LSOAs, to which I have attached census data, were obtained from the Open Geography Portals of the Office of National Statistics (<https://geoportal.statistics.gov.uk/geoportal/catalog/main/home.page>).

for different groups. Table 4.11 shows segregation indices for the most numerous non-white immigrants and ethnic minorities in the US ([Iceland, Weinberg and Steinmetz 2002](#)), France ([Safi 2009](#)) and England (own calculations). The indices were calculated for selected metropolitan areas in each country (the most populous ones), and in the US a summary of these³⁰ is also provided. The table also includes what Massey and Denton ([1989](#)) have declared, in the US case, as the thresholds that should be met in various segregation indices to refer to a group as 'highly segregated'.

Looking at the three measures available for the three countries (D, xPx and SP), we observe that in London, and particularly in Paris, the levels of segregation of the most numerous non-white groups tend to be lower than in the selected US metropolitan areas. The Dissimilarity Index varies roughly between 25 and 80. African populations in Paris and Chinese in London are the least segregated groups, while blacks in New York and Chicago are the most segregated ones. For example, between 60% and 80% of the African population in the selected US cities would need to change their residence (i.e. census tract) in order to make their distribution even in the larger metropolitan area; this drops to around half (or even less) in Paris and London. The Isolation Index varies between 2% and 83%, with the highest values found in the US, where the probabilities that ethnic minorities 'interact' with a co-ethnic in the same geographical unit are between 55% and 83%. Paris, on the other hand, presents particularly low levels of segregation measured in this way, with values that vary between 3% and 4%. For London the values have an intermediate position, but are still farther away from the 70% threshold when compared to US cities. A similar pattern is observed for the Spatial Proximity Index, which varies between 0.25 and 0.73 in the US, but drops to less than 0.29 in Europe. In the selected US metropolitan areas, minority groups tend to be closer to each other than to the white majoritarian population, when compared to those in Paris or London. Another piece of information emerging from Table 4.11 is that differences in terms of segregation levels are higher when we compare indices for different metropolitan areas than when we compare indices calculated with different geographical units (in the case of segregation in London, measured by Wards and LSOAs).

³⁰ Metropolitan Areas included here are those that in 1980 have at least 10 tracts and 3% (or a minimum of 20000) of the group for which the index is calculated.

Table 4.11: Segregation indices for immigrants and ethnic minorities in metropolitan areas in the US (2000), France (1999) and the United Kingdom (2001)

Geographical units	Area	Group	Evenness D	Exposure xPx	Concentration RCO	Clustering ACL	SP
US							
	"High segregation"		>60	>70	>0.7		>0.6
Census tracts 2500-8000 individuals	All metropolitan areas (average)	African	64.5	60.1			0.38
		Hispanic	51.7	58.5			0.25
	New York	African	81.2	82.7			0.47
		Hispanic	66.7	70.8			0.35
	Chicago	African	79.9	77.6			0.73
		Hispanic	61.1	55.0			0.42
Los Angeles	African	66.4	65.2			0.56	
	Hispanic	63.1	79.1			0.35	
France							
Communes de residence 500-10000 individuals	Paris (Ile-de-France)	Algerian	34.0	4.0	76.0	3.0	0.01
		Moroccan	35.0	4.0	76.0	2.3	0.01
		Sub-Saharan Africa	33.0	4.0	76.0	3.0	0.01
		Turk	49.0	3.0	74.0	1.0	0.01
	Paris (petite couronne)	Algerian	28.0	4.0	75.0	1.6	0.01
		Moroccan	27.0	4.0	75.0	1.2	0.00
Wards 100-30000 individuals	London (inner+outer)	Indian	47.2	17.8	45.7	0.19	0.13
		Pakistani	47.2	6.4	44.3	0.33	0.07
		Bangladeshi	62.2	19.6	42.6	0.59	0.29
UK							

Geographical units	Area	Group	Evenness			Exposure			Concentration			Clustering	
			D	xPx	xPy	xPx	xPy	RCO	RPO	ACL	SP		
		Chinese	25.1	1.7	55.7	0.24		0.6	0.01				
		Caribbean	40.5	9.3	48.7	0.42		5.1	0.07				
		African	37.1	10.0	49.2	0.41		5.1	0.08				
		Indian	49.2	19.4	44.2	0.20		13.8	0.15				
		Pakistani	50.2	7.3	42.6	0.32		5.0	0.08				
		Bangladeshi	64.9	22.5	39.7	0.54		17.8	0.28				
		Chinese	32.1	2.1	55.0	0.22		0.7	0.01				
		Caribbean	42.8	9.9	47.7	0.44		5.4	0.08				
		African	41.3	11.3	47.3	0.45		5.4	0.08				
Minimum and maximum													
		<i>Minimum</i>	25.1	1.7	39.7	0.19		0	0				
		<i>Maximum</i>	81.2	82.7	76	0.59		17.8	0.73				

Note: xPy (and D for the French case only) is calculated with respect to whites (US; UK) and individuals born in the country (France). SP is SP-1. The units of analysis are census tracts in the US (average 4000 people); communes in France (less than 500 in their majority, to 10000); and LSOAs in England (average 1500 people).

Sources: US [Iceland, Weinberg and Steinmetz \(2002\)](#); France [Safi \(2009\)](#); England: the author's own calculations based on aggregated census data (obtained from: www.neighbourhood.statistics.gov.uk).

Table 4.12 shows segregation indices for two socio-economic groups: high professional and managerial, and routine manual. In terms of the NS-SEC classification (see Chapter 2 for details on this variable), they are located in the highest and lowest position on the social scale. I have calculated these indices for the different HMAs studied in this chapter. Note that the relative indices (xPy, RCO and SP) were calculated between those in the higher classes and individuals with no (high/low) professional and managerial occupations (including never worked and long-term unemployed, but excluding full-time students). It shows that segregation by social class is systematically lower compared to the results in Table 4.11 when measured with D (which varies between 18.3 and 29.4 in the selected HMAs); however, more varied conclusions arise when looking at the other indices. In London, for example, the isolation (xPx) of high professionals is as high as the isolation of Indians and Bangladeshi, and much higher compared to that of the remaining ethnic minorities.

Table 4.12: Segregation indices for individuals with high professional/managerial and routine occupational status (NS-SEC) in each HMA (2011)

Area	NS-SEC	Evenness	Exposure		Concentration	Clustering	
		IS	xPx	xPy	RCO	ACL	SP
London	High professionals	25.5	18.4	52.7	-0.10	6.7	
	Routine	21.7	10.9			2.8	
Reading	High professionals	21.4	14.0	25.7	-0.62	3.9	0.02
	Routine	19.8	13.9			3.8	
Luton & Milton Keynes	High professionals	18.3	19.0	52.7	-0.30	5.3	0.03
	Routine	21.9	10.4			2.6	
Birmingham	High professionals	29.4	13.1	63.0	-0.91	5.1	0.03
	Routine	19.5	16.5			4.2	
Leicester	High professionals	24.1	13.7	62.4	-0.76	4.4	0.03
	Routine	20.1	17.5			4.2	
Manchester	High professionals	29.1	14.9	59.6	-0.65	5.9	0.04
	Routine	22.2	15.8			4.0	
Leeds	High professionals	27.6	13.8	61.2	-0.65	5.0	0.03
	Routine	22.7	18.1			5.0	
Bradford	High professionals	26.9	12.6	62.8	-0.69	4.8	0.03
	Routine	19.3	15.9			3.7	
<i>(Minimum)</i>		<i>18.3</i>	<i>10.4</i>	<i>25.7</i>	<i>-0.91</i>	<i>2.6</i>	<i>0.02</i>
<i>(Maximum)</i>		<i>29.4</i>	<i>19.0</i>	<i>63.0</i>	<i>-0.1</i>	<i>6.7</i>	<i>0.04</i>

Note: xPy for high professionals is calculated with respect to individuals with no (high/low) professional occupation (including never worked and long-term unemployed, but excluding full-time students); while xPy for Routine workers is calculated with respect to high/low professionals, intermediate and self-employed. SP is SP-1. The units of analysis are LSOAs.

Source: Author's own calculations based on aggregated census data for England and Wales (obtained from: www.neighbourhood.statistics.gov.uk).

This section has provided a baseline for discussing the various indices shown below; but before moving to the segregation analysis, I offer a general overview of how white British and ethnic minorities distribute across housing market areas, and also across metropolitan areas, in 2001 and 2011.

4.5 Distribution of groups in HMAs and metropolitan areas

Table 4.13 shows the distribution of white British and ethnic minorities in England as well across housing market areas in 2001 and 2011. Between 2001 and 2011, non-white ethnic minorities in England increased in their proportion, while white British decreased. The highest relative increase was in the African population, followed by Pakistani, Bangladeshi and Chinese populations; the group with the most stable population was Caribbean, which is also the ethnic minority with the longest stay in the country.

Regarding their location in HMAs, looking at the 2001 data, most Africans lived in London; Caribbean and Bangladeshi populations also held their majority in this HMA, with sizeable proportions in Birmingham. Bangladeshis are also found in Manchester and a HMA next to London: Luton & Keynes. Pakistanis are more dispersed in England: the biggest proportions are in London, Birmingham, Manchester and Bradford. Smaller groups are in the HMAs around London (Reading and Luton & Milton Keynes) and Leeds. Indian and Chinese populations, finally, have a bit less than half of their number in London; sizeable groups of Indians are also located in Birmingham and Leicester, while Chinese are more spread out. In fact, they are the group with the highest proportion in the category 'Rest of England', which are the HMAs with relatively lower proportions of non-whites. This structure was more or less maintained for most groups in 2011. An exception, however, is the Caribbean population, which decreased its proportion in London by around 17% points (and its proportion in the 'Rest of England' doubled). Note also that all groups decreased their proportion in London, but to a much lesser extent (the maximum is a 5%- point decrease for Bangladeshi persons).

Table 4.13: Distribution of white British and ethnic minorities in England (row %) and across housing market areas (column %); 2001 and 2011

	White British	All non-white	Indian	Pakistani	Bangladeshi	Chinese	Caribbean	African
2001								
England	87.17	7.63	2.09	1.40	0.54	0.44	1.12	0.94
London	18.9	52.9	47.8	23.6	59.8	45.2	64.3	82.8
Reading	2.7	2.8	3.2	4.8	0.6	2.5	2.3	1.5
Luton & Milton Keynes	1.8	2.4	2.0	3.7	4.2	2.1	2.6	1.6
Birmingham	5.6	10.5	12.9	17.3	9.0	4.0	12.8	1.7
Leicester	1.7	3.3	8.8	0.7	1.3	1.7	1.0	0.8
Manchester	5.1	5.0	3.5	10.8	7.5	5.2	2.9	2.1
Leeds	3.8	2.8	2.9	6.5	1.1	2.1	2.0	0.6
Bradford	1.4	2.8	1.3	11.2	1.7	0.6	0.6	0.2
Rest of England	59.0	17.5	17.5	21.4	14.9	36.5	11.5	8.6
Total	41739029	365288	999218	671320	259479	210002	538470	451819
2011								
England	80.09	12.08	2.60	2.08	0.81	0.66	1.10	1.79
London	17.7	50.0	45.6	23.4	54.8	41.7	62.5	66.1
Reading	2.6	3.1	3.9	5.0	0.9	2.5	2.2	2.3
Luton & Milton Keynes	1.8	2.7	2.2	3.9	4.6	1.9	2.7	2.8
Birmingham	5.5	9.8	11.5	16.5	9.9	4.5	13.0	4.3
Leicester	1.7	3.1	8.8	0.9	1.4	2.0	1.0	1.5
Manchester	5.0	5.7	3.9	11.9	8.2	6.4	3.0	4.3
Leeds	3.8	2.9	2.8	6.3	1.3	2.3	2.0	2.0
Bradford	1.4	2.7	1.1	11.0	2.2	0.7	0.7	0.6
Rest of England	60.6	19.9	20.3	20.9	16.7	37.9	12.8	16.1
Total	40925897	6172142	1327640	1063792	412420	338522	564593	914097

Source: Author's own calculations based on aggregated census data

Table 4.14 shows the proportion of ethnic minorities in metropolitan areas in England and within each HMA, both for 2001 and 2011. Note that within the London HMA, only 1% is non-metropolitan. For this reason, I delineated Inner London, Outer London and an extended area (all metropolitan), which comprise 99% of the London HMA. The definition of metropolitan and non-metropolitan, as well as of inner, outer and extended London, are based on Rees and Butt (2004)³¹.

Following an historical pattern of settlement – related to sources of jobs – ethnic minorities tend to reside in metropolitan areas: around 85% of non-white ethnic minorities live in urban areas, while only a bit less than 50% of white British do. Between 2001 and 2011, the share of ethnic minorities living in metropolitan areas decreased for all groups, except the Pakistani. This might suggest suburbanization processes, in line with previous findings based on migration data for 1991-2001 (Rees and Butt 2004; Simpson and Finney 2009). The groups with the highest relative decrease in metropolitan areas are African and Indian: interestingly, are also the most educated groups, which might speak of processes of spatial assimilation that are a consequence of socio-economic improvement.

Moving to more detailed information on HMAs, we observe that in general ethnic minorities have higher shares in metropolitan areas than white British. Leaving aside London, we observe that housing market areas where this contrast is more dramatic are Birmingham, Leicester and Luton & Milton Keynes. In London, where the majority of ethnic minorities are located, Table 4.14 shows that ethnic minorities are usually more likely to be in inner and outer London, while the white British are more overrepresented in the extended area. Moreover, contrary to the earlier decade, for which the analysis by Rees and Butt did not show much consistency in the patterns of change between 1991 and 2001, the data for 2001-2011 shows a pattern that might suggest a process of suburbanization to the outskirts of the city, if we assume that HMAs work as such, that is, as areas within which individuals more often search for a new residence. Except for Chinese, all groups decreased their proportion in Inner London, and increased their proportion in the extended area (many groups also increased their proportion in Outer London).

³¹ The authors include Luton and Reading in the extended area around London, while here I have privileged their situation as separate HMAs.

Table 4.14: Percentage of white British and ethnic minorities in metropolitan areas (in England and within HMAs, except for London); percentage of white British and ethnic minorities in inner, outer and extended London (column %); 2001 and 2011

	White British	All non-white	Indian	Pakistani	Bangladeshi	Chinese	Caribbean	African
England								
2001	47.24	86.59	85.20	86.61	87.51	70.28	91.76	93.58
2011	45.40	84.87	81.92	86.75	86.31	70.10	90.55	89.08
London								
2001								
<i>Inner</i>	17.1	41.8	17.4	26.9	78.5	38.8	52.9	58.1
<i>Outer</i>	36.0	50.5	72.2	61.3	16.1	42.4	43.2	38.5
<i>Extended</i>	45.5	7.7	10.3	11.7	5.3	18.5	3.8	3.4
2011								
<i>Inner</i>	16.3	36.4	17.0	23.3	68.2	42.0	47.3	43.4
<i>Outer</i>	32.9	53.0	69.6	64.2	25.0	39.5	46.9	46.8
<i>Extended</i>	49.1	10.5	13.3	12.5	6.7	18.4	5.7	9.6
Reading								
2001	75.9	94.4	94.8	98.9	78.2	82.4	92.5	94.0
2011	74.5	93.7	93.7	98.6	86.2	83.9	92.8	92.2
Luton & Milton Keynes								
2001	29.2	55.2	42.0	69.1	70.6	31.4	57.7	48.6
2011	26.8	54.1	41.2	71.2	72.1	32.8	58.3	40.9
Birmingham								
2001	71.5	97.4	97.5	98.4	98.5	87.7	97.4	96.3
2011	69.6	97.1	96.4	98.1	98.9	88.7	97.2	97.9
Leicester								
2001	22.7	77.7	79.9	83.7	58.3	37.7	81.5	82.9
2011	19.8	75.9	76.5	79.4	61.2	48.9	77.4	85.6

	White British	All non-white	Indian	Pakistani	Bangladeshi	Chinese	Caribbean	African
Manchester								
2001	86.4	97.5	97.9	98.5	96.2	94.1	98.5	98.3
2011	85.8	97.5	96.5	98.7	95.4	95.3	97.9	98.9
Leeds								
2001	90.9	98.7	99.3	99.9	99.0	90.7	99.3	95.4
2011	90.6	97.7	98.4	99.8	98.7	89.0	98.7	96.7
Bradford								
2001	91.0	99.4	99.7	99.6	99.7	90.7	99.4	98.3
2011	90.5	99.4	98.9	99.6	99.6	95.3	99.8	99.1
Rest of the country								
2001	21.2	37.4	35.9	45.9	32.3	29.9	44.8	39.2
2011	20.6	37.8	31.7	45.8	33.1	31.3	42.2	46.8

Source: Author's own calculations based on aggregated census data

Finally, another piece of information refers to the change in the ethnic composition in each of the HMAs. Rather than looking at the distribution of ethnic minorities across HMAs (shown in Table 4.13), Table 4.15 focuses on each HMA separately, so that we get a picture of how they changed in terms of their ethnic composition between 2001 and 2011. This information is valuable for the assessment of exposure indices, which, as we saw, depend on the relative share of groups.

Table 4.15 shows that the ethnic composition of HMAs is very varied, with London and Bradford having the highest (absolute and relative to the white British) share of non-white ethnic minorities: in 2011 London had 25% of ethnic minorities and Bradford 22%; these are followed by Birmingham (20%) and Leicester (20%). Manchester and Leeds, by comparison, have the lowest (relative to white British) share of ethnic minorities. In London, Indian and African form around 40% of all non-white ethnic minorities and 10% of the total population, and in Bradford 15% of the population is Pakistani. In Birmingham, Indian and Pakistani persons make up 10% of the population; while in Leicester Indian persons only comprise 12% of the total population.

With regard to changes made in the decade, there was a higher increase of ethnic minorities than of white British in all HMAs, which led to a change in the relative proportions of the groups. As we will see, this had a direct impact on the probabilities of interaction between the groups and therefore, in exposure indices: in particular, the results show that exposure to white British persons decreased for all groups, while exposure to non-whites increased for all groups (and for both ethnic minorities and white British).

Table 4.15: Distribution of white British and ethnic minorities within HMAs (row %); 2001 and 2011

	White British	All non-white	Indian	Pakistani	Bangladeshi	Chinese	Caribbean	African	Total
2001									
London	71.5	17.5	4.3	1.4	1.4	0.9	3.1	3.4	11048707
Reading	85.9	7.9	2.5	2.5	0.1	0.4	0.9	0.5	1301306
Luton & Milton Keynes	83.9	9.8	2.2	2.7	1.2	0.5	1.5	0.8	913868
Birmingham	82.0	13.4	4.5	4.1	0.8	0.3	2.4	0.3	2857091
Leicester	82.7	13.7	10.2	0.6	0.4	0.4	0.6	0.4	868892
Manchester	88.0	7.5	1.5	3.0	0.8	0.5	0.6	0.4	2426500
Leeds	91.0	5.9	1.7	2.5	0.2	0.3	0.6	0.2	1725523
Bradford	82.0	14.7	1.8	10.7	0.6	0.2	0.5	0.2	702005
2011									
London	59.3	25.3	5.0	2.0	1.9	1.2	2.9	4.9	12207124
Reading	77.2	14.0	3.8	3.9	0.3	0.6	0.9	1.5	1380252
Luton & Milton Keynes	73.5	17.0	2.9	4.3	2.0	0.6	1.6	2.6	977128
Birmingham	73.7	20.0	5.0	5.8	1.3	0.5	2.4	1.3	3032813
Leicester	74.6	19.9	12.3	1.0	0.6	0.7	0.6	1.4	949342
Manchester	80.2	13.7	2.0	4.9	1.3	0.8	0.7	1.5	2576017
Leeds	85.3	9.8	2.0	3.7	0.3	0.4	0.6	1.0	1806686
Bradford	72.6	22.1	1.8	15.4	1.2	0.3	0.5	0.7	764664

Source: Author's own calculations based on aggregated census data

4.6 Analysis of spatial segregation (2001-2011)

This section presents the results on spatial segregation. As we have seen, the previous findings based on segregation indices pointed to a decrease in segregation. However, I will show that this is not the case for all dimensions of segregation. Moreover, group differences remain, as well as differences based on the HMA under investigation.

4.6.1 Results for White British and (pooled) non-white ethnic minorities

Table 4.16 shows segregation indices for the white British and (pooled) non-white ethnic minorities for 2011, as well as the absolute difference with respect to the equivalents in 2001. Although the focus of the analysis is the spatial segregation of ethnic minorities, having a general idea of spatial segregation of the majoritarian population affords a better comparative perspective. The results show that for most housing market areas in 2011, non-white ethnic minorities were more unevenly distributed (have a higher D) than the white British; still, as can be seen from the table, the values of the Dissimilarity Index for the white British are considerable, if we compare them with some values obtained for France and the US (see Table 4.16). Furthermore, the white British were more exposed to one another than ethnic minorities (which is linked to the relative weight of each group), and generally more clustered in the space, although they were less concentrated (which is due to the highest share of ethnic minorities residing in inner metropolitan areas).

More interesting results arise from comparing the HMAs. In particular, two extremes can be identified: on the one hand we have Bradford (and to a lesser extent, Leicester and Leeds) as an example of an area with higher segregation, both of ethnic minorities and of white British. On the other hand, we have London (and, to a lesser extent, Luton & Milton Keynes and Reading), which has the lowest segregation levels, also for both groups. Bradford is the area where ethnic minorities (and also the white British) have the highest Dissimilarity Index: around 71% of non-white ethnic minorities and 65% of white British would need to change their place of residence to make their distribution even across LSOAs in Bradford. In London, these values drop to 34%

and 48% respectively, also positioning ethnic minorities in a better position as compared to the majoritarian population (which is actually a minority in London in 2011)³².

Differences between Bradford and London arise as well in other dimensions of segregation. In Bradford, exposure of non-whites to each other within the neighbourhood (or LSOA) is very high: non-whites have around 61% probability of being in an area with other non-whites, compared to a 2% probability London (a very low value). The same is observed for the white British, who in Bradford have around 85% probability of sharing the neighbourhood with other co-ethnics, while this value drops to 71% in London. Also in Bradford, ethnic minorities occupy the smallest share of the space compared to the white British (have the highest RCO) and where both absolute (ACL) and relative (SP) measures of clustering are the highest. This means, on the one hand, that the location of white British and ethnic minorities is, to a greater extent, determined by neighbourhoods of similar ethnic characteristics that adjoin one another in the space; and, on the other, that members of each group live closer to one another than to each other. Note also that London is the only HMA in which ethnic minorities are both more evenly distributed and less clustered than the white British.

This better picture for London is good news in terms of segregation, since, as we saw, many non-white ethnic minorities are located here. Although segregation based on ethnicity is still higher compared to segregation based on social class (see Table 4.12), it is lower compared to the segregation levels of some ethnic minorities in the US (see Table 4.11). This, however, is not the case of Bradford and Leicester. Here, the Dissimilarity Index for non-whites is quite similar to the average Dissimilarity Index of blacks in metropolitan areas in the US (although the US figure would probably be higher if measured for smaller geographical areas). Furthermore, given the values of D (between 64 and 71), xPx (between 56 and 61), RCO (around 0.9) and SP (between 0.5 and 0.8), these two areas approach what [Massey and Denton \(1988\)](#) have defined as “highly segregated” groups. Note finally that these patterns are very similar to those observed for 2001, which reveals that the relative position of HMAs in terms of their levels of segregation did not change much in the decade. However, there are some tendencies toward change worth noting, which I detail below.

³² Note that although London has a very high population density, which might be a reason why segregation levels are relatively lower, the areas next to it (Luton & Milton Keynes and Reading) do not (see Table 4.4).

Table 4.16: Segregation indices for non-white ethnic minorities and white British in 2011, and difference with respect to 2001; HMAs

Area	Group	Evenness		Exposure				Concentration		Clustering					
		D	Dif.	xPx	Dif.	xPy_wb	Dif.	xPy_nw	Dif.	RCO	Dif.	ACL	Dif.	SP	Dif.
London	White British	47.99	0.35	70.96	-7.54			16.38	4.30			38.19	-6.34		
	All non-white	46.72	-3.85	43.20	6.67	38.37	-10.95			0.81	-0.01	27.63	4.06		
Luton & Milton Keynes	White British	44.43	3.94	80.21	-6.59			11.43	4.15			44.58	-8.67		
	All non-white	49.16	-0.67	37.77	8.59	49.55	-12.91			0.83	-0.01	29.28	7.37	0.46	0.14
Reading	White British	40.92	4.30	82.09	-5.89			9.93	3.83			46.59	-8.61		
	All non-white	49.25	-2.00	33.35	6.73	54.81	-11.25			0.73	0.01	23.43	5.35	0.35	0.09
Birmingham	White British	52.57	1.09	82.73	-4.91			11.71	3.48			51.39	-7.25		
	All non-white	56.94	-2.47	48.30	4.85	43.15	-7.07			0.83	-0.01	35.67	3.54	0.41	0.04
Leicester	White British	58.78	0.56	85.06	-4.01			10.01	2.47			55.45	-6.04		
	All non-white	64.22	-1.99	55.70	5.85	37.56	-8.06			0.88	-0.01	44.22	5.27	0.79	0.11
Manchester	White British	47.98	1.42	85.52	-5.07			8.97	3.77			50.13	-11.26		
	All non-white	55.39	-3.85	39.06	6.81	52.60	-8.33			0.78	0.02	27.95	7.52	0.25	0.08
Leeds	White British	51.90	0.36	89.24	-3.79			6.33	2.23			58.48	-8.65		
	All non-white	61.06	-2.72	37.04	4.92	55.07	-7.92			0.77	-0.01	26.97	4.96	0.32	0.09
Bradford	White British	65.31	1.50	85.81	-3.65			9.66	2.33			57.31	-3.65		
	All non-white	70.84	-2.16	61.06	6.12	31.67	-9.31			0.94	0.00	48.99	5.93	0.54	0.10

Source: Author's own calculations based on aggregated census data

First of all, ethnic minorities were more evenly distributed in 2011 than in 2001: they decreased their D at the national level and also in each HMA, London and Manchester being the areas with the highest decreases (around 4 points). Interestingly, the white British have, in most cases, followed the opposite pattern: in particular, their Dissimilarity Index mostly increased in the two areas situated next to London: Luton & Milton Keynes and Reading (also an increase of around 4 points). Another finding is that, due to the change in the composition of the HMAs observed in Table 4.15, in 2011 both white British and non-white ethnic minorities were more likely to meet other non-white ethnic minorities and less likely to meet other white British in the neighbourhood, which is observed in the increases of xPx and xPy indices. However, these patterns are stronger for ethnic minorities (i.e. the increases are higher), which might encourage higher spatial segregation of minorities in the long term. Going to the other measures, the RCO reveals that the concentration of ethnic minorities with respect to the white British was generally maintained (the variations are very small); while the measures of clustering show that, for all areas, ethnic minority groups are more clustered in 2011 than in 2001, while the white British experienced the opposite pattern. This is expressed in the increases in ACL and SP for all HMAs: in 2011, ethnic minorities are more likely to live in neighbourhoods that adjoin one another, and also to live closer to one another than to the white British, compared to one decade earlier.

All in all, these results show that although non-white ethnic minorities have become more evenly distributed across units in the space, the other dimensions point to a higher segregation: first of all, their exposure to white British (and to other non-white) decreased (increased) more, compared to that experienced by white British; second, their levels of clustering increased (both ACL and SP), for which they are more likely to be in areas that adjoin one another, and also more likely to meet someone from the own group (vs. a white British). Third, considering again the two extreme cases, London and Bradford, and looking at the tendencies between 2001 and 2011, it comes out that the gap between the two in terms of segregation levels increased. In other words, although the patterns of increase/decrease in segregation are the same direction for both areas, the improvement that Bradford made in terms of spatial segregation is not as good as that that London made (or the worsening not as bad). For example, while the white British increased their D by 0.35 points in London, they did so by 1.5 points in Bradford; similarly, ethnic minorities decreased their Dissimilarity by almost 4 points in London, while this decrease was only half in Bradford. Measures of clustering also show this pattern very well: while in London the decrease in ACL is of around 6 points for the white British, meaning that in 2011 they lived in areas that had on average 6% points fewer white British, in Bradford the reduction is less than

4%. For ethnic minorities, on the other hand, the increase in clustering is higher in Bradford, where they are now around 6% points more likely to live in neighbourhoods with other non-whites, on average (while this drops to 4% in London). Finally, recall that the greatest improvements in terms of segregation seem to be the case of Birmingham and, to a lesser extent, Leeds; while the worst situation seems to be that of Luton and Milton Keynes.

4.6.2 Results for ethnic minority groups

Table 4.17 shows the results divided by ethnic minority group. The values express the same as Table 4.16, that is, segregation indices for 2011 and the difference with respect to 2001, which are shown for England and for each HMA. Moreover, I added as well a ranking of groups/HMAs in terms of their average segregation levels for 2001 and 2011, and a ranking in terms of the average change in the decade³³. A higher rank means that segregation levels are higher for a certain group in a certain HMA, or that the group/HMA is worse-positioned in terms of change in the levels of segregation (either because its segregation levels tended to increase, or because it experienced a less-pronounced decrease compared to the other groups/HMAs).

³³ For calculating the ranking of groups/HMAs I followed the following steps. First I selected one segregation measure for each dimension, so as to give equal weight to each dimension: D, xPy_wb, RCO and ACL. D, RCO were unique measures of evenness and concentration, respectively, while ACL was preferred to SP since SP could not be calculated for London. Among the measures of interaction, I excluded xPx, due to its high correlation with RCO and ACL (see Table 4.10); correlations between xPy measures with the other indices were very similar, and I preferred xPy_wb because I found the interaction with the white British more relevant as a measure, in line with the assimilation perspective (as a robustness check, I also produced rankings with all indices, and the order of groups/HMAs is practically the same: available upon request). After selecting the four indices, I assigned a rank to each group/HMA based on their value of each segregation index in 2001 and 2011, and also on their change between 2001 and 2011: this led to 12 ranks (4 indices x 3). Then, for each year and for the change 2001-2011, I summarized these ranks (calculated the average); and finally, I ranked these averages, which led to having one ranking of groups/HMAs for 2001, one for 2011 and one for the change 2001-2011. The ranking of groups/HMAs varies between 1 and 43 for 2001, between 1 and 44 for 2011 and between 1 and 39 for the difference (this variation is due to some repetition in the averages, which led some groups/HMAs to have the same rank).

Table 4.17: Segregation indices for ethnic minority groups in 2011, and difference with respect to 2001; HMAs

Area	Group	Evenness		Exposure			Concentration		Clustering			Rankings						
		D	Dif.	xPx	Dif.	xPy_wb	Dif.	xPy_nw	Dif.	RCO	Dif.	ACL	Dif.	SP	Dif.	2001	2011	Dif.
London	Indian	50.19	-2.79	17.62	-0.33	36.90	-11.57	47.44	8.02	0.74	-0.01	13.31	-0.19			26	28	20
	Pakistani	55.84	-0.85	9.18	1.69	33.47	-13.27	50.14	9.29	0.80	0.00	6.76	1.54			30	30	35
	Bangladeshi	64.18	-4.09	18.65	-2.71	31.90	-10.28	51.34	6.07	0.87	-0.02	15.42	-1.84			38	38	12
	Chinese	35.27	-1.68	2.59	0.71	49.12	-12.10	30.78	6.93	0.68	0.05	1.14	0.44			8	8	34
	Caribbean	49.07	-5.47	7.75	-1.84	37.71	-11.57	41.80	6.70	0.83	-0.01	4.95	-1.41			29	26	7
	African	45.82	-7.61	12.16	1.21	39.94	-8.71	40.96	5.18	0.81	-0.04	6.93	0.40			30	24	4
Luton & Milton Keynes	Indian	41.13	-2.08	6.43	0.65	58.85	-12.71	28.46	8.44	0.73	-0.03	3.58	0.30	0.07	0.02	11	10	21
	Pakistani	67.90	-2.49	26.44	3.62	34.09	-14.73	53.87	10.78	0.93	0.00	22.80	4.38	0.61	0.27	38	41	38
	Bangladeshi	68.85	-4.86	13.79	-0.41	33.96	-12.94	52.24	7.99	0.93	-0.01	10.31	0.80	0.32	0.14	39	40	22
	Chinese	39.06	-4.63	1.44	-0.04	68.35	-11.06	20.00	6.73	0.58	-0.07	0.54	0.09	0.01	0.00	2	2	11
	Caribbean	42.78	-4.31	3.62	-0.32	57.26	-13.12	29.40	8.85	0.80	-0.02	2.02	-0.18	0.06	0.02	14	12	18
	African	44.71	-4.59	6.72	4.44	58.24	-11.83	28.77	7.23	0.82	-0.01	3.62	2.45	0.07	0.04	15	15	24
Reading	Indian	46.64	-5.16	11.35	-0.53	56.51	-8.95	32.06	4.85	0.68	-0.02	7.21	-0.59	0.15	0.01	16	14	5
	Pakistani	64.88	-5.57	20.91	1.17	42.74	-13.04	44.53	7.49	0.85	0.00	15.36	1.87	0.32	0.11	34	33	23
	Bangladeshi	51.26	-19.87	0.76	0.14	65.97	-15.09	23.32	11.02	0.62	-0.05	0.25	0.13	0.00	0.00	10	7	10
	Chinese	32.81	-4.54	1.19	0.31	73.47	-10.38	16.67	7.72	0.50	0.16	0.40	0.14	0.00	0.00	1	1	26
	Caribbean	49.64	-4.53	2.62	-0.51	60.00	-12.27	28.08	7.74	0.71	-0.03	1.49	-0.20	0.03	0.00	13	9	16
	African	49.60	-6.01	4.49	2.52	57.46	-13.38	29.87	8.68	0.73	0.00	2.42	1.40	0.06	0.04	12	11	24
Birmingham	Indian	51.22	-5.22	15.56	-2.82	51.33	-5.91	40.48	3.35	0.74	-0.04	9.24	-2.07	0.13	-0.01	27	22	1
	Pakistani	67.65	-5.36	29.90	-2.20	32.86	-4.77	59.21	3.07	0.88	-0.01	24.05	-2.93	0.43	0.04	42	42	3
	Bangladeshi	68.68	-7.66	11.26	0.62	29.96	-4.58	62.12	2.81	0.86	0.00	7.23	0.30	0.12	0.03	39	37	6
	Chinese	44.01	-5.21	1.93	0.54	60.49	-12.25	30.52	10.04	0.61	-0.03	0.80	0.36	0.01	0.01	5	4	16
	Caribbean	46.51	-3.69	6.63	-1.83	50.28	-7.75	40.01	5.38	0.79	-0.02	4.20	-1.10	0.08	0.00	23	18	7

Area	Group	Evenness		Exposure			Concentration		Clustering			Rankings						
		D	Dif.	xPx	Dif.	xPy_wb	Dif.	xPy_nw	Dif.	RCO	Dif.	ACL	Dif.	SP	Dif.	2001	2011	Dif.
Leicester	African	52.74	-4.57	5.27	4.00	44.12	-13.20	45.94	11.20	0.79	0.06	3.22	2.62	0.06	0.05	17	22	36
	Indian	66.18	-1.60	44.29	0.15	32.96	-9.19	61.06	7.46	0.89	-0.03	33.96	-0.03	0.83	0.17	41	43	17
	Pakistani	61.24	-5.19	4.40	0.76	33.97	-9.17	59.14	7.25	0.87	0.04	3.13	0.67	0.14	0.06	31	31	19
	Bangladeshi	72.33	-7.84	8.64	-0.77	37.50	-10.14	54.63	8.19	0.87	0.00	5.49	-0.26	0.11	0.04	36	36	9
	Chinese	54.19	4.24	4.36	2.89	63.53	-15.36	27.59	11.58	0.76	0.05	2.56	1.91	0.04	0.03	7	13	39
	Caribbean	49.47	-5.41	1.82	-0.49	51.60	-9.84	40.08	7.31	0.82	-0.01	0.98	-0.28	0.04	0.00	21	16	8
	African	58.33	-3.94	6.61	2.93	48.89	-8.20	41.94	5.61	0.88	0.03	3.46	1.97	0.10	0.06	28	29	26
Manchester	Indian	53.91	-6.20	15.27	-1.34	57.61	-7.07	35.15	5.29	0.70	0.01	9.50	-0.66	0.11	0.02	22	19	6
	Pakistani	65.13	-3.42	27.33	2.91	46.23	-10.05	46.00	8.80	0.80	0.01	19.25	3.62	0.18	0.06	32	32	32
	Bangladeshi	73.38	-5.41	26.44	-0.67	43.00	-5.34	51.64	4.61	0.78	-0.01	19.59	1.94	0.16	0.06	35	34	15
	Chinese	42.29	-4.55	3.81	1.64	66.64	-12.70	24.22	11.12	0.65	0.05	2.54	1.65	0.03	0.02	4	6	33
	Caribbean	55.00	-3.26	4.21	-1.88	55.22	-9.47	33.85	8.42	0.72	-0.02	3.42	-1.04	0.05	0.00	20	17	13
	African	57.14	-3.20	7.41	3.23	58.23	-6.39	31.38	6.24	0.77	0.07	5.29	2.51	0.07	0.03	19	20	29
	Indian	60.29	-1.83	19.49	1.72	53.27	-8.72	41.08	6.97	0.74	0.01	14.08	1.92	0.17	0.05	25	27	28
Leeds	Pakistani	72.09	-1.22	26.58	4.37	47.23	-11.59	45.09	8.46	0.85	0.01	18.25	4.29	0.23	0.09	33	35	37
	Bangladeshi	77.74	-8.78	11.83	-1.65	36.76	-8.28	52.99	3.97	0.88	-0.03	6.59	0.11	0.07	0.03	40	38	2
	Chinese	45.98	-8.44	1.55	0.53	75.72	-9.02	16.73	6.26	0.29	-0.28	0.58	0.24	0.01	0.00	3	3	2
	Caribbean	63.61	-2.44	5.74	-1.36	57.71	-9.25	31.86	6.36	0.75	-0.02	4.44	-0.44	0.06	0.00	24	21	14
	African	57.52	-5.39	5.38	4.16	66.18	-10.42	24.17	6.90	0.74	0.11	3.38	2.84	0.06	0.05	9	14	30
	Indian	50.83	-4.87	6.20	-1.72	45.87	-10.02	47.40	7.43	0.88	-0.01	3.02	-0.88	0.08	0.01	30	25	9
	Pakistani	73.14	-4.12	51.77	2.43	26.61	-9.25	66.25	6.11	0.96	0.00	40.28	1.95	0.56	0.12	43	44	24
Bradford	Bangladeshi	69.15	-7.75	10.29	2.55	30.12	-7.71	63.09	4.93	0.95	-0.01	5.39	1.76	0.08	0.04	37	39	11
	Chinese	43.11	-13.00	2.20	0.96	57.97	-18.20	33.89	15.08	0.47	0.50	0.86	0.38	0.01	0.00	6	5	27
	Caribbean	46.75	-0.84	1.39	-0.03	56.16	-11.97	36.20	8.89	0.87	0.03	0.71	0.00	0.02	0.01	14	15	31
	African	53.54	-7.76	2.98	2.17	46.11	-12.59	44.46	8.62	0.87	0.13	2.01	1.49	0.04	0.03	18	23	25
	Indian	60.29	-1.83	19.49	1.72	53.27	-8.72	41.08	6.97	0.74	0.01	14.08	1.92	0.17	0.05	25	27	28

Source: Author's own calculations based on aggregated census data

A first and simple way to look at the results is to refer to the ranks. Table 4.17 shows that Pakistani and Bangladeshi tend to have the highest ranks, and this is a pattern observed for most HMAs, including London, where the majority of other ethnic minority groups are also located. Luton & Milton Keynes, Birmingham and Bradford are HMAs where both groups tend to have particularly high scores. Moreover, Bangladeshis also score high in London, and Leeds. Next to Pakistani and Bangladeshi, we find that Indians in Leicester also have a high score in the ranking. On the opposite side, Chinese have very low segregation levels in all HMAs: their scores in the ranking are the lowest. Caribbean and African populations, finally, occupy intermediate positions; and the majority that resides in London seems to have similar segregation levels as Pakistanis in that HMA.

Moving to more detailed analyses of indices and groups, Dissimilarity indices are among the highest for **Pakistanis** in most HMAs. In many cases, they also surpass by 10 points or more the threshold ($D=60$) established for this index by Massey and Denton (1988) to identify “highly segregated” groups (see Table 4.16). This group also reveals high levels of exposure to co-ethnics, particularly in Bradford, where the probability of interaction with other members of the same ethnic group in the neighbourhood is more than 50%, the closest value to the threshold established by Massey and Denton for this index ($xPx=70$). Also in this HMA they present high levels of clustering, living therefore in areas that adjoin one another, as well as one of the highest probabilities of meeting a member of their own group rather than a white British, revealed by the SP index, which almost reaches the 0.6 threshold for highly segregated areas. Note that if we consider as well that Pakistanis in this area also surpass by far the threshold of 0.7 for concentration (RCO), I believe there is evidence for defining this group as “highly segregated” in Bradford. A similar, although more moderate, pattern of segregation is observed for this group in two HMAs where it has a relatively high share of its population, Birmingham and Manchester, and also in Luton & Milton Keynes and Leeds.

Among **Bangladeshis**, although on average they tend to be more unevenly distributed than Pakistanis (scoring therefore higher in D), they have lower levels of segregation in other dimensions. An important feature of the Bangladeshi population is that it is the most segregated group in London, scoring the highest values in most of indices: it is the most unevenly distributed group, when compared to the other groups, and also score the highest in xPx (although very close to the Indian group) and have the highest levels of clustering (ACL). Moreover, if we look at the other HMAs where they have a relatively high share of population,

we can see that they present the highest segregation levels in Manchester, resembling those of Pakistanis.

Moving to the other groups, note the quite high segregation levels of **Indians** in Leicester, a HMA in which Indians constitute around 12% of the population living in there. As with Pakistanis in Bradford, we could identify this as a group that fulfils most of the conditions for being termed “highly segregated”: not only does their dissimilarity index go beyond 60, but also they have one of the highest values in exposure to other co-ethnics (44) and clustering (34), and the highest value in the SP index (0.8), making them the case where members of a group have the highest probability of contact with each other than with white British. **Chinese**, on the other hand, have the lowest segregation levels in all HMAs. In London, where we find around half of this population, they also score the lowest segregation levels in all dimensions. The remaining groups, **Caribbean** and **African**, tend to present more intermediate segregation levels, if we consider all groups in all HMAs. If we focus on London, where the majority of the black population is located, we see that their ranks are very close to that of Indians and Pakistanis in this HMA. In particular, their Dissimilarity indices are a few points less compared to that of Indians, they have concentration and clustering levels that resemble those of Pakistanis, and Africans have even higher interaction with co-ethnics in the neighbourhood than the Asian group.

The analysis for individual groups has shown that as there are extreme cases in terms of HMAs (London and Bradford); there are also extreme cases in terms of ethnic groups. On the one hand, we have Pakistani and Bangladeshi populations (and Indian, but just in Leicester); on the other, we have Chinese. At the same time, Pakistanis in Bradford and Indians in Leicester were found to be the most segregated groups, considering all groups and HMAs, since they are the closest to the definition of ‘highly segregated’ groups by Massey and Denton. Furthermore, together with the Bangladeshi in Manchester, they, of all groups, most approach the patterns of segregation found for some groups in the US. For example, the values for D, xPx and SP for the Hispanic population in Chicago are 61, 55 and 0.42 respectively; and that for the African population in Los Angeles are 66, 65 and 0.56 (see Table 4.11). The same values for Pakistanis in Bradford are 73, 52 and 0.56; for Indians in Leicester are 66, 44 and 0.83; and for Bangladeshis in Manchester are 73, 26 and 0.16. Although groups in England do not reach the levels of segregation found among Africans in New York or Chicago, especially in regards to their uneven distribution and interaction in the neighbourhood, these can be considerable in some cases. Note that in France,

the segregation levels are much lower in general. Finally, as we saw from the ranks, the above-mentioned tendencies were generally maintained between both years, that is, groups with high segregation in 2001 were still highly segregated in 2011; however, it is necessary to discuss in more detail the main tendencies for the decade, already preliminarily delineated in Table 4.16.

Looking at the changes that occurred between 2001 and 2011, a first and clear outcome from Table 4.17 is that segregation levels measured with the Dissimilarity Index decreased for all groups and HMAs (an exception are the Chinese in Leicester). Note that similar results were found for bigger geographical units: local authorities (see Table 4.11). Moreover, interaction with white British persons decreased for all groups, while that with non-white ethnic minorities increased, which is related to the highest relative increase of non-white ethnic minorities with respect to the white British (see Table 4.15): if ethnic minorities increase their proportion with respect to the white British, then the indices will inevitably follow this pattern. However, as we saw in the comparison between non-white and white British, the extent of the increases/decreases for these indices varies, as well as the changes observed for the other indices, which do not necessarily point – as does, for example, D – to less segregation.

The last column of Table 4.17 shows the rank of group/HMAs in terms of the average changes they experienced between 2001 and 2011. Groups/HMAs with a lower score are better off *in relative terms* with regard to changes in segregation; while the opposite is true for areas with a higher rank. A striking initial finding pertains to how different Pakistani and Bangladeshi – the two populations with relatively higher segregation levels in various HMAs – are in terms of the changes they experienced during the decade. Although, as we saw, in 2011 their positioning in the ranking did not change much relative to the positioning of other ethnic minority groups, we find that the tendencies for Pakistanis are relatively worse. This can be easily observed in the higher ranks that this group has in most of HMAs. Take, as an example, the London HMA. Although Bangladeshis are clearly more segregated than Pakistanis in all dimensions of segregation, they also experienced higher reductions in most of them between 2001 and 2011. For example, they reduced their Dissimilarity Index by 4 points, while the reduction was less than one point for Pakistanis; also, the probability of interaction with co-ethnics in the neighbourhood and level of clustering were reduced for Bangladeshis, while they increased for Pakistanis. Similar patterns were observed by Luton & Milton Keynes and Manchester, where both groups have considerable populations, but also in other areas where Bangladeshis are fewer, like Leeds and Bradford. Note that this outcome appears to be particularly worrisome for the Pakistani

population, since some of these HMAs are also the ones in which this group is mostly segregated. Pakistanis in Leeds and Bradford, for example, increased their probability of exposure to each other in the neighbourhood (between 2% and 4% points more) and also their clustering (between 2 and 4 points increase in ACL and around 0.1 increase in SP).

Moving to other groups, Chinese in London and Manchester HMAs – where most of them are found – increased their segregation in more than one dimension, following closely the Pakistanis in these two areas. Indians have more intermediate positions, if we look at their rank based on changes between 2001 and 2011. However, note that both in London and in Leicester – where the majority of their population is located – their relative position in terms of segregation (observed in the 2001 and 2011 ranks) moved up from 26 to 28 in London and from 41 to 43 in Leicester. As we look more closely at the segregation indices, however, it is actually in Leicester where we can see clear signs of increasing segregation: Indians in this HMA have one of the highest increases in the SP index, and also increased their xPx, indicating that they were more likely to meet a member of the own group rather than a white British person, and also more likely to interact with co-ethnics in the neighbourhood. As with Pakistanis, this is bad news in terms of segregation, as the Indian population in Leicester was already one of the most segregated groups in England in 2001. Caribbean and African populations, finally, mostly located in London, also experienced improvements in terms of segregation in this HMA. The Caribbean population, in particular, reduced their exposure to other co-ethnics in the neighbourhood and their clustering, while African became more evenly distributed and less concentrated during the decade (although their clustering and interaction within the neighbourhood also increased).

Summarizing, we find on the one hand, Pakistanis, followed by Chinese (and to a lesser extent, Indians), with increasing segregation levels. As we saw, this might be particularly problematic for Pakistanis (and Indians in Leicester), since their levels of segregation were among the highest in 2001. On the other hand, we find Caribbean and Bangladeshi populations, the latter with relatively high segregation levels in 2011, but with important improvements in the decade (particularly relevant for the London HMA). Finally, note that Birmingham seems to be an area particularly favourable for changes in spatial segregation, since four of the six groups under analysis have very low ranks (1, 3, 6 and 7). This outcome, already observed when studying pooled non-white ethnic minorities, might speak to particular processes taking place in this HMA.

4.7 Summary and discussion

The aim of this chapter has been to assess the current situation of non-white ethnic minority groups in England in terms of their levels of spatial segregation, as well as to reveal the main tendencies of change in this respect for the period 2001-2011. A key question was: did spatial segregation of ethnic minorities decrease? By means of exploring various dimensions of segregation (evenness, exposure, concentration and clustering) for groups residing in areas that are relatively self-contained in terms of their population (HMAs), the analysis has provided a quite-detailed and complex picture of the patterns of spatial segregation of ethnic minorities.

The results of the analysis can be sub-divided. First, we have the results on spatial segregation for different groups and HMAs in 2011; second, we have the results on the changes that took place within the decade. With regard to the first issue, a first outcome is that segregation levels of non-whites are considerably higher than that of white British. Moreover, we also saw that London and the neighbouring areas (Luton & Milton Keynes and Reading) seem to be particularly favourable locations in terms of segregation, as both white British and non-white ethnic minorities have lower segregation levels and a higher probability of interacting in the space; the opposite situation was found in Bradford, where both groups seem to be more isolated.

A detailed analysis of groups showed, in accord with most recent findings, that the Chinese population is the most integrated in the space, while the Pakistani and Bangladeshi have the highest segregation levels in most HMAs. In particular, this is true for Pakistanis in Leeds and Bradford and for Bangladeshis in Manchester; in addition, Bangladeshis are the most segregated group in London. We also saw that Indians have very high segregation levels in Leicester, where they constitute an important share of the population living in that HMA. In this regard, I also argued that Pakistanis in Bradford and Indians in Leicester are the two cases that most approach what Massey and Denton (1989), based on data from the US, termed “highly segregated” groups. These results are also in line with the arguments presented by Johnston, Forrest and Poulsen (2002a). Caribbean and African populations, finally, located mainly in London, present segregation levels that resemble that of Indians and Pakistanis in that city; however, on average, their segregation levels are lower.

In order to paint a better ‘picture’ of these patterns, Maps 4.2-4.8 (below) present the distribution of ethnic minority groups in selected housing market areas (or more specifically, in selected areas

within these HMAs). They show that Indians, Pakistanis and Bangladeshis occupy in general a much smaller and compact share of the space, as compared to the rest of the groups; on the other hand, Chinese, and to a lesser extent the Caribbean population, tend to be more spread out in the space.

With regard to the tendencies of change between 2001 and 2011, we saw that the relative position of groups/HMAs did not vary much: highly segregated groups in 2001 were still highly segregated groups in 2011, and the same can be said of low segregated groups. But alongside the general persistence of the socio-spatial structure, changes still occurred.

In line with previous findings, we saw, firstly, that the share of ethnic minority populations in metropolitan areas was reduced, pointing to processes of suburbanization. Moreover, following the work of Simpson ([2012](#)), segregation measured with the most popular index, the Dissimilarity Index, decreased for non-whites in all HMAs. This shows that in 2011 all groups were more evenly distributed than in 2001. Moreover, there was also an increase in shared spaces, as previous studies have already shown ([Johnston, Poulsen and Forrest 2010](#); [Poulsen and Johnston 2006](#)). The generalized increase in exposure between non-whites and white British, points to the creation of areas that are more mixed. As additional evidence, Table 4.18, which divides LSOAs according to their percentage of non-white ethnic minorities in 2001 and 2011, shows that areas that had between 5% and 25% non-white ethnic minorities grew from 5431 to 7731 (something we would expect given that ethnic minorities lead the population growth).

However, the other dimensions revealed two processes that go in the opposite direction. On the one hand, non-white ethnic minorities increased their probability of meeting a non-white to a greater extent than did the white British (and decreased, to a lesser extent, their probability of meeting a white British person). The increase in the number of areas with a high concentration of non-white ethnic minorities (i.e. more than 75%) supports this statement (see Table 4.18). On the other hand, non-whites also increased their levels of clustering, meaning that the percentage of non-whites living in adjacent areas increased for this group, on average. Hence, I agree with Johnston, Poulsen and Forrest ([2010](#)) that relying solely on the Dissimilarity Index might result in a misleading interpretation of what is happening with the spatial segregation of ethnic minorities.

Table 4.18: Number of LSOAs by percentage of non-white ethnic minorities (2001 and 2011)

	2001						
2011	75% and more	50.01% - 75%	25.01% - 50%	10.01% - 25%	5.01% - 10%	Up to 5%	Total
75% +	274	295	36	1			606
50.01% - 75%	6	323	752	32	4		1117
25.01% - 50%	1	14	1175	1444	142	37	2813
10.01% - 25%			24	1350	1859	975	4208
5.01% - 10%				21	533	2969	3523
Up to 5%				1	44	19360	19405
Total	281	632	1987	2849	2582	23341	31672
<u>Descriptive statistics based on the Table</u>							
<i>% with respect to total number of LSOAs</i>							
Diagonal	72.7						
Below diagonal	0.4						
Above diagonal	26.9						
<i>Number of areas</i>							
Very high concentrated areas (>75%)			<u>2001</u>	<u>2011</u>			
			281	606			
High concentrated areas (>50%)			913	1723			
Mixed areas (5%-25%)			5431	7731			

Source: Source: Author's own calculations based on aggregated census data; England

Looking at more specific results, differentiated by ethnic minority group, I found that the generalized decrease in the Dissimilarity Index did not occur equally for all groups; moreover, while some groups also presented clear signs of improvement in the other dimensions of segregation, others followed the opposite pattern. Of particular importance is the difference found between Pakistani and Bangladeshi, the two most spatially segregated groups: while the former presented signs of increasing segregation in the decade (in particular as regards their interaction and clustering), the latter, including those who reside in London, tended to improve with respect to 2001. Additional information in Table 8.9 in Annex A shows that while the number of neighbourhoods (LSOAs) with more than 50% of Pakistani increased from 96 to 137, for Bangladeshi it decreased from 27 to 23. Note that a tendency similar to that of the Pakistani population was observed for the Indian one in Leicester: neighbourhoods with 75% or more of an Indian population (except for one, all located in Leicester) grew from 17 to 21.

These changes will become more evident when the reader looks at Maps 4.2, 4.3 and 4.4, which present the distribution of Indian, Pakistani and Bangladeshi populations in (selected areas in)

Leicester, Bradford and London respectively, in 2001 and 2011. These maps clearly show that while for Indians in Leicester and Pakistanis in Bradford the increase in the share of ethnic minorities in neighbourhoods occurred (at least to a considerable extent) in areas that were already very much populated with these groups, for Bangladeshi in London there is a clear tendency of expansion and dispersion in the urban space.

The increase in segregation levels for Chinese is also a strong finding, especially in London, where the majority of them are located; however, we also saw that Chinese still have very low levels of spatial segregation as compared to other groups: note, for example, that none of the LSOAs has more than 25% Chinese (see Table 8.9 in Annex A). This can be seen easily as well in Map 4.5, which shows the distribution of Chinese in (selected areas of) Manchester. Even if they are among the groups that experienced the highest increase in segregation, this is minimal as compared to the segregation of the other Asian groups: only a few areas in the centre of Manchester become darker on the map between 2001 and 2011.

Finally, Caribbean (and to a lesser extent African) populations show clear signs of improvement in London, where the majority of them are located. Maps 4.6 and 4.7, which present the distribution of Caribbean and African populations in (selected areas of) London, clearly show a tendency of these groups to spread out in the space, as seen previously with Bangladeshi. For Africans, however, the increase in clustering and interaction within the neighbourhood is also evident.

What are the implications of these results? Is spatial segregation increasing or decreasing? Should it be a matter of concern? Spatial segregation of non-white ethnic minorities is decreasing in some aspects and increasing in others. It would be misleading, then, to claim that spatial segregation is either decreasing or increasing in England. Based on these results, however, I can state with confidence that while some groups are decreasing their levels of spatial segregation, in particular Caribbean individuals and Bangladeshi in London, others, such as Pakistani in Bradford and Leeds and Indians in Leicester, are following the opposite pattern. Of course, a key issue here is why a decrease in spatial segregation is better than an increase. As argued above, I believe the main advantage of a decrease in spatial segregation is that it offers an enhanced likelihood that individuals will interact with others who are different from themselves, or conversely, that it decreases the likelihood that they will meet others who are similar to themselves. While segregation might result in both benefits and disadvantages, depending on what outcomes we are

interested in, the unequal distribution of individuals can be seen per se as an impediment to social cohesion ([Cantle 2012](#); [Uslaner 2012](#)).

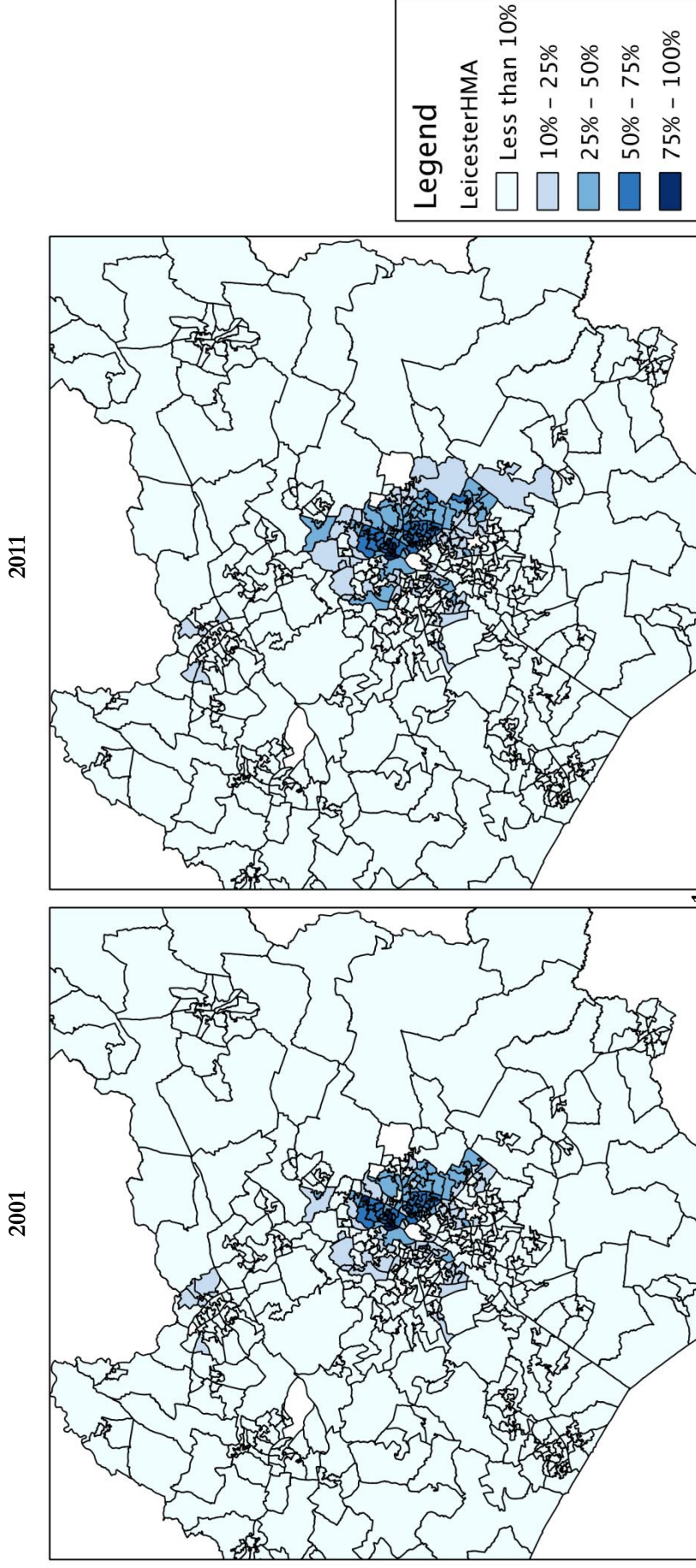
A related issue pertaining to the implications of these results is the nature of the explanations of the patterns we observed. The decrease in segregation observed for the Caribbean population in London is something we would expect, following the spatial assimilation theory ([Massey and Denton 1985](#)). Caribbean individuals were among the first to arrive to the country, and as shown in Chapter 1, their growth rate is low. Based on new births only, one would expect this group to slowly move out of areas with a high concentration of co-ethnics. Contrariwise, the fact that the Chinese population growth is mainly due to new arrivals might preclude higher segregation in the space, since upon arrival immigrants usually go to areas where other co-ethnics reside (which at the same time might be pushing the white British in other directions). However, even if these mechanisms hold, they are still far from being problematic, given the very low segregation levels that Chinese have in any case.

One of the most interesting and puzzling findings of this study are the different patterns of change experienced by the Pakistani and Bangladeshi populations, respectively. Given that both groups have similar segregation levels on average, that their components of population growth are also very similar (mainly based on new births) and that in cultural terms the literature has in many cases addressed them together, I would have expected to find that they experienced similar patterns of change. What is more, given that Bangladeshis are a younger population, I might have expected an increase in segregation to occur among them. In fact, the spatial assimilation theory predicts that the movement out of ethnic areas occurs as individuals improve in socio-economic terms, which happens inevitably at a later age.

Thus, the findings lead me to think that other factors are affecting the segregation patterns of Pakistanis and Bangladeshis. These might be related both to preferences and constraints. The first element that comes to mind concerns London's housing market, to which most of Bangladeshis are exposed. We could hypothesize that this market is more open-minded as compared to others, and therefore we see the positive patterns for the Bangladeshi and Caribbean populations; however, the increase in various aspects of segregation for Pakistanis occurs in most HMAs, including London. Another mechanism might be that the housing market discriminates against Pakistanis to a greater extent than it does Bangladeshis. Although there is no clear evidence for this, it is certainly a notion that deserves further analysis. Finally, the

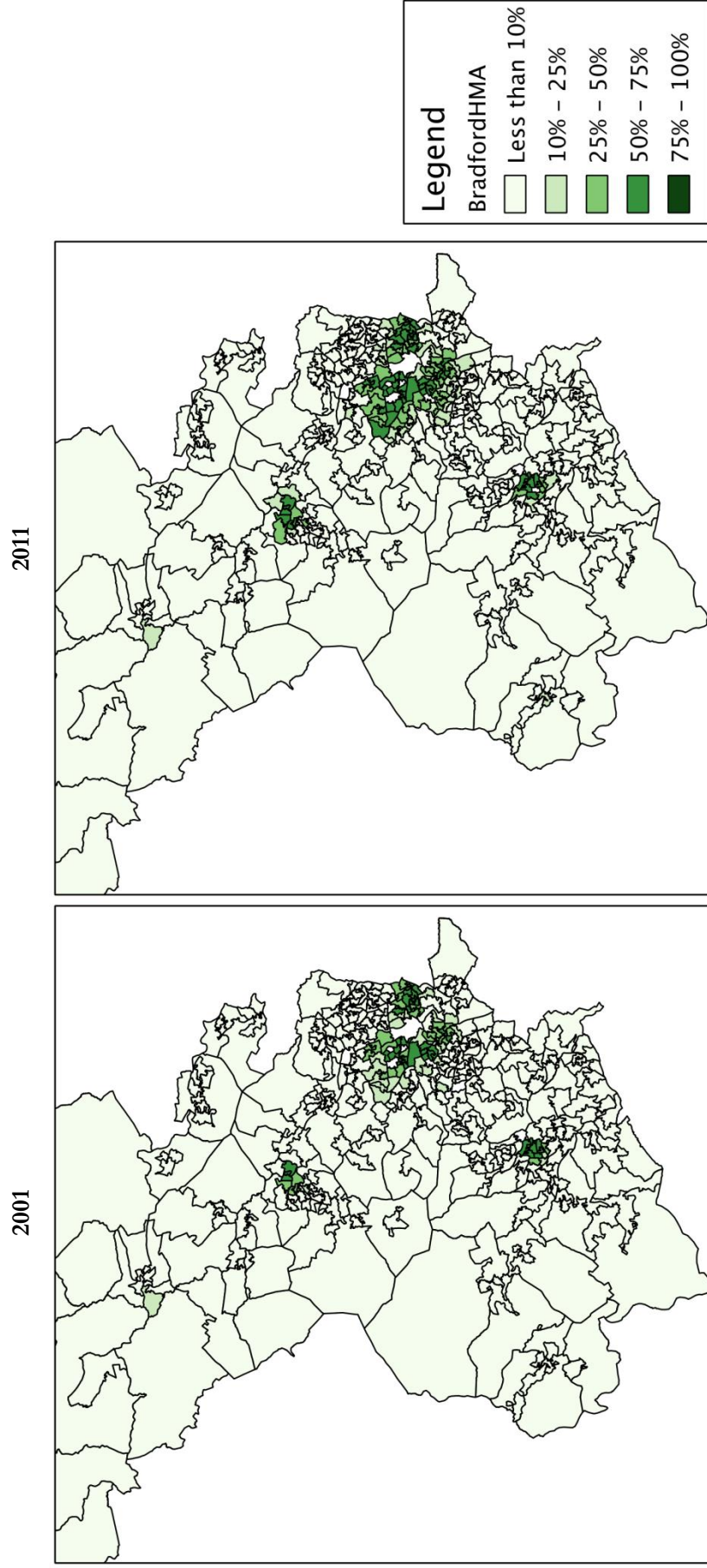
observed differences may be based on cultural differences and, hence, on preferences of the groups, including preferences of those who arrive to the country. This is another aspect that warrants future research.

Map 4.2: Indians in Leicester



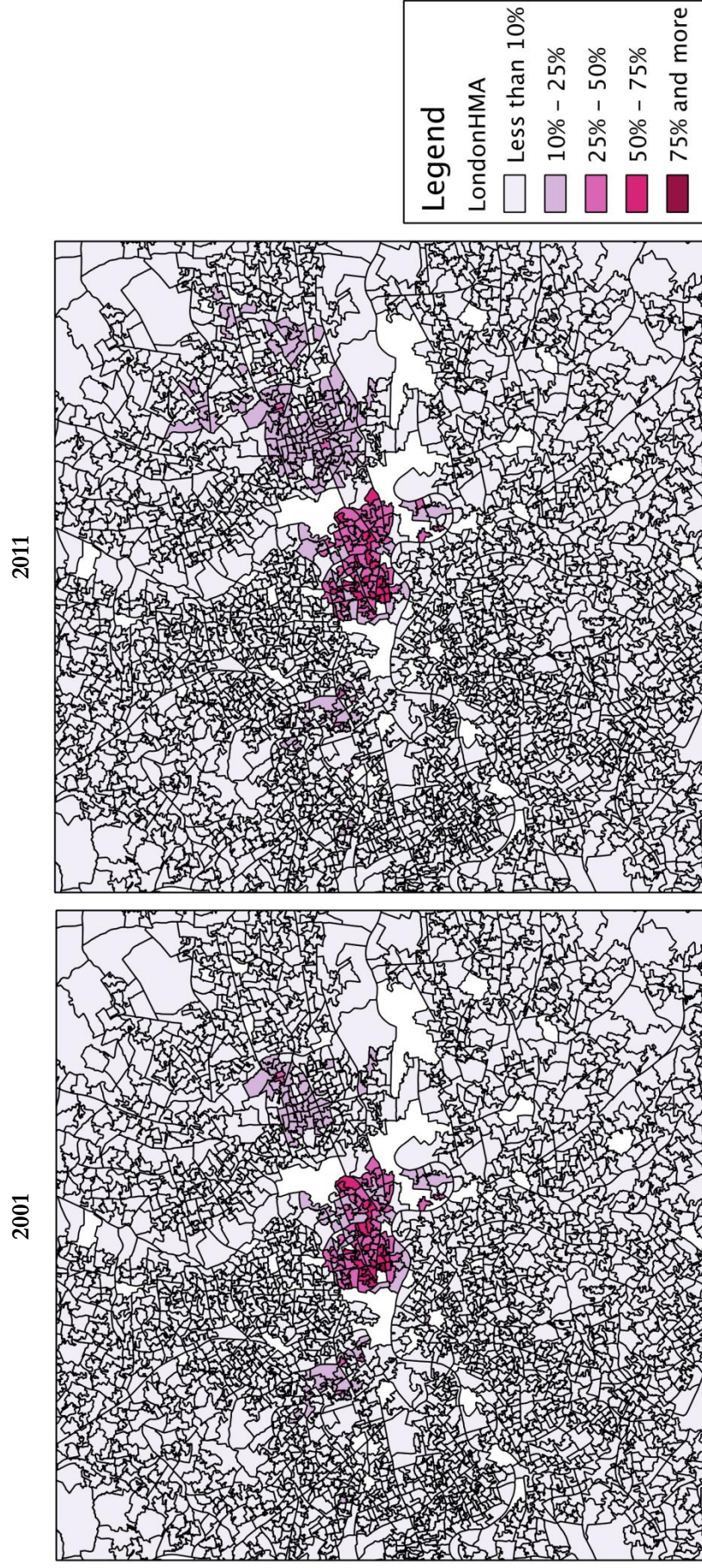
Source: Author's own creation based on geo-referenced aggregated census data

Map 4.3: Pakistani in Bradford



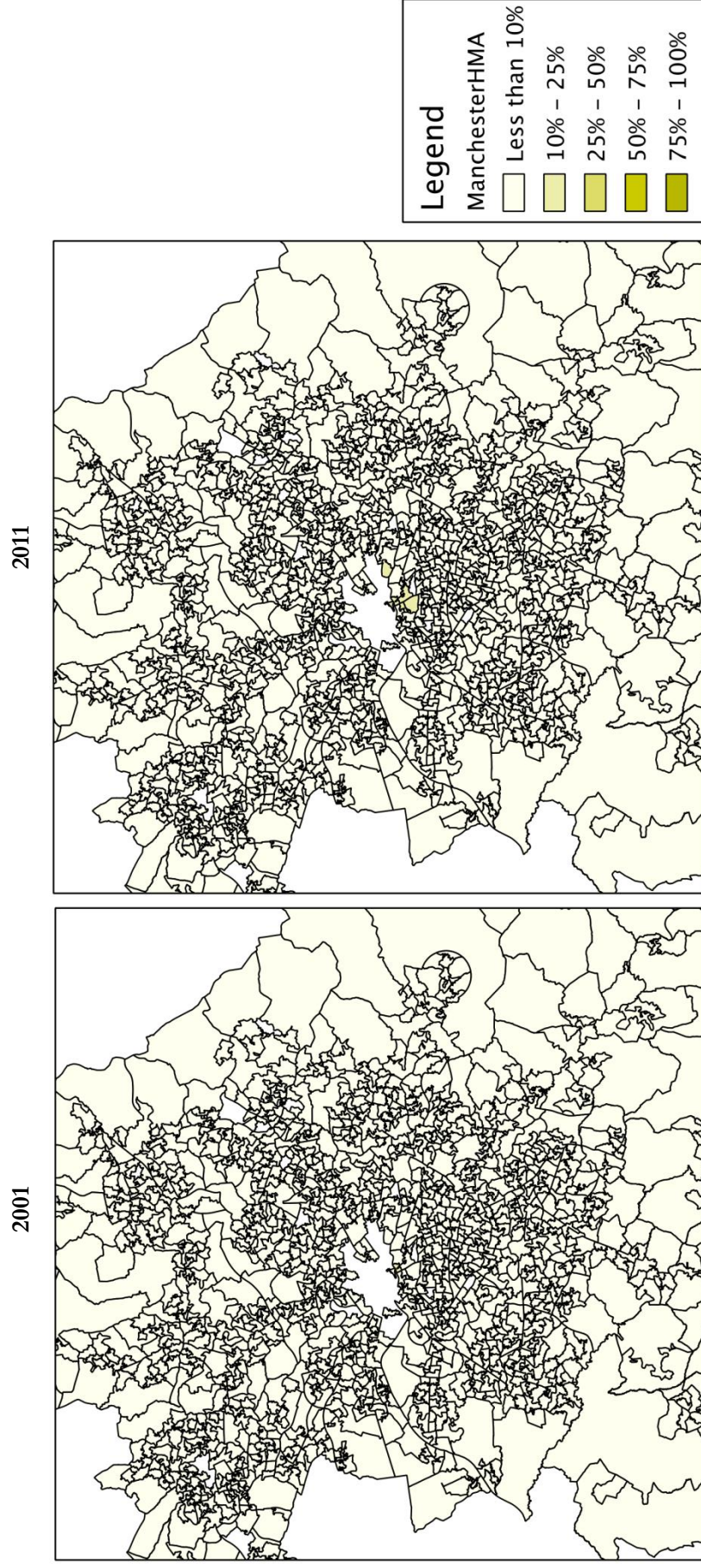
Source: Author's own creation based on geo-referenced aggregated census data

Map 4.4: Bangladeshi in London



Source: Author's own creation based on geo-referenced aggregated census data

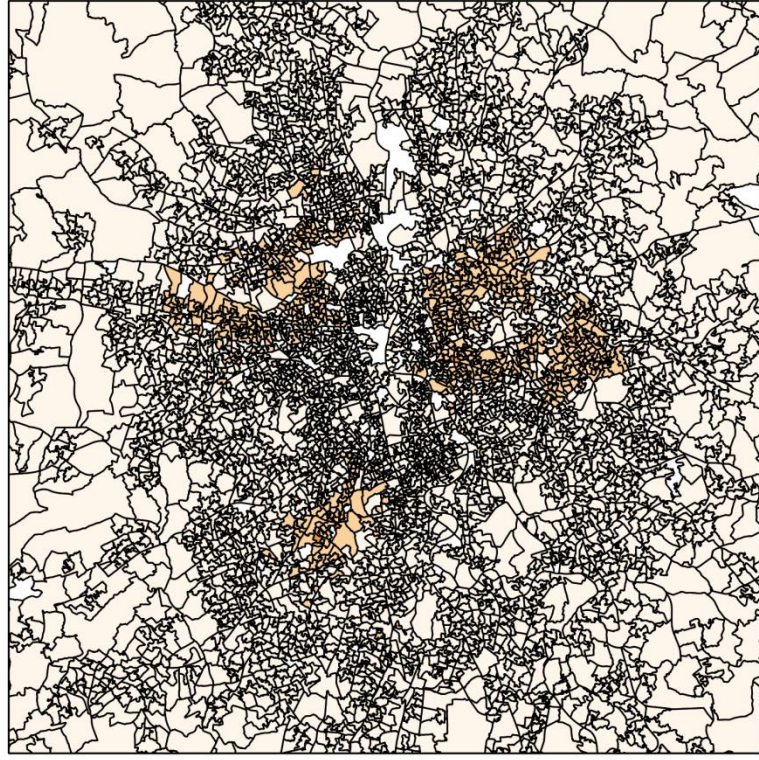
Map 4.5: Chinese in Manchester



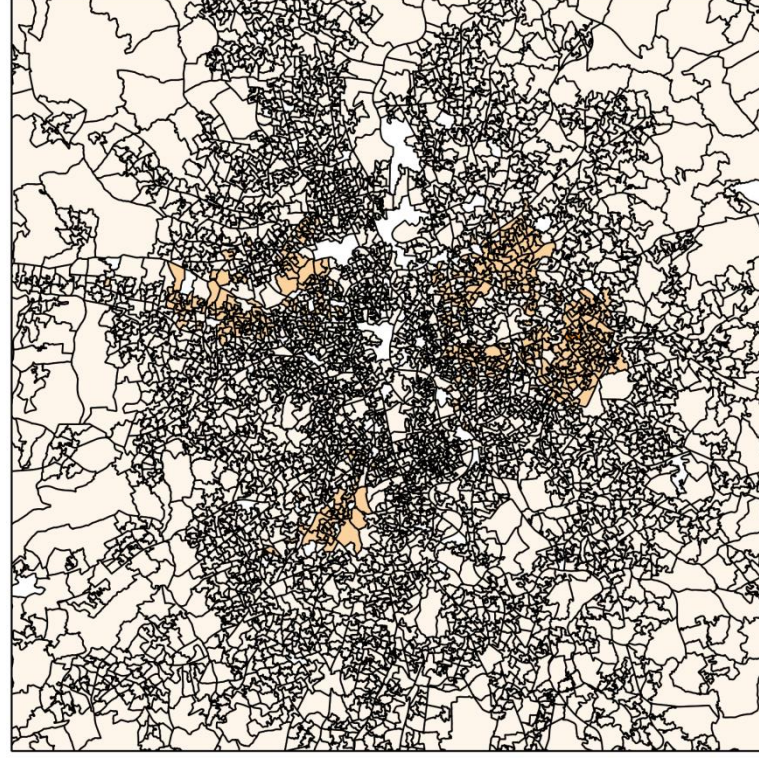
Source: Author's own creation based on geo-referenced aggregated census data

Map 4.6: Caribbeans in London

2001



2011



Legend

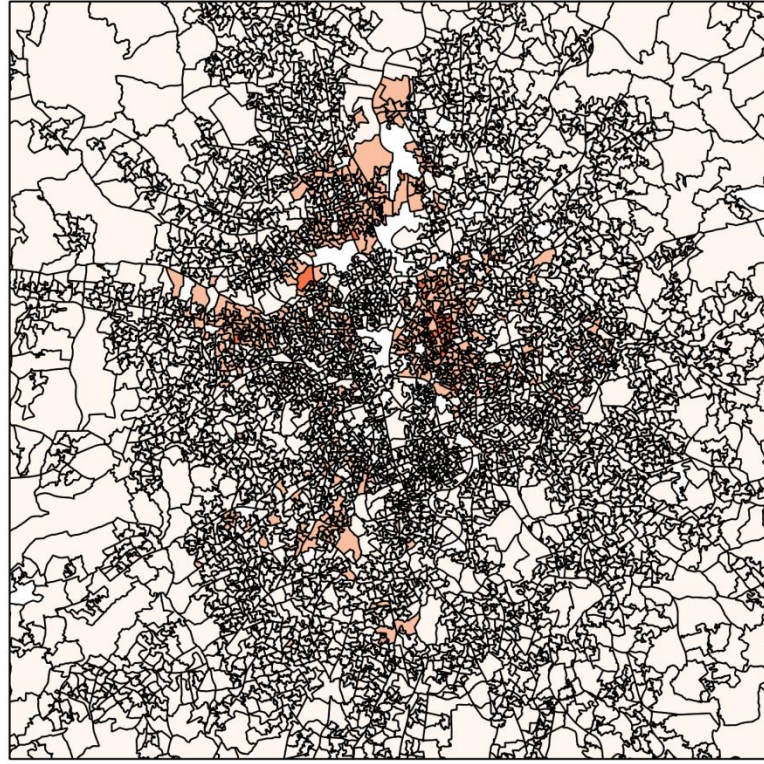
LondonHMA

- Less than 10%
- 10% - 25%
- 25% - 50%
- 50% - 75%
- 75% - 100%

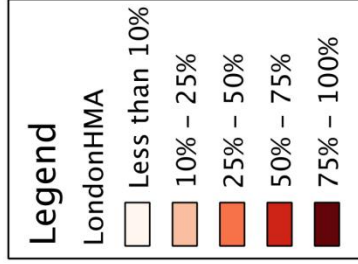
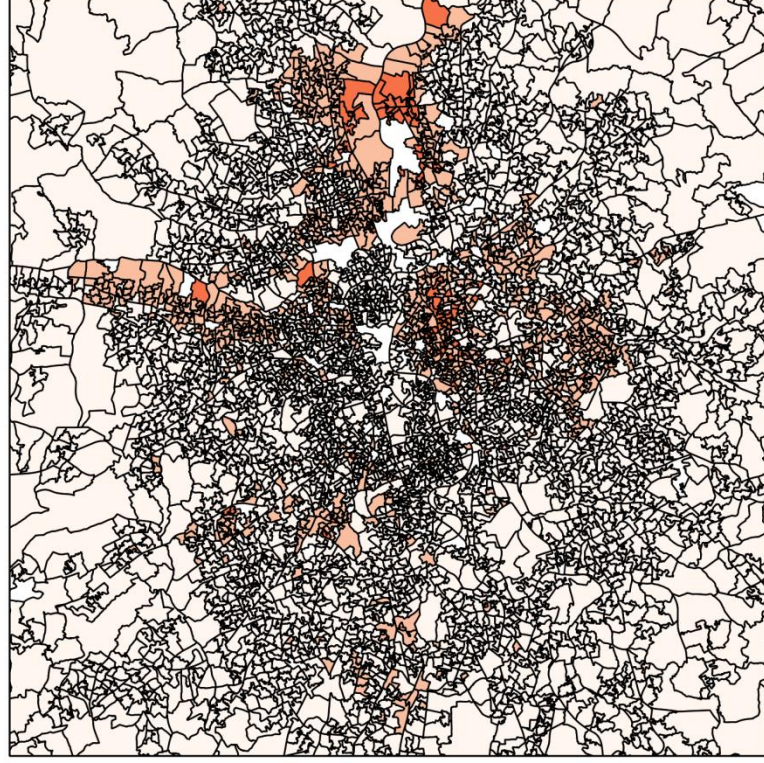
Source: Author's own creation based on geo-referenced aggregated census data

Map 4.7: African in London

2001



2011



Source: Author's own creation based on geo-referenced aggregated census data

5 CHAPTER 5: Neighbourhood Effects? Exploring the Role of Early Exposure to Co-Ethnics

5.1 Introduction

The spatial concentration of ethnic minorities is an indisputable fact, as Chapter 4 has clearly shown, and the literature has pointed to both positive and negative outcomes from it. On the one hand, living close to co-ethnics can be particularly advantageous for first-generation immigrants, who leverage the resources of spatial proximity for integrating into the host society. Among other things, these resources can contribute to the securing of a job and a place to live, as well as managing practical issues upon arrival. In this sense, living close to other co-ethnics and building social capital ([Lin 2001](#)) in these areas can have positive effects for individuals. This has been shown as well from a longer-term perspective, with the formation of the so-called ‘ethnic enclave’ ([Portes and Zhou 1993](#)) and the possibilities this offers for ethnic entrepreneurship and the maintenance of one’s own culture. On the other hand, however, living close to co-ethnics might also have negative consequences. I mentioned already that spatial segregation can be seen as a negative phenomenon not only because it constitutes an impediment to daily interaction between individuals who are different, but also because segregation of minorities is usually linked with deprivation. There are other negative aspects that we could think of too: for example, due to the limited channels in which information circulates, concentration might prevent individuals from finding other (better) occupational opportunities, or could impede proper language acquisition or the establishment of relationships with the majoritarian population ([Van Kempen and Şule Özüekren 1998](#)); segregation might also reinforce particular cultural patterns that might reduce more generalized contact with other groups.

Based on data from the ONS Longitudinal Study, this chapter studies to what extent the ethnic composition of the neighbourhood in which ethnic minorities are ‘raised’ or ‘grow up’ (that is, the neighbourhood in which individuals live at some point when they are between 0 and 15 years old in any of the three ‘origin’ years: 1971, 1981 and 1991) has an impact on labour market outcomes in later stages of life (2001-2011). In so doing, this chapter also disentangles mechanisms that might explain (or not) these effects. In particular, deprivation at the neighbourhood level – a variable very much linked with ethnic concentration, as shown at the

beginning of this thesis – and other household/individual characteristics are included in the analysis. This chapter answers the following questions:

1. Does the ethnic concentration of the neighbourhood where ethnic minorities are raised have an effect on their labour market outcomes in later life? If yes, then:
 - 1.1. Can this effect be explained by other context variables, like deprivation?
 - 1.2. Can this effect be explained by background-household level variables, mainly socio-economic background?
 - 1.3. Can this effect be explained by other variables that mediate the relationship between context/household variables and labour market outcomes, like education or co-ethnic partnership?
2. Are there group and gender differences with regard to the effect of the neighbourhood?

5.2 Mechanisms underlying neighbourhood effects

What is a neighbourhood effect? There is no straightforward answer to this question, as a neighbourhood effect can be expressed in many ways. Generally, one can say that a neighbourhood effect refers to the fact that there is something about the neighbourhood in which individuals live that affects them in terms of various outcomes such as health, labour market performance or happiness. The mechanisms, however, that explain why this effect actually occurs can be many. In an exhaustive literature review, Galster ([2010](#)) identified different possible causal linkages, which he divided into four main groups: social interaction mechanisms, geographical mechanisms, institutional mechanisms and environmental mechanisms.

Social interaction mechanisms refer to social processes endogenous to neighbourhoods. In other words, they emerge as a consequence of the social contact among individuals in the neighbourhood. For example, individuals might be encouraged to conform to local social norms or follow certain rules based on role models present in the neighbourhood (the so-called ‘collective socialization’ mechanism); as well, they might be influenced by interpersonal communication of information and resources of various kinds, transmitted through neighbours: the so-called strong and weak ties (‘social networks’ mechanism). Similarly, behaviours, aspirations and attitudes, might also be changed by contact with peers who are neighbours (‘social contagion’ mechanism).

Geographical mechanisms refer to aspects of spaces that might affect individuals and that, rather than arising from endogenous processes (as are those related to social interactions), emerge from the relative position of the neighbourhood in a wider area, both in terms of geography and in terms of political and social forces. For example, certain neighbourhoods might have little accessibility, in either spatial proximity or mediated by local transportation, to job opportunities ('spatial mismatch' mechanism); or they might lack proper public resources such as hospitals, schools or general community services, which might in turn affect outcomes such as education and health ('public services' mechanism). In fact, there is evidence both from the US and Western Europe ([Galster et al. 2007a](#); [Galster 2010 for a review](#); [Galster and Hedman 2013](#); [Galster et al. 2007b](#); [Musterd and Andersson 2006](#); [Urban 2009](#)) that areas with a concentration of poverty or disadvantage have a negative effect on a variety of child and adult outcomes.

Institutional mechanisms involve those who do not typically reside in the neighbourhood but either control important institutional resources located there or are points of interface between the residents and vital markets. For example, neighbourhoods might be stigmatized on the basis of public stereotypes held by powerful actors (regardless of its current population), which might impact on the job opportunities or self-esteem of its residents ('stigmatization' mechanism). An example of this is the well-known work by Wacquant ([1993](#)), which compares the experiences of individuals living in the black American ghetto and in the Parisian "banlieu". Among other findings, this study shows that black populations residing in these areas tend to be discriminated against by employers, based on their place of residence. Finally, *environmental mechanisms* refer to natural and human-made attributes of the local space that might affect directly the mental and/or physical health of residents.

Galster has noted as well that the above-mentioned mechanisms might be activated only under certain circumstances. For example, mechanisms of 'collective socialization' might only apply after a certain amount of the population that is thought to be generating this effect is actually living in a neighbourhood. This "threshold effect" has been considered, for example, in studies on 'white flight', in which the neighbourhood change in terms of its ethnic composition influences the moving out of white or majoritarian populations (perhaps linked to process of 'stigmatization' generated by those outside it). These studies have shown that emigration occurs only once a certain number of ethnic minorities living in the neighbourhood has been reached ([for some discussion on the topic see for example Goering 1978](#)). Other circumstances are related to the timing of the neighbourhood effect: for example, living in a neighbourhood with

poor health facilities might have effects that are not immediately visible, but that appear later in the life-course. In addition, neighbourhood effects might not necessarily apply to all those living in the neighbourhood, and some might be more affected than others. Although these more detailed mechanisms will not be tested empirically – due mainly to the availability of data and the relatively imprecise neighbourhood measures I am allowed to use – I will seek to incorporate them within the explanations. The next section gives an overview of the link between neighbourhood effects and the migration literature.

5.3 Neighbourhood effects and the migration literature

Within the literature of neighbourhood effects, a more specific body of research has been dedicated to the effect of ethnic composition of neighbourhoods. In particular, attention has been paid to the presence of co-ethnics and how these might affect all sorts of outcomes, mainly those related to the labour market ([Clark and Drinkwater 2002](#); [Urban 2009](#)), but also social cohesion ([Becares et al. 2011](#); [Sturgis et al. 2013](#)), trust ([Sturgis et al. 2011](#)) and life satisfaction ([Knies, Nandi and Platt 2013](#)). There has been much discussion on whether living in areas with a high concentration of ethnic minorities has positive or negative effects for the residents of the neighbourhood. In point of fact, the best way to approach this issue is to accept that it may actually have both types of effects.

The **positive** effects of ethnic concentration are mainly related to mechanisms that emerge from the (spatially located) ethnic community itself, and can therefore be subsumed under Galster's (2010 *social interaction mechanisms*). First of all, spatial proximity with co-ethnics can facilitate the exchange of information and can help make basic arrangements to those who have just arrived to the country. In fact, neighbourhoods where other ethnic minorities or co-ethnics live are usually the preferred places for newcomers: many times this is simply because they know someone from their own country living there already. From a longer-term perspective, and thinking of the second generations (the population of this study), social contacts can also lead to the development of ethnic entrepreneurship, such as the case of Chinese neighbourhoods in the US ([Li 2004](#); [Van Kempen and Şule Özüekren 1998](#)). Furthermore, living close to co-ethnics might also promote the preservation of the culture of origin by means of being able to access local churches, shop in groceries with certain types of food, or participate in social centres. This is the case, for example, of Pakistani and Bangladeshi populations who are among the most segregated groups in the UK, and whose members, especially older populations and married women, often

manifest a preference for these neighbourhoods ([Bowes, Dar and Sim 2002](#); [Bowes, Dar and Sim 1997](#); [Phillips 2006](#))³⁴. This, in turn, might promote a sense of belonging to a certain community and might impact positively the wellbeing of individuals, thanks to the creation of bonds with similar others. For example, there is evidence in the UK that second generation minorities living in areas with a higher share of co-ethnics score higher in measures of subjective well-being ([Platt, Knies and Nandi 2014](#)).

Contrariwise, it has been argued that ethnic concentration might be **negative** for the residents of such neighbourhoods. First of all, and in line again with *social interaction mechanisms*, although social networks might be valuable for everyday life and the maintenance of culture, as well as for the creation of small ethnic enterprises, too much contact with co-ethnics might prove detrimental. For instance, such contact might prevent individuals from relating with the majoritarian group and establishing what is called “bridging ties” ([Lin 2001](#)); that is, ties that are fairly loose, but which can result in improved outcomes, in particular as regards the labour market. In relation to this, speaking the language of origin – rather than the local language – might make accessing information and establishing relationships with the majoritarian population and mainstream institutions, including the educational system, more difficult ([Urban 2009](#)).

Focusing on the groups under study, concentration might be particularly detrimental for labour market outcomes of Muslim women, embedded in social contexts in which values such as family control, honour and status are of great value, and in which men are conceived of as the main ‘providers’ – what ([Peach 2005](#)) calls the ‘patriarchal model’. In fact, previous studies have suggested that migrants coming from countries where there is less gender equality indeed show less gender-egalitarian attitudes compared to other migrants or the local populations in Europe ([Röder and Mühlau 2014](#)). Furthermore, it has also been shown that non-egalitarian attitudes tend to remain particularly strong for Muslim populations, even across generations. This might have a direct impact on women raised in contexts where more co-ethnics are present. For instance, Andersson, Musterd et al. (2014) have argued that ethnic minority women living in high concentration areas where patriarchal norms prevail, may not only achieve relatively success in

³⁴ As we will see in Chapter 6, these mechanisms are also part of the explanatory premises behind so-called ‘ethnic enclave’ model, which assumes that – following these positive effects derived from the community life – ethnic minorities will actively decide to stay in areas with other co-ethnics.

the labour market, but also may be more limited in the type of jobs they can access (which might depend more on localised social networks)³⁵.

Another negative aspect that might accrue from living in areas with a high share of ethnic minorities is related to *institutional mechanisms*, particularly in regards to stigmatization. In the UK, much recent discussion has centred on areas with high proportions of Muslim populations – especially after the 2001 riots in the North of England. At this time, the idea that ethnic minorities are self-segregating emerged, and linked to it was a whole range of discourses that Britain is ‘sleepwalking to segregation’ and that ethnic minorities are living ‘parallel lives’ and do not wish to integrate into the British society ([Finney and Simpson 2009b](#); [Phillips 2006](#); [Rattansi 2011](#)). This sort of public debate might well have an impact on the opportunities of ethnic minorities living in areas with high ethnic concentration, in particular if these are predominantly Muslim.

Finally, in addition to these purely ‘ethnic’ factors, linked to *social interaction* (i.e. cultural) and *institutional* (i.e. stigmatization) mechanisms, the ‘socio-economic’ factor has also been relevant in studies of neighbourhood effects among ethnic minorities: this is linked to the so-called *geographical mechanisms*. Indeed, areas with a higher level of ethnic concentration also typically show higher levels of deprivation. Upon arrival, ethnic minorities tend to gravitate towards areas in which housing prices are low; these areas also afford less access to all kinds of resources in the public space. Therefore, the negative impact of living in neighbourhoods with high concentration of ethnic minorities might be connected to the fact that these neighbourhoods have poor socio-economic resources.

Living in neighbourhoods of a high share of co-ethnics – or ethnic minorities in general – can therefore have positive and negative effects on individuals. But most importantly for our

³⁵ A clarification needs to be made. Peach (2005) has argued that living close to the majoritarian population does not necessarily mean that cultural constraints will be lower, or that ethnic minorities will have a higher interaction with them (which would allow for the formation, for example, of bridging ties). In his study of ethnic minorities in Britain, the author shows that even though the segregation levels of Indians, Pakistanis and Bangladeshis vary, by following the ‘patriarchal model’ their marriage patterns tend to be very similar. My data shows indeed that Caribbeans who, according to Peach, follow a more ‘individualistic’ model, are more likely to have white British partners than Asians. However, I believe that it is still reasonable to think that a community effect – if it exists – might be stronger in areas where ethnic concentration is also higher. As a matter of fact, this data reveals that there is a higher prevalence of co-ethnic partnership among people living in areas with high ethnic concentration (Table 6.2), and that this applies to all ethnic minority groups (not shown). Or think, for example, of the use of the burka and the consequences of not using it in neighbourhoods with different shares of co-ethnics. In my view, therefore, Peach’s cultural models do not necessary override the role of the neighbourhood.

purposes, having been raised in such neighbourhoods might exacerbate these impacts, be it that they are positive or negative. In fact, if we think of the children of immigrants, like the ones considered in this study, experiencing early socialization in an environment that allows for more contact with others that are similar (and less contact with the majoritarian population) might have stronger impacts in their social and cultural values, as well as in their educational and labour market opportunities. Consider, for example, the ethnic composition of schools and the development of friendships and networks in this context; or the impact of (local) role models at an early age.

A final important note regarding the theoretical background and its link to the model to study neighbourhood effects – detailed below – is that my aim in this chapter is to isolate the neighbourhood effects connected ‘purely’ to ethnicity which, as we saw, are more strongly linked to *social interaction* and *institutional mechanisms*. This means that I will seek to control for the *geographical mechanisms* linked to the socio-economic characteristics of the neighbourhood (in addition to other household and individual characteristics).

5.4 The problem of selectivity and endogeneity: a proposal for a model of analysis

5.4.1 What are selectivity and endogeneity?

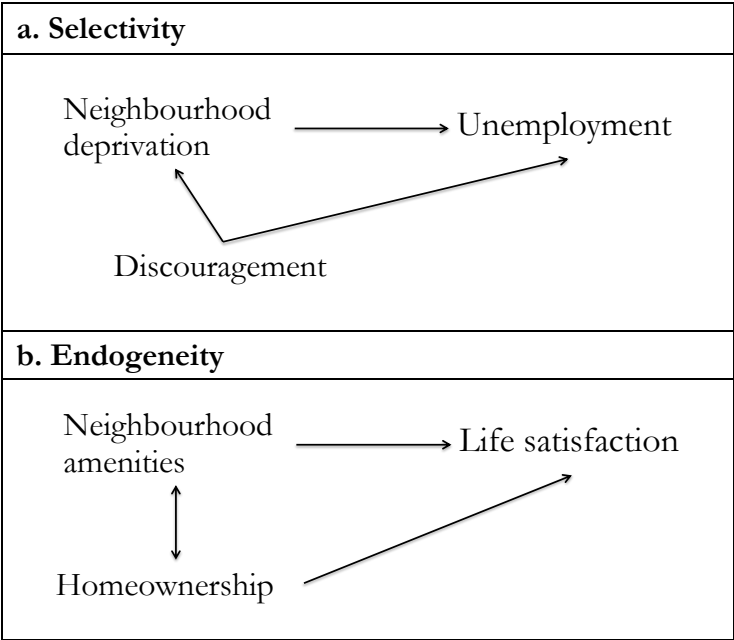
Within the literature on neighbourhood effects, two crucial issues have received a great deal of attention ([Bergström and van Ham 2012](#); [Cutler, Glaeser and Vigdor 2008](#); [Dietz 2002](#); [Galster et al. 2007a](#); [Galster and Hedman 2013](#); [Galster et al. 2007b](#)): the problem of selectivity and the problem of endogeneity.

The problem of selectivity in neighbourhood effects’ studies refers to the fact that individuals *choose* where to live, and in consequence, individual characteristics might affect both this residential decision and the outcome under study. Let’s imagine we want to study whether individuals who live in more deprived areas are more likely to be unemployed than individuals who live in less deprived areas (Figure 5.1a). We could conjecture that living in a deprived area has an impact on the likelihood of finding a job, for example, because such an area is far from sources of jobs, or because the quality of the schools is poor and this affects competition in the

labour market, or because the networks in the neighbourhood do not provide appropriate channels of information.

However, we could also think that a discouraged or depressed person, for instance, is more likely than a non-discouraged or depressed person to move to deprived neighbourhoods, because the former ascribes less importance to housing and neighbourhood amenities. In such a case, what is the line of causation? Is this person more likely to be unemployed because he/she lives in a deprived area? Or is the circumstance of discouragement what pushes this person both to move to an area with disadvantages and to be unemployed? In practise, we find a positive relationship between neighbourhood deprivation and unemployment, but we do not know to the degree to which the neighbourhood plays a role. This can also be understood as an *omitted variable bias*. If we do not know that the person is discouraged or depressed before moving to the area, we might then overestimate the neighbourhood effect. The underlying idea is that the individual situation prior to relocation *affects both* the selection of the neighbourhood and the outcome under study (that is, being currently unemployed).

Figure 5.1: The problems of selectivity and endogeneity



The problem of endogeneity is related to the fact that the choice of neighbourhood is usually associated with other choices – such as the type of tenure – and these other factors might in turn

affect the outcome under study. This is also an omitted variable bias problem, but one related to the neighbourhood variable's casual relationships with other uncontrolled variables that affect the outcome as well. For example, let's imagine we want to study the impact of neighbourhood amenities on life satisfaction, assuming that these should be positively related (Figure 5.1b). If the selection of the neighbourhood by individuals is related to other choices like buying a house (would-be owners will probably avoid neighbourhoods that have social problems and bad schools, and choose better kept-up neighbourhoods), not controlling for tenure might overestimate the neighbourhood effect. The reason is that homeownership – by giving a sense of stability – might also have a positive effect on life satisfaction. Here, therefore, we also find an *omitted variable bias* problem, but one related to the causal relationships between the neighbourhood and other uncontrolled variables that affect the outcome as well (in this case, the impact of homeownership on life satisfaction).

5.4.2 Addressing selectivity and endogeneity

Studies have dealt with this problem in different ways. Some have used instrumental variables ([Cutler, Glaeser and Vigdor 2008](#)); others experiments ([Ludwig et al. 2008](#)); and others – as is the case here – have made use of longitudinal data. The originality of the design proposed in this study lies in the temporal distance between the explanatory variable – ethnic concentration – and the outcomes under study, employment and occupation ([for another example see Urban 2009](#)). As explained in Chapter 2, (co-)ethnic concentration is measured in origin, that is, when the individuals are between 0 and 15 years old (1971, 1981, and 1991), while labour market outcomes are measured in destination (2001 and 2011). This entails theoretical and, in particular, methodological advantages.

Regarding *theoretical* advantages, it has been argued, following socialization theories, that social networks and the social environment during upbringing are more important than those that come later in life ([Urban 2009](#)). In particular, cultural values and social roles are learnt in this period, and environmental elements such as friendships, the ethnic composition of the school, or the presence (or not) of family members living close by might be fundamental to processes of integration that could preclude a better socio-economic position in later life³⁶.

³⁶ Note, however, that it is not possible to identify actual social relations or the quality of those social relations, and this is a drawback of the present study.

As concerns *methodological* advantages, by using a design that separates in time the explanatory and explained variables, I reduce the problems of individuals self-selecting into neighbourhoods, and also that of endogeneity. First of all, given that I consider the neighbourhood of individuals at some point between 0 and 15 years of age³⁷, it was probably their parents (and not themselves) who chose the neighbourhood. Of course, it could be argued that there are unmeasured characteristics of parents that might influence the outcome variable, like ways of raising children and expectations. Moreover parents may have chosen a neighbourhood with a higher share of co-ethnics because they want their children to work in particular ethnic niches or enterprises, or because they want their children to be in contact with other co-ethnics, thinking in terms of how these contacts could affect their future. In these cases, the effect of the neighbourhood would actually be capturing some unmeasured parental effect. Although I cannot control for all this, I do consider other variables – such as parental social class and education – that probably capture at least some of these unmeasured characteristics of parents.

Secondly, the temporal separation of dependent and independent variables, together with the control of a series of mediating variables, also helps solve the problem of endogeneity. For example, studies on educational outcomes ([i.e. Galster et al. 2007a](#)) have argued that neighbourhoods effects could be overestimated if school characteristics in terms, for example, of ethnicity, are not controlled for. In fact, if parents prefer to be in areas with more ethnic minorities, schools in these areas will probably be more mixed, and this in turn might affect educational outcomes. In this study, there is a temporal distance between the neighbourhood and the outcome variable. Moreover, controlling not only for education and parental social class, but also for other variables at the household level, will hopefully capture other factors that might be related to the choice of the area and labour market outcomes; for example, tenure or level of overcrowding in the household.

In short, I believe that the strongest aspect of this design is that while the parental choice of neighbourhood might be very relevant for outcomes of the younger population (like education), it is less likely that their impact is equally strong for labour market outcomes, which come later in life and which are mediated by other variables that I do control for. Of course, other factors might still point to selectivity. In particular, the argument related to the strength of ethnic ties within the neighbourhood – and their potential for future jobs – needs to be taken into

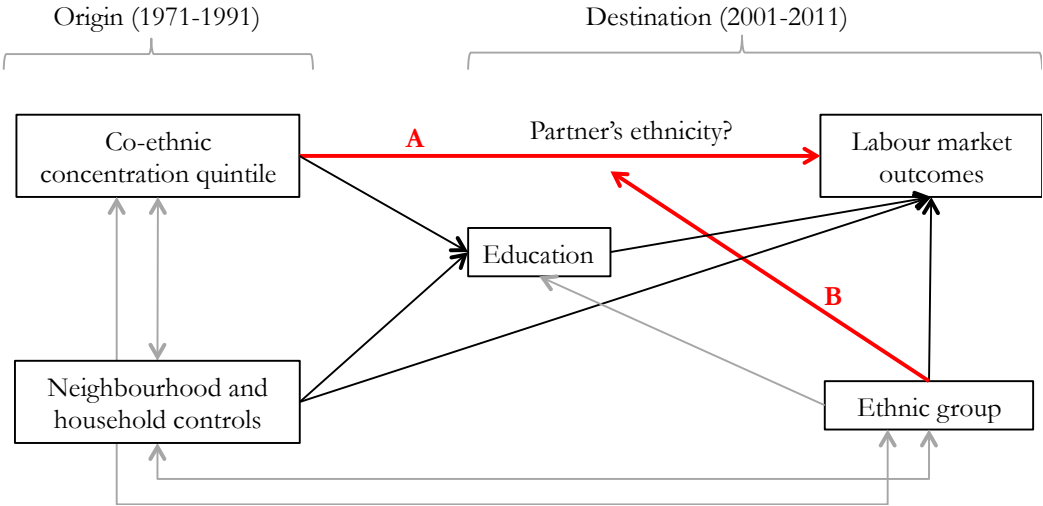
³⁷ I have done a robustness check for people between 4 and 15 (the school age, thinking in terms of contacts that are created in schools, friends, etc.) and the results are the same.

consideration when studying the results. Moreover, as suggested in Chapter 3, other elements such as parental motivation might also figure in to the picture. Very motivated parents might be those who actually leave to better neighbourhoods in order to provide a better future for their children, while those who stay are negative-selected, and so are their children.

5.4.3 Model of analysis

Figure 5.2 shows the model of analysis. Following the arguments above, ethnic and socio-economic characteristics are included in the model. On the left-hand side, we have origin variables, which are measured in 1971, 1981 and 1991 when individuals are between 0 and 15 years old in any of these three years. Origin variables are co-ethnic concentration quintile – the main independent or explanatory variable – and other control variables related to socio-economic characteristics of the neighbourhood (deprivation) and the household of the individual (parental social class, tenure, number of cars and number of persons per room). Co-ethnic concentration quintile is the product of combining two variables: a measure of ethnic concentration in the neighbourhood – expressed in population-weighted quintiles obtained from aggregated census data at the Ward level³⁸, that are attached later on attached to the ONS-LS – and the ethnicity of the individual.

Figure 5.2: Model of analysis: main variables and their measurement year



³⁸ Unfortunately, it is not possible to use the LSOA as a neighbourhood measure, as I do use in Chapter 5. This is due to data restrictions from the ONS.

On the right-hand side we have labour market outcomes – employment and social class, the dependent variables – as well as ethnic group, education and partner’s ethnicity. These are measured in 2001-2011 for individuals that are between 20 and 45 years old at the time of measurement. The variable employment compares employed individuals with unemployed and some inactive groups. The variables that measure social class are two: access to the service class and avoidance of the lowest occupations (semi-routine and routine occupations)³⁹; they include all individuals that have or had an occupation in the past (with the exception of the long-term unemployed, who are excluded). Full-time students are excluded from both employment and social class.

The model in Figure 5.2 shows various things: first, labour market outcomes depend, on the one hand, on education, ethnic group and origin variables; and, on the other – I expect – on the concentration of co-ethnics in the neighbourhood, expressed in Figure 5.2 as the red line ‘A’. Second, origin variables are all mutually dependent: the level of ethnic concentration is related to the level of deprivation of the neighbourhood, and to other socio-economic household variables. Third, education acts as a mediator between origin variables and labour market outcomes. This is important, since the initial levels of education start in schools that are usually located in the neighbourhood where individuals reside, and the quality of this education might affect the levels of education as measured in destination. In this sense, I expect education to be an important mediator of the impact of the neighbourhood on labour market outcomes.

Fourth, I expect partner ethnicity to be part of the mechanism of the neighbourhood effect, since co-ethnic partnerships may be formed, among other reasons, thanks to interaction within the neighbourhood (individuals that have a co-ethnic partner are also more likely to be raised in areas with more co-ethnics: see Table 5.2). Fifth, in this chapter I also explore whether the effect of co-ethnics in the neighbourhood might vary across ethnic groups: this is represented by the red line ‘B’. Recall that the analysis is done for second generation ethnic minorities (Indian, Pakistani, Bangladeshi, Caribbean and African populations), who lived with at least one parent between 0 and 15 years of age in any of the three ‘origin’ years, and who might therefore be born in Britain or abroad (note that I combine second generation with the 1.5 generation, although for practical purposes I call them “second generation”). Finally, the analysis is done separately for men and

³⁹ I do not mean to argue here that “avoiding semi-routine and routine occupations” is a social class per se; following the NSS-SEC classification, these are the two lowest positions in the social scale and the ones that more often are regulated by labour contracts. Refer to Chapter 2 for more details on this.

women and other controls (not stated in Figure 5.2) are also included in the models: age, origin and destination years and number of census points in which the individual has participated. Refer to Chapter 2 for more details on the sample, variables and measurement.

5.5 Descriptive statistics

Table 5.1 shows the percentage of ethnic minorities employed, those who have (or had) a service class and those who avoid(ed) the lowest occupations, for each level of co-ethnic concentration in the neighbourhood where individuals lived at a young age. This has been calculated for each group individually and for the five groups pooled together, and I have also differentiated between men and women. Table 5.1 also shows the percentage difference between the first quintile – where concentration of co-ethnics is the lowest – and the fifth quintile – where the concentration of co-ethnics is the highest. A positive difference can be interpreted as a positive effect of living in a neighbourhood that has a low concentration of ethnic minorities, while a negative states the contrary; furthermore, the higher the difference, the higher the effect of being in quintile 1 (Q1) vs. quintile 5 (Q5).

A first general outcome from Table 5.1 is that there is an association between ethnic concentration or the share of co-ethnics in the neighbourhood and the outcomes under study for most groups and genders, where a lower share of co-ethnics (Q1) leads to a better labour market outcome. Looking at the results more in detail, we can see that the influence of ethnic concentration understood as the difference between Q1 and Q5, seems to be stronger (reflected in a greater difference) when estimating the access to different social classes (for men and women) and when estimating employment for women. There are also both group and gender effects: Pakistanis and Bangladeshis (in particular women) seem to be the most affected by the level of concentration of their origin neighbourhood. For example, while for the five female groups pooled together having been raised in Q5 (vs. Q1) reduces the probability of being employed by 7% points and the probability of being in the service class by 13% points, for Pakistani women these values grow to 19% and 24% respectively. Indians are the next group to be most strongly affected by the concentration of the neighbourhood in their probabilities of being in the service class. For Caribbeans, the impact of neighbourhood is the lowest, while for African the results are not robust; note, however, that the number of cases is small for this group.

Table 5.1: Access to employment and the service class (in %) by quintile of co-ethnic concentration (Q1=lowest concentration; Q5: highest concentration)

	Men					Women						
	Q1	Q2	Q3	Q4	Q5	Q1-Q5	Q1	Q2	Q3	Q4	Q5	Q1-Q5
Employment												
<i>5 minority groups</i>	83.3	84.4	82.9	82.3	80.9	2.4	74.1	69.5	69.2	68.7	66.9	7.2
Indian	89.0	88.3	87.8	87.8	86.9	2.0	81.1	79.1	80.7	79.6	80.8	0.3
Pakistani	75.9	80.8	76.9	75.9	73.8	2.2	63.9	55.5	47.6	48.7	44.9	19.0
Bangladeshi	81.2	86.7	81.3	78.0	73.7	7.5	57.5	54.0	50.7	47.9	38.6	19.0
Caribbean	82.9	81.0	79.6	78.5	76.0	6.9	80.1	74.5	77.4	78.1	76.2	3.8
African	78.3	88.1	81.8	80.4	82.1	-7.5	82.4	81.1	82.4	74.7	76.2	6.2
Service class												
<i>5 minority groups</i>	52.2	48.2	45.3	43.5	40.9	11.3	52.3	46.9	42.6	41.4	39.3	13.0
Indian	58.5	61.4	54.4	52.7	51.1	7.4	59.3	58.9	53.5	44.5	44.1	15.3
Pakistani	51.8	39.3	31.7	37.8	29.0	22.8	49.8	40.5	29.6	34.4	25.8	24.0
Bangladeshi	51.6	40.0	38.4	40.0	23.1	28.5	43.8	30.4	22.3	32.4	33.0	10.8
Caribbean	39.5	39.8	42.0	29.1	34.1	5.4	50.6	41.6	40.9	43.1	42.3	8.3
African	81.0	38.5	47.2	44.4	46.3	34.7	38.2	49.0	47.9	50.7	58.7	-20.4
Avoidance of lowest occupations												
<i>5 minority groups</i>	81.2	81.2	77.8	75.4	73.7	7.4	83.6	80.1	76.9	78.5	73.8	9.7
Indian	83.6	90.0	82.6	81.0	81.0	2.6	85.3	87.2	85.6	81.4	78.9	6.4
Pakistani	80.9	78.4	71.6	73.4	67.4	13.5	84.7	74.6	61.1	70.6	59.8	24.9
Bangladeshi	81.3	78.8	72.7	67.8	60.7	20.6	79.7	64.1	65.3	66.7	63.0	16.7
Caribbean	75.6	70.7	74.0	66.4	64.8	10.8	83.0	79.2	79.2	81.7	81.9	1.1
African	100.0	74.4	81.1	77.8	77.8	22.2	70.6	87.8	80.8	91.3	80.0	-9.4

	Men					Women						
	Q1	Q2	Q3	Q4	Q5	Q1-Q5	Q1	Q2	Q3	Q4	Q5	Q1-Q5
Totals												
<u>Employment</u>												
5 minority groups	868	1250	1493	1685	1554	965	1358	1607	1694	1813		
Indian	344	479	680	769	757	317	455	643	716	817		
Pakistani	216	360	372	431	404	280	364	393	423	490		
Bangladeshi	69	90	107	127	133	73	113	148	142	140		
Caribbean	216	279	279	307	204	261	373	349	334	282		
African	46	84	55	51	56	57	53	74	79	84		
<u>Service class & Avoidance of lowest occupations</u>												
5 minority groups	824	1187	1404	1568	1432	900	1239	1436	1478	1600		
Indian	335	469	656	732	720	300	436	613	667	774		
Pakistani	199	328	334	384	359	249	311	311	320	391		
Bangladeshi	64	85	99	115	117	64	92	121	111	100		
Caribbean	205	266	262	292	182	253	351	318	311	260		
African	53	39	53	45	54	34	82	73	115	75		

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-I.S

Table 5.1 reveals that ethnic concentration is related to labour market outcomes of ethnic minorities, and in the direction I expected. However, we saw in the theoretical argumentation that both factors that are co-founders of ethnic concentration (socio-economic factors, related to the process of residential choice among ethnic minorities) and factors that mediate the relationship between neighbourhood and labour market outcomes (like the quality of schools in the area, which in turn determines the level of education, a crucial determinant of occupational outcomes) should be considered in order to better isolate the effect of ethnic concentration, understood here as a mix between social interaction and institutional mechanisms. The relationship between these and other factors on labour market outcomes was already observed in Chapter 3. In particular, we learnt that alongside education, the main predictor of labour market outcomes, having lived in more deprived neighbourhoods, having been in households with fewer cars and a higher number of persons per room, having been in social rent or private rent (vs. being an owner) and having parents with lower social backgrounds (all variables measured when individuals are young) have a negative impact on labour market outcomes. What about the relationship between these factors and our main independent variable, that is, the share of co-ethnics in the neighbourhood? This can be observed in Table 5.2.

Table 5.2 shows that minorities raised in areas with a high concentration of co-ethnics are in general very likely to be raised in highly deprived areas. Specifically, more than 90% of ethnic minorities raised in the most ethnically concentrated areas (Q5) were also raised in the most deprived areas (Q5); while the value drops to 22%-24% for those raised in areas with the least co-ethnic concentration (Q1), which are also the 'whitest' areas. Minorities raised in Q5 are also more likely to have lower social backgrounds compared to those raised in Q1. For example, while only 7% of minorities raised in Q5 have parents who were employed in the service class, around 26% of minorities raised in Q1 have parents in the same occupations. Minorities raised in Q5 are also more likely to have been raised in households with no car and with higher levels of overcrowding (although they are also less likely to have been raised in social housing). With regard to the crucial mediator variable, education, minorities raised in these areas usually have lower levels of education. Specifically, while around 36% of ethnic minorities raised in Q5 acquire a university degree or higher (Level 4+), this figure rises to more than 50% for those raised in Q1. Finally, the data shows that the prevalence of co-ethnic partnership is greater if individuals lived at a young age in areas with a higher share of co-ethnics.

Table 5.2: Individual, household and neighbourhood characteristics by quintile of co-ethnic concentration (Q1=lowest concentration; Q5: highest concentration). Pooled ethnic minorities.

	Men					Women				
	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
Education										
Level 1 or less	24.9	28.2	33.8	36.3	35.1	22.8	25.9	29.7	31.2	30.6
Level 2+3	24.5	27.0	24.4	24.6	29.2	24.4	30.4	31.1	30.0	32.8
Level 4+	50.6	44.9	41.8	39.1	35.7	52.8	43.7	39.1	38.8	36.6
Partner's ethnicity										
No partner	54.4	48.4	49.0	45.3	46.4	53.0	50.5	50.7	48.7	44.7
Co-ethnic	26.3	35.8	35.8	43.0	45.1	32.7	36.2	39.6	42.3	46.6
Other	19.4	15.8	15.1	11.7	8.5	14.3	13.3	9.6	9.0	8.7
Class of origin										
No earners/No code	8.8	11.8	11.9	12.8	13.6	10.3	11.6	13.5	12.8	12.7
Manual (V+VI+VII)	35.0	48.3	53.4	58.9	62.8	35.9	49.2	55.1	60.2	65.1
Routine non-manual (III)	9.7	12.6	11.9	10.5	8.2	12.5	11.3	10.9	10.2	9.4
Petit Bourgeoisie (IV)	20.7	10.2	9.2	7.8	8.0	15.6	12.6	10.1	7.6	6.0
Professional/Managerial (I+II)	25.8	17.2	13.6	10.0	7.3	25.7	15.3	10.4	9.2	6.8
Cars										
No cars	27.3	40.5	44.0	50.0	49.7	30.6	41.2	47.1	49.4	55.3
1 car	53.5	47.4	46.8	42.2	42.9	50.1	47.3	43.2	43.2	39.9
2 cars	19.2	12.2	9.2	7.8	7.5	19.4	11.4	9.6	7.4	4.7
Tenure										
Owner	66.9	69.4	73.5	78.2	75.2	67.3	67.3	70.6	76.4	74.1
Social rent	24.4	21.4	17.5	13.8	15.0	24.7	24.2	18.4	14.4	16.5
Private rent	8.6	9.2	9.0	8.0	9.8	8.1	8.5	11.0	9.2	9.4
Persons per room										
> 1.5 persons	10.9	16.5	18.0	21.7	22.7	11.3	19.3	20.3	20.6	26.3
1.5 persons	5.2	4.8	4.2	7.2	7.0	5.3	5.1	6.7	8.1	8.8
>1 & <1.5 persons	21.5	25.3	25.1	27.1	27.8	22.7	25.3	28.8	26.4	27.7
1 person	20.2	19.4	22.3	19.2	19.8	22.9	19.2	19.5	22.6	17.8
>= 0.75 & <1 person	19.1	17.4	16.7	14.9	15.6	16.3	18.3	14.3	13.9	12.4
<0.75 person	23.0	16.7	13.7	10.0	7.0	21.6	12.8	10.4	8.4	7.0
Carstairs quintiles										
Q1 (least deprived)	15.4	5.5	1.7	0.0	0.0	16.1	4.3	2.5	0.6	0.0
Q2	17.5	10.2	5.4	1.4	0.0	16.1	11.2	6.0	1.4	0.0
Q3	20.7	16.2	11.2	7.3	0.0	19.2	15.8	10.1	7.5	1.4
Q4	22.5	28.4	25.8	15.8	6.3	26.3	27.9	24.5	14.1	7.2
Q5 (most deprived)	23.8	39.6	55.9	75.4	93.7	22.4	40.7	56.9	76.3	91.4
<i>N</i>	<i>868</i>	<i>1250</i>	<i>1493</i>	<i>1685</i>	<i>1554</i>	<i>965</i>	<i>1358</i>	<i>1607</i>	<i>1694</i>	<i>1813</i>

Population: Individuals between 20 and 45 years old
Source: Author's own calculations based on ONS-LS

Given this evidence, we could argue that the link between ethnic concentration and labour market outcomes observed in Table 5.1, that is, the poorer labour market outcomes observed for those raised in Q5 (vs. those raised in Q1) might be actually related to the fact that ethnic concentration is related to other measures that also predict labour market outcomes. In particular, that being raised in Q5 also means being raised in areas of higher deprivation, having lower social backgrounds and having less education, factors that in turn negatively affect labour market outcomes. The analyses that follow, based on regression models, consider all these factors together, and therefore, seek to isolate the effect of co-ethnics. Note that the partner's ethnicity will be introduced only if a neighbourhood effect is found, and with the aim to test whether having a co-ethnic partner could be part of the mechanism.

5.6 Isolating the effect of co-ethnics

The analysis below explores the effect of having been raised in areas with a relatively high proportion of co-ethnics (vs. having been raised in areas with lower proportions of ethnic minorities) on the probabilities of employment, access to the service class and avoidance of lowest occupations. I do this for the five groups pooled together, and then I also add interactions between ethnic group and origin neighbourhood, to explore group differences in the effect of the origin neighbourhood.

Tables 5.3-5.8 show the probability of employment, access to the service class and avoidance of lowest occupations, by quintile of co-ethnic concentration and separately for men and women. For each dependent variable, a pooled model is estimated first (Tables 5.3, 5.5 and 5.7), and then predicted values are calculated for each group separately, based on the model with interactions (Tables 5.4, 5.6 and 5.8). The coefficients of Tables 5.3, 5.5 and 5.7 are based on linear regressions with robust (clustered) standard errors and – when multiplied by 100 – refer to the difference in percentage points with respect to the reference category (in the case of the key independent variable, co-ethnic concentration quintiles, the reference is individuals raised in Quintile 1). In these tables, Model 1 includes only controls for origin and destination years, number of census points and age; Model 2 adds neighbourhood deprivation measures; Model 3 adds household-level variables (class of origin, tenure, number of cars and number of persons per room); Model 4 adds education of the respondent; and Model 5 adds interactions between ethnic group and co-ethnic quintile (only Q5 is shown). The full models for the three outcome variables,

and for men and women, can be found in: Table 8.10, Table 8.11, Table 8.12, Table 8.13, Table 8.14 and Table 8.15 in Annex A. Moreover, Table 8.16 shows selected models estimated with logistic regression with average marginal effects: Model 4 in Tables 5.3, 5.5 and 5.7.

Model 1 of Table 5.3 shows – in accordance to the descriptive tables – that individuals raised in a neighbourhood with a higher concentration of co-ethnics are relatively less likely to be employed. This holds both for men and women, who are around 3% and 8% points less likely to be employed if raised in quintile 5 instead of in quintile 1. This effect remains statistically significant for men after controlling for neighbourhood deprivation (M2); and for women after controlling for household socio-economic characteristics (M3), which would point to an absence of neighbourhood effects, on average. However, Model 5 shows a quite different picture. This model, which shows group differences by adding interaction effects between ethnic group and co-ethnic concentration in origin, reveals that for Pakistani and Bangladeshi women there is quite a substantive negative effect of being raised in Q5. These ethnic-specific results are better observed in Table 5.4, which shows predicted values for the various ethnic groups, separated by co-ethnic quintiles in origin (Q1 and Q5) and gender (the other variables are set to their mean).

The results from Table 5.4 show that, while among men, having been raised in Q5 does not exert much influence on the probability of being employed, among women this seems to be particularly relevant for Pakistanis and Bangladeshis. More precisely, while around 62% of Pakistani women raised in Q1 are employed, this value drops to 51% among those raised in Q5. A similar disadvantage is seen for Bangladeshi women, for whom having lived at a young age in Q5 areas gives them almost 13% points less probability of being employed (note, however, that the estimation is less precise for this group).

Table 5.3: Access to employment. Pooled ethnic minorities.

	Men					Women				
	M1	M2	M3	M4	M5	M1	M2	M3	M4	M5
Co-ethnic quintile (ref. Q1: lowest concentration)										
Q2	0.013 (0.0188)	0.021 (0.0188)	0.026 (0.0188)	0.027 (0.0179)	0.000 (0.0239)	-0.046** (0.0213)	-0.040* (0.0217)	-0.032 (0.0214)	-0.031 (0.0205)	-0.008 (0.0337)
Q3	-0.010 (0.0185)	0.005 (0.0190)	0.010 (0.0193)	0.019 (0.0183)	0.011 (0.0237)	-0.055** (0.0212)	-0.042* (0.0225)	-0.029 (0.0224)	-0.021 (0.0212)	0.014 (0.0313)
Q4	-0.017 (0.0184)	0.004 (0.0197)	0.008 (0.0199)	0.018 (0.0191)	0.023 (0.0241)	-0.062*** (0.0211)	-0.044* (0.0232)	-0.033 (0.0233)	-0.027 (0.0219)	0.019 (0.0320)
Q5	-0.033* (0.0188)	-0.008 (0.0210)	-0.002 (0.0211)	0.008 (0.0201)	0.018 (0.0254)	-0.076*** (0.0214)	-0.052** (0.0244)	-0.035 (0.0245)	-0.034 (0.0228)	0.042 (0.0333)
Ethnic group (ref. Indian)										
Pakistani	-0.101*** (0.0149)	-0.096*** (0.0151)	-0.081*** (0.0153)	-0.062*** (0.0147)	-0.090** (0.0388)	-0.295*** (0.0185)	-0.290*** (0.0188)	-0.267*** (0.0192)	-0.227*** (0.0185)	-0.137*** (0.0409)
Bangladeshi	-0.057*** (0.0219)	-0.051** (0.0221)	-0.009 (0.0232)	0.003 (0.0228)	-0.025 (0.0483)	-0.319*** (0.0273)	-0.311*** (0.0276)	-0.259*** (0.0295)	-0.224*** (0.0273)	-0.175*** (0.0573)
Caribbean	-0.088*** (0.0166)	-0.086*** (0.0167)	-0.065*** (0.0178)	-0.032* (0.0176)	-0.006 (0.0370)	-0.029 (0.0185)	-0.028 (0.0185)	-0.020 (0.0196)	-0.007 (0.0191)	0.023 (0.0422)
African	-0.005 (0.0281)	-0.006 (0.0282)	0.020 (0.0300)	0.018 (0.0287)	-0.069 (0.0997)	-0.006 (0.0300)	-0.011 (0.0300)	-0.005 (0.0314)	-0.052* (0.0310)	0.003 (0.0766)
Ethnic group * co-ethnic quintile										
Pakistani * Q5					0.016 (0.0470)					-0.148*** (0.0516)
Bangladeshi * Q5					-0.011 (0.0704)					-0.167** (0.0720)

	Men					Women				
	M1	M2	M3	M4	M5	M1	M2	M3	M4	M5
Caribbean * Q5					-0.066 (0.0493)					-0.059 (0.0525)
African * Q5					0.108 (0.1088)					-0.107 (0.0937)
Adjusted R-squared	0.036	0.037	0.043	0.079	0.078	0.095	0.095	0.102	0.166	0.167
N	6,850	6,850	6,850	6,850	6,850	7,437	7,437	7,437	7,437	7,437
Base model ¹	X	X	X	X	X	X	X	X	X	X
Neighbourhood ²		X	X	X	X		X	X	X	X
Household ³			X	X	X			X	X	X
Education				X	X				X	X
Ethnic group * EM quintile					X					X

¹Controls for: age, origin year, destination year and number of census points.

²Adds: Carstairs deprivation quintile at the ward level.

³Adds: tenure, number of persons per room, number of cars and class of origin.

* p-value < .10 ** p-value < .05 *** p-value < .01; robust (clustered) standard errors in parentheses

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

Table 5.4: Access to employment by ethnic group and gender; predicted values (standard errors)

	Men		Women	
	Q1	Q5	Q1	Q5
Indian	83.5 (2.0)	85.2 (1.5)	75.5 (2.8)	79.8 (1.7)
Pakistani	74.4 (3.4)	77.8 (2.4)	61.8 (3.2)	51.3 (2.8)
Bangladeshi	81.0 (4.5)	81.6 (5.0)	58.0 (5.1)	45.5 (4.4)
Caribbean	82.9 (3.2)	78.1 (3.1)	77.8 (3.3)	76.1 (2.8)
African	76.6 (9.8)	89.1 (4.4)	75.9 (7.2)	69.4 (5.4)

Note: Predicted values based on Model 5 from Table 5.3.

Covariates are set to their mean.

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

Table 5.5 shows the results regarding the access to the service class. We observe again that, before controlling for background characteristics, having been raised in a neighbourhood with a higher concentration of co-ethnics has – for both genders – a negative impact in the access to higher occupations (Model 1). Among men, this effect diminishes substantially when neighbourhood deprivation is included, becoming also statistically non-significant (Model 2). Note also that the effect becomes positive once we control for education (although statistically non-significant) (Model 4). For women the results show that even after controlling for area and households characteristics, as well as education, there is a remaining effect of having been raised in quintile 5. In fact, although the effect reduces substantially if compared to Model 1, Model 4 reveals that women who were raised in quintile 5 (vs. quintile 1) are around 4% points less likely to access the service class. Model 5, finally, adds interaction effects between ethnic group and co-ethnic quintile, and here we find that Indian men (see main effect for Q5) seem to gain from being raised in Q5; while Bangladeshi and African men show the opposite pattern (note that, although Pakistani men have a negative interaction effect, by adding it to the main Q5 effect, it goes close to zero). A positive effect is also found among African women (note however that among African the results are quite unstable, due to the low N, and therefore should be taken with caution). The meaning of these interactions is better observed in Table 5.6, which shows predicted values for the various groups, separated by gender.

Table 5.5: Access to the service class. Pooled ethnic minorities.

	Men					Women				
	M1	M2	M3	M4	M5	M1	M2	M3	M4	M5
Co-ethnic quintile (ref. Q1: lowest concentration)										
Q2	-0.040 (0.0268)	-0.010 (0.0269)	0.008 (0.0261)	0.018 (0.0224)	0.062* (0.0347)	-0.061** (0.0259)	-0.038 (0.0263)	-0.020 (0.0259)	-0.013 (0.0220)	0.033 (0.0356)
Q3	-0.083***	-0.031	-0.008	0.022	0.036	-0.110***	-0.071***	-0.044*	-0.027	0.002
Q4	-0.100***	-0.028	0.002	0.035	0.079**	-0.123***	-0.070**	-0.043	-0.038	-0.062*
Q5	-0.134***	-0.047	-0.014	0.023	0.089**	-0.148***	-0.081***	-0.044	-0.042*	-0.040
	(0.0274)	(0.0305)	(0.0302)	(0.0255)	(0.0363)	(0.0255)	(0.0293)	(0.0293)	(0.0248)	(0.0359)
Ethnic group (ref. Indian)										
Pakistani	-0.174***	-0.155***	-0.110***	-0.060***	0.011	-0.159***	-0.144***	-0.101***	-0.050***	-0.035
	(0.0206)	(0.0208)	(0.0209)	(0.0172)	(0.0424)	(0.0207)	(0.0210)	(0.0213)	(0.0185)	(0.0428)
Bangladeshi	-0.153***	-0.131***	-0.057*	-0.022	0.053	-0.180***	-0.159***	-0.082**	-0.036	0.002
	(0.0306)	(0.0307)	(0.0324)	(0.0272)	(0.0733)	(0.0301)	(0.0306)	(0.0326)	(0.0268)	(0.0667)
Caribbean	-0.193***	-0.184***	-0.173***	-0.060***	-0.045	-0.077***	-0.073***	-0.075***	-0.044**	-0.019
	(0.0235)	(0.0234)	(0.0244)	(0.0217)	(0.0519)	(0.0227)	(0.0227)	(0.0236)	(0.0203)	(0.0472)
African	-0.045	-0.046	-0.047	-0.032	0.271**	0.010	0.000	-0.019	-0.110***	-0.203***
	(0.0468)	(0.0464)	(0.0459)	(0.0428)	(0.1197)	(0.0409)	(0.0406)	(0.0418)	(0.0392)	(0.0739)
Ethnic group * co-ethnic quintile										
Pakistani * Q5					-0.116**					-0.023
					(0.0520)					(0.0525)
Bangladeshi * Q5					-0.194**					0.000
					(0.0857)					(0.0819)

	Men					Women				
	M1	M2	M3	M4	M5	M1	M2	M3	M4	M5
Caribbean * Q5					-0.054 (0.0655)					-0.017 (0.0607)
African * Q5					-0.325** (0.1387)					0.177* (0.0983)
Adjusted R-squared	0.047	0.056	0.083	0.291	0.294	0.034	0.039	0.059	0.229	0.230
N	6,444	6,444	6,444	6,444	6,444	6,685	6,685	6,685	6,685	6,685
Base model ¹	X	X	X	X	X	X	X	X	X	X
Neighbourhood ²		X	X	X	X		X	X	X	X
Household ³			X	X	X			X	X	X
Education				X	X				X	X
Ethnic group * EM quintile					X					X

¹ Controls for: age, origin year, destination year and number of census points.

² Adds: Carstairs deprivation quintile at the ward level.

³ Adds: tenure, number of persons per room, number of cars and class of origin.

* p-value<.10 ** p-value<.05 *** p-value<.01; robust (clustered) standard errors in parentheses

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LIS

Table 5.6: Access to the service class by ethnic group and gender; predicted values (standard errors)

	Men		Women	
	Q1	Q5	Q1	Q5
Indian	42.2 (3.0)	51.0 (1.9)	48.3 (2.9)	44.3 (1.9)
Pakistani	43.3 (3.2)	40.6 (2.6)	44.8 (3.3)	38.5 (2.6)
Bangladeshi	47.5 (6.7)	37.0 (4.4)	48.5 (6.0)	44.5 (4.6)
Caribbean	37.7 (4.2)	41.1 (3.8)	46.5 (3.8)	40.7 (3.6)
African	69.2 (11.7)	45.6 (6.9)	28.0 (6.9)	41.7 (6.5)

Note: Predicted values based on Model 5 from Table 5.5.

Covariates are set to their mean.

Population: Individuals between 20 and 45 years old

Source: Own calculations based on ONS-LS

Table 5.6 shows that having been raised in areas with a high share of co-ethnics exerts a positive effect (around 9% points more) on the probability of accessing the service class for Indian men; on the other hand, there is also a considerable negative effect for Bangladeshi men (although less precise, due to their high standard errors). Among women we see a negative effect for most groups (African are an exception), which probably leads to the average result observed in Table 5.5.

Tables 5.7 and 5.8, finally, show the results for the analysis of the last variable studied in this chapter: avoidance of the lowest occupations, that is, semi-routine and routine occupations. This analysis shows very similar results to those found in the previous one. First of all, we find that while among men, neighbourhood and household variables in origin (M2) take away practically all the disadvantage experienced by those raised in Q5 (when compared to those raised in Q1); for women, this disadvantage remains statistically significant even after controlling for education. Specifically, if raised in Q5 – instead of in Q1 – women have on average 4% less probability of avoiding the lowest occupations in the NS-SEC scale. The interaction terms are negative for all male groups (when compared to Indian, the reference category), however, only Bangladeshi, Caribbean and African men seem to suffer a penalty when raised in Q5 (for Pakistani men the effect goes to close to zero when subtracted from the main Q5 effect). Among women, the

Pakistani and Bangladeshi are again those mostly disadvantaged. As with the other dependent variables, I have estimated predicted probabilities to have a better picture of these interactions. These are shown in Table 5.8

Table 5.8 shows that Pakistani and Bangladeshi women are 12%-13% points less likely to avoid low occupations if raised in Q5, compared to those raised in Q1. The results are similar for Bangladeshi and African men, for whom the gap is around 9%-10% points, and for Caribbean men, for whom the gap is around 7% (note, however, that for most groups the results are uncertain, given the relatively high standard errors) as when estimating the access to higher occupations, Indian men present again an advantage when raised in Q5: specifically, they are around 7% more likely to avoid semi-routine and routine occupations if they lived at a young age in areas with a relatively higher share of co-ethnics (note that the same pattern is found for African women, for whom, however, the low N leads to very high standard errors).

All in all, the analysis shows that that the effect of being raised in areas with a high share of co-ethnics seems to be particularly detrimental for women, in particular Pakistani and Bangladeshi women, who seem to be disadvantaged both in terms of access to employment and the types of occupations they end up going into. Among men, Bangladeshis and Africans show a consistent disadvantage when access to the two measures of occupation is estimated; while Caribbeans are disadvantaged only when the avoidance of lower occupations is estimated. Indian men are the only group that consistently presents an advantage with regards to access to occupations if raised in Q5⁴⁰.

⁴⁰ Note that I prefer not to comment again on the results for African, given their low number of cases and the high standard errors of the coefficients.

Table 5.7: Avoidance of semi-routine and routine occupations. Pooled ethnic minorities.

	Men					Women				
	M1	M2	M3	M4	M5	M1	M2	M3	M4	M5
Co-ethnic quintile (ref. Q1: lowest concentration)										
Q2	0.001 (0.0205)	0.017 (0.0207)	0.031 (0.0204)	0.036* (0.0188)	0.083*** (0.0260)	-0.040** (0.0195)	-0.026 (0.0201)	-0.012 (0.0198)	-0.011 (0.0183)	0.042 (0.0271)
Q3	-0.045** (0.0207)	-0.017 (0.0217)	0.001 (0.0214)	0.021 (0.0196)	0.038 (0.0272)	-0.076*** (0.0195)	-0.054** (0.0210)	-0.032 (0.0207)	-0.023 (0.0192)	0.039 (0.0265)
Q4	-0.070*** (0.0208)	-0.030 (0.0225)	-0.007 (0.0225)	0.015 (0.0206)	0.057** (0.0276)	-0.062*** (0.0195)	-0.029 (0.0217)	-0.008 (0.0218)	-0.006 (0.0202)	0.014 (0.0282)
Q5	-0.092*** (0.0218)	-0.043* (0.0248)	-0.019 (0.0245)	0.004 (0.0225)	0.070** (0.0296)	-0.110*** (0.0204)	-0.069*** (0.0238)	-0.038 (0.0239)	-0.039* (0.0219)	0.008 (0.0299)
Ethnic group (ref. Indian)										
Pakistani	-0.090*** (0.0169)	-0.079*** (0.0172)	-0.046*** (0.0174)	-0.014 (0.0158)	0.025 (0.0380)	-0.136*** (0.0183)	-0.127*** (0.0187)	-0.093*** (0.0188)	-0.061*** (0.0174)	0.043 (0.0313)
Bangladeshi	-0.105*** (0.0257)	-0.094*** (0.0257)	-0.040 (0.0271)	-0.017 (0.0253)	0.049 (0.0547)	-0.142*** (0.0274)	-0.129*** (0.0276)	-0.059** (0.0294)	-0.033 (0.0278)	0.069 (0.0592)
Caribbean	-0.145*** (0.0199)	-0.140*** (0.0199)	-0.134*** (0.0205)	-0.066*** (0.0191)	0.001 (0.0396)	-0.031* (0.0178)	-0.029 (0.0178)	-0.027 (0.0186)	-0.012 (0.0175)	0.015 (0.0373)
African	-0.009 (0.0368)	-0.010 (0.0364)	-0.008 (0.0358)	-0.005 (0.0337)	0.140*** (0.0515)	0.008 (0.0285)	0.001 (0.0287)	-0.002 (0.0298)	-0.056** (0.0279)	-0.149* (0.0806)
Ethnic group * co-ethnic quintile										
Pakistani * Q5					-0.077 (0.0485)					-0.143*** (0.0465)
Bangladeshi * Q5					-0.158** (0.0761)					-0.124 (0.0805)

	Men					Women				
	M1	M2	M3	M4	M5	M1	M2	M3	M4	M5
Caribbean * Q5					-0.139** (0.0575)					-0.003 (0.0494)
African * Q5					-0.167** (0.0829)					0.068 (0.0927)
Adjusted R-squared	0.048	0.052	0.069	0.179	0.180	0.039	0.042	0.059	0.154	0.158
N	6,444	6,444	6,444	6,444	6,444	6,685	6,685	6,685	6,685	6,685
Base model ¹	X	X	X	X	X	X	X	X	X	X
Neighbourhood ²		X	X	X	X		X	X	X	X
Household ³			X	X	X			X	X	X
Education				X	X				X	X
Ethnic group * EM quintile					X					X

¹ Controls for: age, origin year, destination year and number of census points.

² Adds: Carstairs deprivation quintile at the ward level.

³ Adds: tenure, number of persons per room, number of cars and class of origin.

* p-value<.10 ** p-value<.05 *** p-value<.01; robust (clustered) standard errors in parentheses

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LIS

Table 5.8: Avoidance of semi-routine and routine occupations by ethnic group and gender; predicted values (standard errors)

	Men		Women	
	Q1	Q5	Q1	Q5
Indian	73.6 (2.4)	80.6 (1.7)	78.0 (2.4)	78.8 (1.7)
Pakistani	76.1 (3.2)	75.4 (2.7)	82.3 (2.3)	68.8 (3.1)
Bangladeshi	78.5 (5.0)	69.8 (5.0)	84.9 (5.5)	73.3 (5.4)
Caribbean	73.7 (3.3)	66.9 (3.9)	79.5 (3.1)	80.0 (3.0)
African	87.6 (4.7)	77.9 (6.4)	63.1 (7.8)	70.7 (4.5)

Note: Predicted values based on Model 5 from Table 5.7.

Covariates are set to their mean.

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

Finally, I have tested whether having a co-ethnic partner helped reduce, in particular for women, the penalty found for those raised in Q5 (see Models f and g in Table 8.10, Table 8.11, Table 8.12, Table 8.13, Table 8.14 and Table 8.15 in Annex A). The rationale for including this variable is that women raised in Q5 are more likely to have a co-ethnic partner and – particularly for Pakistani and Bangladeshi women – this might be detrimental to their labour market outcomes, in a context where patriarchal rules prevail. Although I found this variable to have a negative effect on the probability of employment and access to occupations of women (interestingly, this effect is not consistent for men), the results regarding the effect of being raised in Q5 did not change. This suggests that even if the prevalence of co-ethnic partnering is actually greater for individuals raised in areas with more co-ethnics, it does not seem to be a strong mechanism through which the neighbourhood exerts its effect.

5.7 Discussion

This chapter has sought to identify to what extent having lived at a young age in an area with a high share of co-ethnics exerts an effect on labour market outcomes in later life among second generation ethnic minorities. By using a design that partly reduced (although did not solve) the problem of self-selection and endogeneity, principally because it was parents – and not individuals themselves – who decided on the location into neighbourhoods, I tried to determine whether there is evidence of neighbourhood effects in terms of ethnicity taking place in England and Wales.

Following the questions posted at the beginning of the chapter, these are my conclusions. Starting with Research question 1, the descriptive results showed first that there is indeed an effect of share of co-ethnics in the neighbourhood where ethnic minorities are raised on their labour market outcomes in later life: for both men and women, and for the three dependent variables studied, this effect is negative. However, we saw in the theoretical argumentation that in order to better isolate the effect of ethnic concentration, understood here mainly in terms of *social interaction* and *institutional mechanisms* of neighbourhood effects, socio-economic factors that are both linked to labour market outcomes and to our explanatory variable – i.e. co-ethnic concentration – should be considered (Research questions 1.1, 1.2 and 1.3).

The inclusion of neighbourhood deprivation – the main indicator of *geographical* mechanisms of neighbourhood effects – led initially to a reduction and in some cases a disappearance of the effect of co-ethnic concentration. This is because areas with a high share of ethnic minorities are also usually areas with high deprivation: in other words, living in areas with a high share of co-ethnics is to a large extent bad because these are also deprived areas. Household variables also played a role in explaining the disadvantage associated to being raised in neighbourhoods with a higher share of co-ethnics, and in most cases they also overrode the effect of neighbourhood deprivation. As regards education, I argued that it could be partly an expression of the quality of schools of the area and, hence, I expected it to have the same effect as the other co-variables, that is, to explain the neighbourhood disadvantage for those raised in Q5. However, this was generally not the case, as its impact was usually irrelevant in terms of diluting any neighbourhood-originated disadvantage. In addition, when studying occupational outcomes of women, rather than reducing the negative neighbourhood effect, it made it more relevant. This outcome points to the fact that

women in ethnically concentrated neighbourhoods are not necessarily less educated than women in whiter ones; however, the former are less able to use their education in the labour market.

After adding neighbourhood-, household- and individual-level controls, and considering the five ethnic minority groups pooled together, I found a negative neighbourhood effect for ethnic minority women when estimating their occupation. However, most interesting findings arose as I explored group and gender differences (Research question 2). In particular, Pakistani and Bangladeshi women were particularly affected by being raised in Q5, both in terms of employment and occupation. Among men, Bangladeshi and to a lesser extent the black populations also presented a penalty in access to occupations if raised in Q5. The only group that seemed to benefit from high concentration of co-ethnics were Indian men. This was observed in access to occupations.

In searching for explanations to these results, I believe the main mechanism underlying the findings of this chapter is the *social interaction mechanism*. In fact, it is no surprise that women, and in particular Pakistani and Bangladeshi women, are among the most affected by having been raised in areas with a high share of co-ethnics. I argued before that these groups belong to particularly culturally closed communities, where patriarchal ways and non-egalitarian views on gender prevail, and where men are supposed to be the main providers. For these women, having been raised in areas with a higher concentration of co-ethnics means having been in greater contact with these cultural constraints, which is then translated into poorer labour market opportunities. But as suggested by Antje Röder (personal conversation, 2014), this negative effect might also be linked to processes of parental self-selection. In other words, Muslims parents interested in having 'greater control' over their daughters might choose to live in neighbourhoods with a higher share of co-ethnics. The negative effect we observe could then be related to this parental self-selectivity. As an additional test to explore mechanisms, I have estimated a series of models that are equivalent to those observed in the chapter, but with the difference that interactions between ethnic group and the share of co-ethnics in the origin neighbourhood is included from the beginning (results available upon request). It is interesting to note that although the penalty that Pakistani and Bangladeshi women suffer in a model without controls is higher as compared to the result we obtain with all controls, the difference is actually quite small (only around one fourth smaller): this speaks of a very strong neighbourhood effect at play for these women.

Social interaction mechanisms might also be an explanation for Indian men, who, contrary to Indian women, gain when raised in areas where other Indians live. We saw in Chapter 3 how well Indians do in the labour market, both in terms of employment and in terms of accessing the service class. Living close to other Indians might therefore be a good thing, and might explain the positive effect found among those living in areas with a high share of co-ethnics. Supporting this argument is the fact that this positive effect does not seem to hold in the region of East Midlands, which includes the city of Leicester, an area where spatial segregation of Indians is very high (see Chapter 4), but also where Indian neighbourhoods are very deprived and Indians themselves have, in general, jobs with lower qualifications. However, there are probably some other (unmeasured) factors, like motivation, which are playing a role as well: the overperformance of Indians with respect to the white British in terms of labour market outcomes (see Chapter 3) speaks, I believe, to these unobserved factors as well.

As regards the negative effect found for Bangladeshi populations (which includes also men), we could think – in line with *social interaction mechanisms* – that the worse-off Bangladeshis are located in the most ethnically concentrated areas, and there is a negative group effect playing a role in terms of early socialization. However, we might also think that there are *institutional mechanisms* playing a role. Although it is hard to conceive, for example, that (in line with the stigmatization hypothesis) employers will base their decisions on the neighbourhood in which individuals were raised, it might be a plausible explanation for why both genders are negatively affected by having been raised in such areas, if we consider that the current and origin neighbourhoods are usually very much related in terms of their characteristics, and also that Bangladeshis are particularly segregated populations. To explore this issue, I have included the current neighbourhood in the analysis (results available upon request). The results show a negative effect of being in Q5 for all groups and genders but, most importantly, it reveals that while for Bangladeshi men the initial origin neighbourhood effect reduces to around half after including the current neighbourhood, for women it remains practically the same (note that this also is observed for Pakistani women). This might indicate that the origin neighbourhood – which can be linked more strictly to *interaction* mechanisms connected with early socialization – has a stronger and also long-lasting effect for women; while the current neighbourhood – which could be linked both to *social interaction* and *institutional* mechanisms – might be more relevant to Bangladeshi men.

The results presented in this chapter suggest, therefore, the existence of neighbourhood effects based on the share of co-ethnics in an area, for some groups and genders. Two final remarks:

first, I did not find negative effects for women raised in Q5 when I considered a measure of non-whites in the origin neighbourhood instead of a measure of co-ethnics (results available upon request). This reinforces the idea of *social interaction mechanisms*, which in the case of Pakistani and Bangladeshi women, speaks of cultural constraints that are stronger in areas where a high proportion of other co-ethnics live.

Second, I have explored whether the results obtained in this chapter hold in the southeast region, where London and the majority of ethnic minorities are located (results available upon request). In the case of women, the disadvantage experienced by Pakistanis – especially regarding access to employment – seem to be taking place outside the South-East region, while that of Bangladeshis inside it (these are probably related to the distribution of segregation of these groups within England and Wales: we saw in Chapter 4 that segregation for Bangladeshis is very high in London, while that for Pakistanis is very high in Bradford). In the case of men, the disadvantage for Bangladeshis in terms of access to occupations surprisingly occurs mainly outside the South-East region, while the advantage for Indians does hold in the South-East, but also in West Midlands, where Birmingham is located (and not in East Midlands, as argued before). For the black populations, the negative effect found in terms of occupations also hold principally in the South-East, something I would have expected given that these groups are mainly located here. However, further research needs to be done in order to elucidate why a negative neighbourhood effect seems to be present for this population: as with Bangladeshis, a plausible explanation might be that of stigmatization, as the current neighbourhood partly drives the effect. However, this does not eliminate the effect of the origin neighbourhood. Finally, note that there are also some indications of a negative neighbourhood effect on occupation for Pakistani men in the South-East region, something that did not appear in the full sample.

Further analysis is needed in order to clarify regional differences; moreover, more in depth research is needed in order to elucidate the mechanisms underlying the neighbourhood effects.

6 CHAPTER 6: Residential Change and Equality of Opportunities: a Test of the Spatial Assimilation Theory

6.1 Introduction

In the previous chapters, I argued that, upon arrival, ethnic minorities use the resources of spatial proximity for integrating into the host society: living close to other ethnic minorities – especially co-ethnics – can aid in the securing of a job and a place to live, as well as getting along with practical issues upon arrival. It is expected, however, that ethnic minorities disperse over time and, in particular, over generations. According to the *spatial assimilation model*, as minorities integrate into the host society, adapting to the local culture (i.e. acculturating) and improving their socio-economic condition, they also move out of areas with a high share ethnic minorities or co-ethnics ([Massey 1985](#); [Massey and Denton 1985](#)), which are usually also areas with high deprivation. In other words, ethnic minorities will be willing to transform these cultural and socio-economic gains into residential gains, just like the majoritarian population – in this case the white British – does.

However, it has also been argued that this phenomenon, observed initially by the members of the Chicago School in the US context, does not necessarily occur for all ethnic minorities. Against spatial assimilation, the *place stratification* and *ethnic enclave models* state that either due to external constraints (like discrimination) or because it is their preference, ethnic minorities might not disperse in the space over time; that is, they might not necessarily move to areas where the white British predominate, and presumably, deprivation tends to be lower.

This chapter studies whether second generation ethnic minorities and the white British are equally likely to reside in ‘whiter’ neighbourhoods (which are also less deprived ones); in particular, I explore the transitions to these neighbourhoods for individuals raised in more ‘non-white’ ones (note that, as in Chapter 5, with ‘raised’ I mean ‘lived at some point between 0 and 15 years old’ in any of the three origin years: 1971-1991). The research questions are:

1. Are ethnic minorities with higher acculturation and socio-economic resources more likely to be in ‘whiter’ areas, as the *spatial assimilation* model would preclude?
2. Is there evidence for *place stratification* and/or *ethnic enclave* models? Specifically:
 - 2.1. Are ethnic minorities as likely as the white British to be in ‘whiter’ neighbourhoods, on equality of characteristics?
 - 2.2. Is the effect of acculturation and socio-economic resources on the probability of being in ‘whiter’ neighbourhoods similar across different ethnic minority groups?
 - 2.3. For those raised in ‘non-white’ neighbourhoods, are ethnic minorities as likely as the white British to move to ‘whiter’ neighbourhoods, given equality of characteristics?

6.2 Assimilation, spatial assimilation and other models of spatial integration

As already highlighted in the introduction of this thesis, the concept of *assimilation* refers to the process through which ethnic minorities (or immigrants) integrate into the host society. Its origins can be traced back to the discussions in the Chicago School in the early XX Century, for whose members the transformation of cities in the context of increasing immigration became of a great concern ([see for example Burgess 1925](#)). In particular, the mass arrivals of European immigrants to the city of Chicago was the starting point of a broad inquiry that sought to understand the characteristics of this population, where were they living, in which conditions, and whether and how fast they were not only adapting to the local ways of behaving, but also improving in terms of aspects such as language, class and geographical environment. Some decades later, [Gordon \(1964\)](#) introduced a more systematic definition of the concept of assimilation, which included various levels or dimensions. In his view, *acculturation*, that is, the acquisition of the local culture and *structural assimilation*, that is, the integration into primary groups, like social clubs and cliques, were the most important aspects of assimilation and also the basis for the development of other forms of assimilation, including *intermarriage*, *identification with members of the host society* and *decrease in discrimination*. Later on, following seminal works such as Blau and Duncan’s “American occupational structure” ([1967](#)), researchers shifted their interest from structural assimilation and acculturation to *socio-economic* assimilation ([Alba and Nee 2003](#)). This shift reinforced the view – already highlighted in previous works – that assimilation and social mobility and/or socio-economic improvements are inextricably linked.

Socio-economic improvement, as a crucial step toward *assimilation*, is fundamental to the study of spatial integration, the main topic of this chapter. In point of fact, the idea of assimilation – as already conceptualized by the scholars of the Chicago School – meant not only that immigrants would slowly adapt to the host society and achieve similar opportunities as the majoritarian population, but also would integrate in terms of their location thanks to processes of occupational mobility. This idea emerged through ecological studies, centred on ‘mapping’ or ‘georeferencing’ census information on various racial, socio-economic and behavioural factors. In particular, these initial observers saw that upon arrival immigrants were concentrated in the most deprived areas of the city and that, over time, a process of incorporation into the host society accompanied by spatial de-concentration started to occur ([Park 1925](#)). This process was later on formalized by the so-called model of *spatial assimilation* ([Massey 1985](#)), which definitely established the significance of residence for the assimilation paradigm ([Alba and Nee 2003](#)). Formally, this model states that as immigrants acculturate and improve their socio-economic situation in destination, they also tend to transform these ‘gains’ into residential gains, moving to areas where the segregation of ethnic minorities is lower. In the US context, these are usually the suburbs, where housing, school and environmental conditions are better.

Residential gains can be interpreted in two (interconnected) ways, according to the *spatial assimilation* model: first, ‘gains’ arise because moving to areas with a higher share of majoritarian population (in this case, the white British) creates the conditions for increased contact with others who have a longer term presence in the country. In terms of social capital theory, this means creating *bridging* ties that could lay the ground for ‘bigger steps’ in the process of integration ([Lin 2001](#)). Second, ‘gains’ are also connected to the fact that moving to areas with better socio-economic and living conditions can have a positive effect on the process of integration, especially if we think of amenities such as good-quality schools. The spatial assimilation process, then, would dictate that the spatial distribution of ethnic groups is a reflection of their human capital and the state of their socio-economic assimilation and acculturation⁴¹. Residential mobility is an intermediate step that comes on the heels of processes of social mobility and cultural integration, and that precludes so-called structural assimilation ([Alba and Logan 1993](#)) which, as noted earlier, is a key element in the entire process of assimilation.

⁴¹ Recall from Chapter 1 that the definition of assimilation in this chapter is linked to the attainment of a certain position, while the concept of spatial assimilation is actually more linked to the idea of ‘equality of opportunities’ in terms of the neighbourhood of residence, as we will see later on.

After its initial theorization by [Massey \(1985\)](#), the spatial assimilation model started to be widely used in studies of spatial integration of ethnic minorities. These studies have looked at the extent to which measures such as language proficiency, length of residence in the country, generation (proxies of cultural assimilation), education, class or income (proxies of socio-economic assimilation) affect a residential movement (from more) to less deprived areas or (from more) to less ethnically segregated areas (see for example [Alba and Logan 1993](#); [Alba et al. 1999](#); [Bolt and Van Kempen 2010](#); [Lersch 2013](#); [Schaake, Burgers and Mulder 2013](#)). In general, a higher value in these measures has a positive effect on the probability of moving to a better area; however, this also varies depending on the ethnic group in question. In fact, it has been argued that the spatial assimilation model might not be universally applicable, or at least not with the same strength across groups. Other explanatory models therefore emerged, in particular, the *place stratification* and *ethnic enclave* models ([Bolt and Van Kempen 2010](#)).

The *place stratification* model states that neighbourhoods, as social classes, can be hierarchized and therefore associated with different levels of quality of life and life chances for the people living in them ([Alba and Logan 1993](#)). Most importantly, the hierarchy of places is seen as a means by which more affluent groups or groups with certain characteristics, such as a particular ethnicity, separate themselves – and hold fast to this separation – from less-affluent ones or from individuals from other ethnic groups. A way to keep this hierarchy functioning is, for example, through discrimination in the housing market or harassment, something documented by many studies, including some conducted in the UK ([Bolt, Şule Özüekren and Phillips 2010](#); [Bowes, Dar and Sim 2002](#); [Bowes, Dar and Sim 1997](#); [Peach 1998](#); [Phillips 1998](#); [Phillips 2006](#)). In the case of the spatial integration of ethnic minorities, this model then presupposes that even given equality of conditions, such as education or socio-economic resources, ethnic minorities will be less likely to move to more-affluent neighbourhoods or to areas in which the local population predominates. It assumes as well, that some particularly stigmatized groups might also get lower returns to a socio-economic improvement; that is, they will not be able to convert their socioeconomic gains into residential gains as do other groups. This is, for example, the case of black populations in the US ([Alba and Logan 1993](#)). The *place stratification* model assumes then that ethnic minorities would want to move out of certain areas, or move into some others, but are held to their location by external factors like discrimination or harassment. This keeps segregation – and the hierarchy of areas – functioning, and with it, the possible negative consequences for the members living in those areas with the worst social and economic resources or with higher levels of deprivation ([Bolt and Van Kempen 2010](#)).

The third model is associated with another major factor, common to all groups: cultural background. In fact, the so-called *ethnic enclave model* ([Bolt and Van Kempen 2010](#); [Schaake, Burgers and Mulder 2010](#)) states that a person's bonds with his/her own ethnic community will not necessarily weaken in the course of time. This would mean that ethnic minorities are not necessarily motivated to move to a 'whiter' area or simply prefer to stay in the ethnic neighbourhood, where they might take advantage of the benefits it offers. In this model, preferences – rather than constraints – play the major role in explaining why, for example, being in a good socio-economic class or having a good income does not necessarily imply moving out of an area with a high share of co-ethnics or an area with high levels of deprivation. Different groups, and even different households, have divergent ideas of what constitutes a desirable housing situation ([Özüekren and van Kempen 2002](#); [Schaake, Burgers and Mulder 2010](#)). And for ethnic minorities, in particular, living close to co-ethnics might bring a whole range of benefits – i.e. groceries or restaurants with certain types of food, churches, social centres – that they might not find in an area with a higher share of the majoritarian population. Further, living among co-ethnics might bring a welcome sense of belonging to a certain community, as well as generate an ethnic identity. Note that the definition of ethnic enclave here is more linked to residential location than to work location, although these might be linked in practice (for a discussion on this topic refer to [Portes and Jensen 1989](#); [Portes and Jensen 1992](#); [Sanders and Nee 1987](#); [Sanders and Nee 1992](#)).

In what follows, I delineate a model of analysis and hypotheses based on the three above-mentioned theoretical models. Note that distinguishing between the *ethnic enclave* and *place stratification* models is, in terms of measurement, a difficult task. As [Peach \(1998\)](#) argues, both choice and constraint are always present when studying housing preferences, in particular that of ethnic minorities; moreover, a constraint might also become a choice, if this constraint is somehow 'naturalized' by the group members. However, and contrary to previous studies (*i.e.* [Schaake, Burgers and Mulder 2013](#)), the analysis proposed in this chapter aims at empirically differentiating between the two. Although I cannot tell if a constraint has been internalized as a preference, I expect some indication of whether or not both are present.

6.3 The locational attainment model

In order to carry out the analysis, I follow (with some modifications) a model initially developed by [Alba and Logan \(1993\)](#), called the 'locational attainment model'. In this model, which they estimate separately for each group or ethnic minority, the characteristics of the neighbourhood of destination (Y) are set as a function of various cultural (X₁) and socio-economic (X₂) indicators of assimilation:

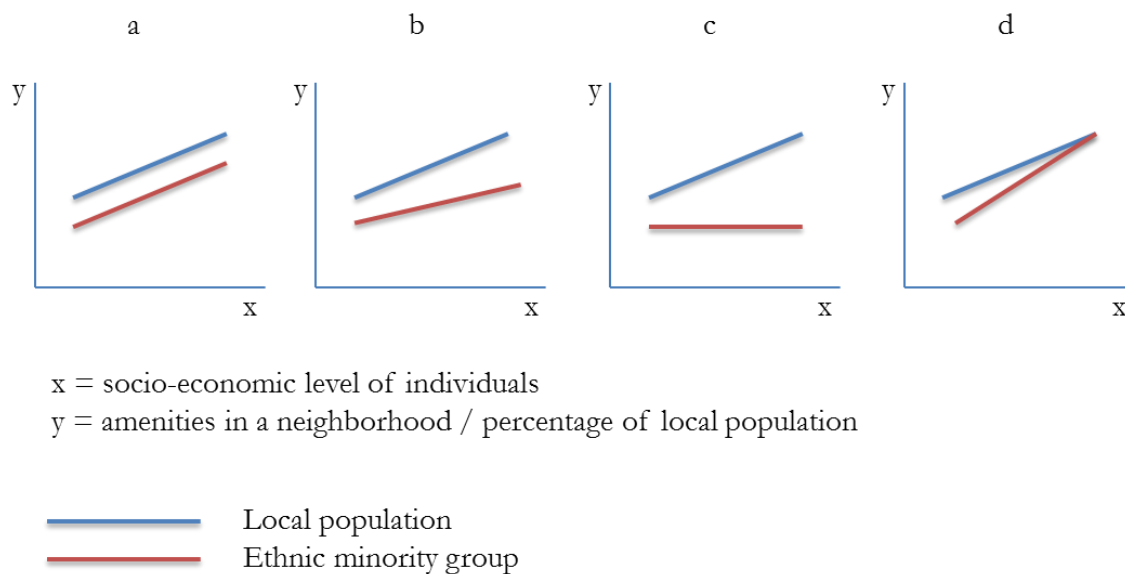
$$Y = a + b_1 * X_1 + b_2 * X_2 + e \quad (\text{Equation 7.1})$$

Assuming that higher values of Y represent a 'good neighbourhood' (i.e. a neighbourhood with more amenities or a higher share of the local or majoritarian population), the *spatial assimilation* model predicts that b₁ and b₂ will have a positive effect on Y. For example, a higher level of language proficiency or longer stay in the country (indicators of cultural assimilation), or a higher socio-economic status or income (indicators of socio-economic assimilation), will lead to a higher probability of being in a less deprived neighbourhood or a neighbourhood with more whites; in other words, socio-economic and cultural gains will have been translated into residential gains. The *spatial assimilation* model predicts as well that all groups will have the same expected probability of residing in a good neighbourhood given equal socio-economic and cultural characteristics, which also implies equal intercept (a) and b-coefficients (b₁ and b₂). But, as argued before, in the presence of different preferences and/or constraints, this might not be the case.

The *place stratification* and *ethnic enclave* models call attention to variations in the intercept (a) and in the values of the b-coefficients (b₁ and b₂). Alba and Logan give different examples of how these could vary and what the implications could be. We could argue, for example, that regardless of socio-economic status, some ethnic minority groups will always be more likely to be found in deprived neighbourhoods compared to the local population (or to other ethnic minority groups), due to discrimination mechanisms in the housing market. We could also argue that some groups will consistently be less likely to be found in neighbourhoods with a predominantly local population due to their relatively low level of acceptance by the locals, because they have been in the country for a shorter period, because their cultural background is relatively unfamiliar to the local population, or because they simply prefer areas where other co-ethnics live. This can be observed in Figure 6.1a, where the y-axis refers to the level of amenities in a neighbourhood (or the percentage of the local population living in it) and the x-axis is the socio-economic level of

individuals. Two lines are plotted: one refers to the local population (blue); the other refers to an ethnic minority group (red). The parallel lines here mean that even if assimilation occurs for the ethnic minority group, because an increase in their socio-economic status leads to an increase in the quality of the neighbourhood, there is a constant gap (which equals the value of the intercept, a) that, we assume, is related to the above-mentioned mechanisms of preference and/or constraint.

Figure 6.1: Residential gains as a function of socio-economic gains: examples



In the second place, Alba and Logan also argue that for the most stigmatized ethnic minority groups, acquiring a higher socio-economic status might give fewer or even no ‘returns’ in terms of the neighbourhood; that is, that they might find it more difficult to transform socio-economic gains into residential gains. This can be seen in Figure 6.1b, where not only there is a gap, but this is even bigger among those with a higher socio-economic status. In this case, although the positive slope still means that *spatial assimilation* continues to hold for the ethnic minority, it does so at a slower pace compared to Figure 6.1a. An extreme case would be the one seen in Figure 6.1c, where there are no gains associated with a higher socio-economic status for the ethnic minority.

Finally, the authors state that other situations might obtain. For example, we could find that the intercept is lower for the less-integrated ethnic minority, but that the slope is higher, meaning

that they gain more from investments in their socio-economic status. A reason might be that they are more motivated to live in better neighbourhoods, with a potentially larger share of local population, and, once they acquire the means, actually do so ([as Schaake, Burgers and Mulder 2013 find in their research](#)). This can be observed in Figure 6.1d, where *spatial assimilation* occurs at a faster pace for the ethnic minority group compared to the other figures, although there is also evidence that supports the *place stratification/ethnic enclave* models.

Of course, we could think of other combinations. Yet, what is important to capture in these examples is the extent to which *spatial assimilation* vs. *place stratification* and *ethnic enclave* models will depend on two (interrelated) factors: first, on the extent to which belonging to a certain ethnic minority group makes a difference when searching for a new neighbourhood, that is, whether groups differ in terms of the types of neighbourhoods they want/can access; and second, on the extent to which all groups have the same residential gains when they gain, in the example above, socio-economic status. These mechanisms, as we saw, might be related both to external factors or constraints – such as discrimination in the housing market – or to factors related to cultural differences and group preferences.

6.4 Model of analysis: adapting the ‘locational attainment model’

This chapter considers the ‘locational attainment model’ as a starting point for a more complex model that will allow a richer analysis. This model has specific characteristics that I detail below.

First, the model on which the current analysis is based benefits from the (“panel-like”) structure of the data, which allows for differentiating neighbourhoods and cultural/socio-economic statuses in different time-points and, therefore, permits us to control sequence. I use three time points. In the first one, I measure the characteristics of the neighbourhood at ‘origin’ (1971, 1981 and 1991), that is, when individuals are between 0 and 15 years old. In the second time point (2001) I measure three variables that act as proxies of assimilation: education and ethnicity of the partner, as proxies of acculturation⁴², and social class, as a proxy of socio-economic assimilation.

⁴² Education has been more linked to *socio-economic assimilation* (Alba and Logan 19913; Alba and Nee 2003) than to *acculturation*, in as much as a person with more education can usually obtain more economic resources. However, I have two main reasons for assuming that it could be a good proxy of cultural assimilation. First, being more educated also means having spent more time in the educational system, which together with the family is one of the most important places for socialization. The level of education could then reflect the degree to which one is socialized in the culture and norms of the mainstream society. Alongside this, it has also been argued that education can have a separate impact on housing preferences and residential moves by providing, for example, a higher

Finally, in the third time point (2011) I measure the characteristics of the ‘destination’ neighbourhood: in this case, if it is a neighbourhood with a lower share of non-whites (or with a lower level of deprivation).

Second, this model is built in a way that – following the arguments below – will permit me to distinguish between mechanisms of *place stratification* and mechanisms of ethnic enclave. As mentioned above, this will be relevant for the first analysis, centred on movements across areas with different shares of non-white/co-ethnics. The possibility of differentiating between the two models stems from the fact that the analysis of residential change or residential mobility⁴³ can be approached in two different ways. On the one hand, we can study the probability of improving the neighbourhood in terms of certain characteristics, that is, of moving from less-white or more-deprived areas to whiter or less-deprived ones. On the other hand, we can also study the probability of being in a neighbourhood with certain ‘good’ characteristics in 2011 (i.e. more white or less-deprived) regardless of the characteristics of the origin neighbourhood.

Why is the differentiation between an approach that studies the ‘improvement’ of the neighbourhood and one that studies ‘being’ in a certain neighbourhood relevant for identifying the model of *ethnic enclave* separately from that of *place stratification*? Think first of the *place stratification* model. There is no reason to assume that constraints such as discrimination or harassment will be applied unequally to those raised in more or less ethnically concentrated

knowledge of how the housing market functions (Özüekren and van Kempen 2002). In the case of ethnic minorities, this might be an extra ‘cultural asset’ in terms knowing better ways of managing the housing market. The second reason is that I will study the effect of education after controlling for both background socio-economic factors and class, which means that the role of education as a socio-economic asset will be, at least partly, removed. Partner’s ethnicity (or intermarriage), on the other hand, has also been identified by Gordon (1964) as a separate dimension of assimilation; however, I believe it can be treated as a measure of acculturation if we consider having a partner of the majoritarian population as an indicator of a willingness not only to approach the mainstream culture, but also to incorporate elements of it.

⁴³ Residential mobility is an assumption in this chapter since I do not have information to measure it (actually, the information has been collected but I am not able to access it). This means that, for example, if an individual has improved the neighbourhood, I will assume that he/she has made a residential movement. Of course, it could also be argued that the improvement in the neighbourhood is the consequence of a change in the neighbourhood itself in which individual was raised, which would mean that the individual has actually not moved. However, this is less likely to happen. The neighbourhood measure used in this chapter is based on quintiles, where Q1 is the ‘whiter’ area. For each year, I classify neighbourhoods into five equal parts according to the level of non-whites in them: this is therefore a relative measure. Given that the location of ethnic minorities has not changed much since their arrival, and given that I only work with 5 categories of neighbourhoods, I believe that most of these neighbourhoods will have the same quintile-category over the years (given the different geographies for the various years, I cannot look at this in detail). Of course, changes in neighbourhoods still occur: however, while there is some probability that a Q1 neighbourhood in 1981 will become a Q5 in 2011, it is very unlikely that a Q5 neighbourhood in 1981 will become a Q1 in 2011, given how fast ethnic minority populations grow in the UK, and also given the results from Chapter 4 (which shows that neighbourhoods tend to gain rather than to lose ethnic minorities). Since the focus of this research is on the transition from non-white to white neighbourhoods, I believe that (at least most of) the improvements are a consequence of residential movements of individuals.

neighbourhoods. In other words, if discrimination, harassment or any other form of intolerance of ethnic minorities – which are the main mechanisms behind the *place stratification* model – is present, the place where ethnic minorities were raised should matter less, as compared to the fact that they indeed belong to an ethnic minority group. However, while *place stratification* – if present – should apply more or less equally to all ethnic minorities no matter where they lived at a young age, I expect the *ethnic enclave* model to work differently. Specifically, I argue that cultural bonds and the desire for an ‘ethnic community’ will probably be stronger among those raised in areas with a higher share of minorities, given that they have been socialized in that environment. This leads me to infer that if I find that those raised in areas with a higher ethnic concentration are also the least likely to move to whiter areas, processes related to the *ethnic enclave* model might be taking place. Of course, it is also fair to say that it would be wrong to argue that if we do not observe a stronger penalty for those raised in areas with a high ethnic concentration there are no processes of *ethnic enclave* taking place. Nonetheless, and as [Phillips \(1998\)](#) puts it, we cannot disregard either the fact that choices might reflect both the perceived risk of racial harassment outside the ethnic territory and the cultural forces associated with the maintenance of distinctive ethnic identities and lifestyles (pp. 1694). Only qualitative work allows for this more subtle differentiation.

The **third** peculiarity of the model presented here is that, due to the low number of cases, I do not run a model separately for each ethnic group, as [Alba and Logan \(1993\)](#). However, I do test for interactions between ethnic groups and the key indicators of cultural and socio-economic assimilation (education, partner’s ethnicity and social class in 2001), to capture the ‘returns’ to these indicators for the various groups.

Finally, for the purposes of this chapter, I distinguish between ‘full’ and ‘partial’ spatial assimilation. ‘Full’ spatial assimilation means that a certain ethnic minority group has the same patterns of residential mobility as the white British. In other words, regarding equality of conditions they have the same probabilities of being in an area with certain characteristics; for example, a low percentage of non-whites. ‘Partial’ spatial assimilation denotes that although a certain ethnic minority group might experience residential gains thanks to socio-economic and cultural gains, this is combined with some type of disadvantage, either as an average ethnic group effect or as interaction effect; for example, when the gains they make from entering a high social class are lower as compared to the white British.

The model of analysis is based on different equations. These are shown in Table 6.1, together with a brief explanation of what they test in terms of theory. Equation i controls for: ethnic group (Z), the three key mediating variables – education (X₁), social class (X₂) and partners' ethnicity (X₃) – the non-white quintile in origin (W) and social background characteristics and other controls (V), including neighbourhood deprivation and household characteristics in origin. The main rationale behind this equation is: when the effect of being part of an ethnic minority (vs. being a white British person) is negative even after controlling for background characteristics and mediating variables, it indicates the presence of either *place stratification* or *ethnic enclave* models. Conversely, when the effect of Z is null, it means that residential opportunities of ethnic minorities are equivalent to that of the white British, and therefore, we can say that they experience 'full' *spatial assimilation*. In my analysis, I also apply this equation to ethnic minorities only, to test for general tendencies of spatial assimilation (i.e. to obtain general trends of the effect of X₁, X₂ and X₃ for pooled ethnic minorities).

Equation ii refers to three interactions between ethnic group and education, social class and partner's ethnicity, which I test separately. When interactions are negative *place stratification* is reinforced; conversely, when interactions are positive it speaks of a convergence towards 'full' *spatial assimilation*.

Equation iii, finally, serves to test the *ethnic enclave* model by adding an interaction between the ethnic group (Z) and the non-white quintile in origin (W). When the gap between ethnic minorities and white British is stronger among those raised in areas with higher share of non-whites, it points to processes of ethnic enclave. Note also that this equation is tested before and after including the partnership variable (X₃), as a way to test for partnership as a mechanism of *ethnic enclave* (under the assumption that having a non-white partner is more common among those raised in areas with a high share of non-whites or co-ethnics and is has a negative effect on the probability moving to a whiter area).

Table 6.1: Equations used in the analysis

Equations		Explanation
Main effects		
i	$Y_{(2011)} = a + b_1*Z + b_2*X_{1(2001)} + b_3*X_{2(2001)} + b_4*X_{3(2001)} + b_5*W + b_6*V + e$	<i>Place stratification/ ethnic enclave</i> is true when Z is negative (hence, ‘full’ <i>spatial assimilation</i> occurs when the effect of Z is null).
Interactions with key mediating variables		
ii	Equation i + $b_7*Z*X_{1(2001)} + e$ or $b_7*Z*X_{2(2001)} + e$ or $b_7*Z*X_{3(2001)} + e$	<i>Place stratification</i> is reinforced when interactions are negative; when interactions are positive it speaks of a convergence towards ‘full’ <i>spatial assimilation</i> ¹ .
Interactions with origin neighbourhood		
iii	Equation i + $b_6*Z*W + e$	<i>Ethnic enclave</i> processes can be delineated when the interaction $Z*W$ is negative

¹ Note that even if interactions are negative, ‘partial’ spatial assimilation is still true if the effects of X₁, X₂ and X₃ are positive for ethnic minorities.

Notation: Y₍₂₀₁₁₎= non-white quintile in 2011; Z= ethnic group; X₁₍₂₀₀₁₎= education in 2001; X₂₍₂₀₀₁₎= social class in 2001; X₃₍₂₀₀₁₎= ethnicity of the partner in 2001; W= non-white quintile in origin; V= social background variables measured in and other controls.

6.5 Hypotheses

This research is guided by the following hypotheses. A summary of these and their link to research questions, equations and theoretical models are shown in Table 6.2.

Following the *spatial assimilation* model, a first general expectation is that for both ethnic minorities and white British, more education, a white British partner and a higher social class in 2001 has a positive effect on the probability of being in an area with a lower share of non-white population (*Hypothesis 1*). Irrespective of their ethnic background, having more cultural and economic resources should push individuals to search for housing in neighbourhoods with more locals, which as we saw, are also usually less-deprived ones ([South and Crowder 1997](#)). Although a situation like the one observed in Figure 6.1c, where resources do not matter at all for ethnic minorities, might also be possible, it is quite unlikely given that we are talking of an extreme case. Furthermore, there was evidence among some groups (in this case Asian) that living in a mixed neighbourhood was seen as a desirable outcome for ethnic minorities, especially when considering their children and grandchildren. In the same study, some youngsters also expressed

this preference: for these, moving to a mixed neighbourhood represented a means towards more freedom from community constraints, especially among women ([Phillips 2006](#)).

I have, however, some expectations that go hand-in-hand with the models of *place stratification* and *ethnic enclave* (and that would therefore make spatial assimilation ‘partial’). Specifically, there are mechanisms that might lead to the emergence of a ‘gap’, or to a difference in the ‘returns’ to cultural or socio-economic factors, between the white British and ethnic minorities, and also between different minority groups. In the case of the *place stratification* model, the literature has shown that although there have been improvements in terms of discrimination in the housing market, especially after the Race Relations Act was introduced in 1967 and the local authority housing was opened to ethnic minorities in the late 1960s, ethnic minorities continue to experience difficulties when choosing where to live. These are related not only to discrimination by estate agents or housing corporations, but also to harassment that is known to occur in some areas, and that makes these areas, therefore, undesirable to ethnic minorities ([Bowes, Dar and Sim 2002](#); [Phillips 1998](#); [Phillips 2006](#)).

For example, a study among Caribbean persons living in council housing showed that their relocation decision-making was strongly motivated by fear of harassment ([Phillips 1998](#)). This, according to the author, has helped to maintain racial segregation in the public sector, with minorities living in areas with the worst amenities, a pattern present from the initial settlement of the Caribbean population in public housing. Similarly, in a study in the city of Bradford, [Phillips \(2006\)](#) shows that although agents are aware of the law and unlikely to discriminate explicitly, they did disclose stereotyped views about and mistrust of the Asian (Pakistani and Bangladeshi) population. Moreover, some Asian residents manifested concerns about the social rented sector, as a ‘perpetuator’ of spatial divisions; fear of rejection and victimisation was also a recurrent theme. In relation to this, it is interesting to note that some authors agree on the fact that while the ‘otherness’ in the UK was, some decades ago, focused on the black and South Asian population in general, in more recent years this started to be linked to the Muslims, especially after 9/11 and the 2001 disturbances in northern England ([Alexander 2002](#); [Bolt, Şule Özüekren and Phillips 2010](#); [Heath and Li 2010](#); [Phillips 2006](#)). This has rendered the Pakistani and Bangladeshi populations particularly vulnerable.

In line with the *ethnic enclave* model, another mechanism that would explain why we might observe a ‘gap’ between groups is that staying in an area with a high share of co-ethnics might bring

'extra' benefits. For example, [Phillips \(1998\)](#) showed that living close to family and community was an important consideration for Caribbean persons applying for council housing. This preference for living close to co-ethnics was also found among Pakistani and Bangladeshi populations ([Bowes, Dar and Sim 2002](#); [Bowes, Dar and Sim 1997](#); [Phillips 2006](#)), although most strongly among the older populations and married women, who are also likely to move to their husband's house after marriage ([Finney 2011](#)). In fact, these populations might gain more from spatial concentration in terms their social life; moreover, among married women, living outside the community might mean more dependence on men and fewer possibilities of developing a personal network of acquaintances and friends. Supporting this idea, [Peach \(2005\)](#) has also argued that Asian populations have a strong sense of community, and that concepts of control, family honour and status dominate, for which the role of co-ethnics is likely to be stronger compared to other groups. Moreover, there is evidence that Pakistani and Bangladeshi populations are more likely to move shorter distances as compared to other groups ([Finney and Simpson 2008](#)).

These combined mechanisms led me to the following hypotheses. First, and following the *place stratification* and *ethnic enclave* models, I expect that even after controlling for background characteristics and for cultural and socio-economic indicators in 2001, ethnic minorities – in particular Pakistani and Bangladeshi populations – are less likely to be found in more white areas, compared to the white British, and independent of their origin neighbourhood (*Hypothesis 2*). Second, and in line with the *place stratification* model and the arguments of [Alba and Logan \(1993\)](#) observed in Figures 6.1b and 6.1c, I expect that the role of education and class is less strong for more stigmatized ethnic minorities, in particular Pakistanis and Bangladeshis, than it is for the white British, when estimating changes in neighbourhoods in terms of their share of white population (*Hypothesis 3*), again in line with the *place stratification* model.

Third, contrary to my expectations with respect to the effect of education and class, I expect that having a white British partner has a more positive effect for ethnic minorities than for the white British (*Hypothesis 4*) concerning the probability of being in a neighbourhood with a low share of non-whites in 2011. This might be related, in part, to self-selection mechanisms; for example, ethnic minorities looking for partners outside their own community might be predisposed to move to more 'white' areas. A 'local' partner should therefore reduce the (expected) gap, as shown in Figure 6.1d (which goes in the direction of 'full' *spatial assimilation*). In particular, and

given the higher segregation of Asian populations, I expect them to be especially positively self-selected if partnered with a white British person.

Finally, I expect Asian persons raised in areas with a higher share of non-white or co-ethnics – in particular Pakistanis and Bangladeshis – to have a lower probability of being in non-white areas compared to those raised in more white areas (*Hypothesis 5*). This would support the argument of the *ethnic enclave*, which seems to be particularly strong among Muslim populations. Moreover, I expect the partner's ethnicity to partly explain this effect. Although, as [Peach \(2005\)](#) argues, endogamous marriage patterns among Asians are very common, and, therefore, less dependent on spatial concentration, it can still be argued that a Pakistani person raised in a whiter area will have a greater chance of having a white British partner compared to one raised in a non-white/Pakistani area. This relationship between neighbourhood and partner's ethnicity makes me expect a reduction in the interaction effect.

Finally, the analysis will also look at differences between genders, although I have not developed precise hypotheses on this. Following the results in Chapter 5, however, I would expect women, and in particular Asian women, to find it more difficult to improve their neighbourhoods, as compared to men.

Table 6.2: Hypotheses and mechanisms, and their link to research questions and equations

Research question: What is it tested?	Equation	Hypothesis	Mechanism
1 Effect of education, white British partner and social class for ethnic minority groups	i*	Positive effect on the probability of moving to more 'white' neighbourhoods (<i>Hypothesis 1</i>)	Gains in socio-economic and cultural assimilation should be expressed in residential gains.
2.1 Group differences → average	i	Ethnic minorities, especially Pakistani and Bangladeshi, are less likely than the white British to move to neighbourhoods with more 'white' population (<i>Hypothesis 2</i>).	Discrimination in the housing market; stigmatization; fear of harassment (<i>place stratification</i>); community constraints; benefits of living close to co-ethnics (<i>ethnic enclave</i>).
2.2 Group differences → variation in the effects, education, social class and partner's ethnicity	ii	Weaker effect of education and social class for Pakistani and Bangladeshi (<i>Hypothesis 3</i>); stronger effect of having a white British partner for ethnic minorities (particularly Asian) than for white British (<i>Hypothesis 4</i>).	Pakistani & Bangladeshi are particularly stigmatized groups; Asian minorities who have white British partners are positively self-selected in terms of motivation to be in more 'white' areas.
2.3 Group differences → variation in the effect of 'origin' neighbourhood	iii	Asian populations, especially Pakistani and Bangladeshi, are even more unlikely to move to more 'white' areas (<i>Hypothesis 5</i>); this is partially related to partners' ethnicity.	Community constraints; benefits of living close to co-ethnics (a test for isolating the <i>ethnic enclave</i>); individuals living in areas with high share of non-white or co-ethnic are more likely to marry a co-ethnic (a test for exploring the mechanisms of <i>ethnic enclave</i>)

* Excluding the white British.

6.6 Data and variables

The analysis is based on the ONS Longitudinal Study, whose main characteristics were already described in Chapter 2. The main *dependent variable* in this chapter is the probability of being in non-white quintiles 1 and 2 in 2011, which identify areas with low share of non-whites⁴⁴. I have chosen these two quintiles for two main reasons. The first reason is that they are areas that, on average, have a higher proportion of white British. Table 6.3 shows the number of neighbourhoods (Wards) and the average share of groups in neighbourhoods for the five non-white quintiles in 2011. Quintile 1 – which comprises most of Wards in England and Wales – has on average 93% of white British in Wards and 2.6% of non-white, while quintile 2 is more mixed, but still with a majority of white British, on average. Quintiles 3, 4 and 5, on the other hand, much smaller in terms of the area they occupy (around 7% of Wards) are on average much more mixed in terms of ethnicity, and white British start being more often a minority in Wards too.

Table 6.3: Total number of Wards and average percentage of groups in Wards, by non-white quintile in 2011

	Wards	British	Non-white	Indian	Pakistani	Bangladeshi	Caribbean	African
Q1	7258	93.1	2.6	0.6	0.2	0.1	0.2	0.3
Q2	700	68.7	18.2	4.2	2.8	0.9	1.4	2.6
Q3	304	48.9	33.0	5.9	5.3	1.8	3.5	5.9
Q4	189	32.6	49.4	8.9	8.4	3.8	5.7	9.2
Q5	119	17.3	71.4	21.9	18.7	7.6	3.9	5.5

Source: Author’s own calculations based on aggregated Census data for England and Wales (from www.neighbourhood.statistics.gov.uk).

The second reason is that most of the areas in quintiles 1 and 2 are also relatively better in terms of deprivation. Table 6.4 shows deprivation quintiles in 2011 by non-white quintiles in the same year. Here we can see that more than 80% of Wards in quintiles 3, 4 and 5 have a deprivation level of 4 or 5; this drops to 48% for quintile 2 and to 21 for quintile 1. Note that in order to test whether the move to a whiter area is linked to a move to a less-deprived area, I replicated the analysis in this chapter using neighbourhood deprivation as a dependent variable (i.e. probability

⁴⁴ For details on how quintiles were constructed refer to Chapter 2.

of being in deprivation quintiles 1-3). The results, which can be found in Annex A, are very similar in substantive terms.

Table 6.4: Deprivation quintiles by non-white quintiles, 2011 (row %)

Deprivation quintiles						
Non-white quintiles	Q1	Q2	Q3	Q4	Q5	Total Wards
Q1	34.8	23.9	20.0	14.3	7.0	7253
Q2	9.9	21.3	23.1	26.5	19.2	694
Q3	2.3	5.3	11.2	33.6	47.7	304
Q4	2.7	1.1	4.3	12.8	79.3	188
Q5	0.0	0.0	5.0	10.1	84.9	119

Note: The differences in the number of Wards between Tables 6.3 and 6.4 are because deprivation scores were calculated only for Wards that have a minimum of 100 households. Note, however, that neighbourhood deprivation is always included in the analytical models, for which areas with low number of households (<100) are always excluded.

Source: Author’s own calculations based on aggregated Census data for England and Wales (from www.neighbourhood.statistics.gov.uk and data provided by Prof. Paul Norman).

Another aspect to consider pertains to the argument on which the test for the ethnic enclave model is based. In fact, this argument assumes that individuals raised in areas with a higher share of non-whites will have more intra-group contact, and will potentially experience more cultural constraints. I argued that I expected to see processes of ethnic enclave in particular for Asian populations, which should be reflected in a lower probability of moving to ‘whiter’ areas among those raised in less-white ones. However, the variable that I use to characterize origin neighbourhoods is not the share of co-ethnics, but the share of non-whites. The main reason for choosing this variable is that it is equivalent to the dependent variable, and the comparison between origin and destination thus becomes more ‘tidy’. Moreover, it makes sense, given that I am working with the white British as well. But to what extent are areas with a high share of non-whites also areas where the highest share of members of the same group is located? At the same time, one could also ask: to what extent are destination areas with a low share of non-whites also areas with a low share of members of the same group?

Table 6.5: Non-white quintiles by ethnic quintiles (column %)

	Indian					Pakistani					Bangladeshi					Caribbean					African				
	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
1981																									
Q1	94.1	25.3	0.0	0.0	0.0	85.0	7.0	0.0	0.0	0.0	84.9	19.8	6.5	0.0	0.0	87.5	4.0	0.0	0.0	0.0	94.3	34.6	0.0	0.0	0.0
Q2	5.3	55.7	30.8	1.6	0.0	11.5	33.2	27.0	0.0	0.0	11.2	33.7	29.6	18.2	0.0	11.0	49.5	3.7	0.0	0.0	5.1	55.0	24.8	0.0	0.0
Q3	0.5	13.5	41.4	34.1	0.0	2.3	29.4	37.0	45.7	9.1	2.5	24.1	26.9	50.0	11.1	1.2	31.7	55.8	38.3	0.0	0.5	7.4	56.8	27.2	0.0
Q4	0.2	4.9	18.5	43.1	17.1	1.0	17.6	22.0	30.4	31.8	1.1	14.7	17.6	22.7	44.4	0.3	10.9	25.8	45.7	52.5	0.1	2.3	15.4	45.7	43.1
Q5	0.0	0.6	9.2	21.1	82.9	0.2	12.8	14.0	23.9	59.1	0.4	7.8	19.4	9.1	44.4	0.1	4.0	14.7	16.0	47.5	0.0	0.7	3.0	27.2	56.9
<i>Wards</i>	7684	1160	292	123	41	8819	313	100	46	22	8765	374	108	44	9	8580	404	163	94	59	7519	1241	331	151	58
2011																									
Q1	94.6	42.6	6.1	0.0	0.0	90.0	14.4	0.0	0.0	0.0	89.9	23.3	9.6	0.0	0.0	92.3	19.1	1.0	0.0	0.0	93.5	23.4	3.0	0.0	0.0
Q2	3.3	35.3	53.4	16.3	0.0	6.5	38.7	35.6	3.1	0.0	6.7	30.9	21.1	13.0	0.0	5.8	42.9	29.8	4.7	0.0	5.0	44.0	33.8	13.2	5.3
Q3	1.3	13.2	22.8	30.2	1.8	2.3	18.6	29.6	29.7	3.4	1.9	25.6	26.3	10.9	10.0	1.1	20.0	34.6	50.0	15.0	0.9	16.7	31.6	51.2	20.0
Q4	0.6	7.0	13.6	29.5	19.3	1.0	15.9	17.0	39.1	20.7	1.0	13.5	27.2	26.1	35.0	0.4	8.8	20.4	36.8	65.0	0.3	8.9	16.2	25.6	64.0
Q5	0.2	1.9	4.1	24.0	78.9	0.2	12.3	17.8	28.1	75.9	0.5	6.7	15.8	50.0	55.0	0.4	9.2	14.1	8.5	20.0	0.4	6.9	15.4	10.1	10.7
<i>Wards</i>	7303	787	294	129	57	8009	333	135	64	29	7944	446	114	46	20	7768	445	191	106	60	7628	504	234	129	75

Source: Author's own calculations based on aggregated census data for England and Wales.

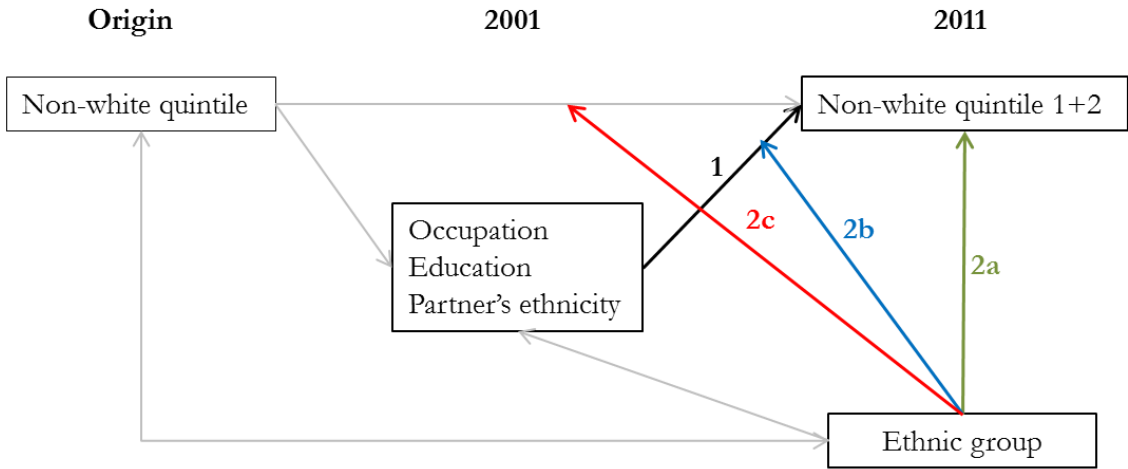
Table 6.5 shows, for 1981 and 2011, the relationship between non-whites and ethnic quintiles (for 1971/1991 the distributions are almost equal). We can see that between 90 and 100% of origin areas in ethnic quintile 5 – areas with the highest share of ethnic minorities of a certain group and also those that exert a negative effect in labour market outcomes of women, as shown in Chapter 5 – are contained in non-white quintiles 4 and 5. When testing for the ethnic enclave hypothesis in the analytical models, I will therefore explore the effects of origin non-white quintiles 4 and 5. Note also that none of the areas with the highest share of members of the same group in 2011 are contained in non-white quintiles 1+2, which supports the selection of non-white quintiles 1+2 as a dependent variable.

Moving to the other variables used in the analysis, the three main *mediating variables*, measured in 2001, are the following: education, measured with a 3-category variable (Level 1 or less, Levels 2+3 and Level 4+); social class, measured with a 4-category variable (Manual, Petit Bourgeoisie, Intermediate and Service; and partner's ethnicity: measured with a 4-category variable (no partner, white British, non-white and other).

Finally, this study compares five main ethnic minority groups with the white British, for which ethnic group is included as a crucial control variable. Recall that I only work with second generation ethnic minorities (Indian, Pakistani, Bangladeshi, Chinese, Caribbean and African), defined as those who lived with at least one parent between 0 and 15 years of age in any of the three origin years: I include therefore individuals born in Britain and individuals born abroad who arrived before age 16. Other controls – including background characteristics in origin (parental social class, tenure, number of cars, overcrowding and neighbourhood deprivation), age, number of census points and origin year – are also included in the analysis.

Figure 6.2 shows the main variables and their relationships; moreover, a reference to the research questions is also shown. Research Question 1 is about the main effect of the mediating variables on the probability of being in a non-white quintile 1+2; Research Question 2a is about the main ethnic group effect; research questions 3 and 4, finally, are about interaction effects between ethnic group and mediating variables, and between ethnic group and non-white concentration in origin. For more details on data and variables refer to Chapter 2.

Figure 6.2: Variables and their relationships; reference to research questions



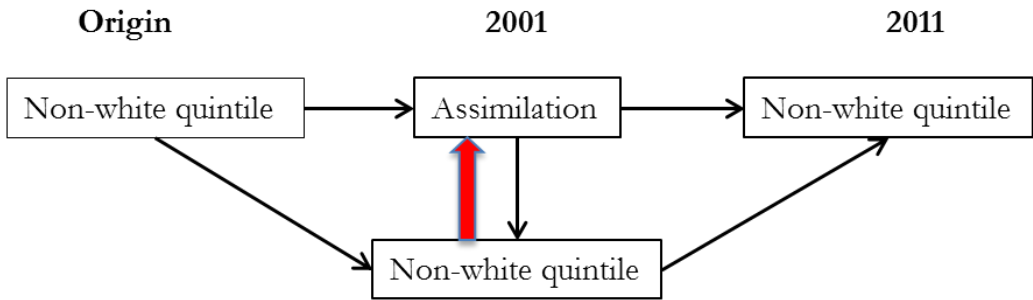
6.7 The problem of reverse causality

An issue that I would like to briefly comment on, before moving to the analysis, is the problem of *reverse causality*, shown in Figure 6.3. So far, I have assumed that more education, higher social class and a white British partner – proxies of socio-economic and cultural assimilation – are ‘gains’ that, later on, are transformed into residential gains. In other words, these factors act as predictors of the characteristics of the neighbourhood in 2011. This influence might occur in two different ways: directly and indirectly. The direct effect means that there is an effect of these variables on top of the effect of the characteristics of the neighbourhood in 2001. The indirect effect means that the effect of these variables occurs through the characteristics of the neighbourhood in 2001, which also have an effect on the characteristics of the neighbourhood in 2011. This study does not distinguish between the two, since I consider that they are both part of the same process, that is, that socio-economic and cultural assimilation promote spatial assimilation.

However, the following problem arises: what if individuals moved to a certain neighbourhood in 2001 with the objective of achieving socio-economic and cultural assimilation? In this case, the classical model of spatial assimilation would be reversed (this is expressed in the red arrow). In other words, rather than means, more socio-economic and cultural assimilation would be a consequence of being in a neighbourhood with a higher share of non-whites. This implies that if I find a positive relationship between assimilation and being in a white neighbourhood in 2011, I cannot know whether individuals improved their neighbourhood in 2011 because they improved

their socio-economic and cultural assimilation, or because they moved in 2001 to a white neighbourhood with the objective of improving their assimilation, and assimilation and a white neighbourhood in 2001 positively affect the probability of being in a white neighbourhood in 2011. The key issue is then: do socio-economic and cultural assimilation function as a *means* – as the theory of spatial assimilation argues – or as a *consequence*?

Figure 6.3: The problem of reverse causality



Disentangling the two mechanisms is a difficult task that is *not* solved in this chapter: in fact, the assumption that spatial assimilation occurs after socio-economic and cultural assimilation is based solely on *theory*. However, as a way to show some very exploratory evidence that might support the *spatial assimilation* model, we can have a look at a specific group: individuals raised in an area with a high share of non-whites in 1991. These individuals are between 10 and 15 years old in 1991, between 20 and 25 years old in 2001 and between 30 and 35 in 2011, and are an interesting group to consider, since we can observe them at a time of their life when they experience many changes, such as acquiring an education, finding a job, getting married and also changing their neighbourhood. Even if groups in Q5 are probably less likely to experience assimilation gains and, hence, residential gains, as compared to individuals raised in neighbourhoods with more whites, over time (i.e. as we move from 1991 to 2001 and 2011) we should see that they are more likely to be in whiter areas. This, I believe, would support the idea of assimilation as a means. On the contrary, if we see that the number of individuals in whiter areas in 2001 is the same as in 2011, and they are both higher than in 1991, the idea of assimilation as a means is less supported, because it would suggest that they have already improved the neighbourhood at a stage of life (20-25 years old) just before assimilation achievements (such as getting a highly qualified job) really occur.

Table 6.6 shows the probability of being in non-white quintiles 1+2 in 2001 and 2011 by non-white quintile and origin year. White British and the five-pooled ethnic minorities are shown. We can see that younger cohorts raised in non-white areas (Q5) are actually more likely to improve their neighbourhoods in 2011 than in 2001 (although some individuals do make the big improvement in 2001). This supports the idea of assimilation as a means.

Table 6.6: Probability of being in a neighbourhood with low share of non-whites (quintiles 1+2) in 2001 and in 2011, by cohort and non-white quintile in origin (%)

	White British			Ethnic minorities (pooled)		
	2001	2011	<i>Total</i>	2001	2011	<i>Total</i>
<u>1971</u>						
Q1	96.8	96.7	<i>61,203</i>	75.2	74.3	<i>101</i>
Q2	91.8	91.1	<i>10,455</i>	63.8	58.3	<i>271</i>
Q3	82.4	82.0	<i>2,931</i>	42.8	45.6	<i>397</i>
Q4	79.1	81.1	<i>1,330</i>	40.6	39.1	<i>384</i>
Q5	79.0	79.7	<i>610</i>	39.7	41.4	<i>466</i>
<u>1981</u>						
Q1	96.5	96.9	<i>49,283</i>	80.8	76.9	<i>182</i>
Q2	90.9	90.1	<i>9,471</i>	63.6	62.0	<i>382</i>
Q3	74.1	79.2	<i>2,201</i>	43.3	43.8	<i>566</i>
Q4	65.9	75.6	<i>1,012</i>	31.1	37.9	<i>531</i>
Q5	64.9	71.2	<i>382</i>	26.3	30.4	<i>654</i>
<u>1991</u>						
Q1	97.0	96.3	<i>15,332</i>	87.8	77.6	<i>98</i>
Q2	87.7	84.9	<i>1,568</i>	83.4	61.6	<i>151</i>
Q3	49.1	69.3	<i>407</i>	22.3	30.9	<i>139</i>
Q4	35.0	58.7	<i>206</i>	13.3	24.7	<i>166</i>
Q5	39.4	60.6	<i>94</i>	10.8	17.9	<i>195</i>

Population: Individuals between 20 and 55 years old
Source: Author's own calculations based on ONS-LS

6.8 Descriptive statistics

Table 6.7 shows the probability of being in a neighbourhood with a low share of non-white population (quintiles 1+2) by origin quintile. For illustrative purposes, I have divided between people raised in quintiles 4+5 and people raised in quintiles 1-3.

A first outcome from Table 6.7 is that those raised in neighbourhoods with more white population are also more likely to end up in neighbourhoods with more whites, and this applies to all groups. Note, however, that important differences emerge between the white British and ethnic minority groups. A clear indication of this is that even white British raised in areas with the highest share of non-whites (Q4+5) are more likely to be found in white areas in 2011 compared to ethnic minorities raised in areas with the lowest share of non-whites (Q1-3). Differences between ethnic minority groups are also noticeable. For example, as we compare ethnic minorities raised in Q4+5 – that is, groups raised in areas with the highest share of non-whites – Pakistani and Bangladeshi populations have the lowest transition to a whiter neighbourhood in 2011; while Indians have the highest. For example, while only 22-25% of Pakistanis and 17-18% of Bangladeshis raised in Q4+5 are found in Q1+2 in 2011, this value grows to 38-43% for Indian.

Table 6.7: Probability of being in a neighbourhood with a low share of non-white (Quintiles 1+2) by origin neighbourhood (%)

	White British	Indian	Pakistani	Bangladeshi	Caribbean	African
Non-white Q1-3						
Men	95.1	63.9	49.3	42.9	54	48.0
Women	95.3	59.5	51.1	63.0	44.8	64.0
Non-white Q4+5						
Men	76.0	38.4	24.8	16.9	38.7	29.4
Women	76.9	42.7	21.5	18.2	33.7	22.9
<i>Totals: Q1-3</i>						
<i>Men</i>	<i>73282</i>	<i>512</i>	<i>223</i>	<i>49</i>	<i>265</i>	<i>25</i>
<i>Women</i>	<i>79569</i>	<i>462</i>	<i>225</i>	<i>54</i>	<i>386</i>	<i>50</i>
<i>Totals: Q4+5</i>						
<i>Men</i>	<i>1705</i>	<i>529</i>	<i>258</i>	<i>71</i>	<i>230</i>	<i>34</i>
<i>Women</i>	<i>1929</i>	<i>586</i>	<i>270</i>	<i>66</i>	<i>306</i>	<i>48</i>

Population: Individuals between 20 and 55 years old

Source: Author's own calculations based on ONS-LS

Up to this point, these results reveal that white British are more likely than ethnic minorities both to stay in more-white areas and to move to them. This, however, is not surprising, given that changes in socio-spatial structure typically take place at a very low pace. What is interesting to know is to what extent these differences remain after we consider a whole range of individual and household background characteristics that should predict neighbourhood choice, and, at the

same time, whether and to what extent these factors preclude an improvement of the neighbourhood for the different groups.

Tables 6.8, 6.9 and 6.10 show the role of education, partner's ethnicity and social class (measured in 2001) in mediating the relationship between origin and destination neighbourhoods, for pooled ethnic minorities and white British. A first outcome from Table 6.8 is that education generally improves the probabilities of being in a white neighbourhood in 2011, in particular for ethnic minorities. For example, among those raised in areas with high share of non-whites (Q4+5), having a Level 4+ education gives ethnic minorities around 15% points more chances of being in Q1+2 in 2011 compared to having Level 1 or less. However, this table also shows that given equality of education and origin neighbourhood, white British are always advantaged with respect to ethnic minorities. For example, while around 82% of white British raised in non-white Q4+5 who got a Level 4+ in 2001 have improved their neighbourhood; only around 42% of ethnic minorities with the same education have done so. Interestingly, note also that the best-educated ethnic minorities raised in the whitest neighbourhoods do not reach the levels of the least-educated white British raised in areas with the lowest share of whites. This does not occur for the (parallel) analysis on deprivation that can be found in Annex A (see Table 8.18), which might be an indicator of higher segregation based on ethnicity.

Table 6.8: Probability of being in a neighbourhood with a low share of non-white (quintiles 1+2) in 2011 by origin neighbourhood and education (%)

	White British			Ethnic minorities (pooled)		
	<i>Level 1 or less</i>	<i>Levels 2+3</i>	<i>Level 4+</i>	<i>Level 1 or less</i>	<i>Levels 2+3</i>	<i>Level 4+</i>
Non-white Q1-3						
Men	95.5	95.9	93.1	51.2	58.5	60.8
Women	95.2	96.3	93.9	50.9	49.5	58.5
Non-white Q4+5						
Men	74	76.8	81.7	28.3	32.2	42.9
Women	74.1	79.8	82.3	27.6	32.9	41.6
<i>Totals: Q1-3</i>						
<i>Men</i>	<i>32355</i>	<i>24839</i>	<i>16088</i>	<i>365</i>	<i>287</i>	<i>439</i>
<i>Women</i>	<i>31598</i>	<i>30542</i>	<i>17429</i>	<i>350</i>	<i>412</i>	<i>422</i>
<i>Totals: Q4+5</i>						
<i>Men</i>	<i>903</i>	<i>556</i>	<i>246</i>	<i>438</i>	<i>298</i>	<i>378</i>
<i>Women</i>	<i>985</i>	<i>654</i>	<i>282</i>	<i>413</i>	<i>441</i>	<i>428</i>

Population: Individuals between 20 and 55 years old
Source: Author's own calculations based on ONS-LS

Moving to the next indicator of cultural assimilation, partner's ethnicity, Table 6.9 shows that having a white British partner (vs. a non-white one) has a positive effect for ethnic minorities. For example, ethnic minorities raised in areas with a high share of non-whites, have around 30% points greater probability of being in whiter areas in 2011 if their partner is white British than if he or she is non-white.

Table 6.9: Probability of being in a neighbourhood with a low share of non-whites (Quintiles 1-2) in 2011 by origin neighbourhood¹ and partner's ethnicity (%)

	White British				Ethnic minorities (pooled)			
	<i>No Partner</i>	<i>Other</i>	<i>Non-White</i>	<i>White British</i>	<i>No partner</i>	<i>Other</i>	<i>Non-white</i>	<i>White British</i>
Non-white Q1-3								
Men	93.5	91.0	86.1	96.4	57.4	37.0	49.6	84.5
Women	93.2	90.7	82.8	96.7	46.3	0	54.5	86.3
Non-white Q4+5								
Men	64.6	78.2	100.0	83.9	31.7	-	32.5	65.3
Women	66.6	66.7	63.0	85.2	27.1	-	35.8	72.0
<i>Totals: Q1-3</i>								
<i>Men</i>	<i>28506</i>	<i>1286</i>	<i>360</i>	<i>43122</i>	<i>561</i>	<i>27</i>	<i>381</i>	<i>116</i>
<i>Women</i>	<i>26958</i>	<i>1166</i>	<i>483</i>	<i>50956</i>	<i>629</i>	<i>0</i>	<i>453</i>	<i>95</i>
<i>Totals: Q4+5</i>								
<i>Men</i>	<i>649</i>	<i>55</i>	<i>10</i>	<i>986</i>	<i>526</i>	<i>0</i>	<i>496</i>	<i>72</i>
<i>Women</i>	<i>764</i>	<i>33</i>	<i>27</i>	<i>1098</i>	<i>606</i>	<i>0</i>	<i>576</i>	<i>82</i>

Population: Individuals between 20 and 55 years old
Source: Author's own calculations based on ONS-LS

Table 6.10, which shows the mediating role of social class, reveals similar results to those observed for education: both ethnic minorities and white British obtain residential gains from a higher social class. For example, for ethnic minorities raised in areas with the highest share of non-whites, having a service class position in 2001 gives around 15% points greater chance of being in a whiter neighbourhood in 2011, compared to having a manual class. However, inequalities based on ethnicity persist. For example, while around 82% of white British male raised in areas with a high share of non-whites that got a service class position in 2001 have improved their neighbourhood; only around 41% of ethnic minority males have done so. As with education, here we also observe that even the white British raised in areas with the highest share of non-whites in the lowest social class are still more likely to be in whiter areas in 2011, when compared to ethnic minorities raised in the whitest neighbourhoods who achieved a service class

in 2001 (around 10-12 % points more) (again, this phenomenon is not observed for the results on deprivation; see Table 8.20 in Annex A).

Table 6.10: Probability of being in a neighbourhood with a low share of non-white (quintiles 1-2) in 2011 by origin neighbourhood and social class (%)

	White British				Ethnic minorities (pooled)			
	<i>Manual</i>	<i>Petit Bourg.</i>	<i>Interm.</i>	<i>Service</i>	<i>Manual</i>	<i>Petit Bourg.</i>	<i>Interm.</i>	<i>Service</i>
Non-white Q1-3								
Men	95.5	95.9	94.3	94.6	52.6	64.7	50.4	60
Women	95.4	96.8	95.5	94.9	44.3	61.9	52.9	58
Non-white Q4+5								
Men	70.7	81.3	71.8	82	26.5	37.8	35.5	40.5
Women	72.2	86.8	80.7	80.1	24.7	54.3	33.3	41
<i>Totals: Q1-3</i>								
<i>Men</i>	<i>30734</i>	<i>7559</i>	<i>5751</i>	<i>29238</i>	<i>384</i>	<i>102</i>	<i>117</i>	<i>492</i>
<i>Women</i>	<i>31420</i>	<i>3337</i>	<i>17173</i>	<i>27638</i>	<i>300</i>	<i>26</i>	<i>346</i>	<i>512</i>
<i>Totals: Q4+5</i>								
<i>Men</i>	<i>767</i>	<i>192</i>	<i>131</i>	<i>615</i>	<i>437</i>	<i>98</i>	<i>107</i>	<i>472</i>
<i>Women</i>	<i>827</i>	<i>76</i>	<i>472</i>	<i>549</i>	<i>401</i>	<i>35</i>	<i>339</i>	<i>503</i>

Population: Individuals between 20 and 55 years old
Source: Author's own calculations based on ONS-LS

Note also that, both in Tables 6.8 and 6.10, education and social class seem to matter more for those raised in Q4+5 than for those raised in Q1-3. Look for example at the role of education for ethnic minority men. For those raised in areas with a low share of non-whites (Q1-3), the gain of a Level 4+ education (vs. Level 1 or less) is of around 10% points; this grows to 15% for those raised in areas with higher levels of non-white population. Note also that when looking at the role of education and social class in the analysis of deprivation we observe that, although the effect is stronger in terms of the size of the gains, these do not seem to vary much between individuals raised in areas with different deprivation levels (see Table 8.18 and Table 8.20 in Annex A).

These preliminary results show, as expected, that more education, a white British partner and a higher social class lead to an increase in the probability of being in a whiter area for ethnic minorities; most importantly, they result in a greater likelihood of moving out of non-white (and deprived) areas. These outcomes point to processes of *spatial assimilation*, in the sense that having

a better education or social class or partnering with a white person favours an improvement of the neighbourhood in which the individual lives. However, these descriptive statistics suggest as well persistent inequalities between ethnic minorities and the white British in terms of the areas they can access, and therefore point to processes connected to the *place stratification/ethnic enclave* models. I explore this more in detail in the following section.

6.9 Testing the spatial assimilation, place stratification and ethnic enclave models

Table 6.11 presents estimates of linear probability models for the probability of being in areas with a low share of non-whites (Q1+2) for *ethnic minorities only* (note that this refers to Equation i, but without the white British). The main aim of this initial analysis is to test to what extent an increase in cultural and socio-economic assimilation leads to both being in a non-white area and to improving the area, that is, by moving from areas with more to fewer non-whites. This is a test for the classical model of spatial assimilation, concerned with whether immigrants transform their assimilation gains into residential gains.

The full models can be found in Table 8.24 in Annex A and, as with the other chapters, this and the coming models are based on linear regressions with robust (clustered) standard errors. Given that most variables are categorical, the coefficients, when multiplied by 100, represent differences in percentage points with respect to the reference category. For example, a coefficient of 0.05 for educational level 4+ means that individuals with Level 4+ are 5% points more likely than individuals with Level 1 or less (the reference category) to move to non-white quintiles 1+2.

My expectations are confirmed when looking at Table 6.11. Having a Level 4+ (vs. a Level 1 or less), a Service class (vs. a Manual one) and a white British partner (vs. a non-white one) have a positive effect in the probability of being in a neighbourhood with a low share of non-whites. Note that for men only education matters, while for women it is their social class; and note also that the partner's ethnicity seems to have a particularly strong effect: having a white partner (vs. a non-white one) increases 27-29% points the probabilities of being in a neighbourhood with more whites.

Table 6.11: Probability of being in a neighbourhood with a low share of non-white (quintiles 1-2) in 2011. Linear regression with robust SE; ethnic minorities only.

	Men	Women
NW quintile (ref. Q1: lowest share)		
Q2	-0.105** (0.0451)	-0.193*** (0.0439)
Q3	-0.295*** (0.0456)	-0.337*** (0.0428)
Q4	-0.350*** (0.0466)	-0.403*** (0.0443)
Q5	-0.393*** (0.0477)	-0.437*** (0.0460)
Ethnic group (ref. Indian)		
Pakistani	-0.108*** (0.0314)	-0.124*** (0.0315)
Bangladeshi	-0.080 (0.0500)	-0.027 (0.0570)
Caribbean	-0.060* (0.0352)	-0.094*** (0.0314)
African	-0.053 (0.0822)	-0.047 (0.0569)
Education (ref. Level 1 or less)		
Level 2+3	0.032 (0.0313)	0.001 (0.0289)
Level 4+	0.081** (0.0349)	0.043 (0.0327)
Social class (ref. Manual)		
Petit Bourgeoisie	0.107** (0.0433)	0.128* (0.0754)
Intermediate	0.020 (0.0450)	0.062** (0.0307)
Service	0.033 (0.0324)	0.079** (0.0308)
Partner's ethnicity (ref. non-white)		
No partner	0.053* (0.0299)	-0.083*** (0.0265)
Other	0.059 (0.0866)	0.114 (0.1108)
White British	0.292*** (0.0436)	0.269*** (0.0428)
Adjusted R2	0.136	0.135
N	2209	2474

Note: Models control for age, gender, origin year, and number of census points, neighbourhood deprivation, tenure, number of persons per room, number of cars and parental social class.

* p-value<.10 ** p-value<.05 *** p-value<.01; robust (clustered) standard errors in parentheses

Population: Individuals between 20 and 55 years old

Source: Author's own calculations based on ONS-LS

I have also tested for interactions between origin neighbourhood and the three mediating variables (see Table 8.24 in Annex A), to explore whether the positive effect of these variables differs for individuals raised in areas with different shares of non-whites (I compare those raised in non-white quintile 4+5 with those raised in non-white quintile 1+2). The results show no difference for women, while for men the effect of education and a white partner is stronger in origin quintiles 4+5. Finally, Table 6.11 suggests differences based on ethnicity: on equality of characteristics, Indians (the reference group) seem to be doing better in terms of their area of residence in 2011, and Pakistanis are doing the worst.

In what follows, I compare ethnic minorities with the white British, following Equations i, ii and iii from Table 6.1. This can be observed in Tables 6.12 and 6.13, which present estimates of linear probability models for the probability of being in areas with low share of non-whites (quintiles 1 and 2) for men and women respectively. The full models can be found in Table 8.25 and Table 8.26 in Annex A; moreover, Table 8.27 in Annex A shows selected models estimated with logistic regression with average marginal effects: Equation i from Tables 6.12 and 6.13 and Equation i from Table 8.21 and Table 8.22 (these two refer to the deprivation analysis found in Annex A).

Table 6.12: Probability of being in a neighbourhood with a low share of non-whites (quintiles 1-2). Linear regression with robust SE; ethnic minorities and white British men.

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)
NW quintile (ref. Q1: lowest share)						
Q2	-0.064*** (0.0034)	-0.064*** (0.0034)	-0.064*** (0.0034)	-0.064*** (0.0034)	-0.064*** (0.0034)	-0.064*** (0.0034)
Q3	-0.176*** (0.0086)	-0.174*** (0.0085)	-0.175*** (0.0085)	-0.174*** (0.0085)	-0.174*** (0.0085)	-0.174*** (0.0085)
Q4	-0.219*** (0.0122)	-0.216*** (0.0122)	-0.216*** (0.0122)	-0.214*** (0.0121)	-0.214*** (0.0122)	-0.214*** (0.0122)
Q5	-0.270*** (0.0163)	-0.267*** (0.0162)	-0.264*** (0.0161)	-0.264*** (0.0161)	-0.263*** (0.0161)	-0.263*** (0.0161)
NW quintile (ref. Q1-2)						
Q3						-0.162*** (0.0089)
Q4+5						-0.197*** (0.0117)
Ethnic group (ref. white British)						
Indian	-0.274*** (0.0196)	-0.224*** (0.0210)	-0.266*** (0.0352)	-0.267*** (0.0345)	-0.229*** (0.0356)	-0.189*** (0.0300)
Pakistani	-0.411*** (0.0265)	-0.355*** (0.0282)	-0.413*** (0.0390)	-0.464*** (0.0389)	-0.319*** (0.0408)	-0.328*** (0.0535)
Bangladeshi	-0.448*** (0.0441)	-0.406*** (0.0448)	-0.386*** (0.0681)	-0.485*** (0.0576)	-0.360*** (0.0726)	-0.326*** (0.0957)
Caribbean	-0.324*** (0.0273)	-0.294*** (0.0273)	-0.380*** (0.0373)	-0.354*** (0.0387)	-0.339*** (0.0564)	-0.331*** (0.0471)

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)
African	-0.342*** (0.0773)	-0.315*** (0.0782)	-0.386*** (0.1226)	-0.136 (0.1563)	-0.087 (0.1905)	-0.477*** (0.1521)
Education (ref. Level 1 or less)						
Level 2+3		0.006*** (0.0023)	0.005** (0.0023)	0.006*** (0.0023)	0.006*** (0.0023)	0.006*** (0.0023)
Level 4+		-0.018*** (0.0033)	-0.023*** (0.0032)	-0.019*** (0.0033)	-0.019*** (0.0033)	-0.019*** (0.0033)
Social class (ref. Manual)						
Petit Bourgeoisie		0.005 (0.0033)	0.005 (0.0033)	0.001 (0.0032)	0.005 (0.0033)	0.006* (0.0034)
Intermediate		-0.004 (0.0043)	-0.004 (0.0043)	-0.005 (0.0042)	-0.004 (0.0043)	-0.007 (0.0043)
Service		0.001 (0.0026)	0.001 (0.0026)	-0.001 (0.0026)	0.002 (0.0026)	0.002 (0.0026)
Partner's ethnicity (ref. non-white)						
No partner		0.072*** (0.0173)	0.066*** (0.0173)	0.075*** (0.0172)	0.079*** (0.0220)	
Other		0.058*** (0.0197)	0.054*** (0.0197)	0.061*** (0.0196)	0.065*** (0.0238)	
White British		0.106*** (0.0173)	0.100*** (0.0173)	0.110*** (0.0172)	0.111*** (0.0219)	
Interactions						
Indian*Level 4+		0.092** (0.0434)				
Pakistani*Level 4+		0.147** (0.0574)				

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)
Bangladeshi*Level 4+			-0.014 (0.1048)			
Caribbean*Level 4+			0.189*** (0.0661)			
African*Level 4+			0.189 (0.1778)			
Indian*Service				0.070* (0.0415)		
Pakistani*Service				0.183*** (0.0574)		
Bangladeshi*Service				0.123 (0.0942)		
Caribbean*Service				0.152*** (0.0587)		
African*Service				-0.335* (0.1846)		
Indian*white British					0.234*** (0.0670)	
Pakistani*white British					0.289*** (0.1115)	
Bangladeshi*white British					-0.371*** (0.0727)	
Caribbean*white British					0.229*** (0.0780)	
African*white British					-0.417* (0.2507)	
Indian*Q4+5						-0.176***

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)
Pakistani*Q4+5						(0.0398)
						-0.169***
Bangladeshi*Q4+5						(0.0608)
						-0.188*
Caribbean*Q4+5						(0.1061)
						-0.032
African*Q4+5						(0.0592)
						0.165
						(0.1814)
Adjusted R-squared	0.152	0.159	0.160	0.162	0.161	0.147
N	77,196	77,196	77,196	77,196	77,196	77,196

Note: Models control for age, gender, origin year, and number of census points, neighbourhood deprivation, tenure, number of persons per room, number of cars and parental social class. * p-value<.10 ** p-value<.05 *** p-value<.01; robust (clustered) standard errors in parentheses
Population: Individuals between 20 and 55 years old
Source: Author's own calculations based on ONS-LS

Table 6.13: Probability of being in a neighbourhood with a low share of non-whites (quintiles 1-2). Linear regression with robust SEs; ethnic minorities and white British women.

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)
NW quintile (ref. Q1: lowest share)						
Q2	-0.064*** (0.0033)	-0.063*** (0.0032)	-0.063*** (0.0032)	-0.063*** (0.0032)	-0.063*** (0.0032)	-0.063*** (0.0032)
Q3	-0.170*** (0.0078)	-0.168*** (0.0078)	-0.168*** (0.0078)	-0.168*** (0.0078)	-0.166*** (0.0078)	-0.166*** (0.0078)
Q4	-0.209*** (0.0112)	-0.206*** (0.0111)	-0.206*** (0.0111)	-0.205*** (0.0111)	-0.206*** (0.0111)	-0.206*** (0.0111)
Q5	-0.257*** (0.0159)	-0.253*** (0.0158)	-0.249*** (0.0158)	-0.249*** (0.0158)	-0.252*** (0.0156)	-0.252*** (0.0156)
NW quintile (ref. Q1-2)						
Q3						-0.156*** (0.0081)
Q4+5						-0.190*** (0.0109)
Ethnic group (ref. white British)						
Indian	-0.287*** (0.0198)	-0.252*** (0.0213)	-0.295*** (0.0376)	-0.341*** (0.0395)	-0.164*** (0.0342)	-0.278*** (0.0335)
Pakistani	-0.441*** (0.0263)	-0.405*** (0.0279)	-0.456*** (0.0419)	-0.524*** (0.0371)	-0.345*** (0.0398)	-0.342*** (0.0500)
Bangladeshi	-0.406*** (0.0484)	-0.373*** (0.0495)	-0.329*** (0.0816)	-0.466*** (0.0639)	-0.292*** (0.0657)	-0.207*** (0.0825)
Caribbean	-0.402***	-0.375***	-0.390***	-0.383***	-0.233***	-0.368***

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)
African	(0.0226) -0.357*** (0.0540)	(0.0228) -0.327*** (0.0545)	(0.0378) -0.459*** (0.1245)	(0.0434) -0.592*** (0.0942)	(0.0515) 0.003 (0.1139)	(0.0413) -0.243** (0.1075)
Education (ref. Level 1 or less)						
Level 2+3		0.009*** (0.0022)	0.009*** (0.0021)	0.009*** (0.0022)	0.009*** (0.0022)	0.010*** (0.0022)
Level 4+		-0.012*** (0.0032)	-0.015*** (0.0031)	-0.012*** (0.0032)	-0.011*** (0.0032)	-0.011*** (0.0032)
Social class (ref. Manual)						
Petit Bourgeoisie		0.011** (0.0042)	0.011** (0.0042)	0.007* (0.0040)	0.011** (0.0042)	0.012*** (0.0043)
Intermediate		0.002 (0.0026)	0.002 (0.0026)	0.001 (0.0025)	0.002 (0.0026)	0.002 (0.0026)
Service		0.002 (0.0026)	0.002 (0.0026)	-0.002 (0.0025)	0.002 (0.0026)	0.001 (0.0026)
Partner's ethnicity (ref. non-white)						
No partner		0.032* (0.0164)	0.024 (0.0165)	0.027* (0.0164)	0.097*** (0.0209)	
Other		0.016 (0.0194)	0.008 (0.0195)	0.011 (0.0193)	0.073*** (0.0232)	
White British		0.071*** (0.0164)	0.063*** (0.0165)	0.066*** (0.0163)	0.132*** (0.0208)	
Interactions						
Indian*Level 4+			0.080* (0.0465)			
Pakistani*Level 4+			0.176***			

Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)
Bangladeshi*Level 4+		(0.0633)			
		-0.050			
		(0.1357)			
Caribbean*Level 4+		0.048			
		(0.0538)			
African*Level 4+		0.212			
		(0.1419)			
Indian*Service			0.127***		
			(0.0465)		
Pakistani*Service			0.217***		
			(0.0590)		
Bangladeshi*Service			0.174		
			(0.1143)		
Caribbean*Service			0.040		
			(0.0545)		
African*Service			0.320***		
			(0.1183)		
Indian*white British				0.197***	
				(0.0590)	
Pakistani*white British				0.242**	
				(0.1218)	
Bangladeshi*white British				-0.096	
				(0.3312)	
Caribbean*white British				0.126	
				(0.0822)	
African*white British				-0.099	
				(0.1936)	

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)
Indian*Q4+5						-0.057 (0.0415)
Pakistani*Q4+5						-0.200*** (0.0585)
Bangladeshi*Q4+5						-0.347*** (0.0981)
Caribbean*Q4+5						-0.055 (0.0510)
African*Q4+5						-0.253* (0.1299)
Adjusted R-squared	0.168	0.175	0.176	0.177	0.180	0.163
N	83,972	83,972	83,972	83,972	83,972	83,972

Note: Models control for age, gender, origin year, and number of census points, neighbourhood deprivation, tenure, number of persons per room, number of cars and parental social class. * p-value<.10 ** p-value<.05 *** p-value<.01; robust (clustered) standard errors in parentheses.

Population: Individuals between 20 and 55 years old

Source: Author's own calculations based on ONS-LS

The base model⁴⁵ shows that – given equality of neighbourhood characteristics in origin – all ethnic minorities are less likely to be found in areas with a low share of non-whites as compared to the white British; in particular Pakistani and Bangladeshi populations and Caribbean women present the highest disadvantages (of around 40% points less probability); while Indians the least, but still considerable (almost 30% points less). When adding the three key mediating variables measured in 2001, that is, education, social class and partner’s ethnicity (Equation i) these differences remain practically the same, which points to the presence of mechanisms of *place stratification/ethnic enclave*. Note, however, the quite-surprising effect of having a degree (Level 4+), which, contrary to what I expected, is negative. This effect is most likely driven by white British moving from whiter to whiter areas (the majority), given that for ethnic minorities and for white British moving from less- to more-white areas it is positive, as observed in Tables 6.8 and 6.11. Since I am controlling for the social class of individuals, this negative effect might be connected to the attraction of cities – where most ethnic minorities are located – as cultural places, but only for those who were raised in whiter areas; it might also be connected to those better positioned white British (hence raised in better – i.e. whiter – areas) who move to cities to complete their graduate studies⁴⁶.

The next three models represent the three variations of Equation ii. The first one, which adds interactions between ethnic group and education, shows that, contrary to expectations, having a higher educational level has a more positive effect for Indian and Pakistani populations, and also for Caribbean men, than for the white British. In fact, for ethnic minorities, education – when measured on top of social class – seems to have a different role than for the white British, giving them a greater chance of being in a whiter area in 2011, on average. For example, while less-educated Indian men are around 27% points less likely to be in a non-white area in 2011, compared to an equivalent white British person, this gap reduces to around 17% for those who

⁴⁵ In addition to the observed variables, this model controls for other basic individual, household and neighbourhood characteristics (see notes in Tables 6.12 and 6.13).

⁴⁶ The positive effect of having been raised in a deprived area (see Table 8.26 in Annex A) on the probability of being in a ‘whiter’ area (for women), also driven by the white British, is also puzzling. This might be related to the fact that non-white share and deprivation are very much related at the neighbourhood level: white British who were raised in very white and deprived areas are very few, as those who were raised in non-white and less deprived ones, so this positive effect probably refers to a very specific population. Note that Schaake, Burgers et al. (2013) found the same effect in their study in the Netherlands: while the share of Dutch in the ‘origin’ area has a positive effect in the share of Dutch in the destination area, a higher socio-economic level has the opposite effect, just as I find in the present study.

have at least one degree. Note, however, that this is an average effect that does not discriminate depending on the areas where individuals were raised⁴⁷.

In the next model, I test for interactions with social class. Here I observe a similar effect for most ethnic minorities, and for the white British the effect is close to zero. Social class, like education, reduces the gap between most ethnic minorities and the white British in terms of accessing whiter areas. For example, among those who have manual jobs, Pakistani women are around 52% points less likely to be in non-white areas compared to the white British; however, this gap reduces to almost half among those who have a service class position (note that African men are the only group who followed my initial expectation: for them a service position brings a disadvantage; however, given the positive result for women and the low N for this group, I have some concerns regarding the precision of this outcome).

A similar outcome is observed when I add interactions with a white British partner: most ethnic groups benefit from this⁴⁸, thus reducing the gap. An interesting finding is that the effect of a white British partner for men seems to be stronger than for women; I would have expected the contrary, given that in some communities, such as the Asian one, women are more subject to cultural constraints, and a white partner might be a way to ‘escape’ these. A lower effect for them might be an indicator that gender constraints still obtain, even taking into account a mixed partner’s ethnicity.

The last model (Equation iii) tests whether the negative effect for ethnic minorities is higher for those raised in areas with a higher share of non-whites (quintiles 4+5) as compared to those raised in areas with a lower share of non-whites (quintiles 1+2), before controlling for partner’s ethnicity. I argued that, if a negative interaction effect was found, this might be indicative of processes of *ethnic enclave* taking place. The results show this pattern for Pakistani and Bangladeshi populations, and also for Indian men (there is also an effect for African women but the N is very low for this group). In other words, if we compare white British and ethnic minorities raised in areas with a high share of non-whites, compared to those raised in the whitest areas, the gap

⁴⁷ I have also estimated a model for individuals raised in Q45 only and I found, in accordance with Table 7.8, that there is a positive effect of education, both for white British and ethnic minorities; in this model, with a few exceptions, the interactions between education and ethnic group are statistically non-significant for both genders. In any case, the expected negative interaction effect for ethnic minorities does not appear here either (analysis available upon request).

⁴⁸ The negative exceptions in both education and partnership among African and Bangladeshi are likely to be outliers, since these groups have very few cases; moreover, most Bangladeshis are coupled with co-ethnics.

between the two is bigger. For example, for Indian men, having lived at a young age in Q4+5 gives them around 35% points less chance of living in whiter areas in 2011 compared to an equivalent white British; this gap is lower for those raised in Q1+2 (around 18%). Similarly, for Pakistanis and Bangladeshis raised in areas with the least whites, their probability of being in whiter areas in 2011 is around 50-55% points less, as compared to the white British; this drops to almost half when comparing individuals raised in whiter areas. Finally, I have also tested whether this model changed once I included the partner's ethnicity variable, under the assumption that having a non-white partner (more likely to happen in non-white areas) might be a mechanism that explains the bigger gap: this was refuted, as the model remains the same (see Table 8.25 Table 8.26 in Annex A).

In order to gain a better understanding of differences and similarities between ethnic minority groups and white British with various individual and origin neighbourhood characteristics, I have calculated predictions for 'extreme types': individuals with the least education, lowest social class and a non-white partner (type 1), on the one hand, and individuals with the most education, highest social class and a white British partner (type 2), on the other. Moreover, I have also differentiated between individuals raised in Q4+5 and individuals raised in Q1+2. To calculate these margins all interactions are included in one equation. The results are shown in Table 6.14.

Before moving to the description of results, note the following. First of all, in Table 6.14 the effect of the three key mediating variables (education, class and partner's ethnicity) are not allowed to vary by 'origin' neighbourhood; however, we saw in Tables 6.8-6.10 that these variables have in general a stronger effect among those raised in quintiles with higher share of non-whites, and even more so for ethnic minorities. Given this, the estimates calculated for the 'best' ideal type (level 4+, Service and white British partner) probably should have been higher (and the gap with white British lower) for individuals raised in quintiles 4+5; while the estimates for those raised in Q1+2 probably should have been lower: note that for some ethnic minorities the estimation goes beyond 100%, which is an unreal probability. Second, given that the results for Bangladeshis and Africans are based on low Ns, and given the counterintuitive results for male regarding the effect of partnership, I have added extra predictions for type 2, but without specifying the ethnicity of the partner, which yields results that are more in line with the other groups, in particular for Bangladeshis (although with still high standard errors for the coefficients).

Table 6.14: Probability of being in a neighbourhood with low share of non-whites (quintiles 1-2).
Predicted values for selected cases.

	Men		Women	
	Type 1 (Level 1 or less, manual, non- white partner)	Type 2 (Level 4+, service, white British partner)	Type 1 (Level 1 or less, manual, non-white partner)	Type 2 (Level 4+, service, white British partner)
Quintiles 4+5				
White British	66.7 (2.5)	75.7 (1.2)	64.9 (2.4)	77.2 (1.1)
Indian	32.5 (4.3)	71.4 (6.9)	35.4 (4.6)	80.5 (5.5)
Pakistani	13.7 (4.8)	69.7 (9.8)	11.3 (4.0)	71.4 (13.3)
Bangladeshi	20.8 (9.4)	4.9/30.2* (10.9/9.2)	20.9 (9.7)	46.0 (28.2)
Caribbean	22.0 (6.0)	74.4 (7.5)	41.6 (6.8)	67.3 (7.6)
African	57.5 (25.0)	23.9/47.1* (23.3/14.7)	27.2 (15.1)	52.4 (18.5)
Quintiles 1+2				
White British	86.2 (2.2)	95.1 (0.3)	83.5 (2.1)	95.8 (0.2)
Indian	65.6 (5.1)	104.6 (6.8)	57.9 (5.5)	103.0 (5.9)
Pakistani	48.8 (6.9)	104.8 (10.2)	48.6 (6.6)	108.7 (12.5)
Bangladeshi	56.1 (13.2)	40.2/66.5* (14.0/11.4)	71.9 (12.0)	97.0 (29.5)
Caribbean	40.9 (6.9)	93.3 (7.7)	64.1 (7.3)	89.8 (7.5)
African	58.6 (29.7)	24.9/41.4* (22.8/22.4)	72.5 (19.1)	97.7 (18.3)

Note: margins are based on the following equation: $Y_{(2011)} = a + b_1 * X_{1(2001)} + b_2 * X_{2(2001)} + b_3 * X_{3(2001)} + b_4 * Z + b_5 * W + b_6 * V + b_7 * Z * X_{1(2001)} + b_8 * Z * X_{2(2001)} + b_9 * Z * X_{3(2001)} + b_{10} * Z * W + e$ (see notation in Table 6.1).

* For these groups I have also calculated the predicted values for those with Level 4+ and service class (therefore, I have excluded the specification of partner's ethnicity).

Population: Individuals between 20 and 55 years old

Source: Author's own calculations based on ONS-LS

Moving to the results, Table 6.14 illustrates well that differences between ethnic minorities and white British are smaller among those with higher indicators of assimilation: this is clearly observed among Indian, Pakistani and Caribbean populations. For example, as a Pakistani man raised in Q4+5 gains in terms of cultural and socio-economic assimilation (i.e. moves from type 1

to type 2), the gap with respect to an equivalent white British in terms of the probability of being in a neighbourhood with a low share of non-whites reduces from 53% points to 6% points. For Bangladeshis and Africans, the results are very unstable, although they point in general to lower effects of assimilation on residential mobility. The other clear outcome is that for Pakistani and Bangladeshi populations and for Indian men the gaps are clearly bigger if individuals are raised in Q4+5. For example, the difference in the probability of being in a Q1+2 neighbourhood in 2011 between a type 1 Pakistani woman and a type 1 white British woman is of around 35% points for those raised in Q1+2; this grows to 54% points for those raised in Q4+5. Note finally, that assimilation seems to have a stronger effect on the probability of moving to a less-deprived area, as compared to the probability of moving to a 'whiter' area (see Table 8.23 in Annex A) , which might speak to higher segregation based on ethnicity rather than on socio-economic conditions.

6.10 Discussion

We saw in the previous chapters that segregation levels vary between groups and also have varied effects on ethnic minorities' outcomes; we also saw that the segregation of minorities is linked to deprivation. This chapter has added to this knowledge by examining to what extent higher levels of socio-economic and cultural assimilation are connected with 'residential gains', understood here as the possibility of being in 'whiter' and less-deprived areas. Moreover, it has explored to what extent all groups have the same opportunities in terms of the characteristics of the neighbourhoods they can access. In brief, this chapter has tested the model of *spatial assimilation* vis-à-vis other models of spatial integration of ethnic minorities in the British context: *place stratification* and *ethnic enclave*. First of its kind and, in a way, still quite exploratory, this chapter has shown that ethnicity is an important factor when studying inequality of opportunities in the housing market. The analysis was guided by different research questions and hypothesis, whose answers I detail and discuss below.

First of all, I argued that – following the *spatial assimilation* model – an increase in education or social class, or having a white British partner (measures of cultural and socio-economic assimilation) should have a positive effect not only on the probability of being in a neighbourhood with a higher share of white population (which are usually also less deprived) but also on the probability of improving the neighbourhood with respect to where the individual lived at a young age (between 0 and 15 years old). This hypothesis (*Hypothesis 1*), connected to

Research question 1, was confirmed by my results: assimilation gains are transformed, to a greater or lesser extent, into residential gains for all ethnic minority groups.

However, this data has supported other models of spatial integration as well, i.e. *place stratification* and *ethnic enclave*. First, I asked whether ethnic minorities were as likely as the white British to be found in ‘whiter’ (Q1+2) areas in 2011 (*Research question 2.1*). I found that, on average, ethnic minorities are less likely to be in whiter areas as compared to the white British, which confirmed *Hypothesis 2*. Furthermore, Pakistani and Bangladeshi populations were also found to be particularly disadvantaged, together with Caribbean women. Indians were in the opposite case, having the lowest gaps with respect to the white British. Next, I asked whether the effect of acculturation and socio-economic resources on the probability of being in ‘whiter’ areas were similar across different ethnic minority groups (*Research question 2.2*). In this regard, I expected that more stigmatized ethnic minorities, in particular Pakistanis and Bangladeshis, get lower returns to education and social class – that is, gain less from and improvement in these two indicators of assimilation – as compared to the white British (*Hypothesis 3*). On the other hand, I also expected ethnic minorities to gain more from a white British partner as compared to the white British (*Hypothesis 4*), under the assumption that these might be self-selected individuals willing to be in a whiter environment. The results show that for most groups, all indicators of assimilation have a more positive effect for ethnic minorities than for the white British. In other words, this means that the gaps in terms of the probability of accessing whiter areas reduce for individuals that are better educated, have higher social class or have a white partner. These findings support *Hypothesis 4*, but refute *Hypothesis 3*. This finding might be linked to a greater motivation to live in better neighbourhoods ([in line with Schaake, Burgers and Mulder 2013](#)) or to the finding that more educated minorities are more likely to build relationships outside the own neighbourhood ([de Palo, Faini and Venturini 2006](#)), adding hence an extra reason to move out.

Finally, I asked whether for those raised ‘non-white’ areas, ethnic minorities were as likely as the white British to move to more ‘white’ areas, on equality of characteristics (*Research question 2.3*). The argument was that if the gap between ethnic minorities (especially Asian populations) and white British was larger for those raised in areas with the highest share of non-whites, it would speak to processes related to the *ethnic enclave* (*Hypothesis 5*). This was confirmed by the data: Pakistani and Bangladeshi populations as well as Indian men, raised in areas with a higher share of non-whites, were less likely to be found in ‘whiter’ areas in 2011, compared to those raised in

whiter areas. However, I did not find evidence for partnership with a co-ethnic as a mediator of this effect.

All in all, the analysis shows that *spatial assimilation* is taking place. More importantly, we also saw that socio-economic and cultural indicators of assimilation seem to more easily induce ethnic minorities (as compared to the white British) to change to a better neighbourhood, or simply to be in a better area. This, as we saw, reduces considerably the gap between the (more assimilated) minorities and the white British. However, we also saw that, differences between ethnic minorities and white British remain, in particular among those who were raised in areas with a higher share of non-whites and those who are less assimilated in terms of the indicators I have chosen, pointing to mechanisms of *place stratification* and *ethnic enclave* (especially for Asians).

These results show clearly that we are witnessing a process of reproduction of ethnic inequalities in space. How do we read this outcome? On the one hand, we could argue that if ethnic minorities prefer to live in areas with a higher share of non-white population, the mere existence of the gap should not be, per se, a problem. I mentioned above the benefits this could bring in terms of social life, and there is also evidence that second generation minorities living in areas with a higher share of co-ethnics score higher in measures of subjective well-being ([Platt, Knies and Nandi 2014](#)). Moreover, the finding that Indian men raised in areas with more co-ethnics are relatively less inclined to move to ‘whiter’ areas compared to other groups (which suggested mechanisms of *ethnic enclave*) might also be seen as a positive outcome, if we consider that spatial concentration can be positive for their occupational gains (see Chapter 5).

However, other counter-arguments arise. First, as argued before, the maintenance of spatial inequalities can affect negatively the social cohesion of a society, since it prevents individuals who are different from interacting with each other ([Cantle 2012](#)). Second, the fact that the least-assimilated ethnic minorities (especially those with the least education and lowest occupation) are also the least likely to *improve* their neighbourhood in terms the share of non-whites can be particularly problematic, since it points to an overlap between the reproduction of ethnic inequalities and the reproduction of social inequalities ([Cantle 2012](#)). In addition, since poorer people typically have fewer opportunities to learn about and actually meet ‘others’ ([Cantle 2012; de Palo, Faini and Venturini 2006](#)), this might, in turn, lead to prejudice and negative attitudes towards those who are unknown, and hence not only promote and reinforce a more conservative residential movement – i.e. within co-ethnic areas – but also add additional negative

consequences for social cohesion (note that, as Cantle contends, this does not diminish the fact that the patterns of residential movement among the white British might also help to reinforce spatial inequalities).

Third, we saw that areas with more non-whites are usually more deprived, which means that staying in or moving to less-white areas also means staying in or moving to more-deprived ones. As additional evidence, I also showed, with a parallel analysis, that ethnic minorities are disadvantaged when neighbourhood deprivation is studied as outcome variable (here, black populations were mostly affected).

Finally, having found negative neighbourhood effects for some groups – especially Pakistani and Bangladeshi women – might add further disadvantages (and perhaps even more so for Pakistanis, given the increasing spatial segregation for this group, pointed out in Chapter 4). For these groups, at play might be a vicious circle that prevents them both from improving in the labour market and from moving out of ethnic concentration areas. As I put forth above, it is likely that factors associated with cultural constraints play a role in this: note that Pakistani and Bangladeshi women who actually manage to achieve assimilation gains are more likely to transform these into residential gains (as compared to the white British).

The spatial location of ethnic minorities is the result of preferences and constraints. Thinking in terms of policy, while changing preferences might be a difficult and delicate process, diminishing constraints, that is, promoting the conditions for all groups to be equally free to choose where they want to live, should definitely be part of the government agenda. This will be taken up in more in detail in the conclusions of this thesis.

7 CHAPTER 7: Concluding Remarks

7.1 Introduction

As I reach the end of this research and look back, I discover that the steps that led to the final outcome, this thesis, were not precisely those planned at the beginning. This is a peculiar aspect of doing research: as we go deeper into a topic and learn more about it, we discover that some questions should be posed in certain ways, that some aspects should be studied with certain methods and that some information that we thought was non-existent, was actually available under certain circumstances.

As mentioned in the introduction of this thesis, my interest in *social inequality*, *migration studies* and *urban sociology* is of relatively long standing; however, it took me some years before I decided to focus on the UK. It was actually the discovery of so much potential for research in this country – even if studies on ethnic minorities were already well established – that impelled me to move my work in this direction. In particular, I was able to combine in one piece of work the three main research areas of interest, something that I had not planned from the beginning of my doctoral studies. This was possible thanks to the availability of very rich data containing information not only about individuals themselves, but also about their social backgrounds and geographical locations: a rare combination.

In what follows I first give an overview of the findings contained in the main analytical chapters; next, I discuss the implications of these findings, both in terms of the theoretical and policy debates in the UK connected with the processes of integration of ethnic minorities; finally, I highlight some limitations of this study and how it could be improved with further research.

7.2 A summary

The topic of this thesis is the *production and reproduction of social and spatial inequalities among ethnic minorities in England and Wales*, and all chapters were guided by an important assumption: that there are different sources of inequality and, especially, that their interaction shapes the opportunities of individuals in a series of outcomes. The main source of inequality studied here

was that based on *ethnicity*; next to it, two other sources were crucial components as well: inequality based on *social origins* and inequality based on the *neighbourhood composition* or the characteristics of the area of residence.

In **Chapter 3**, I show that the so-called ‘ethnic penalties’, that is, the disadvantages associated with the fact of belonging to a certain ethnic minority group, are often overestimated. More specifically, I adduce evidence that part (and sometimes all) of the penalty is actually a ‘social origins penalty’ connected to the fact that second generation ethnic minorities are usually raised in households and neighbourhoods with fewer resources than are found in white British households and neighbourhoods. In this chapter, I also present more updated evidence on the social mobility of ethnic minorities in the UK. Following the previous findings, I show that, overall, ethnic minorities tend to be quite mobile populations, with their social class depending less on their social origins: to a great degree, this is mediated by their high educational mobility. Furthermore, I offer evidence that the extent of ethnic penalties (but also gains) vary depending on the social origin of individuals: this is because the intergenerational transmission that occurs outside education (that is, the direct parental effect on social class) varies across ethnic groups.

In **Chapter 4**, I explore recent trends on spatial segregation of ethnic minorities in England (2001-2011). I show that in 2011 Pakistani, Bangladeshi and (to a lesser extent) Indian populations were more spatially segregated than black and Chinese populations, confirming a pattern that has been maintained for at least three decades. Moreover, I show that Pakistanis in Bradford and Indians in Leicester were the groups with the highest spatial segregation, and those who approach the most what has been defined as ‘highly segregated groups’ in the US literature. More interesting findings, however, are those that concern changes between 2001 and 2011. I observe that – as a consequence of the higher relative increase of non-white minorities – the number of neighbourhoods shared by white British and minorities increased in the decade: this outcome is positive to the extent that opportunities for interaction augment. Moreover, some groups present clear signs of decreasing spatial segregation: this is the case of black populations and Bangladeshi in London. Parallel to this, however, I also find evidence of increasing spatial segregation, especially for Pakistani – who increase their segregation in most of areas studied –, Chinese and Indian (but only in Leicester). This pattern is particularly problematic for the Pakistani, since they are one of the most spatially segregated groups in England.

In **Chapter 5** I study neighbourhood effects in terms of the ethnic composition of the neighbourhoods. I used a model in which I was able to control, to some extent, the self-selection of individuals into neighbourhoods. In practise, instead of concentrating on the current neighbourhood of individuals, I focused on the neighbourhood of origin: such where individuals were presumably raised and which the parents have probably chosen. I find that having been raised in an area with a higher share of co-ethnics has an effect on labour market outcomes for some groups and genders. In particular, a negative effect is found for Pakistani and Bangladeshi women mainly in the access to employment; moreover, I also find a negative effect for Bangladeshi (and to a lesser extent black) men in terms of their social class, and a positive effect for Indian men. In the case of Asian women, I argue that this effect is most likely explained by ‘interaction mechanisms’, such as strong community effects characterized by a patriarchal view on gender roles. It is also particularly interesting to find that this negative effect remains quite strong even after controlling for the current neighbourhood, which speaks of long-lasting effects of the origin neighbourhood. The positive effect for Indians is also noteworthy and might speak to ‘interaction mechanisms’ as well. The good labour market performance of this group and, possibly, the existence of unmeasured factors like motivation, are likely to amplify their strength in areas with a high concentration of co-ethnics (for example, through shared experiences) and hence, to affect positively individuals who grew up in them.

In **Chapter 6**, finally, I test the model of spatial assimilation vs. other alternative explanations to residential change: place stratification and ethnic enclave. Spatial assimilation suggests that as ethnic minorities integrate in the society, and gain socio-economic and educational assets, they will also move to whiter and presumably less-deprived areas, as the majoritarian populations do. I find evidence for this pattern for all ethnic minorities. However, I also show that, even after controlling for factors that predict neighbourhood allocation, ethnic minorities are always less likely than the white British to be in whiter and less-deprived areas, and also to make improvements in terms of the neighbourhood. This gives evidence for place stratification/ethnic enclave processes, which point respectively to constraints and preferences of ethnic minorities as the causes of the gap. As a way to disentangle these two possible explanatory mechanisms, I explored whether this negative effect is stronger for individuals raised in areas with a high share of non-whites, adducing that this might be an indicator of processes of ethnic enclave taking place, understood here as community effects exerting a role on individuals and encouraging them to stay in the neighbourhood. I find that this is particularly the case for Asian populations, especially Pakistani and Bangladeshi.

7.3 Discussion

Sources of inequality are varied: some ethnic minority groups do better than others (ethnic-based inequality), individuals with higher social origins do better than individuals with lower social origins (social origins-based inequality) and neighbourhoods can have diverse effects on individuals (neighbourhood-based inequality). But most importantly, these different sources of inequality interact among each other in different ways: in particular, the key source of inequality studied here – that based on ethnicity – interacts with the others sources, leading to different outcomes for the different groups under study. The acknowledgement of this interaction is, I believe, the main contribution of this thesis. In the following paragraphs I explore the implications of my results in relation to both theoretical and public policy debates.

7.3.1 Crucial findings in perspective

A first important finding of this thesis, shown in Chapter 3, is that ‘ethnic penalties’ ([Heath and Cheung 2007](#)) in the labour market are, partly or totally, penalties related to the socio-economic origins of ethnic minorities, usually less advantaged as compared to that of the white British. This finding suggests that scholars in migration studies who do not take into consideration this factor, risk attributing the unexplained gap between ethnic minorities and white British to the wrong mechanisms. In other words, if the ‘ethnic penalty’ is, at least in part, a ‘social origins penalty’, the explanations behind the gap are not entirely connected with the fact of belonging to a certain ethnic group, but with other factors: in this case, the socio-economic resources available to individuals when they were growing up.

However, the following counter-argument can be posed: ethnic minorities *are indeed* more disadvantaged in terms of their origins; and, most importantly, these disadvantages might actually have an ‘ethnic’ origin. For example, the fact that most immigrant parents have low occupational statuses is, to a large extent, connected to the fact that upon arrival, these first generations are not able to properly use their qualifications in the labour market (for example, because employers are unable to assess them or because of discrimination). Or the fact that ethnic minorities are more likely to be raised in deprived areas or to live in poor housing conditions, might also speak of discrimination in the housing market against first generation ethnic minorities. This penalty that occurs in the family of origin – which might actually more strictly be called an ‘ethnic penalty’ –

becomes a ‘social origins penalty’ for their children. A key question is then: to what extent can we conceive this reduction or disappearance of the ‘ethnic gap’ observed in Chapter 3 as a positive outcome for the second-generation ethnic minorities studied here?

If labour market discrimination in the parental (first) generation is part of the explanation why second-generation ethnic minorities are doing worse in the labour market than the white British, then not finding large ‘ethnic penalties’ in the labour market for the second generation – with a few exceptions – is a good outcome for the generations to come. Thinking in terms of equality of opportunities and integration of ethnic minorities from an assimilationist point of view, this outcome is positive to the extent that it indicates that differences based *purely* on ethnicity are disappearing, or at least that they tend to disappear from one generation to the next. Of course, this will also depend on whether ethnic minorities are able to transfer these advantages to the next generation (the third generation), which is something that remains to be seen.

The results of the other chapters entail, however, more troublesome implications for the integration of ethnic minorities. Indeed, I have found that second-generation ethnic minorities continue to be disadvantaged in terms of the areas they reside. Not only do they live – as they do from their arrival to the UK – in deprived areas and areas with a high concentration of ethnic minorities, but, most importantly, they are also less likely to make residential improvements as compared to the white British (Chapter 6), a strong evidence that supports the ethnic enclave and place stratification models ([Alba and Logan 1993](#); [Bolt and Van Kempen 2010](#); [Lersch 2013](#)). This is particularly true of individuals with relatively lower ‘assimilation gains’ (i.e. those with lower educational and occupational attainments and those who are partnered with a non-white), individuals raised in areas with a higher share of non-whites, and Pakistani and Bangladeshi populations. Connected to this finding, Pakistanis – one of the most spatially segregated groups – also present clear signs of increasing segregation when both first and second generations are considered (Chapter 4). What can be the consequences of these spatial inequalities on the possibilities of integration, in particular in what regards the labour market performance?

I believe a key issue here is that both neighbourhood deprivation and co-ethnic concentration can have negative impacts on the labour market outcomes of individuals. In fact, I showed evidence of neighbourhood deprivation in origin as having a negative effect on the labour market outcomes of individuals in general, on top of individual and household characteristics (Chapter 3); and I have also presented evidence of remaining negative effects for ethnic minority men

when estimating access to the service class (Chapter 5). These findings are supported by previous studies which show a negative effect of neighbourhood deprivation on employment outcomes of ethnic minorities in England and Wales ([Feng, Flowerdew and Feng 2013](#)). Moreover, neighbourhood deprivation has also been found to affect negatively other important outcomes such as mortality and health ([Boyle, Norman and Rees 2004](#)). Finally, and most importantly, I also provided evidence regarding the role of co-ethnics in the neighbourhood: for some groups – in particular Pakistani and Bangladeshi women – having been raised in areas with a high share of co-ethnics seems to have a long-term negative impact on their labour market outcomes (Chapter 5).

These combined negative effects – which not only affect labour market outcomes but also other spheres of life – might have long-term impacts on ethnic minorities' opportunities if they continue to reside in these areas. In other words, the geographical space might be a source of production and reproduction of ethnic inequalities. If, as I mentioned before, some groups are less likely to either make an improvement or to reside in a better neighbourhood (Chapter 6); and if living in areas with high deprivation or a high share of co-ethnics can indeed have a negative effect on individuals' outcomes (Chapter 5), then ethnic inequalities will continue to persist. This, I believe, is mainly the story of Pakistani and Bangladeshi women, who are also the only groups that have presented consistent drawbacks across all chapters.

Pakistani and Bangladeshi women experience disadvantages in more than one dimension. On the one hand, their ethnicity 'makes a difference' when searching for a job or a house, meaning that they are less likely to work or to be in 'more desirable' areas as compared to other groups. On the other, their origin neighbourhood has a negative effect on their labour market outcomes when its share of co-ethnics is high; plus, if they were raised in these areas they are more likely to have difficulty moving out as well, especially if they have not achieved enough 'assimilation gains'. Following the conceptualization that [DiPrete and Eirich \(2006\)](#) make based on Blau and Duncan's work in the 1960s, we could say that Pakistani and Bangladeshi women have 'cumulative disadvantages', also defined as "a persisting direct and interaction effect of a status variable, where the interaction effects imply group differences in the returns to socio-economic resources" (pp. 273). In other words, not only they are penalized because they belong to a certain ethnic minority group, but they are particularly penalized if they are raised in areas with a high concentration of co-ethnics, which is precisely the interaction effect (in this case between ethnicity and neighbourhood resources) to which the idea of 'cumulative disadvantage' alludes.

Note that here we could also add an extra factor of accumulation, which has not been theoretically developed in this thesis, but that has acquired particular relevance as I discovered the results: that is, the fact that they are women.

The evidence of the interaction between different sources of inequality – ethnicity, social origins and the neighbourhood composition – is, in itself, a relevant result of this thesis, not only for social scientists, but also for individuals engaged in policy-making. In fact, the acknowledgment that we need to explore more than one source of inequality in order to understand how groups and, in particular, how ethnic minorities are doing on various life dimensions is something that this research has particularly brought to light. Although I am not aiming at discussing policy in detail, I shall simply say that this finding is relevant in as much as it might place into question policies that assume a single problem source.

In the next section, I discuss other equally important issues that emerged from this analysis, which I believe should also be considered by policymakers before engaging in policies aiming at social change.

7.3.2 Assimilation, multiculturalism and interculturalism: (limiting) constraints, (allowing) preferences and (promoting) social cohesion

Knowing whether ethnic minorities are ‘doing well’ or ‘doing poorly’ is something that scientific research should aim at; however, this is not always an easy task. The reason is that this ‘absolute’ perspective about the performance of ethnic minorities in destination societies has a relative perspective too. This relativity is connected, on the one hand, to the outcomes we study; and on the other, to how these minorities experience the process of incorporating into a new society, and how the ‘local population’ (i.e. the white majority) adapts to it. In this section I refer to the tension that exists between *constraints* and *preferences*, and also to the issue of what promotes *social cohesion* in a society. These concepts are connected to the well-known debates around *assimilation*, *multiculturalism* and, more recently, *interculturalism* as models of how societies should incorporate minorities.

One of the definitions of assimilation – and the most interesting for the purposes of this discussion – is that, given equality of conditions, ethnic minorities should have the same opportunities as the majoritarian population, in this case the white British. Although it is a well-

known finding that first generations are usually exposed to difficulties in the labour and housing markets (for reasons that are not always related to discrimination) it is expected that over time and, especially, over generations, these tend to vanish. That is, ethnicity should be less and less important in determining, for example, whether or not a person secures employment, or whether or not he/she lives in an area with certain desirable characteristics.

My results have shown that equality of opportunities in terms of labour market outcomes (given similar initial conditions) is something that many second generation groups seem to have achieved. Specifically, this was expressed in the disappearance of ‘ethnic penalties’ and, in some cases, the appearance of an advantage for ethnic minorities (mainly for Indian and Chinese). However, we also saw persistent ‘gaps’ with respect to the white British: some of them were reflected in the labour market; others, and for most of minorities, were reflected in the housing market. In other words, we saw that ethnic minorities are less likely to reside in (or move to) areas considered as ‘more desirable’, especially in terms of their deprivation levels, but also in terms of the share of non-whites (which, as argued already, might be a source of long-term ethnic inequalities, especially for Asian women).

In this section, I would like to discuss the following questions: to what extent are some of the so-called ‘disadvantages’ actually disadvantages? What do they mean to individuals and what can/should policy makers do about them? To what extent are they a matter of concern for society as a whole? This leads me to a crucial question that should help in disentangling this, which is: what are the mechanisms behind these so-called ‘disadvantages’?

I argued in Chapter 6 that discrimination in the housing market and harassment may explain the observed difference between ethnic minorities and white British persons. Interviews with members of minority groups, in particular Asian, revealed these concerns clearly: when house-hunting, not only did they encounter distrust and stereotyping from real estate agents, but they had concerns about the social rented sector and direct harassment occurring in certain areas. These mechanisms are what I have defined as *constraints*, which in simple terms refers to the idea that due to factors that are extrinsic to ethnic minority groups, these are not able to reside where they would want to, or where they would be expected to, given their socio-economic situation.

However, it would be naïve to think that discrimination alone explains the persistent gap. In fact, this thesis has garnered evidence that suggests that there are other factors at play, which I define

here as *preferences* or, more precisely, culturally-defined preferences (that for some could also be conceived as ‘within-group constraints’). It is not surprising that groups that experience the most inequalities – not only in terms of the neighbourhoods in which they reside but also in some aspects of their labour market integration – are also those that have stronger community networks and role models. I refer here to Pakistani and Bangladeshi groups, in particular women, who are immersed in patriarchal cultural values that, as I suggested, possibly exert a stronger role in areas where there is a higher concentration of these groups.

From this point of view, then, one could say that the persistence of ethnic inequalities is not solely a matter of discrimination – which should be a key concern at the level of public policy – but also a matter of cultural conviction. In fact, qualitative studies on neighbourhood preferences (i.e. [Bowes, Dar and Sim 2002](#); [Bowes, Dar and Sim 1997](#); [Phillips 2006](#)) have also shown that Asian groups sometimes prefer to live next to other co-ethnics and take advantage of the benefits this may bring in terms of access to local groceries, restaurants, churches or simply the possibility of developing social networks that provide a sense of community. At the same time, there is also evidence that the life satisfaction of second generation ethnic minorities living in areas with a high share of co-ethnics is higher than those living in ‘whiter’ areas ([Platt, Knies and Nandi 2014](#)), in particular for UK-born Indian and Pakistani populations. Can we then say that a Pakistani woman is ‘disadvantaged’ if she lives in a Pakistani neighbourhood and is unemployed but, at the same time, enjoys the benefits of a certain type of social life? Should policies aim at bringing this woman back to work and reducing the possible ‘cultural constraints’ that she gets from the community? To what extent should policies encourage these cultural particularities?

These kinds of questions have permeated the debates in the UK in the past years, as already discussed in the introduction. In particular, and in light of the events that occurred in 2001 (riots) and 2005 (London bombings), policy-makers, politicians and also scholars in the field have re-opened the debate on *multiculturalism* and started discussing new ways for integrating minorities. In this context, a view that emphasizes a dialogue between cultures, in particular at the local level, started to emerge: I refer to *interculturalism*.

Given the results, I believe the emphasis that *interculturalism* puts in the need of *dialogue* is a good way to move forward and to re-think processes of integration and mutual adaptation. By promoting the knowledge of and exchange between different cultures, the intercultural dialogue might, for example, help Pakistani women who would want to be employed but feel ‘constrained’

by the community cultural values, achieve their goal. Exposing groups to others that are different can help relativizing the importance of the own culture and, at the same time, acknowledging the advantages of others lifestyles. The increase of spatial segregation observed for some ethnic minorities (in particular Pakistani in Bradford) requires, I believe, these kinds of ‘intercultural’ measures as well, in order to promote more *social cohesion* and trust at the societal level. In fact, if spatial segregation prevents individuals from having more extended contacts with others that are different, and if this has the potential to affect negatively the levels of social cohesion in the society ([Uslaner 2012](#)), then developing policies that bring together – at the local level – groups that come from different cultures, might help building a more cohesive society.

Having said this, I also believe these debates should pay more attention to the idea of *assimilation* in its more simple definition, that is, the one that emphasizes equality of opportunities; moreover, and as argued in the previous section, more attention should be paid to the multiple sources of inequality and how these interact with ethnicity. The connection between ethnicity and deprivation at the spatial level is something that demands immediate governmental attention. In this regard, the finding that individuals with the most ‘assimilation gains’ are more likely to leave areas with a high concentration of co-ethnics (which follows the spatial assimilation model) involves the risk of leaving behind the most economically disadvantaged, with a possible increase in the link between ethnic concentration and deprivation. On the other hand, the government should also make real efforts to control discrimination and harassment – key external constraints mentioned by ethnic minorities in previous studies – in order to allow for everyone to have the same opportunities of changing residence, if they desire so.

The ethnic minority integration issue should, hence, be discussed alongside the social inequality and neighbourhood issues. The intercultural dialogue should be promoted along with policies that aim at reducing spatial inequalities and constraints experienced by ethnic minorities. In a way, a ‘perfect’ policy in this context is, in my view, one that is able to *minimize constraints* while, at the same time, *allowing preferences*: this is, I believe, the link that can be created between *assimilation* and *interculturalism*, in a context where inequalities can have different sources and – therefore – different solutions.

7.3.3 Some limitations (and potential for future research)

The exploration of the interaction between three forms of inequality has helped us to understand the sources of ethnic disadvantages. This thesis, however, has some limitations that call for further research.

First of all, this study does not consider ethnic minorities that have mixed parents (i.e. one UK-born and one foreign parent), or ethnic minorities that consider themselves as “half white.” Although this population is not the majority, it seems to be growing, especially among the Caribbeans. Mixed parenthood and mixed identities can be considered as indicators of assimilation: not only does it mean more intermarriage, but also it shows that an individual’s identity has two sides, which are potentially equally important. In the future, these groups should be included in the analyses for comparative purposes, especially since it seems that their size will continue to grow (although intermarriages where one of the members is Asian are still the fewest).

Second, I believe that better measures of neighbourhood are needed. Given that Asian and black populations have different levels of segregation, quintiles reflect different things. Although black populations are indeed relatively less segregated, perhaps a more specific neighbourhood measure would have captured stronger effects for these groups.

Third, other forms of inequality have become evident in this thesis: in particular, inequalities based on gender. I have not theorized much on this, and it is something that may deserve further inquiry.

Finally, the analyses of neighbourhood effects and residential mobility would probably benefit from more sophisticated modelling that takes into account the self-selection of individuals and the problems of reverse causality. In connection to this, I believe a key issue that remains unexplored is to what extent preferences are ‘internalized’ constraints, not only in terms of ethnic minorities preferring certain areas because of discrimination, but also in terms of some individuals preferring certain neighbourhoods because of cultural constraints coming from their own community. I believe that both the migration literature and policy makers would gain much from research that seeks to disentangle preferences and constraints. This would allow the identification not only of vulnerable groups, but also of vulnerable individuals within groups.

8 ANNEX A: Chapters' Annexes

8.1 Annex to Chapter 3

Table 8.1: Distribution of groups in number of census points, origin years and destination years. Men and women.

	British	Indian	Pakistani	Bangladeshi	Chinese	Caribbean	African
Men							
Number of census points							
2	2135	75	142	77	12	59	35
3	32340	784	673	250	99	299	100
4	69973	1526	723	187	176	504	72
5	68921	648	249	12	26	423	20
Origin year							
1971	58302	553	242	18	32	519	55
1981	72977	1447	844	199	160	609	84
1991	42090	1033	701	309	121	157	88
Destination year							
2001	88621	1202	655	159	111	674	75
2011	84748	1831	1132	367	202	611	152
Women							
Number of census points							
2	2015	80	122	73	17	41	29
3	28931	717	678	342	106	239	117
4	71058	1440	897	184	175	664	124
5	79125	716	254	17	57	661	58
Origin year							
1971	61070	558	211	18	37	679	120
1981	76565	1432	940	196	172	707	121
1991	43494	963	800	402	146	219	87
Destination year							
2001	92366	1216	716	135	184	846	134
2011	88763	1737	1235	220	432	759	194

Population: Individuals between 20 and 45 years old
 Source: Author's own calculations based on ONS-LS

Table 8.2: Access to employment. Full model. Men.

	a	b	c	d	e	f	g	h	i	j
Ethnic group (ref. white British)										
Indian	0.006 (0.0077)	-0.023*** (0.0074)	0.022*** (0.0077)	-0.013* (0.0075)	-0.022*** (0.0075)	-0.017** (0.0075)	-0.006 (0.0076)	0.008 (0.0077)	-0.011 (0.0127)	0.001 (0.0214)
Pakistani	-0.089*** (0.0127)	-0.090*** (0.0122)	-0.047*** (0.0126)	-0.067*** (0.0122)	-0.082*** (0.0122)	-0.074*** (0.0122)	-0.058*** (0.0123)	-0.042*** (0.0124)	-0.098*** (0.0209)	-0.134*** (0.0269)
Bangladeshi	-0.045** (0.0205)	-0.047** (0.0194)	0.002 (0.0205)	-0.020 (0.0195)	-0.018 (0.0194)	-0.007 (0.0194)	0.014 (0.0195)	0.028 (0.0195)	-0.037 (0.0380)	-0.043 (0.0485)
Chinese	0.063*** (0.0175)	0.023 (0.0182)	0.066*** (0.0177)	0.026 (0.0181)	0.027 (0.0180)	0.034* (0.0181)	0.048*** (0.0182)	0.053*** (0.0181)	0.057* (0.0304)	0.175*** (0.0374)
Caribbean	-0.070*** (0.0142)	-0.077*** (0.0136)	-0.048*** (0.0142)	-0.065*** (0.0136)	-0.065*** (0.0135)	-0.055*** (0.0136)	-0.046*** (0.0136)	-0.035** (0.0137)	-0.072*** (0.0191)	-0.050* (0.0262)
African	0.014 (0.0268)	-0.029 (0.0254)	0.023 (0.0267)	-0.018 (0.0254)	-0.008 (0.0254)	0.000 (0.0258)	0.013 (0.0257)	0.022 (0.0257)	-0.044 (0.0492)	-0.133 (0.0859)
Education (ref. Level 1)										
No education		-0.217*** (0.0048)		-0.207*** (0.0048)	-0.202*** (0.0048)	-0.200*** (0.0048)	-0.198*** (0.0048)	-0.196*** (0.0048)	-0.196*** (0.0048)	
Other		0.004 (0.0046)		0.005 (0.0045)	0.006 (0.0045)	0.006 (0.0045)	0.006 (0.0045)	0.007 (0.0045)	0.007 (0.0045)	
Level 2		0.027*** (0.0029)		0.024*** (0.0029)	0.022*** (0.0029)	0.022*** (0.0029)	0.022*** (0.0029)	0.022*** (0.0029)	0.022*** (0.0029)	
Level 3		0.064*** (0.0032)		0.057*** (0.0032)	0.053*** (0.0032)	0.053*** (0.0032)	0.052*** (0.0032)	0.052*** (0.0032)	0.052*** (0.0032)	
Level 4+		0.082*** (0.0026)		0.070*** (0.0026)	0.065*** (0.0026)	0.063*** (0.0026)	0.062*** (0.0026)	0.061*** (0.0026)	0.061*** (0.0026)	
Education (reduced: ref. Level 1 or less)										
Level 2+3										0.087*** (0.0025)
Level 4										0.109***

	a	b	c	d	e	f	g	h	i	j
Parental social class (ref. Semi and unskilled manual - VII)										(0.0025)
Skilled manual (VI)	0.034*** (0.0035)			0.017*** (0.0033)	0.012*** (0.0033)	0.010*** (0.0033)	0.009*** (0.0033)	0.008** (0.0033)	0.008** (0.0033)	0.013*** (0.0034)
Lower technician (V)	0.072*** (0.0043)			0.042*** (0.0041)	0.034*** (0.0040)	0.027*** (0.0040)	0.026*** (0.0040)	0.024*** (0.0040)	0.024*** (0.0040)	0.031*** (0.0041)
Petit Bourgeoisie (IV)	0.076*** (0.0036)			0.048*** (0.0035)	0.035*** (0.0035)	0.022*** (0.0035)	0.021*** (0.0035)	0.018*** (0.0035)	0.018*** (0.0035)	0.022*** (0.0036)
Routine non-manual (III)	0.071*** (0.0033)			0.034*** (0.0031)	0.024*** (0.0031)	0.019*** (0.0031)	0.017*** (0.0031)	0.015*** (0.0031)	0.015*** (0.0031)	0.025*** (0.0032)
Lower professional/managerial (II)	0.101*** (0.0032)			0.045*** (0.0031)	0.029*** (0.0031)	0.019*** (0.0031)	0.016*** (0.0031)	0.012*** (0.0031)	0.012*** (0.0031)	0.020*** (0.0032)
Higher professional/managerial (I)	0.111*** (0.0034)			0.043*** (0.0033)	0.025*** (0.0033)	0.013*** (0.0033)	0.011*** (0.0033)	0.006* (0.0033)	0.006 (0.0033)	0.013*** (0.0035)
Earners but uncoded	-0.052*** (0.0086)			-0.045*** (0.0081)	-0.043*** (0.0080)	-0.041*** (0.0080)	-0.039*** (0.0080)	-0.040*** (0.0080)	-0.040*** (0.0080)	-0.044*** (0.0083)
No earners in hh	-0.079*** (0.0066)			-0.070*** (0.0061)	-0.064*** (0.0061)	-0.052*** (0.0062)	-0.054*** (0.0062)	-0.053*** (0.0062)	-0.054*** (0.0062)	-0.058*** (0.0064)
Tenure (ref. owner)										
Social rent					-0.043*** (0.0025)	-0.033*** (0.0026)	-0.030*** (0.0026)	-0.030*** (0.0026)	-0.030*** (0.0026)	-0.041*** (0.0027)
Private rent					-0.015*** (0.0031)	-0.009*** (0.0031)	-0.006** (0.0031)	-0.006** (0.0031)	-0.006** (0.0031)	-0.010*** (0.0032)
Number of cars (ref. none)										
1 car						0.039*** (0.0026)	0.037*** (0.0026)	0.032*** (0.0026)	0.031*** (0.0026)	0.037*** (0.0027)
2+ cars						0.047*** (0.0031)	0.046*** (0.0031)	0.037*** (0.0031)	0.037*** (0.0031)	0.043*** (0.0032)
Persons per room (ref. 1)										
Over 1.5 ppp					-0.042*** (0.0072)	-0.041*** (0.0072)	-0.042*** (0.0072)	-0.041*** (0.0072)	-0.040*** (0.0072)	-0.060*** (0.0074)

	a	b	c	d	e	f	g	h	i	j
1.5 ppp							-0.017*	-0.015	-0.014	-0.023**
Over 1 but less than 1.5 ppp							(0.0091)	(0.0091)	(0.0090)	(0.0093)
Over 0.75 but less than 1 ppp							-0.012***	-0.011***	-0.011***	-0.018***
0.75 ppp							(0.0037)	(0.0037)	(0.0037)	(0.0038)
Over 0.5 but less than 0.75 ppp							0.010***	0.009***	0.009***	0.011***
0.5 ppp							(0.0025)	(0.0025)	(0.0025)	(0.0026)
Less than 0.5 ppp							-0.002	-0.002	-0.002	0.001
							(0.0046)	(0.0046)	(0.0046)	(0.0047)
							0.006**	0.004	0.004	0.007***
							(0.0026)	(0.0026)	(0.0026)	(0.0026)
							0.008**	0.006	0.006	0.009**
							(0.0037)	(0.0037)	(0.0037)	(0.0038)
							0.002	-0.001	-0.001	0.001
							(0.0044)	(0.0044)	(0.0044)	(0.0045)
Carstairs quintiles (ref. Q1: less deprivation)										
Carstairs Q2							-0.001	-0.001	-0.001	-0.001
							(0.0022)	(0.0022)	(0.0022)	(0.0023)
Carstairs Q3							-0.004	-0.004	-0.004	-0.004*
							(0.0024)	(0.0024)	(0.0024)	(0.0025)
Carstairs Q4							-0.017***	-0.017***	-0.017***	-0.020***
							(0.0026)	(0.0026)	(0.0026)	(0.0027)
Carstairs Q5							-0.039***	-0.040***	-0.040***	-0.044***
							(0.0031)	(0.0031)	(0.0031)	(0.0032)
Age										
Age in destination							0.001***	0.001***	0.001***	0.000
							(0.0002)	(0.0002)	(0.0002)	(0.0002)
Origin year (ref. 1971)										
1981							0.002	0.003**	0.003**	0.001
							(0.0015)	(0.0015)	(0.0015)	(0.0015)
1991							-0.002	-0.000	-0.000	-0.007***
							(0.0024)	(0.0024)	(0.0024)	(0.0025)

	a	b	c	d	e	f	g	h	i	j
Destination year (ref. 2001)										
2011	0.016*** (0.0023)	-0.014*** (0.0023)	0.017*** (0.0023)	-0.011*** (0.0023)	-0.012*** (0.0023)	-0.011*** (0.0023)	-0.011*** (0.0023)	-0.011*** (0.0023)	-0.013*** (0.0024)	-0.004* (0.0024)
Number of census points (ref. 2)										
3 census points	0.085*** (0.0091)	0.060*** (0.0085)	0.071*** (0.0089)	0.053*** (0.0084)	0.051*** (0.0084)	0.049*** (0.0084)	0.049*** (0.0084)	0.048*** (0.0084)	0.050*** (0.0084)	0.055*** (0.0086)
4 census points	0.148*** (0.0091)	0.102*** (0.0086)	0.127*** (0.0089)	0.093*** (0.0085)	0.088*** (0.0085)	0.086*** (0.0085)	0.085*** (0.0085)	0.083*** (0.0085)	0.085*** (0.0085)	0.094*** (0.0087)
5 census points	0.196*** (0.0095)	0.142*** (0.0090)	0.172*** (0.0093)	0.132*** (0.0089)	0.126*** (0.0089)	0.123*** (0.0089)	0.121*** (0.0089)	0.119*** (0.0089)	0.121*** (0.0089)	0.138*** (0.0091)
Interactions with destination year										
Indian*2011									0.031** (0.0146)	0.030** (0.0148)
Pakistani*2011									0.088*** (0.0235)	0.086*** (0.0235)
Bangladeshi*2011									0.094** (0.0414)	0.106*** (0.0412)
Chinese*2011									-0.006 (0.0381)	0.006 (0.0377)
Caribbean*2011									0.078*** (0.0255)	0.074*** (0.0263)
African*2011									0.099* (0.0545)	0.083 (0.0545)
Interactions with education (reduced)										
Indian*Level 2+3										-0.027 (0.0258)
Indian*Level 4										0.012 (0.0218)
Pakistani*Level 2+3										0.018 (0.0329)
Pakistani*Level 4										0.124***

	a	b	c	d	e	f	g	h	i	j
Bangladeshi*Level 2+3										(0.0257)
										0.023
										(0.0535)
Bangladeshi*Level 4										0.031
										(0.0452)
Chinese*Level 2+3										-0.108*
										(0.0596)
Chinese*Level 4										-0.142***
										(0.0472)
Caribbean* Level 2+3										-0.033
										(0.0349)
Caribbean* Level 4										0.023
										(0.0331)
African*Level 2+3										0.158*
										(0.0895)
African*Level 4										0.156*
										(0.0846)
Constant	0.706***	0.762***	0.677***	0.750***	0.780***	0.758***	0.759***	0.780***	0.779***	0.705***
	(0.0093)	(0.0089)	(0.0093)	(0.0091)	(0.0092)	(0.0093)	(0.0095)	(0.0097)	(0.0097)	(0.0097)
Adjusted R-squared	0.013	0.089	0.035	0.095	0.098	0.100	0.101	0.102	0.103	0.072
N	180,540	180,540	180,540	180,540	180,540	180,540	180,540	180,540	180,540	180,540

*** p<0.01 ** p<0.05 * p<0.1

Robust (clustered) standard errors in parentheses

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

Table 8.3: Access to employment. Full model. Women.

	a	b	c	d	e	f	g	h	i	j
Ethnic group (ref. white British)										
Indian	0.031*** (0.0101)	-0.012 (0.0097)	0.053*** (0.0101)	-0.005 (0.0097)	-0.015 (0.0097)	-0.011 (0.0097)	-0.000 (0.0099)	0.007 (0.0099)	0.016 (0.0148)	0.065** (0.0264)
Pakistani	-0.254*** (0.0154)	-0.233*** (0.0139)	-0.201*** (0.0153)	-0.215*** (0.0139)	-0.231*** (0.0140)	-0.226*** (0.0140)	-0.210*** (0.0141)	-0.203*** (0.0142)	-0.230*** (0.0213)	-0.289*** (0.0258)
Bangladeshi	-0.268*** (0.0246)	-0.246*** (0.0220)	-0.191*** (0.0250)	-0.216*** (0.0223)	-0.216*** (0.0222)	-0.207*** (0.0223)	-0.190*** (0.0224)	-0.182*** (0.0224)	-0.231*** (0.0377)	-0.296*** (0.0415)
Chinese	0.077*** (0.0274)	0.016 (0.0275)	0.088*** (0.0271)	0.024 (0.0271)	0.027 (0.0274)	0.031 (0.0275)	0.042 (0.0277)	0.044 (0.0277)	0.112*** (0.0312)	0.194*** (0.0703)
Caribbean	0.006 (0.0144)	-0.033** (0.0138)	0.036** (0.0144)	-0.020 (0.0138)	-0.020 (0.0138)	-0.013 (0.0138)	-0.004 (0.0139)	0.001 (0.0140)	-0.005 (0.0178)	0.075** (0.0300)
African	0.038 (0.0275)	-0.051* (0.0267)	0.051* (0.0272)	-0.036 (0.0265)	-0.030 (0.0267)	-0.023 (0.0269)	-0.011 (0.0269)	-0.008 (0.0268)	0.018 (0.0372)	0.005 (0.0960)
Education (ref. Level 1)										
No education	-0.274*** (0.0053)	-0.274*** (0.0053)	-0.262*** (0.0054)	-0.262*** (0.0054)	-0.255*** (0.0054)	-0.253*** (0.0054)	-0.250*** (0.0054)	-0.249*** (0.0054)	-0.249*** (0.0054)	-0.249*** (0.0054)
Other	-0.000 (0.0092)	-0.000 (0.0092)	0.002 (0.0092)	0.002 (0.0092)	0.004 (0.0092)	0.005 (0.0092)	0.005 (0.0092)	0.006 (0.0092)	0.006 (0.0092)	0.006 (0.0092)
Level 2	0.084*** (0.0038)	0.084*** (0.0038)	0.081*** (0.0038)	0.081*** (0.0038)	0.078*** (0.0038)	0.078*** (0.0038)	0.077*** (0.0038)	0.077*** (0.0038)	0.077*** (0.0038)	0.077*** (0.0038)
Level 3	0.166*** (0.0042)	0.166*** (0.0042)	0.159*** (0.0042)	0.159*** (0.0042)	0.155*** (0.0042)	0.154*** (0.0042)	0.154*** (0.0042)	0.153*** (0.0042)	0.153*** (0.0042)	0.153*** (0.0042)
Level 4+	0.194*** (0.0036)	0.194*** (0.0036)	0.183*** (0.0036)	0.183*** (0.0036)	0.176*** (0.0036)	0.175*** (0.0036)	0.174*** (0.0037)	0.173*** (0.0037)	0.173*** (0.0037)	0.173*** (0.0037)
Education (reduced: ref. Level 1 or less)										
Level 2+3										0.174*** (0.0033)
Level 4										0.234***

	a	b	c	d	e	f	g	h	i	j
Parental social class (ref. Semi and unskilled manual - VII)										(0.0035)
Skilled manual (VI)	0.045*** (0.0043)		0.022*** (0.0039)	0.016*** (0.0039)	0.015*** (0.0039)	0.014*** (0.0039)	0.013*** (0.0039)	0.013*** (0.0039)	0.013*** (0.0039)	0.018*** (0.0040)
Lower technician (V)	0.080*** (0.0055)		0.035*** (0.0051)	0.025*** (0.0051)	0.021*** (0.0052)	0.019*** (0.0052)	0.018*** (0.0052)	0.018*** (0.0052)	0.018*** (0.0052)	0.027*** (0.0053)
Petit Bourgeoisie (IV)	0.088*** (0.0046)		0.033*** (0.0043)	0.019*** (0.0044)	0.010** (0.0044)	0.009** (0.0045)	0.008* (0.0045)	0.008* (0.0045)	0.008* (0.0045)	0.015*** (0.0045)
Routine non-manual (III)	0.101*** (0.0040)		0.040*** (0.0037)	0.029*** (0.0038)	0.026*** (0.0038)	0.024*** (0.0038)	0.023*** (0.0038)	0.023*** (0.0038)	0.023*** (0.0038)	0.033*** (0.0039)
Lower professional/managerial (II)	0.137*** (0.0040)		0.039*** (0.0038)	0.022*** (0.0039)	0.015*** (0.0039)	0.012*** (0.0039)	0.011*** (0.0040)	0.011*** (0.0040)	0.011*** (0.0040)	0.020*** (0.0040)
Higher professional/managerial (I)	0.153*** (0.0043)		0.034*** (0.0042)	0.015*** (0.0043)	0.007 (0.0044)	0.004 (0.0044)	0.002 (0.0044)	0.002 (0.0044)	0.002 (0.0044)	0.010** (0.0045)
Earners but uncoded	-0.057*** (0.0093)		-0.035*** (0.0085)	-0.033*** (0.0085)	-0.032*** (0.0085)	-0.030*** (0.0085)	-0.029*** (0.0085)	-0.029*** (0.0085)	-0.030*** (0.0085)	-0.041*** (0.0088)
No earners in hh	-0.109*** (0.0070)		-0.086*** (0.0063)	-0.079*** (0.0063)	-0.071*** (0.0063)	-0.074*** (0.0063)	-0.073*** (0.0063)	-0.073*** (0.0063)	-0.073*** (0.0063)	-0.082*** (0.0066)
Tenure (ref. owner)										
Social rent					-0.046*** (0.0031)	-0.039*** (0.0031)	-0.035*** (0.0032)	-0.035*** (0.0032)	-0.035*** (0.0032)	-0.050*** (0.0033)
Private rent					-0.015*** (0.0040)	-0.011*** (0.0040)	-0.008** (0.0040)	-0.008** (0.0040)	-0.008** (0.0040)	-0.013*** (0.0041)
Number of cars (ref. none)										
1 car					0.026*** (0.0030)	0.026*** (0.0030)	0.024*** (0.0030)	0.022*** (0.0030)	0.022*** (0.0030)	0.030*** (0.0031)
2+ cars					0.032*** (0.0039)	0.032*** (0.0039)	0.031*** (0.0039)	0.027*** (0.0039)	0.027*** (0.0039)	0.035*** (0.0040)
Persons per room (ref. 1)										
Over 1.5 ppp					-0.029*** (0.0076)	-0.029*** (0.0076)	-0.029*** (0.0076)	-0.028*** (0.0076)	-0.028*** (0.0076)	-0.053*** (0.0078)

	a	b	c	d	e	f	g	h	i	j
1.5 ppp							-0.001 (0.0102)	0.000 (0.0102)	0.000 (0.0102)	-0.018* (0.0105)
Over 1 but less than 1.5 ppp							-0.017*** (0.0043)	-0.016*** (0.0043)	-0.016*** (0.0043)	-0.026*** (0.0044)
Over 0.75 but less than 1 ppp							0.012*** (0.0032)	0.011*** (0.0032)	0.011*** (0.0032)	0.016*** (0.0032)
0.75 ppp							0.007 (0.0057)	0.007 (0.0057)	0.007 (0.0057)	0.011* (0.0058)
Over 0.5 but less than 0.75 ppp							0.012*** (0.0032)	0.011*** (0.0032)	0.011*** (0.0032)	0.016*** (0.0033)
0.5 ppp							0.009* (0.0047)	0.008* (0.0047)	0.008* (0.0047)	0.013*** (0.0048)
Less than 0.5 ppp							-0.001 (0.0057)	-0.003 (0.0057)	-0.003 (0.0057)	0.003 (0.0058)
Carstairs quintiles (ref. Q1: less deprivation)										
Carstairs Q2								0.004 (0.0031)	0.004 (0.0031)	0.004 (0.0031)
Carstairs Q3								0.001 (0.0032)	0.001 (0.0032)	0.000 (0.0033)
Carstairs Q4								-0.002 (0.0034)	-0.002 (0.0034)	-0.006* (0.0035)
Carstairs Q5								-0.017*** (0.0038)	-0.017*** (0.0038)	-0.026*** (0.0039)
Age										
Age in destination								0.002*** (0.0003)	0.002*** (0.0003)	0.001** (0.0003)
Origin year (ref. 1971)										
1981								-0.011*** (0.0018)	-0.010*** (0.0018)	-0.013*** (0.0018)
1991								0.001 (0.0029)	0.002 (0.0030)	-0.009*** (0.0030)

	a	b	c	d	e	f	g	h	i	j
Destination year (ref. 2001)										
2011	0.060*** (0.0030)	0.004 (0.0029)	0.065*** (0.0030)	0.008** (0.0030)	0.007** (0.0030)	0.008*** (0.0030)	0.007** (0.0030)	0.007** (0.0030)	0.007** (0.0030)	0.024*** (0.0030)
Number of census points (ref. 2)										
3 census points	0.133*** (0.0103)	0.080*** (0.0094)	0.107*** (0.0101)	0.072*** (0.0093)	0.069*** (0.0093)	0.068*** (0.0093)	0.068*** (0.0093)	0.067*** (0.0093)	0.068*** (0.0093)	0.075*** (0.0094)
4 census points	0.173*** (0.0105)	0.095*** (0.0096)	0.145*** (0.0103)	0.086*** (0.0096)	0.081*** (0.0096)	0.079*** (0.0095)	0.079*** (0.0095)	0.078*** (0.0095)	0.079*** (0.0095)	0.091*** (0.0097)
5 census points	0.193*** (0.0112)	0.117*** (0.0103)	0.162*** (0.0110)	0.106*** (0.0103)	0.100*** (0.0103)	0.099*** (0.0102)	0.097*** (0.0102)	0.097*** (0.0102)	0.097*** (0.0102)	0.118*** (0.0104)
Interactions with destination year										
Indian*2011									-0.016 (0.0166)	-0.021 (0.0169)
Pakistani*2011									0.044* (0.0238)	0.030 (0.0247)
Bangladeshi*2011									0.069* (0.0414)	0.044 (0.0411)
Chinese*2011									-0.110*** (0.0366)	-0.115*** (0.0357)
Caribbean*2011									0.013 (0.0228)	0.012 (0.0231)
African*2011									-0.043 (0.0434)	-0.058 (0.0432)
Interactions with education (reduced)										
Indian*Level 2+3										-0.056* (0.0312)
Indian*Level 4										-0.023 (0.0279)
Pakistani*Level 2+3										0.064* (0.0339)
Pakistani*Level 4										0.181***

	a	b	c	d	e	f	g	h	i	j
Bangladeshi*Level 2+3										(0.0322)
Bangladeshi*Level 4										0.122** (0.0475)
Chinese*Level 2+3										0.249*** (0.0492)
Chinese*Level 4										-0.058 (0.0957)
Caribbean* Level 2+3										-0.077 (0.0779)
Caribbean* Level 4										-0.070** (0.0356)
African*Level 2+3										-0.063* (0.0362)
African*Level 4										-0.035 (0.1136)
Constant	0.562*** (0.0109)	0.602*** (0.0102)	0.526*** (0.0109)	0.593*** (0.0104)	0.626*** (0.0106)	0.611*** (0.0108)	0.610*** (0.0110)	0.616*** (0.0113)	0.616*** (0.0113)	0.521*** (0.0113)
Adjusted R-squared	0.011	0.118	0.035	0.122	0.124	0.124	0.125	0.125	0.125	0.098
N	188,937	188,937	188,937	188,937	188,937	188,937	188,937	188,937	188,937	188,937

*** p<0.01 ** p<0.05 * p<0.1

Robust (clustered) standard errors in parentheses

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

Table 8.4: Access to the service class. Full model. Men.

	a	b	c	d	e	f	g	i	j
Ethnic group (ref. white British)									
Indian	0.155*** (0.0129)	0.027*** (0.0102)	0.206*** (0.0126)	0.060*** (0.0102)	0.049*** (0.0103)	0.053*** (0.0103)	0.071*** (0.0103)	0.078*** (0.0104)	0.071*** (0.0153)
Pakistani	-0.012 (0.0161)	-0.055*** (0.0125)	0.084*** (0.0154)	-0.011 (0.0125)	-0.027** (0.0126)	-0.022* (0.0126)	0.002 (0.0127)	0.010 (0.0128)	-0.002 (0.0185)
Bangladeshi	0.009 (0.0278)	-0.030 (0.0228)	0.107*** (0.0279)	0.013 (0.0231)	0.016 (0.0232)	0.023 (0.0231)	0.050** (0.0233)	0.056** (0.0233)	0.074* (0.0378)
Chinese	0.179*** (0.0395)	0.003 (0.0331)	0.211*** (0.0372)	0.033 (0.0324)	0.035 (0.0325)	0.040 (0.0325)	0.060* (0.0325)	0.063* (0.0324)	0.054 (0.0465)
Caribbean	-0.035* (0.0188)	-0.044*** (0.0163)	0.016 (0.0189)	-0.023 (0.0165)	-0.023 (0.0164)	-0.018 (0.0164)	-0.004 (0.0165)	0.002 (0.0165)	-0.014 (0.0210)
African	0.110** (0.0448)	-0.014 (0.0409)	0.114*** (0.0424)	-0.005 (0.0401)	0.007 (0.0400)	0.012 (0.0401)	0.030 (0.0399)	0.036 (0.0399)	0.119* (0.0607)
Education (ref. Level 1)									
No education		-0.146*** (0.0040)		-0.129*** (0.0040)	-0.124*** (0.0040)	-0.123*** (0.0040)	-0.120*** (0.0040)	-0.119*** (0.0040)	-0.119*** (0.0040)
Other		-0.076*** (0.0054)		-0.072*** (0.0053)	-0.071*** (0.0053)	-0.071*** (0.0053)	-0.071*** (0.0053)	-0.071*** (0.0053)	-0.071*** (0.0053)
Level 2		0.110*** (0.0042)		0.101*** (0.0042)	0.099*** (0.0042)	0.099*** (0.0042)	0.098*** (0.0042)	0.098*** (0.0042)	0.098*** (0.0042)
Level 3		0.194*** (0.0052)		0.176*** (0.0052)	0.172*** (0.0052)	0.172*** (0.0052)	0.170*** (0.0052)	0.169*** (0.0052)	0.169*** (0.0052)
Level 4+		0.528*** (0.0039)		0.487*** (0.0041)	0.481*** (0.0041)	0.480*** (0.0042)	0.476*** (0.0042)	0.475*** (0.0042)	0.475*** (0.0042)
Parental social class (ref. Semi and unskilled manual - VII)									
Skilled manual (VI)			0.047*** (0.0046)	0.015*** (0.0040)	0.009** (0.0040)	0.008** (0.0040)	0.007* (0.0040)	0.007* (0.0040)	0.007* (0.0040)
Lower technician (V)			0.120*** (0.045***)	0.054*** (0.042***)	0.045*** (0.042***)	0.042*** (0.042***)	0.041*** (0.042***)	0.039*** (0.042***)	0.039*** (0.042***)

	a	b	c	d	e	f	g	i	j
Petit Bourgeoisie (IV)			(0.0066)	(0.0057)	(0.0057)	(0.0058)	(0.0058)	(0.0058)	(0.0058)
			0.090***	0.032***	0.018***	0.008*	0.006	0.003	0.003
			(0.0053)	(0.0047)	(0.0047)	(0.0048)	(0.0048)	(0.0048)	(0.0048)
Routine non-manual (III)			0.154***	0.074***	0.063***	0.060***	0.056***	0.055***	0.055***
			(0.0046)	(0.0041)	(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)
Lower professional/managerial (II)			0.292***	0.128***	0.111***	0.103***	0.097***	0.093***	0.093***
			(0.0048)	(0.0044)	(0.0045)	(0.0046)	(0.0046)	(0.0046)	(0.0046)
Higher professional/managerial (I)			0.386***	0.162***	0.142***	0.133***	0.125***	0.119***	0.119***
			(0.0053)	(0.0051)	(0.0052)	(0.0053)	(0.0053)	(0.0053)	(0.0053)
Earners but uncoded			0.022**	0.020**	0.021**	0.021**	0.023***	0.022***	0.022***
			(0.0098)	(0.0085)	(0.0084)	(0.0084)	(0.0084)	(0.0084)	(0.0084)
No earners in hh			0.035***	0.031***	0.038***	0.044***	0.035***	0.035***	0.035***
			(0.0074)	(0.0064)	(0.0064)	(0.0064)	(0.0064)	(0.0065)	(0.0065)
Tenure (ref. owner)									
Social rent					-0.047***	-0.042***	-0.034***	-0.034***	-0.034***
					(0.0032)	(0.0033)	(0.0034)	(0.0034)	(0.0034)
Private rent					-0.023***	-0.020***	-0.016***	-0.017***	-0.017***
					(0.0044)	(0.0044)	(0.0045)	(0.0045)	(0.0045)
Number of cars (ref. none)									
1 car					0.015***	0.015***	0.014***	0.010***	0.010***
					(0.0032)	(0.0032)	(0.0032)	(0.0032)	(0.0032)
2+ cars					0.036***	0.036***	0.033***	0.024***	0.024***
					(0.0043)	(0.0043)	(0.0043)	(0.0044)	(0.0044)
Persons per room (ref. 1)									
Over 1.5 ppp					-0.040***	-0.040***	-0.040***	-0.040***	-0.040***
					(0.0071)	(0.0071)	(0.0071)	(0.0071)	(0.0071)
1.5 ppp					-0.014	-0.014	-0.013	-0.013	-0.013
					(0.0104)	(0.0104)	(0.0104)	(0.0104)	(0.0104)
Over 1 but less than 1.5 ppp					-0.013***	-0.013***	-0.013***	-0.013***	-0.013***
					(0.0044)	(0.0044)	(0.0044)	(0.0044)	(0.0044)
Over 0.75 but less than 1 ppp					0.010***	0.010***	0.009***	0.009***	0.009***

	a	b	c	d	e	f	g	i	j
0.75 ppp							(0.0035) 0.013** (0.0063)	(0.0035) 0.013** (0.0063)	(0.0035) 0.013** (0.0063)
Over 0.5 but less than 0.75 ppp							0.028*** (0.0036)	0.025*** (0.0037)	0.025*** (0.0037)
0.5 ppp							0.033*** (0.0055)	0.030*** (0.0055)	0.030*** (0.0055)
Less than 0.5 ppp							0.043*** (0.0066)	0.040*** (0.0066)	0.040*** (0.0066)
Carstairs quintiles (ref. Q1: less deprivation)									
Carstairs Q2								-0.020*** (0.0037)	-0.020*** (0.0037)
Carstairs Q3								-0.026*** (0.0039)	-0.026*** (0.0039)
Carstairs Q4								-0.037*** (0.0040)	-0.037*** (0.0040)
Carstairs Q5								-0.036*** (0.0042)	-0.036*** (0.0042)
Age									
Age in destination	0.004*** (0.0003)	0.006*** (0.0003)	0.003*** (0.0003)	0.006*** (0.0003)	0.006*** (0.0003)	0.006*** (0.0003)	0.006*** (0.0003)	0.006*** (0.0003)	0.006*** (0.0003)
Origin year (ref. 1971)									
1981	0.026*** (0.0021)	0.009*** (0.0018)	0.003 (0.0022)	0.000 (0.0018)	-0.002 (0.0019)	-0.006*** (0.0019)	-0.010*** (0.0020)	-0.009*** (0.0020)	-0.009*** (0.0020)
1991	0.020*** (0.0034)	-0.003 (0.0029)	-0.044*** (0.0036)	-0.030*** (0.0030)	-0.035*** (0.0031)	-0.043*** (0.0032)	-0.048*** (0.0033)	-0.046*** (0.0033)	-0.046*** (0.0033)
Destination year (ref. 2001)									
2011	0.018*** (0.0034)	-0.064*** (0.0031)	0.023*** (0.0033)	-0.054*** (0.0031)	-0.056*** (0.0031)	-0.054*** (0.0031)	-0.055*** (0.0031)	-0.055*** (0.0031)	-0.055*** (0.0031)
Number of census points (ref. 2)									
3 census points	0.049***	-0.005	0.023**	-0.011	-0.014	-0.015*	-0.016*	-0.017*	-0.017*

	a	b	c	d	e	f	g	i	j
4 census points	(0.0100)	(0.0090)	(0.0097)	(0.0090)	(0.0090)	(0.0090)	(0.0090)	(0.0090)	(0.0090)
	0.112***	0.009	0.075***	0.003	-0.003	-0.004	-0.006	-0.007	-0.008
	(0.0102)	(0.0092)	(0.0100)	(0.0092)	(0.0092)	(0.0092)	(0.0091)	(0.0091)	(0.0092)
5 census points	0.122***	0.021**	0.083***	0.015	0.008	0.006	0.003	0.002	0.002
	(0.0111)	(0.0098)	(0.0107)	(0.0098)	(0.0098)	(0.0098)	(0.0098)	(0.0098)	(0.0098)
Interactions with destination year									
Indian*2011									0.012
									(0.0186)
Pakistani*2011									0.019
									(0.0225)
Bangladeshi*2011									-0.025
									(0.0423)
Chinese*2011									0.014
									(0.0525)
Caribbean*2011									0.033
									(0.0296)
African*2011									-0.125**
									(0.0619)
Constant	0.274***	0.250***	0.184***	0.211***	0.246***	0.237***	0.233***	0.263***	0.264***
	(0.0105)	(0.0097)	(0.0105)	(0.0099)	(0.0102)	(0.0104)	(0.0106)	(0.0111)	(0.0111)
N	0.012	0.238	0.079	0.249	0.251	0.251	0.252	0.253	0.253
Adjusted R-squared	174,110	174,110	174,110	174,110	174,110	174,110	174,110	174,110	174,110

*** p<0.01 ** p<0.05 * p<0.1

Robust (clustered) standard errors in parentheses
Population: Individuals between 20 and 45 years old
Source: Author's own calculations based on ONS-LS

Table 8.5: Access to the service class. Full model. Women.

	a	b	c	d	e	f	g	i	j
Ethnic group (ref. white British)									
Indian	0.128** (0.0129)	0.021** (0.0108)	0.174** (0.0126)	0.044** (0.0108)	0.033** (0.0108)	0.038** (0.0108)	0.049** (0.0109)	0.054** (0.0110)	0.041** (0.0164)
Pakistani	-0.021 (0.0164)	-0.038** (0.0136)	0.064** (0.0162)	-0.007 (0.0137)	-0.022 (0.0137)	-0.016 (0.0137)	-0.001 (0.0138)	0.004 (0.0139)	-0.014 (0.0223)
Bangladeshi	-0.044* (0.0264)	-0.041** (0.0207)	0.063** (0.0258)	-0.004 (0.0206)	-0.003 (0.0206)	0.008 (0.0206)	0.023 (0.0208)	0.027 (0.0209)	0.028 (0.0386)
Chinese	0.108** (0.0369)	-0.057* (0.0295)	0.137** (0.0367)	-0.039 (0.0296)	-0.036 (0.0297)	-0.029 (0.0297)	-0.017 (0.0298)	-0.015 (0.0297)	-0.036 (0.0494)
Caribbean	0.059** (0.0178)	-0.000 (0.0152)	0.106** (0.0176)	0.019 (0.0151)	0.020 (0.0152)	0.027* (0.0152)	0.035** (0.0152)	0.039** (0.0152)	0.048** (0.0197)
African	0.135** (0.0374)	-0.086** (0.0364)	0.138** (0.0382)	-0.074** (0.0365)	-0.066* (0.0364)	-0.057 (0.0364)	-0.044 (0.0364)	-0.041 (0.0364)	-0.004 (0.0494)
Education (ref. Level 1)									
No education		-0.113** (0.0037)		-0.100** (0.0037)	-0.093** (0.0037)	-0.091** (0.0037)	-0.088** (0.0037)	-0.088** (0.0037)	-0.088** (0.0037)
Other		-0.035** (0.0074)		-0.031** (0.0074)	-0.029** (0.0074)	-0.028** (0.0074)	-0.028** (0.0074)	-0.028** (0.0074)	-0.028** (0.0074)
Level 2		0.083** (0.0037)		0.076** (0.0037)	0.073** (0.0037)	0.073** (0.0037)	0.072** (0.0037)	0.072** (0.0037)	0.072** (0.0037)
Level 3		0.180** (0.0048)		0.167** (0.0048)	0.163** (0.0048)	0.162** (0.0048)	0.161** (0.0048)	0.160** (0.0048)	0.161** (0.0048)
Level 4+		0.550** (0.0037)		0.522** (0.0039)	0.515** (0.0039)	0.513** (0.0040)	0.510** (0.0040)	0.510** (0.0040)	0.510** (0.0040)
Parental social class (ref. Semi and unskilled manual - VII)									
Skilled manual (VI)			0.044** (0.0043)	0.019** (0.0037)	0.013** (0.0037)	0.011** (0.0038)	0.011** (0.0038)	0.011** (0.0038)	0.011** (0.0038)
Lower technician (V)			0.091** (0.038**)	0.038** (0.038**)	0.028** (0.028**)	0.025** (0.025**)	0.024** (0.024**)	0.024** (0.024**)	0.024** (0.024**)

	a	b	c	d	e	f	g	i	j
Petit Bourgeoisie (IV)			(0.0062)	(0.0053)	(0.0053)	(0.0054)	(0.0054)	(0.0054)	(0.0054)
			0.113***	0.043***	0.029***	0.016***	0.015***	0.013***	0.013***
			(0.0051)	(0.0044)	(0.0045)	(0.0046)	(0.0046)	(0.0046)	(0.0046)
Routine non-manual (III)			0.131***	0.051***	0.040***	0.037***	0.034***	0.034***	0.034***
			(0.0044)	(0.0038)	(0.0039)	(0.0039)	(0.0039)	(0.0039)	(0.0039)
Lower professional/managerial (II)			0.262***	0.097***	0.080***	0.070***	0.066***	0.064***	0.064***
			(0.0046)	(0.0042)	(0.0043)	(0.0043)	(0.0043)	(0.0043)	(0.0043)
Higher professional/managerial (I)			0.332***	0.110***	0.091***	0.079***	0.072***	0.070***	0.070***
			(0.0053)	(0.0048)	(0.0050)	(0.0051)	(0.0051)	(0.0051)	(0.0051)
Earners but uncoded			-0.004	0.002	0.004	0.003	0.004	0.004	0.004
			(0.0087)	(0.0076)	(0.0076)	(0.0076)	(0.0076)	(0.0076)	(0.0076)
No earners in hh			0.004	0.013**	0.020***	0.028***	0.021***	0.022***	0.022***
			(0.0066)	(0.0056)	(0.0056)	(0.0057)	(0.0057)	(0.0057)	(0.0057)
Tenure (ref. owner)									
Social rent					-0.046***	-0.038***	-0.033***	-0.033***	-0.033***
					(0.0030)	(0.0031)	(0.0031)	(0.0031)	(0.0031)
Private rent					-0.023***	-0.019***	-0.016***	-0.017***	-0.017***
					(0.0042)	(0.0042)	(0.0042)	(0.0042)	(0.0042)
Number of cars (ref. none)									
1 car					0.021***	0.021***	0.021***	0.018***	0.018***
					(0.0029)	(0.0029)	(0.0029)	(0.0030)	(0.0030)
2+ cars					0.046***	0.046***	0.044***	0.040***	0.040***
					(0.0041)	(0.0041)	(0.0041)	(0.0042)	(0.0042)
Persons per room (ref. 1)									
Over 1.5 ppp					-0.011	-0.011	-0.011	-0.011	-0.010
					(0.0068)	(0.0068)	(0.0068)	(0.0068)	(0.0068)
1.5 ppp					-0.014	-0.014	-0.014	-0.013	-0.013
					(0.0094)	(0.0094)	(0.0094)	(0.0094)	(0.0094)
Over 1 but less than 1.5 ppp					-0.008**	-0.008**	-0.008**	-0.008*	-0.008*
					(0.0040)	(0.0040)	(0.0040)	(0.0040)	(0.0040)
Over 0.75 but less than 1 ppp					0.004	0.004	0.004	0.004	0.004

	a	b	c	d	e	f	g	i	j
0.75 ppp							(0.0033)	(0.0033)	(0.0033)
							0.010	0.010	0.010
							(0.0059)	(0.0059)	(0.0059)
Over 0.5 but less than 0.75 ppp							0.021***	0.020***	0.020***
							(0.0035)	(0.0035)	(0.0035)
0.5 ppp							0.034***	0.032***	0.032***
							(0.0053)	(0.0053)	(0.0053)
							0.037***	0.035***	0.035***
							(0.0065)	(0.0066)	(0.0066)
Carstairs quintiles (ref. Q1: less deprivation)									
Carstairs Q2								-0.001	-0.001
								(0.0035)	(0.0035)
Carstairs Q3								-0.011***	-0.011***
								(0.0037)	(0.0037)
Carstairs Q4								-0.014***	-0.014***
								(0.0038)	(0.0038)
Carstairs Q5								-0.017***	-0.017***
								(0.0040)	(0.0040)
Age									
Age in destination	0.003***	0.004***	0.002***	0.004***	0.004***	0.004***	0.004***	0.004***	0.004***
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Origin year (ref. 1971)									
1981	0.019***	0.008***	-0.002	0.001	-0.001	-0.006***	-0.008***	-0.008***	-0.008***
	(0.0020)	(0.0016)	(0.0020)	(0.0017)	(0.0017)	(0.0018)	(0.0018)	(0.0018)	(0.0018)
1991	0.018***	-0.007**	-0.039***	-0.026***	-0.030***	-0.040***	-0.043***	-0.042***	-0.042***
	(0.0033)	(0.0027)	(0.0034)	(0.0029)	(0.0029)	(0.0031)	(0.0031)	(0.0031)	(0.0031)
Destination year (ref. 2001)									
2011	0.031***	-0.056***	0.041***	-0.047***	-0.047***	-0.045***	-0.046***	-0.045***	-0.046***
	(0.0035)	(0.0032)	(0.0035)	(0.0032)	(0.0032)	(0.0032)	(0.0032)	(0.0032)	(0.0032)
Number of census points (ref. 2)									
3 census points	0.083***	0.009	0.051***	0.003	-0.000	-0.001	-0.002	-0.002	-0.002

	a	b	c	d	e	f	g	i	j
4 census points	(0.0103) 0.119***	(0.0093) 0.018*	(0.0101) 0.086***	(0.0093) 0.014	(0.0093) 0.009	(0.0093) 0.008	(0.0093) 0.006	(0.0093) 0.006	(0.0093) 0.006
5 census points	(0.0107) 0.075***	(0.0095) 0.006	(0.0104) 0.044***	(0.0095) 0.001	(0.0095) -0.005	(0.0095) -0.006	(0.0095) -0.008	(0.0095) -0.008	(0.0095) -0.008
Interactions with destination year	(0.0116)	(0.0102)	(0.0113)	(0.0102)	(0.0102)	(0.0102)	(0.0102)	(0.0102)	(0.0102)
Indian*2011									0.022 (0.0202)
Pakistani*2011									0.027 (0.0253)
Bangladeshi*2011									-0.002 (0.0429)
Chinese*2011									0.035 (0.0585)
Caribbean*2011									-0.020 (0.0270)
African*2011									-0.063 (0.0548)
Constant	0.250*** (0.0111)	0.193*** (0.0101)	0.169*** (0.0110)	0.163*** (0.0103)	0.198*** (0.0106)	0.185*** (0.0107)	0.180*** (0.0109)	0.192*** (0.0113)	0.192*** (0.0113)
Adjusted R-squared	0.007	0.242	0.060	0.248	0.249	0.250	0.251	0.251	0.251
N	180,608	180,608	180,608	180,608	180,608	180,608	180,608	180,608	180,608

*** p<0.01 ** p<0.05 * p<0.1

Robust (clustered) standard errors in parentheses
Population: Individuals between 20 and 45 years old
Source: Author's own calculations based on ONS-LS

Table 8.6: Access to the service class. Full models of social mobility. Men and women.

	Men			Women		
	a	b	c	a	b	c
Ethnic group (ref. white British)						
Indian	0.218*** (0.0174)	0.068*** (0.0138)	0.046** (0.0203)	0.175*** (0.0166)	0.048*** (0.0141)	0.040* (0.0220)
Pakistani	0.099*** (0.0199)	0.000 (0.0161)	-0.000 (0.0177)	0.086*** (0.0200)	0.010 (0.0175)	0.033 (0.0237)
Bangladeshi	0.236*** (0.0378)	0.096*** (0.0296)	0.118*** (0.0371)	0.131*** (0.0345)	0.014 (0.0263)	0.020 (0.0275)
Chinese	0.231*** (0.0797)	0.033 (0.0695)	-0.001 (0.0787)	0.224*** (0.0646)	0.005 (0.0538)	-0.002 (0.0543)
Caribbean	0.079*** (0.0247)	0.018 (0.0214)	0.033 (0.0247)	0.150*** (0.0235)	0.036* (0.0199)	0.061** (0.0274)
African	0.174*** (0.0673)	-0.005 (0.0598)	-0.028 (0.0766)	0.176** (0.0752)	-0.091 (0.0781)	-0.056 (0.0761)
Parental social class - reduced (ref. V+VI+VII)						
Earners but uncoded + no earners in hh	0.024*** (0.0061)	0.025*** (0.0054)	0.021*** (0.0055)	0.007 (0.0054)	0.009* (0.0048)	0.005 (0.0048)
Routine non-manual (III)	0.077*** (0.0042)	0.045*** (0.0037)	0.050*** (0.0037)	0.058*** (0.0040)	0.024*** (0.0034)	0.027*** (0.0035)
Petit Bourgeoisie (IV)	-0.010** (0.0051)	-0.008* (0.0045)	-0.008* (0.0045)	0.014*** (0.0049)	0.005 (0.0043)	0.007 (0.0043)
Professional/Managerial (I+II)	0.197*** (0.0042)	0.093*** (0.0038)	0.097*** (0.0038)	0.162*** (0.0041)	0.058*** (0.0036)	0.061*** (0.0036)
Interactions with Parental social class						
Indian*Earners uncoded/No earners	-0.047 (0.0437)	-0.016 (0.0369)	-0.003 (0.0368)	-0.083* (0.0473)	-0.037 (0.0416)	-0.034 (0.0414)

	Men			Women		
	a	b	c	a	b	c
Indian*III	0.025 (0.0358)	0.010 (0.0310)	-0.000 (0.0315)	0.083** (0.0380)	0.023 (0.0352)	0.020 (0.0362)
Indian*IV	0.083** (0.0341)	0.059** (0.0281)	0.055* (0.0281)	0.065* (0.0351)	0.003 (0.0310)	0.002 (0.0311)
Indian*I+II	0.009 (0.0288)	0.001 (0.0246)	-0.027 (0.0256)	0.026 (0.0316)	0.025 (0.0260)	0.021 (0.0280)
Pakistani*Earners uncoded/No earners	-0.067** (0.0331)	-0.041 (0.0266)	-0.031 (0.0262)	-0.059 (0.0371)	-0.036 (0.0307)	-0.036 (0.0306)
Pakistani*III	0.152** (0.0664)	0.087 (0.0595)	0.070 (0.0600)	0.169** (0.0780)	0.080 (0.0751)	0.084 (0.0765)
Pakistani*IV	0.074* (0.0443)	0.043 (0.0372)	0.039 (0.0375)	0.048 (0.0488)	0.006 (0.0391)	0.001 (0.0396)
Pakistani*I+II	0.139*** (0.0489)	0.075* (0.0422)	0.047 (0.0452)	-0.046 (0.0553)	-0.090** (0.0453)	-0.095** (0.0462)
Bangladeshi*Earners uncoded/No earners	-0.071 (0.0604)	-0.072 (0.0446)	-0.066 (0.0446)	0.018 (0.0507)	0.016 (0.0420)	0.025 (0.0425)
Bangladeshi*III	-0.151 (0.1552)	-0.173 (0.1501)	-0.160 (0.1539)	0.431*** (0.0986)	0.398*** (0.0872)	0.396*** (0.1046)
Bangladeshi*IV	-0.042 (0.0768)	-0.038 (0.0717)	-0.031 (0.0722)	-0.054 (0.0806)	-0.033 (0.0761)	-0.043 (0.0776)
Bangladeshi*I+II	-0.150 (0.1010)	-0.147* (0.0815)	-0.159* (0.0823)	0.035 (0.1554)	0.059 (0.1310)	0.049 (0.1379)
Chinese*Earners uncoded/No earners	0.183 (0.1311)	0.126 (0.1093)	0.129 (0.1093)	-0.151 (0.1115)	-0.072 (0.0772)	-0.074 (0.0794)
Chinese*III	-0.022 (0.1285)	0.001 (0.1100)	-0.019 (0.1093)	-0.042 (0.1512)	0.121 (0.1224)	0.117 (0.1194)
Chinese*IV	0.006 (0.1285)	-0.012 (0.1100)	-0.018 (0.1093)	0.005 (0.1512)	-0.032 (0.1224)	-0.040 (0.1194)

	Men			Women		
	a	b	c	a	b	c
Chinese*I+II	(0.0953) 0.112	(0.0826) 0.127	(0.0815) 0.109	(0.0755) -0.086	(0.0640) -0.023	(0.0662) -0.032
Caribbean*Earners uncoded/No earners	(0.0915) 0.077	(0.0782) 0.032	(0.0848) 0.039	(0.1130) 0.067	(0.0884) 0.047	(0.0891) 0.048
Caribbean*III	(0.0566) -0.035	(0.0497) -0.040	(0.0502) -0.042	(0.0455) 0.012	(0.0417) 0.003	(0.0418) 0.002
Caribbean*IV	(0.0410) -0.030	(0.0358) -0.025	(0.0365) -0.025	(0.0398) -0.094	(0.0329) -0.086	(0.0334) -0.097
Caribbean*I+II	(0.1124) -0.106**	(0.1063) -0.095**	(0.1040) -0.091**	(0.0922) -0.073	(0.0640) -0.019	(0.0670) -0.015
African*Earners uncoded/No earners	(0.0482) 0.060	(0.0467) 0.055	(0.0460) 0.049	(0.0448) 0.112	(0.0388) 0.065	(0.0393) 0.079
African*III	(0.1316) 0.004	(0.1249) -0.013	(0.1263) -0.012	(0.1035) 0.163*	(0.1026) 0.169*	(0.0975) 0.182**
African*IV	(0.0969) 0.554***	(0.0832) 0.768***	(0.0839) 0.725***	(0.0910) 0.171	(0.0945) 0.174	(0.0868) 0.211
African*I+II	(0.0678) 0.057	(0.0596) 0.113	(0.0843) 0.109	(0.2236) -0.124	(0.1568) -0.056	(0.1584) -0.044
Education (ref. Level 1)	(0.0915)	(0.0885)	(0.0892)	(0.0944)	(0.0936)	(0.0899)
No education	-0.120***	-0.120***	-0.120***	-0.088***	-0.088***	-0.088***
Other	(0.0040) -0.071***	(0.0040) -0.071***	(0.0037) -0.028***	(0.0037) -0.028***	(0.0037) -0.028***	(0.0037) -0.028***
Level 2	(0.0053) 0.098***	(0.0053) 0.098***	(0.0053) 0.098***	(0.0074) 0.072***	(0.0074) 0.072***	(0.0074) 0.072***
Level 3	(0.0042) 0.170***	(0.0042) 0.170***	(0.0037) 0.161***	(0.0037) 0.161***	(0.0037) 0.161***	(0.0037) 0.161***

	Men			Women		
	a	b	c	a	b	c
Level 4+		(0.0052)			(0.0048)	
		0.476***			0.510***	
		(0.0042)			(0.0040)	
Education (reduced: ref. Level 1 or less)						
Level 2+3			0.165***			0.125***
			(0.0034)			(0.0031)
Level 4+			0.512***			0.530***
			(0.0038)			(0.0038)
Interactions with education (reduced)						
Indian*Level 2+3			-0.006			0.044
			(0.0298)			(0.0298)
Indian*Level 4			0.069***			0.004
			(0.0245)			(0.0281)
Pakistani*Level 2+3			-0.047			-0.032
			(0.0292)			(0.0301)
Pakistani*Level 4			0.053*			-0.019
			(0.0308)			(0.0332)
Bangladeshi*Level 2+3			-0.062			-0.011
			(0.0557)			(0.0408)
Bangladeshi*Level 4			0.013			0.019
			(0.0505)			(0.0511)
Chinese*Level 2+3			0.077			0.009
			(0.0893)			(0.0816)
Chinese*Level 4			0.050			0.024
			(0.0754)			(0.0602)
Caribbean* Level 2+3			0.020			0.013
			(0.0362)			(0.0360)

	Men			Women		
	a	b	c	a	b	c
Caribbean* Level 4			-0.047 (0.0398)			-0.049 (0.0353)
African*Level 2+3			0.097 (0.0861)			0.137 (0.1123)
African*Level 4			0.002 (0.0842)			-0.083 (0.0748)
Tenure (ref. owner)						
Social rent	-0.101*** (0.0038)	-0.036*** (0.0034)	-0.044*** (0.0034)	-0.102*** (0.0035)	-0.034*** (0.0031)	-0.040*** (0.0031)
Private rent	-0.054*** (0.0051)	-0.019*** (0.0045)	-0.021*** (0.0045)	-0.057*** (0.0048)	-0.017*** (0.0042)	-0.020*** (0.0042)
Number of cars (ref. none)						
1 car	0.032*** (0.0036)	0.011*** (0.0032)	0.015*** (0.0032)	0.043*** (0.0034)	0.019*** (0.0029)	0.022*** (0.0029)
2+ cars	0.059*** (0.0049)	0.027*** (0.0044)	0.029*** (0.0044)	0.077*** (0.0048)	0.040*** (0.0042)	0.043*** (0.0042)
Persons per room (ref. 1)						
Over 1.5 ppp	-0.080*** (0.0081)	-0.041*** (0.0071)	-0.051*** (0.0071)	-0.042*** (0.0077)	-0.012* (0.0068)	-0.020*** (0.0068)
1.5 ppp	-0.034*** (0.0117)	-0.013 (0.0103)	-0.017* (0.0105)	-0.034*** (0.0106)	-0.014 (0.0094)	-0.020** (0.0094)
Over 1 but less than 1.5 ppp	-0.027*** (0.0049)	-0.013*** (0.0044)	-0.017*** (0.0044)	-0.025*** (0.0046)	-0.008** (0.0040)	-0.011*** (0.0040)
Over 0.75 but less than 1 ppp	0.028*** (0.0040)	0.010*** (0.0035)	0.011*** (0.0035)	0.019*** (0.0038)	0.004 (0.0033)	0.005 (0.0033)
0.75 ppp	0.039*** (0.0072)	0.013** (0.0063)	0.016** (0.0063)	0.033*** (0.0068)	0.010* (0.0059)	0.012** (0.0060)

	Men			Women		
	a	b	c	a	b	c
Over 0.5 but less than 0.75 ppp	0.068*** (0.0041)	0.026*** (0.0036)	0.028*** (0.0037)	0.060*** (0.0040)	0.020*** (0.0035)	0.022*** (0.0035)
0.5 ppp	0.089*** (0.0062)	0.031*** (0.0055)	0.034*** (0.0055)	0.092*** (0.0061)	0.033*** (0.0053)	0.035*** (0.0053)
Less than 0.5 ppp	0.112*** (0.0076)	0.041*** (0.0066)	0.043*** (0.0067)	0.113*** (0.0076)	0.035*** (0.0065)	0.038*** (0.0066)
Carstairs quintiles (ref. Q1: less deprivation)						
Carstairs Q2	-0.030*** (0.0042)	-0.020*** (0.0037)	-0.021*** (0.0037)	-0.014*** (0.0041)	-0.002 (0.0035)	-0.001 (0.0036)
Carstairs Q3	-0.044*** (0.0044)	-0.027*** (0.0039)	-0.028*** (0.0039)	-0.029*** (0.0042)	-0.011*** (0.0037)	-0.011*** (0.0037)
Carstairs Q4	-0.065*** (0.0045)	-0.038*** (0.0040)	-0.040*** (0.0040)	-0.038*** (0.0043)	-0.014*** (0.0038)	-0.015*** (0.0038)
Carstairs Q5	-0.067*** (0.0048)	-0.037*** (0.0042)	-0.040*** (0.0042)	-0.052*** (0.0046)	-0.017*** (0.0040)	-0.020*** (0.0040)
Age						
Age in destination	0.004*** (0.0003)	0.006*** (0.0003)	0.005*** (0.0003)	0.003*** (0.0003)	0.004*** (0.0003)	0.003*** (0.0003)
Origin year (ref. 1971)						
1981	-0.021*** (0.0023)	-0.010*** (0.0020)	-0.011*** (0.0020)	-0.025*** (0.0021)	-0.008*** (0.0018)	-0.009*** (0.0018)
1991	-0.083*** (0.0038)	-0.047*** (0.0033)	-0.051*** (0.0033)	-0.078*** (0.0036)	-0.042*** (0.0031)	-0.046*** (0.0031)
Destination year (ref. 2001)						
2011	0.013*** (0.0033)	-0.055*** (0.0031)	-0.047*** (0.0031)	0.034*** (0.0034)	-0.046*** (0.0032)	-0.035*** (0.0032)
Number of census points (ref. 2)						

	Men			Women		
	a	b	c	a	b	c
3 census points	0.006 (0.0097)	-0.017* (0.0090)	-0.014 (0.0090)	0.032*** (0.0100)	-0.003 (0.0093)	0.000 (0.0093)
4 census points	0.043*** (0.0099)	-0.008 (0.0091)	-0.002 (0.0092)	0.055*** (0.0103)	0.005 (0.0095)	0.010 (0.0095)
5 census points	0.045*** (0.0106)	0.001 (0.0098)	0.011 (0.0098)	0.011 (0.0111)	-0.009 (0.0102)	-0.002 (0.0102)
Constant	0.324*** (0.0116)	0.274*** (0.0109)	0.222*** (0.0107)	0.283*** (0.0119)	0.201*** (0.0111)	0.167*** (0.0110)
Adjusted R-squared	0.098	0.253	0.247	0.081	0.251	0.246
N	174,110	174,110	174,110	180,608	180,608	180,608

*** p<0.01 ** p<0.05 * p<0.1

Robust (clustered) standard errors in parentheses

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

Table 8.7: Access to employment and to the service class. Replication of Model 5 from Tables 3.5-3.8 using logistic regression with average marginal effects; in the table: average marginal effects, robust (clustered) standard errors and p-value

	Employment						Service class					
	Men			Women			Men			Women		
	dy/dx	SE	p-value	dy/dx	SE	p-value	dy/dx	SE	p-value	dy/dx	SE	p-value
Ethnic group (ref. white British)												
Indian	-0.006	0.008	0.426	0.000	0.011	0.969	0.080	0.010	0.000	0.056	0.011	0.000
Pakistani	-0.036	0.009	0.000	-0.195	0.014	0.000	0.013	0.013	0.319	0.008	0.014	0.561
Bangladeshi	0.018	0.011	0.102	-0.162	0.021	0.000	0.062	0.025	0.012	0.032	0.023	0.156
Chinese	0.042	0.019	0.024	0.043	0.032	0.181	0.066	0.032	0.040	-0.008	0.026	0.749
Caribbean	-0.033	0.011	0.002	-0.005	0.014	0.714	0.005	0.017	0.750	0.041	0.015	0.005
African	0.005	0.020	0.800	-0.026	0.029	0.374	0.043	0.037	0.248	-0.027	0.030	0.358
Education (ref. Level 1)												
No education	-0.174	0.005	0.000	-0.239	0.006	0.000	-0.132	0.004	0.000	-0.101	0.004	0.000
Other	0.006	0.004	0.146	0.007	0.009	0.413	-0.074	0.006	0.000	-0.031	0.008	0.000
Level 2	0.022	0.003	0.000	0.077	0.004	0.000	0.099	0.004	0.000	0.073	0.004	0.000
Level 3	0.051	0.003	0.000	0.153	0.004	0.000	0.175	0.005	0.000	0.164	0.005	0.000
Level 4+	0.067	0.003	0.000	0.178	0.004	0.000	0.475	0.004	0.000	0.509	0.004	0.000
Parental social class (ref. Semi and unskilled manual - VII)												
Skilled manual (VI)	0.005	0.003	0.096	0.011	0.003	0.002	0.010	0.004	0.023	0.014	0.004	0.001
Lower technician (V)	0.022	0.004	0.000	0.017	0.005	0.001	0.041	0.006	0.000	0.026	0.006	0.000
Petit Bourgeoisie (IV)	0.016	0.003	0.000	0.006	0.004	0.142	0.006	0.005	0.226	0.016	0.005	0.001
Routine non-manual (III)	0.013	0.003	0.000	0.022	0.004	0.000	0.056	0.004	0.000	0.036	0.004	0.000
Lower professional/managerial (II)	0.015	0.003	0.000	0.012	0.004	0.003	0.090	0.005	0.000	0.062	0.004	0.000
Higher professional/managerial (I)	0.010	0.004	0.020	0.002	0.005	0.640	0.116	0.006	0.000	0.065	0.005	0.000
Earners but uncoded	-0.028	0.006	0.000	-0.024	0.007	0.001	0.025	0.009	0.007	0.004	0.009	0.695
No earners in hh	-0.028	0.004	0.000	-0.059	0.006	0.000	0.034	0.007	0.000	0.019	0.007	0.005

	Employment						Service class					
	Men			Women			Men			Women		
	dy/dx	SE	p-value	dy/dx	SE	p-value	dy/dx	SE	p-value	dy/dx	SE	p-value
Tenure (ref. owner)												
Social rent	-0.026	0.002	0.000	-0.033	0.003	0.000	-0.035	0.003	0.000	-0.034	0.003	0.000
Private rent	-0.009	0.003	0.003	-0.010	0.004	0.012	-0.016	0.004	0.000	-0.016	0.004	0.000
Number of cars (ref. none)												
1 car	0.026	0.002	0.000	0.019	0.003	0.000	0.010	0.003	0.002	0.020	0.003	0.000
2+ cars	0.033	0.003	0.000	0.026	0.004	0.000	0.025	0.004	0.000	0.040	0.004	0.000
Persons per room (ref. 1)												
Over 1.5 ppp	-0.027	0.005	0.000	-0.022	0.006	0.001	-0.044	0.008	0.000	-0.012	0.008	0.125
1.5 ppp	-0.011	0.007	0.116	0.001	0.009	0.913	-0.013	0.011	0.232	-0.016	0.011	0.150
Over 1 but less than 1.5 ppp	-0.009	0.003	0.003	-0.014	0.004	0.000	-0.013	0.005	0.005	-0.009	0.004	0.042
Over 0.75 but less than 1 ppp	0.010	0.002	0.000	0.011	0.003	0.000	0.009	0.004	0.010	0.004	0.003	0.266
0.75 ppp	-0.002	0.004	0.617	0.007	0.005	0.208	0.013	0.006	0.037	0.010	0.006	0.106
Over 0.5 but less than 0.75 ppp	0.006	0.003	0.024	0.012	0.003	0.000	0.024	0.004	0.000	0.019	0.004	0.000
0.5 ppp	0.007	0.004	0.071	0.008	0.005	0.088	0.029	0.005	0.000	0.030	0.005	0.000
Less than 0.5 ppp	-0.001	0.005	0.775	-0.005	0.006	0.455	0.039	0.007	0.000	0.032	0.006	0.000
Carstairs quintiles (ref. Q1: less deprivation)												
Carstairs Q2	-0.003	0.003	0.244	0.003	0.003	0.304	-0.018	0.004	0.000	-0.001	0.003	0.854
Carstairs Q3	-0.006	0.003	0.020	0.001	0.003	0.794	-0.025	0.004	0.000	-0.010	0.004	0.007
Carstairs Q4	-0.019	0.003	0.000	-0.002	0.004	0.511	-0.036	0.004	0.000	-0.013	0.004	0.000
Carstairs Q5	-0.035	0.003	0.000	-0.016	0.004	0.000	-0.036	0.004	0.000	-0.017	0.004	0.000
Age												
Age in destination	0.001	0.000	0.000	0.002	0.000	0.000	0.006	0.000	0.000	0.004	0.000	0.000
Origin year (ref. 1971)												
1981	0.006	0.002	0.000	-0.010	0.002	0.000	-0.009	0.002	0.000	-0.008	0.002	0.000
1991	-0.001	0.002	0.729	0.001	0.003	0.673	-0.044	0.003	0.000	-0.040	0.003	0.000
Destination year (ref. 2001)												
2011	-0.011	0.002	0.000	0.008	0.003	0.004	-0.056	0.003	0.000	-0.047	0.003	0.000

	Employment						Service class					
	Men			Women			Men			Women		
	dy/dx	SE	p-value	dy/dx	SE	p-value	dy/dx	SE	p-value	dy/dx	SE	p-value
Number of census points (ref. 2)												
3 census points	0.029	0.007	0.000	0.060	0.009	0.000	-0.012	0.010	0.249	0.005	0.011	0.661
4 census points	0.061	0.007	0.000	0.072	0.009	0.000	-0.001	0.010	0.892	0.012	0.011	0.264
5 census points	0.097	0.008	0.000	0.089	0.010	0.000	0.007	0.011	0.535	-0.002	0.011	0.845
Pseudo R-squared	0.120			0.109			0.202			0.199		
N	180540			188937			174110			180608		

Note: the coefficients are very similar with respect to those observed in the equivalent models presented in the chapter: the substantive results remain therefore the same. I reach the same conclusion for the models on social mobility (models available upon request).

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

8.2 Annex to Chapter 4

Table 8.8: Local Authorities within housing market areas

London	Reading	Luton & Milton Keynes	Birmingham
Barking and Dagenham	Hadfield	Aylesbury Vale	Birmingham
Barnet	Hertsmere	Bedford	Bromsgrove
Basildon	Hillingdon	Luton	Cannock Chase
Bexley	Hounslow	Mid Bedfordshire	Dudley
Brent	Islington	Milton Keynes	Lichfield
Brentwood	Kensington and Chelsea	South Bedfordshire	North Warwickshire
Bromley	Kingston upon Thames	South Bucks	Redditch
Broxbourne	Lambeth	Surrey Heath	Sandwell
Camden	Lewisham	West Berkshire	Solihull
Castle Point	Maidstone	Windsor and Maidenhead	South Staffordshire
Chiltern	Medway	Wokingham	Stratford-on-Avon
City of London	Merton	Wycombe	Tamworth
Croydon	Mole Valley		Walsall
Dacorum	Newham		Wolverhampton
Dartford	North Hertfordshire		
Ealing	Redbridge		
East Hertfordshire	Reigate and Banstead		
Elmbridge	Richmond upon Thames		
Enfield	Rochford		
Epping Forest	Runnymede		
Epsom and Ewell	Rushmoor		
Gravesham	Sevenoaks		
Greenwich	Southend-on-Sea		
Guildford	Southwark		
Hackney	Spelthorne		
Hammersmith and Fulham	St Albans		
Haringey	Stevenage		

Leicester	Manchester	Leeds	Bradford
Blaby	Bolton	Barnsley	Bradford
Charnwood	Bury	Harrogate	Calderdale
Harborough	High Peak	Kirkstiles	Craven
Hinckley and Bosworth	Macclesfield	Leeds	
Leicester	Manchester	Wakefield	
Melton	Oldham		
North West Leicestershire	Rochdale		
Oadby and Wigston	Rossendale		
	Salford		
	Stockport		
	Tameside		
	Trafford		

Table 8.9: Number of LSOAs by percentage of ethnic minorities (2001 and 2011)

		2001								
2011		75% and more	50.01% - 75%	25.01% - 50%	10.01% - 25%	5.01% - 10%	Up to 5%	Total		
Indian										
	75% +	16	5	0	0	0	0	21		
	50.01% - 75%	1	34	20	0	0	0	55		
	25.01% - 50%	0	24	268	118	5	2	417		
	10.01% - 25%	0	0	71	615	235	66	987		
	5.01% - 10%	0	0	0	124	544	694	1362		
	Up to 5%	0	0	0	7	230	28593	28830		
	Total	17	63	359	864	1014	29355	31672		
Pakistani										
	75% +	9	12	0	0	0	0	21		
	50.01% - 75%	2	62	49	3	0	0	116		
	25.01% - 50%	0	11	193	140	12	8	364		
	10.01% - 25%	0	0	7	380	290	160	837		
	5.01% - 10%	0	0	0	17	276	635	928		
	Up to 5%	0	0	0	0	54	29352	29406		
	Total	11	85	249	540	632	30155	31672		
Bangladeshi										
	75% +	1	1	0	0	0	0	2		
	50.01% - 75%	2	14	5	0	0	0	21		
	25.01% - 50%	0	9	58	26	1	2	96		
	10.01% - 25%	0	0	6	147	77	55	285		
	5.01% - 10%	0	0	1	14	122	231	368		
	Up to 5%	0	0	0	0	39	30861	30900		
	Total	3	24	70	187	239	31149	31672		
Chinese										
	10.01% - 25%				3	15	24	42		

		2001						
2011	75% and more	50.01% - 75%	25.01% - 50%	10.01% - 25%	5.01% - 10%	Up to 5%	Total	
5.01% - 10%				1	17	115	133	
Up to 5%				1	28	31468	31497	
Total				5	60	31607	31672	
Caribbean								
25.01% - 50%			1	2	0	0	3	
10.01% - 25%			11	388	44	2	445	
5.01% - 10%			0	299	529	141	969	
Up to 5%			0	9	431	29815	30255	
Total			12	698	1004	29958	31672	
African								
25.01% - 50%			31	45	8	4	88	
10.01% - 25%			14	449	269	247	979	
5.01% - 10%			0	61	388	899	1348	
Up to 5%			0	2	151	29104	29257	
Total			45	557	816	30254	31672	

Source: Author's own calculations based on aggregated Census data.

8.3 Annex to Chapter 5

Table 8.10: Access to employment: full model. Pooled ethnic minorities; men.

	a	b	c	d	e	f	g
EM quintile (ref. Q1: lowest concentration)							
Q2	0.013 (0.0188)	0.021 (0.0188)	0.026 (0.0188)	0.027 (0.0179)	0.000 (0.0239)	0.022 (0.0176)	-0.000 (0.0238)
Q3	-0.010 (0.0185)	0.005 (0.0190)	0.010 (0.0193)	0.019 (0.0183)	0.011 (0.0237)	0.015 (0.0180)	0.012 (0.0236)
Q4	-0.017 (0.0184)	0.004 (0.0197)	0.008 (0.0199)	0.018 (0.0191)	0.023 (0.0241)	0.011 (0.0188)	0.017 (0.0241)
Q5	-0.033* (0.0188)	-0.008 (0.0210)	-0.002 (0.0211)	0.008 (0.0201)	0.018 (0.0254)	0.003 (0.0198)	0.011 (0.0253)
Ethnic group (ref. Indian)							
Pakistani	-0.101*** (0.0149)	-0.096*** (0.0151)	-0.081*** (0.0153)	-0.062*** (0.0147)	-0.090** (0.0388)	-0.071*** (0.0144)	-0.092** (0.0378)
Bangladeshi	-0.057*** (0.0219)	-0.051** (0.0221)	-0.009 (0.0232)	0.003 (0.0228)	-0.025 (0.0483)	-0.001 (0.0225)	-0.014 (0.0485)
Caribbean	-0.088*** (0.0166)	-0.086*** (0.0167)	-0.065*** (0.0178)	-0.032* (0.0176)	-0.006 (0.0370)	-0.005 (0.0183)	0.019 (0.0372)
African	-0.005 (0.0281)	-0.006 (0.0282)	0.020 (0.0300)	0.018 (0.0287)	-0.069 (0.0997)	0.039 (0.0285)	-0.067 (0.0988)
Ethnic group * EM quintile							
Pakistani * Q2					0.071 (0.0463)		0.057 (0.0453)
Pakistani * Q3					0.042 (0.0479)		0.028 (0.0469)
Pakistani * Q4					0.018		0.010

	a	b	c	d	e	f	g
Pakistani * Q5					(0.0464)		(0.0455)
					0.016		0.014
Bangladeshi * Q2					(0.0470)		(0.0459)
					0.100		0.085
Bangladeshi * Q3					(0.0633)		(0.0633)
					0.059		0.037
Bangladeshi * Q4					(0.0621)		(0.0631)
					0.004		-0.015
Bangladeshi * Q5					(0.0629)		(0.0625)
					-0.011		-0.026
Caribbean * Q2					(0.0704)		(0.0693)
					-0.007		-0.008
Caribbean * Q3					(0.0464)		(0.0463)
					-0.022		-0.028
Caribbean * Q4					(0.0463)		(0.0462)
					-0.033		-0.030
Caribbean * Q5					(0.0487)		(0.0485)
					-0.066		-0.052
African * Q2					(0.0493)		(0.0492)
					0.133		0.134
African * Q3					(0.1106)		(0.1089)
					0.072		0.092
African * Q4					(0.1116)		(0.1107)
					0.075		0.111
African * Q5					(0.1128)		(0.1116)
					0.108		0.131
					(0.1088)		(0.1081)
Carstairs quintile (ref. Q1: least deprived)							
Q2		-0.022	-0.013	-0.011	-0.014	-0.004	-0.008

	a	b	c	d	e	f	g
Q3		(0.0282)	(0.0281)	(0.0274)	(0.0277)	(0.0275)	(0.0278)
		-0.027	-0.010	-0.009	-0.013	-0.004	-0.008
Q4		(0.0254)	(0.0253)	(0.0248)	(0.0248)	(0.0247)	(0.0246)
		-0.041	-0.025	-0.024	-0.029	-0.019	-0.025
Q5		(0.0246)	(0.0246)	(0.0239)	(0.0239)	(0.0239)	(0.0238)
		-0.059**	-0.031	-0.026	-0.033	-0.023	-0.029
		(0.0246)	(0.0249)	(0.0242)	(0.0242)	(0.0242)	(0.0241)
Tenure (ref. owner)							
Social rent			-0.046***	-0.041**	-0.036**	-0.038**	-0.034**
			(0.0167)	(0.0162)	(0.0164)	(0.0159)	(0.0161)
Private rent			0.006	0.009	0.013	0.011	0.015
			(0.0176)	(0.0171)	(0.0172)	(0.0171)	(0.0173)
Number of cars (ref. none)							
1 car			0.029**	0.021*	0.022*	0.020*	0.020*
			(0.0117)	(0.0113)	(0.0113)	(0.0110)	(0.0111)
2+ cars			0.030*	0.028	0.029*	0.026	0.028
			(0.0179)	(0.0175)	(0.0176)	(0.0173)	(0.0174)
Persons per room (ref. 1 ppp)							
> 1.5 persons			-0.017	-0.004	-0.004	-0.013	-0.012
			(0.0165)	(0.0161)	(0.0162)	(0.0159)	(0.0160)
1.5 persons			0.004	0.011	0.012	0.003	0.003
			(0.0224)	(0.0216)	(0.0216)	(0.0215)	(0.0214)
>1 & <1.5 persons			-0.002	0.002	0.001	-0.001	-0.001
			(0.0147)	(0.0142)	(0.0143)	(0.0141)	(0.0141)
>= 0.75 & <1 person			0.012	0.008	0.009	0.007	0.007
			(0.0154)	(0.0149)	(0.0149)	(0.0146)	(0.0146)
<0.75 person			0.033**	0.023	0.025	0.020	0.021
			(0.0164)	(0.0159)	(0.0160)	(0.0157)	(0.0158)
Parental social class (ref. Manual (V+VI+VII))							

	a	b	c	d	e	f	g
No earners/No code			-0.037** (0.0174)	-0.031* (0.0169)	-0.032* (0.0169)	-0.033** (0.0167)	-0.034** (0.0167)
Routine non-manual (III)			0.009 (0.0172)	-0.007 (0.0165)	-0.006 (0.0167)	-0.001 (0.0161)	0.000 (0.0162)
Petit Bourgeoisie (IV)			0.008 (0.0175)	0.001 (0.0171)	0.001 (0.0173)	0.003 (0.0170)	0.003 (0.0171)
Professional/Managerial (I+II)			0.023 (0.0150)	-0.015 (0.0147)	-0.014 (0.0147)	-0.005 (0.0145)	-0.005 (0.0145)
Education (ref. Level 1 or less)							
Level 2+3				0.102*** (0.0167)	0.103*** (0.0167)	0.101*** (0.0164)	0.102*** (0.0164)
Level 4				0.181*** (0.0144)	0.182*** (0.0145)	0.179*** (0.0142)	0.180*** (0.0142)
Partners' ethnicity (ref. non co-ethnic)							
Single						-0.094*** (0.0168)	-0.094*** (0.0167)
Co-ethnic						0.033** (0.0160)	0.033** (0.0160)
Age							
Age in destination	0.004*** (0.0012)	0.004*** (0.0012)	0.004*** (0.0011)	0.005*** (0.0011)	0.006*** (0.0011)	0.001 (0.0012)	0.001 (0.0012)
Origin year (ref. 1971)							
1981	0.031*** (0.0112)	0.033*** (0.0112)	0.023* (0.0125)	0.024** (0.0121)	0.025** (0.0122)	0.012 (0.0118)	0.013 (0.0118)
1991	0.039** (0.0156)	0.040** (0.0157)	0.018 (0.0178)	0.029* (0.0173)	0.030* (0.0173)	0.017 (0.0169)	0.018 (0.0169)
Destination year (ref. 2001)							
2011	0.053*** (0.0139)	0.053*** (0.0139)	0.051*** (0.0139)	0.023 (0.0140)	0.022 (0.0140)	0.035** (0.0138)	0.034** (0.0139)

	a	b	c	d	e	f	g
Number of census points (ref. 2)							
3 census points	0.052** (0.0242)	0.051** (0.0242)	0.042* (0.0241)	0.030 (0.0234)	0.029 (0.0235)	0.034 (0.0233)	0.033 (0.0233)
4 census points	0.092*** (0.0248)	0.091*** (0.0248)	0.079*** (0.0248)	0.056** (0.0243)	0.055** (0.0244)	0.057** (0.0242)	0.056** (0.0242)
5 census points	0.132*** (0.0290)	0.133*** (0.0291)	0.120*** (0.0290)	0.093*** (0.0283)	0.091*** (0.0284)	0.089*** (0.0280)	0.087*** (0.0281)
Constant	0.750*** (0.0320)	0.779*** (0.0371)	0.753*** (0.0405)	0.669*** (0.0402)	0.676*** (0.0402)	0.698*** (0.0415)	0.703*** (0.0414)
Adjusted R-squared	0.036	0.037	0.043	0.079	0.078	0.098	0.098
N	6,850	6,850	6,850	6,850	6,850	6,850	6,850

Robust (clustered) standard errors in parentheses

*** p<0.01 ** p<0.05 * p<0.1

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

Table 8.11: Access to employment: full model. Pooled ethnic minorities; women.

	a	b	c	d	e	f	g
EM quintile (ref. Q1: lowest concentration)							
Q2	-0.046** (0.0213)	-0.040* (0.0217)	-0.032 (0.0214)	-0.031 (0.0205)	-0.008 (0.0337)	-0.031 (0.0204)	-0.008 (0.0338)
Q3	-0.055** (0.0212)	-0.042* (0.0225)	-0.029 (0.0224)	-0.021 (0.0212)	0.014 (0.0313)	-0.020 (0.0211)	0.015 (0.0315)
Q4	-0.062*** (0.0211)	-0.044* (0.0232)	-0.033 (0.0233)	-0.027 (0.0219)	0.019 (0.0320)	-0.025 (0.0218)	0.021 (0.0322)
Q5	-0.076*** (0.0214)	-0.052** (0.0244)	-0.035 (0.0245)	-0.034 (0.0228)	0.042 (0.0333)	-0.031 (0.0228)	0.045 (0.0335)
Ethnic group (ref. Indian)							
Pakistani	-0.295*** (0.0185)	-0.290*** (0.0188)	-0.267*** (0.0192)	-0.227*** (0.0185)	-0.137*** (0.0409)	-0.221*** (0.0185)	-0.131*** (0.0406)
Bangladeshi	-0.319*** (0.0273)	-0.311*** (0.0276)	-0.259*** (0.0295)	-0.224*** (0.0273)	-0.175*** (0.0573)	-0.216*** (0.0273)	-0.170*** (0.0570)
Caribbean	-0.029 (0.0185)	-0.028 (0.0185)	-0.020 (0.0196)	-0.007 (0.0191)	0.023 (0.0422)	-0.023 (0.0194)	0.010 (0.0427)
African	-0.006 (0.0300)	-0.011 (0.0300)	-0.005 (0.0314)	-0.052* (0.0310)	0.003 (0.0766)	-0.061** (0.0308)	-0.008 (0.0760)
Ethnic group * EM quintile							
Pakistani * Q2					-0.046 (0.0524)		-0.046 (0.0521)
Pakistani * Q3					-0.101* (0.0527)		-0.102* (0.0524)
Pakistani * Q4					-0.092* (0.0507)		-0.094* (0.0504)
Pakistani * Q5					-0.148*** (0.0516)		-0.147*** (0.0514)

	a	b	c	d	e	f	g
Bangladeshi * Q2					0.023 (0.0804)		0.025 (0.0797)
Bangladeshi * Q3					-0.006 (0.0736)		-0.004 (0.0731)
Bangladeshi * Q4					-0.056 (0.0739)		-0.057 (0.0734)
Bangladeshi * Q5					-0.167** (0.0720)		-0.163** (0.0718)
Caribbean * Q2					-0.029 (0.0520)		-0.031 (0.0523)
Caribbean * Q3					-0.003 (0.0523)		-0.006 (0.0526)
Caribbean * Q4					-0.024 (0.0514)		-0.027 (0.0518)
Caribbean * Q5					-0.059 (0.0525)		-0.063 (0.0527)
African * Q2					-0.029 (0.0900)		-0.024 (0.0893)
African * Q3					-0.018 (0.0885)		-0.017 (0.0879)
African * Q4					-0.076 (0.0980)		-0.074 (0.0970)
African * Q5					-0.107 (0.0937)		-0.105 (0.0930)
Carstairs quintile (ref. Q1: least deprived)							
Q2		0.017 (0.0362)	0.030 (0.0354)	0.038 (0.0347)	0.030 (0.0343)	0.041 (0.0348)	0.033 (0.0345)
Q3		0.013 (0.0354)	0.027 (0.0347)	0.037 (0.0346)	0.027 (0.0345)	0.039 (0.0347)	0.028 (0.0346)

	a	b	c	d	e	f	g
Q4		-0.006 (0.0338)	0.012 (0.0331)	0.027 (0.0329)	0.012 (0.0328)	0.031 (0.0330)	0.016 (0.0329)
Q5		-0.028 (0.0340)	0.001 (0.0334)	0.026 (0.0331)	0.012 (0.0330)	0.029 (0.0332)	0.016 (0.0331)
Tenure (ref. owner)							
Social rent			-0.013 (0.0179)	-0.009 (0.0171)	-0.004 (0.0173)	-0.010 (0.0172)	-0.005 (0.0173)
Private rent			0.016 (0.0203)	0.011 (0.0195)	0.015 (0.0195)	0.011 (0.0195)	0.015 (0.0195)
Number of cars (ref. none)							
1 car			0.034** (0.0140)	0.014 (0.0134)	0.013 (0.0134)	0.013 (0.0133)	0.012 (0.0134)
2+ cars			0.047** (0.0224)	0.028 (0.0212)	0.031 (0.0212)	0.027 (0.0212)	0.031 (0.0212)
Persons per room (ref. 1 ppp)							
> 1.5 persons			-0.056*** (0.0193)	-0.030 (0.0182)	-0.027 (0.0182)	-0.028 (0.0181)	-0.026 (0.0182)
1.5 persons			0.023 (0.0254)	0.038 (0.0244)	0.038 (0.0244)	0.038 (0.0243)	0.038 (0.0243)
>1 & <1.5 persons			-0.021 (0.0172)	-0.004 (0.0161)	-0.005 (0.0161)	-0.004 (0.0161)	-0.006 (0.0160)
>= 0.75 & <1 person			0.032* (0.0183)	0.034* (0.0175)	0.034* (0.0175)	0.033* (0.0174)	0.033* (0.0174)
<0.75 person			-0.007 (0.0204)	-0.017 (0.0199)	-0.016 (0.0200)	-0.020 (0.0199)	-0.018 (0.0199)
Parental social class (ref. Manual (V+VI+VII))							
No earners/No code			-0.034* (0.0202)	-0.022 (0.0191)	-0.022 (0.0192)	-0.021 (0.0191)	-0.021 (0.0192)
Routine non-manual (III)			0.042** (0.015)	0.015 (0.016)	0.016 (0.016)	0.013 (0.016)	0.014 (0.016)

	a	b	c	d	e	f	g
Petit Bourgeoisie (IV)			(0.0189) 0.024	(0.0181) 0.003	(0.0181) 0.002	(0.0181) 0.004	(0.0182) 0.003
Professional/Managerial (I+II)			(0.0223) 0.040**	(0.0211) -0.003	(0.0211) -0.001	(0.0210) -0.005	(0.0210) -0.003
Education (ref. Level 1 or less)			(0.0189)	(0.0184)	(0.0183)	(0.0184)	(0.0183)
Level 2+3			0.183***	0.183***	0.183***	0.183***	0.182***
Level 4			(0.0179)	(0.0179)	(0.0180)	(0.0179)	(0.0179)
			0.308***	0.306***	0.306***	0.303***	0.301***
			(0.0176)	(0.0176)	(0.0177)	(0.0176)	(0.0177)
Partners' ethnicity (ref. non co-ethnic)							
Single						-0.008	-0.010
						(0.0201)	(0.0202)
Co-ethnic						-0.057***	-0.058***
						(0.0209)	(0.0209)
Age							
Age in destination			-0.003* (0.0014)	-0.002* (0.0014)	0.001 (0.0014)	0.001 (0.0014)	0.002 (0.0014)
Origin year (ref. 1971)							
1981			-0.003 (0.0125)	-0.019 (0.0140)	-0.013 (0.0133)	-0.008 (0.0134)	-0.007 (0.0134)
1991			0.002 (0.0175)	-0.027 (0.0201)	-0.013 (0.0190)	-0.005 (0.0191)	-0.001 (0.0190)
Destination year (ref. 2001)							
2011			0.079*** (0.0158)	0.077*** (0.0158)	0.021 (0.0158)	0.021 (0.0158)	0.017 (0.0158)
Number of census points (ref. 2)							
3 census points			0.054* (0.0278)	0.048* (0.0278)	0.023 (0.0264)	0.027 (0.0264)	0.025 (0.0264)

	a	b	c	d	e	f	g
4 census points	0.056* (0.0300)	0.056* (0.0301)	0.047 (0.0299)	0.011 (0.0285)	0.016 (0.0284)	0.012 (0.0285)	0.017 (0.0284)
5 census points	0.109*** (0.0356)	0.111*** (0.0357)	0.103*** (0.0355)	0.070*** (0.0341)	0.074*** (0.0340)	0.070*** (0.0341)	0.074*** (0.0340)
Constant	0.741*** (0.0384)	0.739*** (0.0464)	0.705*** (0.0488)	0.556*** (0.0485)	0.516*** (0.0522)	0.584*** (0.0513)	0.545*** (0.0549)
Adjusted R-squared	0.095	0.095	0.102	0.166	0.167	0.168	0.170
N	7,437	7,437	7,437	7,437	7,437	7,437	7,437

Robust (clustered) standard errors in parentheses

*** p<0.01 ** p<0.05 * p<0.1

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

Table 8.12: Access to the service class: full model. Pooled ethnic minorities; men.

	a	b	c	d	e	f	g
EM quintile (ref. Q1: lowest concentration)							
Q2	-0.040 (0.0268)	-0.010 (0.0269)	0.008 (0.0261)	0.018 (0.0224)	0.062* (0.0347)	0.019 (0.0225)	0.064* (0.0347)
Q3	-0.083*** (0.0269)	-0.031 (0.0279)	-0.008 (0.0273)	0.022 (0.0232)	0.036 (0.0345)	0.023 (0.0232)	0.038 (0.0346)
Q4	-0.100*** (0.0267)	-0.028 (0.0286)	0.002 (0.0283)	0.035 (0.0239)	0.079** (0.0351)	0.037 (0.0240)	0.082** (0.0351)
Q5	-0.134*** (0.0274)	-0.047 (0.0305)	-0.014 (0.0302)	0.023 (0.0255)	0.089** (0.0363)	0.026 (0.0254)	0.094*** (0.0363)
Ethnic group (ref. Indian)							
Pakistani	-0.174*** (0.0206)	-0.155*** (0.0208)	-0.110*** (0.0209)	-0.060*** (0.0172)	0.011 (0.0424)	-0.060*** (0.0172)	0.015 (0.0423)
Bangladeshi	-0.153*** (0.0306)	-0.131*** (0.0307)	-0.057* (0.0324)	-0.022 (0.0272)	0.053 (0.0733)	-0.023 (0.0273)	0.057 (0.0728)
Caribbean	-0.193*** (0.0235)	-0.184*** (0.0234)	-0.173*** (0.0244)	-0.060*** (0.0217)	-0.045 (0.0519)	-0.068*** (0.0224)	-0.054 (0.0523)
African	-0.045 (0.0468)	-0.046 (0.0464)	-0.047 (0.0459)	-0.032 (0.0428)	0.271** (0.1197)	-0.037 (0.0432)	0.264** (0.1209)
Ethnic group * EM quintile							
Pakistani * Q2					-0.090* (0.0538)		-0.096* (0.0538)
Pakistani * Q3					-0.067 (0.0519)		-0.070 (0.0520)
Pakistani * Q4					-0.046 (0.0513)		-0.051 (0.0513)
Pakistani * Q5					-0.116** (0.0520)		-0.122** (0.0520)

	a	b	c	d	e	f	g
Bangladeshi * Q2					-0.086 (0.0864)		-0.089 (0.0860)
Bangladeshi * Q3					0.006 (0.0892)		-0.000 (0.0890)
Bangladeshi * Q4					-0.066 (0.0865)		-0.071 (0.0862)
Bangladeshi * Q5					-0.194** (0.0857)		-0.203** (0.0853)
Caribbean * Q2					-0.010 (0.0597)		-0.007 (0.0597)
Caribbean * Q3					0.068 (0.0624)		0.066 (0.0623)
Caribbean * Q4					-0.068 (0.0605)		-0.068 (0.0605)
Caribbean * Q5					-0.054 (0.0655)		-0.055 (0.0652)
African * Q2					-0.375*** (0.1386)		-0.382*** (0.1393)
African * Q3					-0.285** (0.1408)		-0.278* (0.1421)
African * Q4					-0.397*** (0.1441)		-0.394*** (0.1458)
African * Q5					-0.325** (0.1387)		-0.323** (0.1398)
Carstairs quintile (ref. Q1: least deprived)							
Q2		-0.065 (0.0444)	-0.036 (0.0441)	-0.030 (0.0415)	-0.033 (0.0412)	-0.026 (0.0416)	-0.029 (0.0413)
Q3		-0.152*** (0.0396)	-0.100** (0.0391)	-0.094** (0.0367)	-0.096*** (0.0365)	-0.093** (0.0368)	-0.095*** (0.0365)

	a	b	c	d	e	f	g
Q4		-0.144*** (0.0384)	-0.090** (0.0378)	-0.080** (0.0356)	-0.079** (0.0355)	-0.077** (0.0357)	-0.077** (0.0355)
Q5		-0.220*** (0.0379)	-0.133*** (0.0382)	-0.115*** (0.0364)	-0.119*** (0.0363)	-0.112*** (0.0365)	-0.116*** (0.0363)
Tenure (ref. owner)							
Social rent		-0.015 (0.0215)		0.000 (0.0182)	0.007 (0.0182)	0.001 (0.0182)	0.007 (0.0182)
Private rent		0.020 (0.0254)		0.026 (0.0213)	0.033 (0.0213)	0.026 (0.0213)	0.033 (0.0213)
Number of cars (ref. none)							
1 car		0.048*** (0.0162)		0.030** (0.0135)	0.030** (0.0135)	0.029** (0.0135)	0.030** (0.0135)
2+ cars		0.067** (0.0265)		0.060*** (0.0221)	0.061*** (0.0220)	0.060*** (0.0221)	0.061*** (0.0220)
Persons per room (ref. 1 ppp)							
> 1.5 persons		-0.073*** (0.0225)		-0.033* (0.0190)	-0.033* (0.0190)	-0.033* (0.0190)	-0.033* (0.0190)
1.5 persons		-0.058* (0.0325)		-0.030 (0.0262)	-0.024 (0.0262)	-0.030 (0.0262)	-0.025 (0.0262)
>1 & <1.5 persons		-0.039* (0.0202)		-0.026 (0.0170)	-0.026 (0.0170)	-0.026 (0.0170)	-0.026 (0.0170)
>= 0.75 & <1 person		0.023 (0.0227)		0.016 (0.0191)	0.015 (0.0191)	0.016 (0.0191)	0.014 (0.0191)
<0.75 person		0.048** (0.0241)		0.021 (0.0206)	0.022 (0.0205)	0.020 (0.0205)	0.022 (0.0205)
Parental social class (ref. Manual (V+VI+VII))							
No earners/No code		-0.019 (0.0226)		-0.000 (0.0185)	-0.002 (0.0184)	-0.000 (0.0184)	-0.002 (0.0183)
Routine non-manual (III)		0.074*** (0.0241)		0.025 (0.0206)	0.029 (0.0205)	0.024 (0.0205)	0.028 (0.0205)

	a	b	c	d	e	f	g
Petit Bourgeoisie (IV)			(0.0242)	(0.0214)	(0.0214)	(0.0214)	(0.0214)
			0.039	0.020	0.025	0.021	0.026
Professional/Managerial (I+II)			(0.0257)	(0.0218)	(0.0218)	(0.0218)	(0.0218)
			0.182***	0.054***	0.060***	0.054***	0.059***
Education (ref. Level 1 or less)			(0.0229)	(0.0205)	(0.0204)	(0.0205)	(0.0204)
Level 2+3				0.151***	0.149***	0.150***	0.147***
				(0.0173)	(0.0172)	(0.0172)	(0.0172)
Level 4				0.550***	0.548***	0.547***	0.545***
				(0.0162)	(0.0162)	(0.0162)	(0.0162)
Partners' ethnicity (ref. non co-ethnic)							
Single						-0.060***	-0.061***
						(0.0230)	(0.0230)
Co-ethnic						-0.050**	-0.054**
						(0.0235)	(0.0234)
Age							
Age in destination	0.002	0.002	0.003*	0.006***	0.006***	0.005***	0.005***
	(0.0015)	(0.0015)	(0.0015)	(0.0013)	(0.0012)	(0.0014)	(0.0014)
Origin year (ref. 1971)							
1981	0.037**	0.042***	0.007	0.012	0.013	0.010	0.011
	(0.0152)	(0.0153)	(0.0169)	(0.0142)	(0.0142)	(0.0141)	(0.0141)
1991	0.023	0.022	-0.047**	-0.012	-0.009	-0.014	-0.011
	(0.0203)	(0.0204)	(0.0231)	(0.0191)	(0.0192)	(0.0190)	(0.0191)
Destination year (ref. 2001)							
2011	0.053***	0.052***	0.045***	-0.046***	-0.048***	-0.045***	-0.046***
	(0.0177)	(0.0177)	(0.0174)	(0.0158)	(0.0158)	(0.0159)	(0.0159)
Number of census points (ref. 2)							
3 census points	0.039	0.038	0.018	-0.006	-0.009	-0.007	-0.011
	(0.0285)	(0.0285)	(0.0280)	(0.0253)	(0.0255)	(0.0253)	(0.0255)

	a	b	c	d	e	f	g
4 census points	0.104*** (0.0306)	0.099*** (0.0305)	0.073** (0.0300)	0.014 (0.0266)	0.011 (0.0267)	0.012 (0.0267)	0.008 (0.0268)
5 census points	0.132*** (0.0386)	0.132*** (0.0384)	0.112*** (0.0378)	0.037 (0.0328)	0.029 (0.0328)	0.032 (0.0329)	0.024 (0.0329)
Constant	0.486*** (0.0419)	0.607*** (0.0510)	0.513*** (0.0544)	0.274*** (0.0504)	0.241*** (0.0544)	0.323*** (0.0545)	0.292*** (0.0584)
Adjusted R-squared	0.047	0.056	0.083	0.291	0.294	0.292	0.295
N	6,444	6,444	6,444	6,444	6,444	6,444	6,444

Robust (clustered) standard errors in parentheses

*** p<0.01 ** p<0.05 * p<0.1

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

Table 8.13: Access to the service class: full model. Pooled ethnic minorities; women.

	a	b	c	d	e	f	g
EM quintile (ref. Q1: lowest concentration)							
Q2	-0.061** (0.0259)	-0.038 (0.0263)	-0.020 (0.0259)	-0.013 (0.0220)	0.033 (0.0356)	-0.013 (0.0220)	0.032 (0.0356)
Q3	-0.110*** (0.0250)	-0.071*** (0.0266)	-0.044* (0.0264)	-0.027 (0.0225)	0.002 (0.0347)	-0.025 (0.0225)	0.004 (0.0346)
Q4	-0.123*** (0.0254)	-0.070** (0.0279)	-0.043 (0.0280)	-0.038 (0.0244)	-0.062* (0.0359)	-0.036 (0.0245)	-0.059 (0.0360)
Q5	-0.148*** (0.0255)	-0.081*** (0.0293)	-0.044 (0.0293)	-0.042* (0.0248)	-0.040 (0.0359)	-0.040 (0.0249)	-0.039 (0.0359)
Ethnic group (ref. Indian)							
Pakistani	-0.159*** (0.0207)	-0.144*** (0.0210)	-0.101*** (0.0213)	-0.050*** (0.0185)	-0.035 (0.0428)	-0.046** (0.0186)	-0.031 (0.0426)
Bangladeshi	-0.180*** (0.0301)	-0.159*** (0.0306)	-0.082** (0.0326)	-0.036 (0.0268)	0.002 (0.0667)	-0.033 (0.0269)	0.004 (0.0666)
Caribbean	-0.077*** (0.0227)	-0.073*** (0.0227)	-0.075*** (0.0236)	-0.044** (0.0203)	-0.019 (0.0472)	-0.048** (0.0207)	-0.023 (0.0473)
African	0.010 (0.0409)	0.000 (0.0406)	-0.019 (0.0418)	-0.110*** (0.0392)	-0.203*** (0.0739)	-0.113*** (0.0396)	-0.206*** (0.0738)
Ethnic group * EM quintile							
Pakistani * Q2					-0.067 (0.0546)		-0.066 (0.0544)
Pakistani * Q3					-0.060 (0.0520)		-0.062 (0.0517)
Pakistani * Q4					0.064 (0.0556)		0.060 (0.0553)
Pakistani * Q5					-0.023 (0.0525)		-0.023 (0.0524)

	a	b	c	d	e	f	g
Bangladeshi * Q2					-0.088 (0.0818)		-0.084 (0.0818)
Bangladeshi * Q3					-0.106 (0.0795)		-0.106 (0.0794)
Bangladeshi * Q4					0.014 (0.0791)		0.012 (0.0790)
Bangladeshi * Q5					0.000 (0.0819)		0.001 (0.0817)
Caribbean * Q2					-0.083 (0.0565)		-0.082 (0.0566)
Caribbean * Q3					-0.039 (0.0576)		-0.036 (0.0576)
Caribbean * Q4					0.009 (0.0583)		0.009 (0.0583)
Caribbean * Q5					-0.017 (0.0607)		-0.015 (0.0609)
African * Q2					0.008 (0.1137)		0.006 (0.1158)
African * Q3					0.051 (0.0965)		0.045 (0.0960)
African * Q4					0.157 (0.1000)		0.158 (0.1000)
African * Q5					0.177* (0.0983)		0.179* (0.0982)
Carstairs quintile (ref. Q1: least deprived)							
Q2		-0.077* (0.0439)	-0.045 (0.0434)	-0.033 (0.0390)	-0.032 (0.0386)	-0.030 (0.0389)	-0.030 (0.0385)
Q3		-0.066 (0.0417)	-0.028 (0.0418)	-0.012 (0.0376)	-0.008 (0.0374)	-0.011 (0.0375)	-0.007 (0.0374)

	a	b	c	d	e	f	g
Q4		-0.087** (0.0403)	-0.039 (0.0403)	-0.010 (0.0356)	-0.005 (0.0353)	-0.008 (0.0355)	-0.003 (0.0353)
Q5		-0.152*** (0.0403)	-0.083** (0.0404)	-0.033 (0.0359)	-0.028 (0.0355)	-0.031 (0.0358)	-0.026 (0.0355)
Tenure (ref. owner)							
Social rent		0.007 (0.0204)	0.014 (0.0175)	0.009 (0.0177)	0.014 (0.0175)	0.009 (0.0177)	0.009 (0.0177)
Private rent		0.052** (0.0242)	0.034 (0.0211)	0.029 (0.0211)	0.036* (0.0211)	0.030 (0.0211)	0.030 (0.0211)
Number of cars (ref. none)							
1 car		0.052*** (0.0158)	0.018 (0.0137)	0.017 (0.0137)	0.018 (0.0137)	0.018 (0.0137)	0.017 (0.0137)
2+ cars		0.093*** (0.0273)	0.056** (0.0240)	0.053** (0.0239)	0.055** (0.0239)	0.052** (0.0239)	0.052** (0.0238)
Persons per room (ref. 1 ppp)							
> 1.5 persons		-0.063*** (0.0222)	-0.024 (0.0191)	-0.025 (0.0190)	-0.022 (0.0190)	-0.022 (0.0190)	-0.023 (0.0190)
1.5 persons		-0.065** (0.0298)	-0.039 (0.0261)	-0.040 (0.0262)	-0.038 (0.0260)	-0.039 (0.0260)	-0.039 (0.0261)
>1 & <1.5 persons		-0.053*** (0.0194)	-0.023 (0.0167)	-0.022 (0.0166)	-0.022 (0.0166)	-0.022 (0.0167)	-0.021 (0.0166)
>= 0.75 & <1 person		0.008 (0.0225)	0.015 (0.0194)	0.014 (0.0194)	0.015 (0.0194)	0.015 (0.0195)	0.014 (0.0195)
<0.75 person		0.016 (0.0245)	0.003 (0.0214)	0.004 (0.0214)	0.002 (0.0214)	0.002 (0.0214)	0.003 (0.0214)
Parental social class (ref. Manual (V+VI+VII))							
No earners/No code		-0.021 (0.0221)	-0.001 (0.0193)	-0.001 (0.0195)	-0.001 (0.0195)	-0.001 (0.0193)	-0.001 (0.0194)
Routine non-manual (III)		0.119*** (0.0273)	0.060*** (0.0240)	0.057*** (0.0239)	0.057*** (0.0239)	0.057** (0.0239)	0.054** (0.0238)

	a	b	c	d	e	f	g
Petit Bourgeoisie (IV)			(0.0246) 0.045*	(0.0223) 0.001	(0.0223) -0.002	(0.0224) 0.001	(0.0224) -0.001
Professional/Managerial (I+II)			(0.0264) 0.124***	(0.0224) 0.042**	(0.0225) 0.043**	(0.0223) 0.039*	(0.0223) 0.040*
Education (ref. Level 1 or less)			(0.0239)	(0.0205)	(0.0205)	(0.0205)	(0.0205)
Level 2+3				0.143*** (0.0172)	0.144*** (0.0171)	0.142*** (0.0172)	0.143*** (0.0171)
Level 4				0.512*** (0.0175)	0.511*** (0.0175)	0.508*** (0.0176)	0.507*** (0.0177)
Partners' ethnicity (ref. non co-ethnic)							
Single						-0.050** (0.0232)	-0.050** (0.0231)
Co-ethnic						-0.065*** (0.0238)	-0.064*** (0.0237)
Age							
Age in destination	-0.001 (0.0016)	-0.001 (0.0016)	-0.001 (0.0016)	0.003** (0.0014)	0.003** (0.0014)	0.004** (0.0014)	0.003** (0.0014)
Origin year (ref. 1971)							
1981	0.010 (0.0145)	0.013 (0.0147)	-0.017 (0.0162)	-0.009 (0.0141)	-0.012 (0.0142)	-0.009 (0.0142)	-0.012 (0.0142)
1991	-0.006 (0.0196)	-0.003 (0.0197)	-0.056** (0.0222)	-0.034* (0.0193)	-0.039** (0.0195)	-0.032 (0.0194)	-0.036* (0.0195)
Destination year (ref. 2001)							
2011	0.084*** (0.0184)	0.084*** (0.0184)	0.077*** (0.0183)	-0.017 (0.0170)	-0.016 (0.0171)	-0.019 (0.0170)	-0.017 (0.0171)
Number of census points (ref. 2)							
3 census points	0.084*** (0.0296)	0.082*** (0.0297)	0.070** (0.0295)	0.029 (0.0273)	0.031 (0.0274)	0.028 (0.0272)	0.030 (0.0273)

	a	b	c	d	e	f	g
4 census points	0.129*** (0.0324)	0.128*** (0.0324)	0.115*** (0.0322)	0.061** (0.0293)	0.063** (0.0294)	0.061** (0.0292)	0.062** (0.0292)
5 census points	0.133*** (0.0408)	0.136*** (0.0409)	0.129*** (0.0407)	0.087** (0.0361)	0.087** (0.0362)	0.084** (0.0360)	0.084** (0.0361)
Constant	0.436*** (0.0435)	0.508*** (0.0536)	0.416*** (0.0572)	0.200*** (0.0523)	0.190*** (0.0568)	0.250*** (0.0553)	0.240*** (0.0596)
Adjusted R-squared	0.034	0.039	0.059	0.229	0.230	0.230	0.231
N	6,685	6,685	6,685	6,685	6,685	6,685	6,685

Robust (clustered) standard errors in parentheses

*** p<0.01 ** p<0.05 * p<0.1

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

Table 8.14: Avoidance of semi-routine and routine occupations: full model. Pooled ethnic minorities; men.

	a	b	c	d	e	f	g
EM quintile (ref. Q1: lowest concentration)							
Q2	0.001 (0.0205)	0.017 (0.0207)	0.031 (0.0204)	0.036* (0.0188)	0.083*** (0.0260)	0.035* (0.0185)	0.085*** (0.0258)
Q3	-0.045** (0.0207)	-0.017 (0.0217)	0.001 (0.0214)	0.021 (0.0196)	0.038 (0.0272)	0.019 (0.0193)	0.040 (0.0270)
Q4	-0.070*** (0.0208)	-0.030 (0.0225)	-0.007 (0.0225)	0.015 (0.0206)	0.057** (0.0276)	0.014 (0.0203)	0.057** (0.0275)
Q5	-0.092*** (0.0218)	-0.043* (0.0248)	-0.019 (0.0245)	0.004 (0.0225)	0.070** (0.0296)	0.002 (0.0221)	0.071** (0.0293)
Ethnic group (ref. Indian)							
Pakistani	-0.090*** (0.0169)	-0.079*** (0.0172)	-0.046*** (0.0174)	-0.014 (0.0158)	0.025 (0.0380)	-0.018 (0.0158)	0.026 (0.0373)
Bangladeshi	-0.105*** (0.0257)	-0.094*** (0.0257)	-0.040 (0.0271)	-0.017 (0.0253)	0.049 (0.0547)	-0.019 (0.0253)	0.056 (0.0540)
Caribbean	-0.145*** (0.0199)	-0.140*** (0.0199)	-0.134*** (0.0205)	-0.066*** (0.0191)	0.001 (0.0396)	-0.060*** (0.0198)	0.007 (0.0394)
African	-0.009 (0.0368)	-0.010 (0.0364)	-0.008 (0.0358)	-0.005 (0.0337)	0.140*** (0.0515)	0.001 (0.0339)	0.137*** (0.0532)
Ethnic group * EM quintile							
Pakistani * Q2					-0.048 (0.0455)		-0.057 (0.0448)
Pakistani * Q3					-0.025 (0.0483)		-0.033 (0.0476)
Pakistani * Q4					-0.021 (0.0466)		-0.027 (0.0460)
Pakistani * Q5					-0.077 (0.0485)		-0.082* (0.0478)

	a	b	c	d	e	f	g
Bangladeshi * Q2					-0.031 (0.0727)		-0.038 (0.0721)
Bangladeshi * Q3					0.000 (0.0694)		-0.013 (0.0696)
Bangladeshi * Q4					-0.098 (0.0725)		-0.109 (0.0722)
Bangladeshi * Q5					-0.158** (0.0761)		-0.170** (0.0756)
Caribbean * Q2					-0.101** (0.0504)		-0.101** (0.0498)
Caribbean * Q3					-0.011 (0.0496)		-0.016 (0.0490)
Caribbean * Q4					-0.077 (0.0517)		-0.077 (0.0512)
Caribbean * Q5					-0.139** (0.0575)		-0.135** (0.0565)
African * Q2					-0.204** (0.0835)		-0.207** (0.0846)
African * Q3					-0.092 (0.0747)		-0.080 (0.0769)
African * Q4					-0.222*** (0.0840)		-0.206** (0.0848)
African * Q5					-0.167** (0.0829)		-0.156* (0.0833)
Carstairs quintile (ref. Q1: least deprived)							
Q2	0.007 (0.0286)		0.023 (0.0284)	0.026 (0.0270)	0.023 (0.0266)	0.031 (0.0269)	0.027 (0.0264)
Q3	-0.044 (0.0278)		-0.014 (0.0273)	-0.012 (0.0259)	-0.015 (0.0256)	-0.009 (0.0258)	-0.013 (0.0254)

	a	b	c	d	e	f	g
Q4		-0.061** (0.0268)	-0.032 (0.0264)	-0.028 (0.0251)	-0.030 (0.0250)	-0.025 (0.0249)	-0.027 (0.0248)
Q5		-0.095*** (0.0266)	-0.043 (0.0264)	-0.035 (0.0250)	-0.040 (0.0247)	-0.032 (0.0248)	-0.037 (0.0245)
Tenure (ref. owner)							
Social rent		-0.000 (0.0185)	-0.000 (0.0185)	0.008 (0.0171)	0.014 (0.0175)	0.009 (0.0170)	0.016 (0.0174)
Private rent		-0.004 (0.0210)	-0.004 (0.0210)	0.001 (0.0191)	0.008 (0.0192)	0.002 (0.0190)	0.009 (0.0192)
Number of cars (ref. none)							
1 car		0.044*** (0.0138)	0.044*** (0.0138)	0.031** (0.0126)	0.032** (0.0126)	0.030** (0.0125)	0.031** (0.0126)
2+ cars		0.039* (0.0210)	0.039* (0.0210)	0.035* (0.0192)	0.037* (0.0193)	0.035* (0.0192)	0.037* (0.0193)
Persons per room (ref. 1 ppp)							
> 1.5 persons		-0.050*** (0.0192)	-0.050*** (0.0192)	-0.024 (0.0177)	-0.025 (0.0177)	-0.028 (0.0177)	-0.028 (0.0177)
1.5 persons		-0.052* (0.0274)	-0.052* (0.0274)	-0.035 (0.0246)	-0.034 (0.0246)	-0.038 (0.0245)	-0.036 (0.0245)
>1 & <1.5 persons		-0.034** (0.0166)	-0.034** (0.0166)	-0.025 (0.0153)	-0.026* (0.0152)	-0.026* (0.0152)	-0.027* (0.0152)
>= 0.75 & <1 person		0.007 (0.0178)	0.007 (0.0178)	0.002 (0.0163)	-0.000 (0.0162)	0.001 (0.0162)	-0.001 (0.0162)
<0.75 person		0.017 (0.0180)	0.017 (0.0180)	0.001 (0.0168)	0.003 (0.0169)	-0.000 (0.0168)	0.001 (0.0169)
Parental social class (ref. Manual (V+VI+VII))							
No earners/No code		-0.053** (0.0214)	-0.053** (0.0214)	-0.044** (0.0200)	-0.045** (0.0200)	-0.044** (0.0198)	-0.046** (0.0198)
Routine non-manual (III)		0.069*** (0.0214)	0.069*** (0.0214)	0.037** (0.0168)	0.039** (0.0169)	0.039** (0.0168)	0.041** (0.0169)

	a	b	c	d	e	f	g
Petit Bourgeoisie (IV)			(0.0189)	(0.0174)	(0.0175)	(0.0175)	(0.0175)
			0.054***	0.041**	0.046**	0.043**	0.047***
			(0.0192)	(0.0179)	(0.0179)	(0.0180)	(0.0180)
Professional/Managerial (I+II)			0.096***	0.019	0.024	0.023	0.027*
			(0.0164)	(0.0153)	(0.0153)	(0.0153)	(0.0153)
Education (ref. Level 1 or less)							
Level 2+3			0.165***	0.164***	0.164***	0.164***	0.163***
			(0.0190)	(0.0190)	(0.0190)	(0.0189)	(0.0189)
Level 4			0.352***	0.352***	0.352***	0.350***	0.350***
			(0.0157)	(0.0157)	(0.0156)	(0.0156)	(0.0156)
Partners' ethnicity (ref. non co-ethnic)							
Single						-0.071***	-0.072***
						(0.0183)	(0.0184)
Co-ethnic						-0.015	-0.017
						(0.0181)	(0.0182)
Age							
Age in destination	0.007***	0.007***	0.007***	0.010***	0.010***	0.008***	0.008***
	(0.0014)	(0.0014)	(0.0013)	(0.0013)	(0.0013)	(0.0013)	(0.0013)
Origin year (ref. 1971)							
1981	0.031**	0.034***	0.009	0.013	0.014	0.007	0.008
	(0.0125)	(0.0126)	(0.0142)	(0.0130)	(0.0131)	(0.0129)	(0.0130)
1991	0.034**	0.035**	-0.010	0.012	0.015	0.006	0.010
	(0.0170)	(0.0171)	(0.0198)	(0.0183)	(0.0186)	(0.0182)	(0.0185)
Destination year (ref. 2001)							
2011	0.061***	0.061***	0.055***	-0.004	-0.006	0.001	-0.001
	(0.0157)	(0.0157)	(0.0157)	(0.0152)	(0.0153)	(0.0152)	(0.0153)
Number of census points (ref. 2)							
3 census points	0.049*	0.049*	0.033	0.017	0.014	0.017	0.014
	(0.0271)	(0.0271)	(0.0271)	(0.0256)	(0.0257)	(0.0257)	(0.0258)

	a	b	c	d	e	f	g
4 census points	0.092*** (0.0280)	0.091*** (0.0278)	0.070** (0.0279)	0.033 (0.0262)	0.030 (0.0263)	0.031 (0.0263)	0.029 (0.0264)
5 census points	0.091*** (0.0332)	0.092*** (0.0331)	0.074** (0.0330)	0.028 (0.0308)	0.021 (0.0309)	0.023 (0.0308)	0.017 (0.0309)
Constant	0.751*** (0.0365)	0.789*** (0.0410)	0.739*** (0.0447)	0.573*** (0.0429)	0.539*** (0.0457)	0.612*** (0.0450)	0.578*** (0.0473)
Adjusted R-squared	0.048	0.052	0.069	0.179	0.180	0.183	0.184
N	6,444	6,444	6,444	6,444	6,444	6,444	6,444

Robust (clustered) standard errors in parentheses

*** p<0.01 ** p<0.05 * p<0.1

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

Table 8.15: Avoidance of semi-routine and routine occupations: full model. Pooled ethnic minorities; women.

	a	b	c	d	e	f	g
EM quintile (ref. Q1: lowest concentration)							
Q2	-0.040** (0.0195)	-0.026 (0.0201)	-0.012 (0.0198)	-0.011 (0.0183)	0.042 (0.0271)	-0.011 (0.0183)	0.041 (0.0270)
Q3	-0.076*** (0.0195)	-0.054** (0.0210)	-0.032 (0.0207)	-0.023 (0.0192)	0.039 (0.0265)	-0.022 (0.0192)	0.040 (0.0264)
Q4	-0.062*** (0.0195)	-0.029 (0.0217)	-0.008 (0.0218)	-0.006 (0.0202)	0.014 (0.0282)	-0.004 (0.0201)	0.016 (0.0282)
Q5	-0.110*** (0.0204)	-0.069*** (0.0238)	-0.038 (0.0239)	-0.039* (0.0219)	0.008 (0.0299)	-0.038* (0.0218)	0.009 (0.0297)
Ethnic group (ref. Indian)							
Pakistani	-0.136*** (0.0183)	-0.127*** (0.0187)	-0.093*** (0.0188)	-0.061*** (0.0174)	0.043 (0.0313)	-0.060*** (0.0173)	0.044 (0.0311)
Bangladeshi	-0.142*** (0.0274)	-0.129*** (0.0276)	-0.059** (0.0294)	-0.033 (0.0278)	0.069 (0.0592)	-0.034 (0.0277)	0.068 (0.0587)
Caribbean	-0.031* (0.0178)	-0.029 (0.0178)	-0.027 (0.0186)	-0.012 (0.0175)	0.015 (0.0373)	-0.008 (0.0179)	0.016 (0.0375)
African	0.008 (0.0285)	0.001 (0.0287)	-0.002 (0.0298)	-0.056** (0.0279)	-0.149* (0.0806)	-0.055* (0.0280)	-0.145* (0.0809)
Ethnic group * EM quintile							
Pakistani * Q2					-0.109** (0.0423)		-0.108** (0.0422)
Pakistani * Q3					-0.184*** (0.0446)		-0.186*** (0.0446)
Pakistani * Q4					-0.051 (0.0435)		-0.053 (0.0435)
Pakistani * Q5					-0.143*** (0.0465)		-0.143*** (0.0464)

	a	b	c	d	e	f	g
Bangladeshi * Q2					-0.149* (0.0833)		-0.145* (0.0831)
Bangladeshi * Q3					-0.114 (0.0749)		-0.116 (0.0745)
Bangladeshi * Q4					-0.096 (0.0764)		-0.097 (0.0760)
Bangladeshi * Q5					-0.124 (0.0805)		-0.126 (0.0801)
Caribbean * Q2					-0.057 (0.0452)		-0.054 (0.0451)
Caribbean * Q3					-0.036 (0.0464)		-0.031 (0.0464)
Caribbean * Q4					-0.015 (0.0472)		-0.013 (0.0470)
Caribbean * Q5					-0.003 (0.0494)		0.001 (0.0494)
African * Q2					0.125 (0.0861)		0.120 (0.0861)
African * Q3					0.052 (0.0961)		0.045 (0.0962)
African * Q4					0.197** (0.0889)		0.198** (0.0887)
African * Q5					0.068 (0.0927)		0.068 (0.0928)
Carstairs quintile (ref. Q1: least deprived)							
Q2		-0.037 (0.0295)	-0.018 (0.0285)	-0.010 (0.0272)	-0.017 (0.0273)	-0.010 (0.0272)	-0.017 (0.0273)
Q3		-0.048* (0.0281)	-0.023 (0.0273)	-0.015 (0.0261)	-0.023 (0.0262)	-0.015 (0.0261)	-0.022 (0.0262)

	a	b	c	d	e	f	g
Q4		-0.035 (0.0261)	-0.005 (0.0254)	0.009 (0.0241)	0.000 (0.0243)	0.010 (0.0242)	0.000 (0.0244)
Q5		-0.089*** (0.0267)	-0.043* (0.0262)	-0.018 (0.0247)	-0.023 (0.0248)	-0.017 (0.0248)	-0.022 (0.0248)
Tenure (ref. owner)							
Social rent		0.006 (0.0175)	0.006 (0.0175)	0.011 (0.0164)	0.009 (0.0166)	0.012 (0.0164)	0.010 (0.0166)
Private rent		0.037* (0.0193)	0.037* (0.0193)	0.029 (0.0179)	0.026 (0.0181)	0.031* (0.0180)	0.027 (0.0181)
Number of cars (ref. none)							
1 car		0.055*** (0.0137)	0.055*** (0.0137)	0.033** (0.0129)	0.030** (0.0129)	0.033** (0.0129)	0.030** (0.0129)
2+ cars		0.077*** (0.0196)	0.077*** (0.0196)	0.055*** (0.0183)	0.054*** (0.0184)	0.053*** (0.0183)	0.052*** (0.0184)
Persons per room (ref. 1 ppp)							
> 1.5 persons		-0.073*** (0.0188)	-0.073*** (0.0188)	-0.045*** (0.0175)	-0.045** (0.0175)	-0.045** (0.0175)	-0.044** (0.0175)
1.5 persons		-0.028 (0.0255)	-0.028 (0.0255)	-0.010 (0.0237)	-0.011 (0.0235)	-0.009 (0.0237)	-0.010 (0.0235)
>1 & <1.5 persons		-0.047*** (0.0164)	-0.047*** (0.0164)	-0.029* (0.0153)	-0.029* (0.0152)	-0.027* (0.0153)	-0.028* (0.0152)
>= 0.75 & <1 person		0.004 (0.0169)	0.004 (0.0169)	0.008 (0.0157)	0.007 (0.0157)	0.009 (0.0157)	0.007 (0.0156)
<0.75 person		0.010 (0.0186)	0.010 (0.0186)	0.004 (0.0176)	0.006 (0.0177)	0.003 (0.0176)	0.005 (0.0176)
Parental social class (ref. Manual (V+VI+VII))							
No earners/No code		-0.038* (0.0217)	-0.038* (0.0217)	-0.026 (0.0200)	-0.025 (0.0200)	-0.027 (0.0200)	-0.026 (0.0200)
Routine non-manual (III)		0.081*** (0.0217)	0.081*** (0.0217)	0.047*** (0.0200)	0.049*** (0.0200)	0.045*** (0.0200)	0.046*** (0.0200)

	a	b	c	d	e	f	g
Petit Bourgeoisie (IV)			(0.0166)	(0.0161)	(0.0161)	(0.0161)	(0.0161)
			0.042**	0.017	0.013	0.017	0.013
Professional/Managerial (I+II)			(0.0205)	(0.0190)	(0.0191)	(0.0190)	(0.0191)
			0.057***	0.010	0.011	0.008	0.009
Education (ref. Level 1 or less)			(0.0172)	(0.0163)	(0.0162)	(0.0162)	(0.0162)
Level 2+3			0.184***	0.184***	0.184***	0.184***	0.184***
			(0.0192)	(0.0192)	(0.0192)	(0.0192)	(0.0191)
Level 4			0.344***	0.340***	0.340***	0.343***	0.339***
			(0.0176)	(0.0176)	(0.0176)	(0.0176)	(0.0176)
Partners' ethnicity (ref. non co-ethnic)							
Single						-0.053***	-0.054***
						(0.0174)	(0.0174)
Co-ethnic						-0.043**	-0.043**
						(0.0178)	(0.0178)
Age							
Age in destination	0.001	0.001	0.001	0.004***	0.004***	0.004***	0.004***
	(0.0014)	(0.0014)	(0.0014)	(0.0013)	(0.0013)	(0.0014)	(0.0014)
Origin year (ref. 1971)							
1981	0.006	0.007	-0.022	-0.015	-0.014	-0.016	-0.015
	(0.0121)	(0.0122)	(0.0134)	(0.0125)	(0.0125)	(0.0125)	(0.0125)
1991	-0.012	-0.011	-0.057***	-0.040**	-0.037**	-0.039**	-0.036**
	(0.0169)	(0.0170)	(0.0191)	(0.0178)	(0.0179)	(0.0178)	(0.0179)
Destination year (ref. 2001)							
2011	0.070***	0.070***	0.065***	0.003	0.005	0.003	0.006
	(0.0156)	(0.0156)	(0.0155)	(0.0151)	(0.0151)	(0.0151)	(0.0151)
Number of census points (ref. 2)							
3 census points	0.067**	0.066**	0.056*	0.032	0.035	0.033	0.035
	(0.0296)	(0.0295)	(0.0294)	(0.0276)	(0.0276)	(0.0276)	(0.0276)

	a	b	c	d	e	f	g
4 census points	0.123*** (0.0312)	0.123*** (0.0314)	0.110*** (0.0311)	0.075** (0.0293)	0.081*** (0.0292)	0.074** (0.0292)	0.081*** (0.0292)
5 census points	0.106*** (0.0367)	0.108*** (0.0365)	0.100*** (0.0365)	0.073** (0.0342)	0.078** (0.0341)	0.070** (0.0342)	0.075** (0.0341)
Constant	0.757*** (0.0379)	0.796*** (0.0411)	0.742*** (0.0445)	0.572*** (0.0436)	0.534*** (0.0465)	0.612*** (0.0464)	0.575*** (0.0488)
Adjusted R-squared	0.039	0.042	0.059	0.154	0.158	0.155	0.159
N	6,685	6,685	6,685	6,685	6,685	6,685	6,685

Robust (clustered) standard errors in parentheses

*** p<0.01 ** p<0.05 * p<0.1

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

	Employment				Service class				Avoid semi- and routine occupations									
	Men		Women		Men		Women		Men		Women							
	dy/dx	SE	P-value	dy/dx	SE	P-value	dy/dx	SE	P-value	dy/dx	SE	P-value						
none)																		
1 car	0.02	0.011	0.065	0.011	0.013	0.397	0.029	0.014	0.032	0.018	0.014	0.191	0.029	0.012	0.017	0.03	0.012	0.014
2+ cars	0.026	0.018	0.156	0.027	0.022	0.236	0.061	0.022	0.006	0.056	0.024	0.02	0.032	0.021	0.119	0.058	0.02	0.003
Persons per room																		
(ref. 1 ppp)																		
> 1.5 persons	-0.004	0.015	0.813	-0.027	0.018	0.128	-0.034	0.019	0.08	-0.024	0.019	0.206	-0.025	0.017	0.137	-0.043	0.017	0.011
1.5 persons	0.01	0.02	0.611	0.034	0.023	0.14	-0.031	0.027	0.241	-0.038	0.026	0.147	-0.035	0.023	0.12	-0.014	0.022	0.529
>1 & <1.5 persons	0.001	0.014	0.95	-0.005	0.016	0.778	-0.027	0.017	0.113	-0.022	0.017	0.18	-0.028	0.015	0.057	-0.029	0.015	0.057
>= 0.75 & <1 person	0.008	0.015	0.603	0.036	0.019	0.055	0.014	0.019	0.448	0.015	0.019	0.428	0.001	0.017	0.973	0.007	0.017	0.685
<0.75 person	0.027	0.017	0.109	-0.018	0.022	0.417	0.021	0.021	0.316	0.004	0.021	0.855	0.006	0.018	0.735	0.008	0.02	0.698
Parental social class																		
(ref. Manual (V+VI+VII))																		
No earners/No code	-0.025	0.014	0.089	-0.019	0.017	0.272	-0.002	0.019	0.908	-0.002	0.02	0.918	-0.034	0.017	0.054	-0.017	0.017	0.332
Routine non-manual (III)	-0.008	0.017	0.655	0.02	0.02	0.32	0.023	0.021	0.261	0.056	0.022	0.01	0.039	0.018	0.027	0.061	0.018	0.001
Petit Bourgeoisie (IV)	0.001	0.018	0.97	0.002	0.021	0.925	0.019	0.021	0.367	0	0.022	0.988	0.043	0.019	0.023	0.016	0.021	0.452
Professional /Managerial (I+II)	-0.012	0.018	0.51	0.001	0.021	0.976	0.053	0.021	0.011	0.04	0.02	0.046	0.034	0.02	0.085	0.018	0.02	0.375
Education (ref. Level 1 or less)																		

	Employment			Service class			Avoid semi- and routine occupations												
	Men		Women	Men		Women	Men		Women										
	dy/dx	SE	P-value	dy/dx	SE	P-value	dy/dx	SE	P-value										
Level 2+3	0.097	0.016	0	0.179	0.018	0	0.157	0.018	0	0.144	0.017	0	0.16	0.019	0	0.182	0.019	0	
Level 4	0.181	0.015	0	0.307	0.018	0	0.551	0.016	0	0.512	0.017	0	0.352	0.016	0	0.344	0.018	0	
Age																			
Age in destination	0.005	0.001	0	0.001	0.001	0.621	0.006	0.001	0	0.003	0.001	0.015	0.009	0.001	0	0.004	0.001	0.001	
Origin year (ref. 1971)																			
1981	0.032	0.014	0.022	-0.009	0.013	0.486	0.012	0.014	0.407	-0.009	0.014	0.519	0.019	0.013	0.153	-0.009	0.012	0.436	
1991	0.035	0.018	0.055	-0.008	0.019	0.658	-0.012	0.019	0.53	-0.035	0.019	0.069	0.014	0.018	0.439	-0.037	0.017	0.037	
Destination year (ref. 2001)																			
2011	0.024	0.013	0.076	0.021	0.015	0.177	-0.046	0.016	0.004	-0.017	0.017	0.31	-0.002	0.014	0.897	0.004	0.015	0.808	
Number of census points (ref. 2)																			
3 census points	0.023	0.021	0.269	0.023	0.024	0.353	-0.003	0.027	0.901	0.031	0.029	0.28	0.011	0.022	0.628	0.023	0.025	0.354	
4 census points	0.05	0.022	0.026	0.009	0.027	0.723	0.015	0.028	0.588	0.063	0.03	0.039	0.029	0.023	0.21	0.069	0.027	0.011	
5 census points	0.089	0.026	0.001	0.066	0.032	0.039	0.038	0.034	0.259	0.09	0.037	0.015	0.027	0.028	0.346	0.066	0.033	0.042	
Pseudo R-squared	0.093			0.142			0.232			0.182			0.188			0.158			
N	6850			7437			6444			6685			6444			6685			

Note: the coefficients are very similar with respect to those observed in the equivalent models presented in the chapter: the substantive results remain therefore the same.

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

8.4 Annex (I) to Chapter 6

In this Annex I replicate the analysis done in the main chapter, but with a different dependent variable: the probability of being in areas with low deprivation, defined here as quintiles 1, 2 and 3. Moreover, I compare individuals in two different origin neighbourhoods: those with deprivation quintiles 1-3 and those with deprivation quintiles 4+5. The analysis of deprivation shows results that go in a similar direction as those observed for the share of non-whites.

Table 8.17: Probability of being in a neighbourhood with low deprivation (quintiles 1-3) in 2011 by origin neighbourhood (%)

	White British	Indian	Pakistani	Bangladeshi	Caribbean	African
Deprivation Q1-3						
Men	76.4	68.9	43.1	100.0	36.3	0.0
Women	76.6	63.6	53.2	-	32.8	32.3
Deprivation Q4+5						
Men	54.2	44.6	21.6	20.3	28.2	31.3
Women	53.3	42.0	22.5	20.2	22.9	22.0
<i>Totals: Q1-3</i>						
<i>Men</i>	<i>48173</i>	<i>193</i>	<i>51</i>	<i>10</i>	<i>113</i>	<i>10</i>
<i>Women</i>	<i>51345</i>	<i>214</i>	<i>47</i>	<i>0</i>	<i>177</i>	<i>31</i>
<i>Totals: Q4+5</i>						
<i>Men</i>	<i>26814</i>	<i>848</i>	<i>421</i>	<i>118</i>	<i>379</i>	<i>32</i>
<i>Women</i>	<i>30153</i>	<i>835</i>	<i>448</i>	<i>114</i>	<i>512</i>	<i>59</i>

Population: Individuals between 20 and 55 years old
 Source: Author's own calculations based on ONS-LS

Table 8.19 shows that individuals who lived in a less-deprived neighbourhood at a young age are also more likely to end up in a low-deprivation neighbourhood in 2011 (note that some groups, in particular Bangladeshis and Africans, have very few cases in origin areas Q1-3, which makes it hard to discuss these results). However, we can see clear differences between the groups. Focusing on those raised in areas with the highest deprivation levels (Q45), we observe that all ethnic minority groups are less likely to be in Q1-3 compared to the white British. Specifically, while around 53-54% of white British raised in Q45 are found in Q1-3 in 2011, the proportions for ethnic minority groups vary between 20% and 45%. In particular, Pakistanis and Bangladeshis are in the worst situation, while Indians are in the best situation.

Next, Tables 8.20-8.22 show the relationship between deprivation quintiles and the three key mediating variables – education, social class and partner’s ethnicity. These are presented for white British and for the five ethnic minority groups pooled together. These tables show that more education, a higher social class and a white British partner are positively related with the probability of improving the neighbourhood in terms of deprivation. For example, a Level 4+ gives ethnic minorities raised in the most-deprived areas while young (quintiles 4+5) around 22-25% points more chances of improving the neighbourhood compared to those with the lowest educational levels. Similarly, having a service class position or a white British partner in 2001 gives them around 25% points more chances of improving the neighbourhood. Note that I have also tested this effect while controlling for other background characteristics in a regression model (available upon request), which gives evidence for the *spatial assimilation* model.

However, differences between ethnic minorities and white British persons appear here as well. For example, while around 70% of white British raised in deprivation Q4+5 who got a Level 4+ in 2001 have improved their neighbourhood; only around 45-49% of ethnic minorities with the same education have done so. Similarly, while around 67% of white British males raised in areas with high deprivation that got a Service class position in 2001 have improved their neighbourhood; only around 47% of ethnic minority males with the same class have done so.

Table 8.18: Probability of being in a neighbourhood with low deprivation (Q1-3) in 2011 by origin neighbourhood and education in 2011

	White British			Ethnic minorities (pooled)		
	<i>Level 1 or less</i>	<i>Levels 2+3</i>	<i>Level 4+</i>	<i>Level 1 or less</i>	<i>Levels 2+3</i>	<i>Level 4+</i>
Deprivation Q1-3						
Men	71.6	77.6	82.5	39.0	53.3	64.0
Women	70.2	78.8	82.6	33.1	41.8	60.7
Deprivation Q4+5						
Men	48.2	55.6	69.8	22.5	31.2	48.7
Women	44.8	56.5	69.9	23.1	25.5	45.1
Totals: Q1-3						
<i>Men</i>	<i>19714</i>	<i>16545</i>	<i>11914</i>	<i>118</i>	<i>107</i>	<i>175</i>
<i>Women</i>	<i>18608</i>	<i>19944</i>	<i>12793</i>	<i>130</i>	<i>134</i>	<i>229</i>
Totals: Q4+5						
<i>Men</i>	<i>13544</i>	<i>8850</i>	<i>4420</i>	<i>689</i>	<i>478</i>	<i>641</i>
<i>Women</i>	<i>13975</i>	<i>11252</i>	<i>4926</i>	<i>627</i>	<i>719</i>	<i>628</i>

Population: Individuals between 20 and 55 years old
Source: Author’s own calculations based on ONS-LS

Table 8.19: Probability of being in a neighbourhood with low deprivation (Q1-3) in 2011 by origin neighbourhood and partnership

	White British				Ethnic minorities (pooled)			
	<i>No partner</i>	<i>Other</i>	<i>Non-white</i>	<i>White British</i>	<i>No partner</i>	<i>Other</i>	<i>Non-white</i>	<i>White British</i>
Deprivation Q1-3								
Men	73.4	77.4	75.8	78.4	55.0	0.0	48.0	80.0
Women	72.1	75.9	63.4	79.2	44.1	0.0	49.1	74.0
Deprivation Q4+5								
Men	45.4	62.3	62.9	59.4	30.5	25.0	34.3	50.7
Women	43.6	57.7	50.0	58.6	24.2	-	33.0	64.6
<i>Totals: Q1-3</i>								
<i>Men</i>	<i>19095</i>	<i>953</i>	<i>265</i>	<i>27860</i>	<i>222</i>	<i>0</i>	<i>125</i>	<i>50</i>
<i>Women</i>	<i>17174</i>	<i>814</i>	<i>328</i>	<i>33029</i>	<i>279</i>	<i>0</i>	<i>163</i>	<i>50</i>
<i>Totals: Q4+5</i>								
<i>Men</i>	<i>10060</i>	<i>390</i>	<i>116</i>	<i>16248</i>	<i>865</i>	<i>40</i>	<i>752</i>	<i>150</i>
<i>Women</i>	<i>10548</i>	<i>392</i>	<i>188</i>	<i>19025</i>	<i>956</i>	<i>0</i>	<i>866</i>	<i>127</i>

Population: Individuals between 20 and 55 years old
Source: Author's own calculations based on ONS-LS

Table 8.20: Probability of being in a neighbourhood with low deprivation (Q1-3) in 2011 by origin neighbourhood¹ and social class

	White British				Ethnic minorities (pooled)			
	<i>Routine</i>	<i>Petit Bourg.</i>	<i>Interm.</i>	<i>Service</i>	<i>Routine</i>	<i>Petit Bourg.</i>	<i>Interm.</i>	<i>Service</i>
Deprivation Q1-3								
Men	69.0	80.3	75.0	82.1	38.7	60.0	69.6	60.4
Women	69.3	82.2	78.8	81.6	24.2	-	43.6	60.9
Deprivation Q4+5								
Men	43.7	60.3	54.9	67.6	22.0	30.2	30.7	47.0
Women	41.9	68.4	58.6	65.9	16.8	30.9	30.3	41.7
<i>Totals: Q1-3</i>								
<i>Men</i>	<i>18340</i>	<i>5085</i>	<i>3930</i>	<i>20818</i>	<i>106</i>	<i>25</i>	<i>33</i>	<i>217</i>
<i>Women</i>	<i>18215</i>	<i>2376</i>	<i>11295</i>	<i>19459</i>	<i>95</i>	<i>0</i>	<i>140</i>	<i>248</i>
<i>Totals: Q4+5</i>								
<i>Men</i>	<i>13161</i>	<i>2666</i>	<i>1952</i>	<i>9035</i>	<i>710</i>	<i>169</i>	<i>179</i>	<i>747</i>
<i>Women</i>	<i>14032</i>	<i>1043</i>	<i>6350</i>	<i>8728</i>	<i>596</i>	<i>55</i>	<i>545</i>	<i>769</i>

Population: Individuals between 20 and 55 years old
Source: Author's own calculations based on ONS-LS

Tables 8.23-8.24 are equivalent to the ones shown in the main chapter (Tables 6.12 and 6.13), in terms of the equations they follow; but here, the dependent variable is the probability of being in an area of low deprivation (Q1-3), and the focus is on individuals raised in neighbourhoods with different levels of deprivation. The full models are available upon request.

The base models, which have basic controls common to all models (see notes in the tables), show that ethnic minorities are less likely to be in less-deprived areas, given equality of neighbourhood deprivation in origin. However, while for Indians this difference is of around 5%-8% points, for the other groups it rises to more than 20% in most cases. After controlling for education, class and partner's ethnicity (Eq. i), these differences remain the same: again, none of these variables helps to explain neighbourhood differences. I have also tested for interaction effects with education, social class and partner's ethnicity (Eq. ii). In the case of education and class, the results run against my expectations: none of the interactions is negative; on the contrary, they are positive for some groups (consistently for Indian men and women), denoting a reduction of gaps in education and class increase, for example. Most importantly, among Indians these gaps fall to zero among educationally and occupationally qualified populations. Having a white British partner, on the other hand, helps particularly the Caribbean population, which also reduces the gap to almost null. The final model (Eq. iii) adds an interaction between ethnic groups and quintile 5 (note the reference is Q1-4 given that there are very few ethnic minorities raised in the least deprived neighbourhoods). It shows that although the Caribbean population (and probably the African as well) are still less likely than the white British to improve their area of residence – i.e. moving from Q5 to Q1-3 – this gap is smaller when compared to individuals moving from Q1-4 to Q1-3. However, many movements might be occurring here, and I have not developed a hypothesis around this.

Table 8.21: Probability of being in a neighbourhood with low deprivation (Quintiles 1-3). Linear regression with robust SE; ethnic minorities and white British men.

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)
Deprivation quintile (ref. Q1: least deprived)						
Q2	-0.025*** (0.0046)	-0.022*** (0.0046)	-0.022*** (0.0046)	-0.022*** (0.0046)	-0.022*** (0.0046)	-0.022*** (0.0046)
Q3	-0.064*** (0.0050)	-0.060*** (0.0050)	-0.060*** (0.0050)	-0.060*** (0.0050)	-0.060*** (0.0050)	-0.060*** (0.0050)
Q4	-0.176*** (0.0055)	-0.170*** (0.0055)	-0.171*** (0.0055)	-0.170*** (0.0055)	-0.170*** (0.0055)	-0.170*** (0.0055)
Q5	-0.254*** (0.0063)	-0.246*** (0.0062)	-0.246*** (0.0062)	-0.246*** (0.0062)	-0.246*** (0.0062)	-0.246*** (0.0062)
Deprivation quintile-reduced (ref. Q1-4: less deprived)						
Q5						-0.173*** (0.0053)
Ethnic group (ref. white British)						
Indian	-0.046** (0.0201)	-0.053** (0.0214)	-0.114*** (0.0351)	-0.110*** (0.0341)	-0.039 (0.0385)	-0.101*** (0.0284)
Pakistani	-0.246*** (0.0248)	-0.246*** (0.0266)	-0.268*** (0.0347)	-0.265*** (0.0332)	-0.285*** (0.0397)	-0.250*** (0.0451)
Bangladeshi	-0.175*** (0.0406)	-0.184*** (0.0399)	-0.214*** (0.0544)	-0.233*** (0.0480)	-0.156** (0.0680)	-0.110 (0.0827)
Caribbean	-0.215*** (0.0259)	-0.202*** (0.0255)	-0.255*** (0.0325)	-0.220*** (0.0342)	-0.286*** (0.0544)	-0.288*** (0.0361)
African	-0.199*** (0.0746)	-0.214*** (0.0764)	-0.261*** (0.0966)	0.136 (0.1355)	-0.029 (0.1812)	-0.409*** (0.0867)
Education (ref. Level 1 or less)						
Level 2+3		0.029***	0.029***	0.029***	0.029***	0.029***

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)
Level 4+		(0.0049) 0.046*** (0.0058)	(0.0049) 0.042*** (0.0059)	(0.0049) 0.045*** (0.0058)	(0.0049) 0.046*** (0.0058)	(0.0049) 0.046*** (0.0059)
Occupation (ref. Routine)						
Petit Bourgeoisie		0.088*** (0.0068)	0.088*** (0.0068)	0.088*** (0.0068)	0.089*** (0.0068)	0.096*** (0.0068)
Intermediate		0.046*** (0.0081)	0.046*** (0.0081)	0.046*** (0.0083)	0.046*** (0.0081)	0.048*** (0.0083)
Service		0.101*** (0.0051)	0.101*** (0.0051)	0.100*** (0.0052)	0.101*** (0.0051)	0.112*** (0.0052)
Partner's ethnicity (ref. non-white)						
No partner		-0.013 (0.0181)	-0.020 (0.0181)	-0.013 (0.0181)	-0.021 (0.0266)	
White British		0.058*** (0.0181)	0.051*** (0.0181)	0.058*** (0.0181)	0.049* (0.0264)	
Other		0.021 (0.0225)	0.014 (0.0225)	0.021 (0.0225)	0.011 (0.0297)	
Interactions						
Indian*Level 4+			0.123*** (0.0429)			
Pakistani*Level 4+			0.046 (0.0522)			
Bangladeshi*Level 4+			0.096 (0.0965)			
Caribbean*Level 4+			0.141** (0.0626)			
African*Level 4+			0.039 (0.1592)			
Indian*Service				0.105***		

	Base	Eq. i (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)
Pakistani*Service			(0.0409) 0.040		
Bangladeshi*Service			(0.0515) 0.093		
Caribbean*Service			(0.0818) 0.038		
African*Service			(0.0557) -0.472*** (0.1673)		
Indian*White British partner				0.068 (0.0755)	
Pakistani*White British partner				0.114 (0.1341)	
Bangladeshi*White British partner				-0.233*** (0.0682)	
Caribbean*White British partner				0.270*** (0.0784)	
African*White British partner				-0.243 (0.2586)	
Indian*Q5					0.033 (0.0347)
Pakistani*Q5					-0.025 (0.0503)
Bangladeshi*Q5					-0.116 (0.0858)
Caribbean*Q5					0.120*** (0.0440)
African*Q5					0.354*** (0.1195)

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)
Adjusted R2	0.108	0.126	0.126	0.127	0.126	0.108
N	77,196	77,196	77,196	77,196	77,196	77,196

Note: Models control for age, gender, origin year, and number of census points, tenure, number of persons per room, number of cars, class of origin and share of non-white in 'origin' neighbourhood. * p-value<.10 ** p-value<.05 *** p-value<.01; robust (clustered) standard errors in parentheses
Population: Individuals between 20 and 55 years old
Source: Author's own calculations based on ONS-LS

Table 8.22: Probability of being in a neighbourhood with low deprivation (Quintiles 1-3). Linear regression with robust SE; ethnic minorities and white British women.

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)
Deprivation quintile (ref. Q1: least deprived)						
Q2	-0.027*** (0.0044)	-0.024*** (0.0044)	-0.024*** (0.0044)	-0.024*** (0.0044)	-0.024*** (0.0044)	-0.024*** (0.0044)
Q3	-0.077*** (0.0048)	-0.073*** (0.0048)	-0.073*** (0.0048)	-0.073*** (0.0048)	-0.073*** (0.0048)	-0.073*** (0.0048)
Q4	-0.183*** (0.0052)	-0.177*** (0.0052)	-0.177*** (0.0052)	-0.177*** (0.0052)	-0.177*** (0.0052)	-0.177*** (0.0052)
Q5	-0.266*** (0.0059)	-0.255*** (0.0058)	-0.255*** (0.0058)	-0.255*** (0.0058)	-0.255*** (0.0058)	-0.255*** (0.0058)
Deprivation quintile-reduced (ref. Q1-4: less deprived)						
Q5						-0.176*** (0.0050)
Ethnic group (ref. white British)						
Indian	-0.078*** (0.0198)	-0.067*** (0.0211)	-0.130*** (0.0351)	-0.131*** (0.0369)	0.005 (0.0369)	-0.109*** (0.0287)
Pakistani	-0.229*** (0.0253)	-0.205*** (0.0266)	-0.186*** (0.0392)	-0.241*** (0.0332)	-0.166*** (0.0407)	-0.228*** (0.0480)
Bangladeshi	-0.124*** (0.0434)	-0.120*** (0.0443)	-0.068 (0.0806)	-0.188*** (0.0523)	-0.063 (0.0645)	-0.011 (0.0960)
Caribbean	-0.275*** (0.0208)	-0.261*** (0.0208)	-0.238*** (0.0346)	-0.305*** (0.0298)	-0.208*** (0.0515)	-0.357*** (0.0288)
African	-0.295*** (0.0518)	-0.304*** (0.0502)	-0.308*** (0.1039)	-0.424*** (0.0694)	-0.332*** (0.0930)	-0.391*** (0.0614)
Education (ref. Level 1 or less)						
Level 2+3		0.051***	0.052***	0.051***	0.051***	0.052***

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)
Level 4+		(0.0046) 0.067*** (0.0058)	(0.0047) 0.064*** (0.0058)	(0.0046) 0.067*** (0.0058)	(0.0046) 0.068*** (0.0058)	(0.0047) 0.067*** (0.0058)
Occupation (ref. Routine)						
Petit Bourgeoisie		0.106*** (0.0090)	0.106*** (0.0089)	0.105*** (0.0090)	0.106*** (0.0089)	0.118*** (0.0091)
Intermediate		0.076*** (0.0053)	0.076*** (0.0053)	0.076*** (0.0054)	0.076*** (0.0053)	0.081*** (0.0053)
Service		0.085*** (0.0051)	0.085*** (0.0051)	0.082*** (0.0052)	0.085*** (0.0051)	0.091*** (0.0052)
Partner's ethnicity (ref. non-white)						
No partner		0.008 (0.0174)	-0.002 (0.0175)	0.003 (0.0174)	0.048* (0.0257)	
White British		0.098*** (0.0175)	0.089*** (0.0175)	0.093*** (0.0175)	0.136*** (0.0255)	
Other		0.044* (0.0230)	0.034 (0.0230)	0.039* (0.0230)	0.080*** (0.0297)	
Interactions						
Indian*Level 4+			0.144*** (0.0435)			
Pakistani*Level 4+			0.060 (0.0618)			
Bangladeshi*Level 4+			-0.036 (0.1262)			
Caribbean*Level 4+			0.011 (0.0501)			
African*Level 4+			0.051 (0.1227)			
Indian*Service				0.118***		

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)
Pakistani*Service			(0.0437)	0.072		
Bangladeshi*Service			(0.0558)	0.262***		
Caribbean*Service			(0.1018)	0.084*		
African*Service			(0.0435)	0.142		
Indian*White British partner			(0.0976)		0.086	
Pakistani*White British partner					(0.0649)	
Bangladeshi*White British partner					0.132	
Caribbean*White British partner					(0.1439)	
African*White British partner					-0.047	
Indian*Q5					(0.3156)	
Pakistani*Q5					0.181**	
Bangladeshi*Q5					(0.0856)	
Caribbean*Q5					0.456**	
African*Q5					(0.2024)	
						0.002
						(0.0349)
						-0.028
						(0.0519)
						-0.162
						(0.1031)
						0.097***
						(0.0343)
						0.120
						(0.0798)

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)
Adjusted R2	0.123	0.144	0.145	0.144	0.145	0.121
N	83,972	83,972	83,972	83,972	83,972	83,972

Note: Models control for age, gender, origin year, and number of census points, tenure, number of persons per room, number of cars, class of origin and share of non-white in 'origin' neighbourhood. * p-value<.10 ** p-value<.05 *** p-value<.01; robust (clustered) standard errors in parentheses
Population: Individuals between 20 and 55 years old
Source: Author's own calculations based on ONS-LIS

In order to have a better understanding of differences and similarities between different ethnic minority groups and white British with various individual and origin neighbourhood characteristics, I have also calculated – as done in the main analysis – predicted probabilities for ‘extreme types’: individuals with the highest education and social class and a white British partner (type 1), on the one hand, and individuals with the lowest education and social class and a non-white partner (type 2). These predicted probabilities are based on a model that includes interactions with the three mediating variables, and are shown in Table 8.25.

Table 8.23: Probability of being in a neighbourhood with low deprivation (Quintiles 1-3). Predicted values for selected cases.

	Men		Women	
	Level 1 or less, routine, non-white partner	Level 4+, Managerial/ Professional, white British partner	Level 1 or less, routine, non-white partner	Level 4+, Managerial/ Professional, white British partner
White British	58.8 (2.7)	77.9 (0.5)	48.9 (2.6)	77.2 (0.4)
Indian	48.6 (4.2)	88.5 (6.8)	42.8 (4.2)	94.9 (5.6)
Pakistani	28.5 (4.0)	62.8 (13.1)	32.8 (4.0)	82.6 (14.7)
Bangladeshi	36.6 (6.7)	52.0 (9.4)	46.5 (8.8)	88.9 (21.8)
Caribbean	27.4 (5.3)	83.0 (7.3)	28.2 (5.7)	79.2 (7.5)
African	60.7 (19.0)	43.4 (19.9)	14.3 (12.3)	97.2 (17.8)

Note: margins are based on the following equation: $Y_{(2011)} = a + b_1 * X_{1(2001)} + b_2 * X_{2(2001)} + b_3 * X_{3(2001)} + b_4 * Z + b_5 * W + b_6 * V + b_7 * Z * X_{1(2001)} + b_8 * Z * X_{2(2001)} + b_9 * Z * X_{3(2001)} + e$ (see notation in Table 6.1).

Population: Individuals between 20 and 55 years old

Source: Author’s own calculations based on ONS-LS

The results from Table 8.25 are similar to those observed in the main chapter. The gaps between ethnic minorities and white British not only reduce as we move from type 1 to type 2 individuals, but a positive distance also appears for most groups. Although these are extreme cases and standard errors overlap in some cases, these positive gaps might suggest that the spatial structure in terms of ethnicity is more rigid.

8.5 Annex (II) to Chapter 6

Table 8.24: Probability of being in a neighbourhood with a low share of non-white (Quintiles 1-2) in 2011. Linear regression with robust SE; ethnic minorities only. Full model.

	Men					Women				
	Eq. i	Eq. i + Q4+5* edu	Eq. i + Q4+5*class	Eq. i + Q4+5*partner	Eq. i	Eq. i + Q4+5* edu	Eq. i + Q4+5*class	Eq. i + Q4+5*partner	Eq. i + Q4+5*partner	
NW quintile (ref. Q1: lowest share)										
Q2	-0.105** (0.0451)				-0.193*** (0.0439)					
Q3	-0.295*** (0.0456)				-0.337*** (0.0428)					
Q4	-0.350*** (0.0466)				-0.403*** (0.0443)					
Q5	-0.393*** (0.0477)				-0.437*** (0.0460)					
NW quintile (ref. Q1+2)										
Q3		-0.315*** (0.0533)	-0.204*** (0.0549)	-0.190*** (0.0530)		-0.148** (0.0583)	-0.247*** (0.0601)		-0.142*** (0.0484)	
Q4+5		-0.356*** (0.0471)	-0.323*** (0.0477)	-0.254*** (0.0476)		-0.305*** (0.0530)	-0.330*** (0.0543)		-0.249*** (0.0435)	
Ethnic group (ref. Indian)										
Pakistani	-0.108*** (0.0314)	-0.109*** (0.0315)	-0.106*** (0.0315)	-0.105*** (0.0313)	-0.124*** (0.0315)	-0.119*** (0.0316)	-0.121*** (0.0315)		-0.120*** (0.0315)	
Bangladeshi	-0.080 (0.0500)	-0.072 (0.0499)	-0.073 (0.0497)	-0.076 (0.0495)	-0.027 (0.0570)	-0.021 (0.0571)	-0.018 (0.0567)		-0.018 (0.0570)	

	Men					Women				
	Eq. i	Eq. i + Q4+5* edu	Eq. i + Q4+5*class	Eq. i + Q4+5*partner	Eq. i	Eq. i + Q4+5* edu	Eq. i + Q4+5*class	Eq. i + Q4+5*partner	Eq. i + Q4+5*partner	
Caribbean	-0.060* (0.0352)	-0.055 (0.0351)	-0.056 (0.0352)	-0.062* (0.0351)	-0.094*** (0.0314)	-0.095*** (0.0314)	-0.092*** (0.0315)	-0.088*** (0.0315)	-0.088*** (0.0315)	
African	-0.053 (0.0822)	-0.049 (0.0828)	-0.054 (0.0822)	-0.046 (0.0825)	-0.047 (0.0569)	-0.046 (0.0569)	-0.047 (0.0574)	-0.037 (0.0564)	-0.037 (0.0564)	
Education (ref. Level 1 or less)										
Level 2+3	0.032 (0.0313)	-0.024 (0.0595)	0.032 (0.0313)	0.031 (0.0311)	0.001 (0.0289)	0.031 (0.0583)	0.007 (0.0292)	0.002 (0.0290)	0.002 (0.0290)	
Level 4+	0.081** (0.0349)	-0.021 (0.0555)	0.084** (0.0348)	0.084** (0.0347)	0.043 (0.0327)	0.019 (0.0591)	0.047 (0.0330)	0.042 (0.0328)	0.042 (0.0328)	
Social class (ref. Manual)										
Petit Bourgeoisie	0.107** (0.0433)	0.107** (0.0436)	0.113 (0.0802)	0.109** (0.0437)	0.128* (0.0754)	0.126* (0.0759)	-0.052 (0.1616)	0.124 (0.0756)	0.124 (0.0756)	
Intermediate	0.020 (0.0450)	0.018 (0.0450)	0.016 (0.0796)	0.023 (0.0452)	0.062** (0.0307)	0.055* (0.0310)	0.019 (0.0637)	0.057* (0.0310)	0.057* (0.0310)	
Service	0.033 (0.0324)	0.029 (0.0324)	-0.000 (0.0551)	0.028 (0.0322)	0.079** (0.0308)	0.070** (0.0310)	0.014 (0.0582)	0.074** (0.0310)	0.074** (0.0310)	
Partner's ethnicity (ref. non-white)										
No partner	0.053* (0.0299)	0.051* (0.0300)	0.055* (0.0300)	0.128** (0.0526)	-0.083*** (0.0265)	-0.079*** (0.0264)	-0.079*** (0.0265)	-0.007 (0.0485)	-0.007 (0.0485)	
Other	0.059 (0.0866)	0.057 (0.0862)	0.061 (0.0878)	0.350** (0.1434)	0.114 (0.1108)	0.097 (0.1123)	0.095 (0.1111)	0.074 (0.1723)	0.074 (0.1723)	
White British	0.292*** (0.0436)	0.292*** (0.0439)	0.299*** (0.0434)	0.195*** (0.0684)	0.269*** (0.0428)	0.270*** (0.0429)	0.271*** (0.0428)	0.199*** (0.0663)	0.199*** (0.0663)	
Interactions										
Q3*Level2+3	0.131 (0.0811)	0.131 (0.0811)			-0.119 (0.0740)					

	Men				Women			
	Eq. i	Eq. i + Q4+5* edu	Eq. i + Q4+5*class	Eq. i + Q4+5*partner	Eq. i	Eq. i + Q4+5* edu	Eq. i + Q4+5*class	Eq. i + Q4+5*partner
Q3*Level4+		0.161** (0.0713)				-0.031 (0.0757)		
Q3*Petit Bourgeoisie		0.029 (0.1115)				0.182 (0.1957)		
Q3*Intermediate		-0.101 (0.1086)				0.072 (0.0818)		
Q3*Service		-0.007 (0.0706)				0.053 (0.0732)		
Q3*No partner				-0.083 (0.0691)				-0.131** (0.0629)
Q3*White British				0.181* (0.0964)				0.122 (0.0930)
Q3*Other				-0.377* (0.1924)				0.206 (0.2584)
Q4+5*Level2+3		0.046 (0.0681)				0.005 (0.0664)		
Q4+5*Level4+		0.128** (0.0627)				0.072 (0.0662)		
Q4+5*Petit Bourgeoisie		-0.025 (0.0958)				0.236 (0.1853)		
Q4+5*Intermediate		0.059 (0.0963)				0.038 (0.0720)		
Q4+5*Service		0.063 (0.0609)				0.089 (0.0653)		
Q4+5*No partner				-0.106* (0.0589)				-0.075 (0.0553)

	Men				Women			
	Eq. i	Eq. i + Q4+5* edu	Eq. i + Q4+5*class	Eq. i + Q4+5*partner	Eq. i	Eq. i + Q4+5* edu	Eq. i + Q4+5*class	Eq. i + Q4+5*partner
Q4+5*Other				-0.293*				-0.013 (0.2152)
Q4+5*White British				0.165* (0.0913)				0.117 (0.0889)
Carstairs quintile (ref. Q1: least deprived)								
Q2	-0.012 (0.0716)	-0.026 (0.0706)	-0.019 (0.0725)	0.003 (0.0722)	0.055 (0.0649)	0.044 (0.0660)	0.047 (0.0659)	0.051 (0.0645)
Q3	-0.031 (0.0664)	-0.042 (0.0655)	-0.040 (0.0673)	-0.020 (0.0661)	0.030 (0.0616)	0.003 (0.0617)	0.001 (0.0620)	0.011 (0.0610)
Q4	0.009 (0.0651)	-0.010 (0.0641)	-0.008 (0.0656)	0.017 (0.0648)	0.082 (0.0600)	0.046 (0.0606)	0.045 (0.0606)	0.054 (0.0598)
Q5	-0.021 (0.0660)	-0.043 (0.0648)	-0.043 (0.0664)	-0.022 (0.0655)	0.065 (0.0599)	0.027 (0.0601)	0.024 (0.0602)	0.033 (0.0595)
Tenure (ref. owner)								
Social rent	-0.103*** (0.0333)	-0.103*** (0.0332)	-0.098*** (0.0331)	-0.094*** (0.0329)	-0.027 (0.0289)	-0.021 (0.0288)	-0.023 (0.0290)	-0.023 (0.0290)
Private rent	-0.046 (0.0372)	-0.048 (0.0372)	-0.044 (0.0374)	-0.044 (0.0371)	0.023 (0.0358)	0.021 (0.0360)	0.019 (0.0361)	0.020 (0.0358)
Number of cars (ref. none)								
1 car	0.049** (0.0242)	0.052** (0.0241)	0.052** (0.0242)	0.055** (0.0241)	0.020 (0.0222)	0.025 (0.0222)	0.025 (0.0222)	0.025 (0.0222)
2+ cars	0.040 (0.0422)	0.044 (0.0425)	0.042 (0.0425)	0.045 (0.0424)	0.089** (0.0396)	0.106*** (0.0401)	0.104*** (0.0401)	0.101** (0.0400)
Persons per room (ref. 1 ppp)								
> 1.5 persons	-0.056* (0.0331)	-0.057* (0.0332)	-0.060* (0.0333)	-0.058* (0.0331)	-0.017 (0.0298)	-0.022 (0.0300)	-0.021 (0.0299)	-0.024 (0.0300)

	Men				Women			
	Eq. i	Eq. i + Q4+5* edu	Eq. i + Q4+5*class	Eq. i + Q4+5*partner	Eq. i	Eq. i + Q4+5* edu	Eq. i + Q4+5*class	Eq. i + Q4+5*partner
1.5 persons	-0.049 (0.0457)	-0.044 (0.0452)	-0.047 (0.0454)	-0.050 (0.0451)	0.004 (0.0392)	0.005 (0.0393)	0.008 (0.0393)	0.005 (0.0394)
>1 & <1.5 persons	-0.068** (0.0308)	-0.068** (0.0310)	-0.067** (0.0309)	-0.070** (0.0309)	0.016 (0.0282)	0.018 (0.0283)	0.016 (0.0283)	0.012 (0.0283)
>= 0.75 & <1 person	-0.027 (0.0352)	-0.026 (0.0351)	-0.026 (0.0351)	-0.025 (0.0349)	0.033 (0.0334)	0.035 (0.0336)	0.034 (0.0336)	0.030 (0.0338)
<0.75 person	-0.003 (0.0393)	0.007 (0.0394)	0.005 (0.0394)	-0.002 (0.0393)	-0.028 (0.0380)	-0.017 (0.0381)	-0.020 (0.0382)	-0.026 (0.0382)
Parental social class (ref. Manual (V+VI+VII))								
No earners/No code	0.017 (0.0343)	0.020 (0.0342)	0.017 (0.0345)	0.017 (0.0346)	-0.015 (0.0318)	-0.009 (0.0322)	-0.008 (0.0327)	-0.007 (0.0322)
Routine non-manual (III)	0.026 (0.0361)	0.028 (0.0361)	0.026 (0.0359)	0.024 (0.0359)	0.006 (0.0338)	0.011 (0.0338)	0.010 (0.0338)	0.009 (0.0335)
Petit Bourgeoisie (IV)	0.030 (0.0417)	0.043 (0.0412)	0.045 (0.0416)	0.036 (0.0416)	0.071* (0.0406)	0.077* (0.0404)	0.081** (0.0405)	0.080** (0.0407)
Service (I+II)	-0.019 (0.0372)	-0.011 (0.0373)	-0.014 (0.0375)	-0.017 (0.0371)	0.017 (0.0353)	0.028 (0.0352)	0.030 (0.0354)	0.024 (0.0350)
Age								
Age in destination	0.004 (0.0029)	0.004 (0.0028)	0.004 (0.0028)	0.004 (0.0028)	-0.003 (0.0026)	-0.002 (0.0026)	-0.002 (0.0026)	-0.002 (0.0026)
Origin year (ref. 1971)								
1981	-0.033 (0.0239)	-0.031 (0.0242)	-0.034 (0.0240)	-0.033 (0.0241)	-0.036 (0.0223)	-0.031 (0.0223)	-0.033 (0.0224)	-0.030 (0.0223)
1991	-0.093*** (0.0342)	-0.089*** (0.0344)	-0.092*** (0.0345)	-0.096*** (0.0346)	-0.106*** (0.0323)	-0.099*** (0.0325)	-0.102*** (0.0325)	-0.101*** (0.0326)

	Men				Women			
	Eq. i	Eq. i + Q4+5* edu	Eq. i + Q4+5*class	Eq. i + Q4+5*partner	Eq. i	Eq. i + Q4+5* edu	Eq. i + Q4+5*class	Eq. i + Q4+5*partner
Number of census points (ref. 2)								
4 census points	-0.014 (0.0372)	-0.007 (0.0372)	-0.007 (0.0370)	-0.011 (0.0369)	0.045 (0.0359)	0.047 (0.0361)	0.045 (0.0359)	0.047 (0.0362)
5 census points	-0.038 (0.0451)	-0.030 (0.0451)	-0.035 (0.0449)	-0.039 (0.0449)	0.082* (0.0448)	0.081* (0.0450)	0.081* (0.0449)	0.082* (0.0450)
Constant	0.630*** (0.1303)	0.612*** (0.1279)	0.563*** (0.1290)	0.507*** (0.1278)	0.750*** (0.1169)	0.615*** (0.1161)	0.658*** (0.1197)	0.585*** (0.1140)
Adjusted R2	0.136	0.135	0.133	0.138	0.135	0.129	0.127	0.130
N	2,209	2,209	2,209	2,209	2,474	2,474	2,474	2,474

* p-value<.10 ** p-value<.05 *** p-value<.01; robust (clustered) standard errors in parentheses

Population: Individuals between 20 and 55 years old

Source: Author's own calculations based on ONS-LS

Table 8.25: Probability of being in a neighbourhood with a low share of non-whites (Quintiles 1-2). Linear regression with robust SE; ethnic minorities and white British men. Full model

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)	Eq. iii (with partner)
NW quintile (ref. Q1: lowest share)							
Q2	-0.064*** (0.0031)	-0.064*** (0.0031)	-0.064*** (0.0031)	-0.064*** (0.0031)	-0.064*** (0.0031)	-0.064*** (0.0031)	-0.064*** (0.0031)
Q3	-0.176*** (0.0077)	-0.174*** (0.0077)	-0.175*** (0.0076)	-0.174*** (0.0076)	-0.174*** (0.0076)	-0.174*** (0.0076)	-0.174*** (0.0076)
Q4	-0.219*** (0.0112)	-0.216*** (0.0112)	-0.216*** (0.0112)	-0.214*** (0.0111)	-0.214*** (0.0112)	-0.214*** (0.0112)	-0.214*** (0.0112)
Q5	-0.270*** (0.0147)	-0.267*** (0.0147)	-0.264*** (0.0146)	-0.264*** (0.0146)	-0.263*** (0.0146)	-0.263*** (0.0146)	-0.263*** (0.0146)
NW quintile (ref. Q1-2)							
Q3						-0.162*** (0.0080)	-0.160*** (0.0080)
Q4+5						-0.197*** (0.0105)	-0.195*** (0.0104)
Ethnic group (ref. white British)							
Indian	-0.274*** (0.0159)	-0.224*** (0.0168)	-0.266*** (0.0289)	-0.267*** (0.0275)	-0.229*** (0.0303)	-0.189*** (0.0256)	-0.155*** (0.0259)
Pakistani	-0.411*** (0.0220)	-0.355*** (0.0232)	-0.413*** (0.0330)	-0.464*** (0.0318)	-0.319*** (0.0349)	-0.328*** (0.0465)	-0.270*** (0.0467)
Bangladeshi	-0.448*** (0.0387)	-0.406*** (0.0390)	-0.386*** (0.0616)	-0.485*** (0.0516)	-0.360*** (0.0684)	-0.326*** (0.0879)	-0.293*** (0.0859)
Caribbean	-0.324*** (0.0225)	-0.294*** (0.0225)	-0.380*** (0.0311)	-0.354*** (0.0317)	-0.339*** (0.0486)	-0.331*** (0.0415)	-0.306*** (0.0410)

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)	Eq. iii (with partner)
African	-0.342*** (0.0673)	-0.315*** (0.0684)	-0.386*** (0.1159)	-0.136 (0.1312)	-0.087 (0.1513)	-0.477*** (0.1293)	-0.464*** (0.1327)
Education (ref. Level 1 or less)							
Level 2+3		0.006*** (0.0019)	0.005*** (0.0018)	0.006*** (0.0019)	0.006*** (0.0019)	0.006*** (0.0019)	0.007*** (0.0019)
Level 4+		-0.018*** (0.0027)	-0.023*** (0.0026)	-0.019*** (0.0027)	-0.019*** (0.0027)	-0.019*** (0.0027)	-0.017*** (0.0027)
Social class (ref. Manual)							
Petit Bourgeoisie		0.005* (0.0028)	0.005* (0.0028)	0.001 (0.0027)	0.005* (0.0028)	0.006** (0.0028)	0.004 (0.0028)
Intermediate		-0.004 (0.0034)	-0.004 (0.0034)	-0.005 (0.0033)	-0.004 (0.0034)	-0.007* (0.0035)	-0.005 (0.0035)
Service		0.001 (0.0021)	0.001 (0.0021)	-0.001 (0.0021)	0.002 (0.0021)	0.002 (0.0021)	-0.000 (0.0021)
Partner's ethnicity (ref. non-white)							
No partner		0.072*** (0.0145)	0.066*** (0.0145)	0.075*** (0.0144)	0.079*** (0.0187)	0.068*** (0.0146)	0.068*** (0.0146)
Other		0.058*** (0.0165)	0.054*** (0.0165)	0.061*** (0.0164)	0.065*** (0.0203)	0.051*** (0.0166)	0.051*** (0.0166)
White British		0.106*** (0.0145)	0.100*** (0.0145)	0.110*** (0.0144)	0.111*** (0.0187)	0.103*** (0.0146)	0.103*** (0.0146)
Interactions							
Indian*Level 2+3		-0.008 (0.0393)					
Indian*Level 4+		0.092*** (0.0354)					
Pakistani*Level 2+3		0.012					

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)	Eq. iii (with partner)
	Pakistani*Level 4+		(0.0530)				
	Bangladeshi*Level 2+3		0.147*** (0.0480)				
	Bangladeshi*Level 4+		-0.071 (0.0898)				
	Caribbean*Level 2+3		-0.014 (0.0929)				
	Caribbean*Level 4+		0.136*** (0.0505)				
	African*Level 2+3		0.189*** (0.0548)				
	African*Level 4+		0.015 (0.1639)				
	Indian*Petit Bourgeoisie		0.189 (0.1633)				
	Indian*Intermediate			0.115** (0.0574)			
	Indian*Service			-0.016 (0.0556)			
	Pakistani*Petit Bourgeoisie			0.070** (0.0334)			
	Pakistani*Intermediate			0.318*** (0.0625)			
	Pakistani*Service			-0.007 (0.0669)			
				0.183*** (0.0474)			

	Base	Eq. i (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)	Eq. iii (with partner)
Bangladeshi*Petit Bourgeoisie			0.279*			
			(0.1483)			
Bangladeshi*Intermediate			0.095			
			(0.1637)			
Bangladeshi*Service			0.123			
			(0.0812)			
Caribbean*Petit Bourgeoisie			-0.179**			
			(0.0766)			
Caribbean*Intermediate			0.158**			
			(0.0697)			
Caribbean*Service			0.152***			
			(0.0484)			
African*Petit Bourgeoisie			0.298**			
			(0.1418)			
African*Intermediate			-0.125			
			(0.2069)			
African*Service			-0.335**			
			(0.1573)			
Indian*No partner				-0.015		
				(0.0440)		
Indian*Other				-0.048		
				(0.2132)		
Indian*white British				0.234***		
				(0.0670)		
Pakistani*No partner				-0.120**		
				(0.0561)		
Pakistani*Other				0.112		

	Base	Eq. i (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)	Eq. iii (with partner)
Pakistani*white British				(0.2540) 0.289***		
Bangladeshi*No partner			(0.1115) -0.060			
Bangladeshi*Other			(0.0926) -0.331***			
Bangladeshi*white British			(0.0762) -0.371***			
Caribbean*No partner			(0.0727) -0.010			
Caribbean*Other			(0.0674) 0.030			
Caribbean*white British			(0.1216) 0.229***			
African*No partner			(0.0780) -0.233			
African*Other			(0.2147) -0.677***			
African*white British			(0.1909) -0.417*			
Indian*Q3			(0.2507)		-0.097**	-0.092**
Indian*Q4+5					(0.0463)	(0.0459)
Pakistani*Q3					-0.176***	-0.160***
					(0.0398)	(0.0399)
					-0.078	-0.092
					(0.0720)	(0.0718)

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)	Eq. iii (with partner)
Pakistani*Q4+5						-0.169*** (0.0608)	-0.177*** (0.0604)
Bangladeshi*Q3						-0.194 (0.1219)	-0.185 (0.1208)
Bangladeshi*Q4+5						-0.188* (0.1061)	-0.185* (0.1050)
Caribbean*Q3						0.004 (0.0670)	0.005 (0.0661)
Caribbean*Q4+5						-0.032 (0.0592)	-0.028 (0.0585)
African*Q3						0.153 (0.1919)	0.169 (0.1935)
African*Q4+5						0.165 (0.1814)	0.173 (0.1847)
Carstairs quintile (ref. Q1: least deprived)							
Q2	0.001 (0.0025)	0.001 (0.0025)	0.001 (0.0025)	0.001 (0.0025)	0.001 (0.0025)	0.002 (0.0025)	0.002 (0.0025)
Q3	0.004 (0.0026)	0.002 (0.0026)	0.002 (0.0026)	0.002 (0.0026)	0.002 (0.0026)	0.004* (0.0026)	0.003 (0.0026)
Q4	0.009*** (0.0027)	0.007** (0.0027)	0.007** (0.0027)	0.007** (0.0027)	0.007** (0.0027)	0.008*** (0.0027)	0.007** (0.0027)
Q5	0.006* (0.0032)	0.004 (0.0032)	0.004 (0.0032)	0.004 (0.0032)	0.004 (0.0032)	0.002 (0.0032)	0.001 (0.0032)
Tenure (ref. owner)							
Social rent	-0.004* (0.0024)	-0.007*** (0.0024)	-0.007*** (0.0024)	-0.007*** (0.0024)	-0.006*** (0.0024)	-0.005** (0.0024)	-0.006*** (0.0024)
Private rent	0.008**	0.005	0.005	0.005	0.005	0.002	0.001

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)	Eq. iii (with partner)
Number of cares (ref. none)							
1 car	(0.0033)	(0.0033)	(0.0033)	(0.0033)	(0.0033)	(0.0033)	(0.0033)
2+ cars	0.009*** (0.0024)	0.008*** (0.0024)	0.008*** (0.0024)	0.008*** (0.0024)	0.008*** (0.0024)	0.010*** (0.0024)	0.009*** (0.0024)
Persons per room (ref. 1 ppp)							
> 1.5 persons	-0.014** (0.0069)	-0.011 (0.0069)	-0.009 (0.0068)	-0.011 (0.0068)	-0.012* (0.0068)	-0.011 (0.0069)	-0.008 (0.0069)
1.5 persons	-0.023** (0.0099)	-0.022** (0.0099)	-0.022** (0.0098)	-0.022** (0.0098)	-0.024** (0.0098)	-0.022** (0.0100)	-0.022** (0.0099)
>1 & <1.5 persons	-0.014*** (0.0035)	-0.013*** (0.0035)	-0.013*** (0.0035)	-0.013*** (0.0034)	-0.013*** (0.0034)	-0.013*** (0.0035)	-0.013*** (0.0035)
>= 0.75 & <1 person	0.001 (0.0024)	0.002 (0.0024)	0.002 (0.0024)	0.002 (0.0024)	0.002 (0.0024)	0.001 (0.0024)	0.002 (0.0024)
<0.75 person	0.000 (0.0025)	0.003 (0.0025)	0.003 (0.0025)	0.003 (0.0025)	0.002 (0.0025)	0.002 (0.0025)	0.003 (0.0025)
Parental social class (ref. Manual (V+VI+VII))							
No earners/No code	-0.008* (0.0047)	-0.008* (0.0047)	-0.008 (0.0047)	-0.007 (0.0047)	-0.007 (0.0047)	-0.008* (0.0048)	-0.008* (0.0047)
Routine non-manual (III)	-0.005** (0.0026)	-0.004* (0.0026)	-0.005* (0.0026)	-0.004 (0.0026)	-0.004* (0.0026)	-0.006** (0.0026)	-0.006** (0.0026)
Petit Bourgeoisie (IV)	0.003 (0.0030)	0.003 (0.0030)	0.002 (0.0030)	0.003 (0.0030)	0.003 (0.0030)	0.002 (0.0030)	0.002 (0.0030)
Service (I+II)	-0.016*** (0.0026)	-0.012*** (0.0026)	-0.012*** (0.0026)	-0.012*** (0.0026)	-0.012*** (0.0026)	-0.015*** (0.0027)	-0.014*** (0.0026)
Age							

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)	Eq. iii (with partner)
Age in destination	0.000 (0.0002)	-0.000 (0.0002)	-0.000 (0.0002)	-0.000 (0.0002)	-0.000 (0.0002)	0.000 (0.0002)	-0.000 (0.0002)
Origin year (ref. 1971)							
1981	0.001 (0.0015)	0.000 (0.0015)	0.000 (0.0015)	0.000 (0.0015)	0.000 (0.0015)	0.001 (0.0015)	-0.000 (0.0015)
1991	-0.011*** (0.0027)	-0.010*** (0.0027)	-0.010*** (0.0027)	-0.010*** (0.0027)	-0.010*** (0.0027)	-0.008*** (0.0027)	-0.006*** (0.0027)
Number of census points (ref. 2)							
4 census points	0.007 (0.0072)	0.009 (0.0072)	0.007 (0.0072)	0.008 (0.0072)	0.008 (0.0072)	0.008 (0.0072)	0.009 (0.0072)
5 census points	0.016** (0.0074)	0.014* (0.0074)	0.012* (0.0073)	0.014* (0.0073)	0.013* (0.0074)	0.018** (0.0074)	0.015** (0.0074)
Constant	0.945*** (0.0099)	0.874*** (0.0202)	0.883*** (0.0202)	0.872*** (0.0201)	0.870*** (0.0242)	0.934*** (0.0101)	0.867*** (0.0203)
Adjusted R-squared	0.152	0.159	0.160	0.162	0.161	0.147	0.152
N	77,196	77,196	77,196	77,196	77,196	77,196	77,196

* p-value<.10 ** p-value<.05 *** p-value<.01; robust (clustered) standard errors in parentheses

Population: Individuals between 20 and 55 years old

Source: Author's own calculations based on ONS-LS

Table 8.26: Probability of being in a neighbourhood with a low share of non-whites (Quintiles 1-2). Linear regression with robust SE; ethnic minorities and white British women. Full model.

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)	Eq. iii (with partner)
NW quintile (ref. Q1: lowest share)							
Q2	-0.064*** (0.0033)	-0.063*** (0.0032)	-0.063*** (0.0032)	-0.063*** (0.0032)	-0.063*** (0.0032)	-0.063*** (0.0032)	
Q3	-0.170*** (0.0078)	-0.168*** (0.0078)	-0.168*** (0.0078)	-0.168*** (0.0078)	-0.166*** (0.0078)	-0.166*** (0.0078)	
Q4	-0.209*** (0.0112)	-0.206*** (0.0111)	-0.206*** (0.0111)	-0.205*** (0.0111)	-0.206*** (0.0111)	-0.206*** (0.0111)	
Q5	-0.257*** (0.0159)	-0.253*** (0.0158)	-0.249*** (0.0158)	-0.249*** (0.0158)	-0.252*** (0.0156)	-0.252*** (0.0156)	
NW quintile (ref. Q1-2)							
Q3						-0.156*** (0.0081)	-0.154*** (0.0080)
Q4+5						-0.190*** (0.0109)	-0.187*** (0.0109)
Ethnic group (ref. white British)							
Indian	-0.287*** (0.0198)	-0.252*** (0.0213)	-0.295*** (0.0376)	-0.341*** (0.0395)	-0.164*** (0.0342)	-0.278*** (0.0335)	-0.247*** (0.0341)
Pakistani	-0.441*** (0.0263)	-0.405*** (0.0279)	-0.456*** (0.0419)	-0.524*** (0.0371)	-0.345*** (0.0398)	-0.342*** (0.0500)	-0.304*** (0.0504)
Bangladeshi	-0.406*** (0.0484)	-0.373*** (0.0495)	-0.329*** (0.0816)	-0.466*** (0.0639)	-0.292*** (0.0657)	-0.207*** (0.0825)	-0.171*** (0.0829)
Caribbean	-0.402*** (0.0226)	-0.375*** (0.0228)	-0.390*** (0.0378)	-0.383*** (0.0434)	-0.233*** (0.0515)	-0.368*** (0.0413)	-0.340*** (0.0414)

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)	Eq. iii (with partner)
African	-0.357*** (0.0540)	-0.327*** (0.0545)	-0.459*** (0.1245)	-0.592*** (0.0942)	0.003 (0.1139)	-0.243** (0.1075)	-0.222** (0.1075)
Education (ref. Level 1 or less)							
Level 2+3		0.009*** (0.0022)	0.009*** (0.0021)	0.009*** (0.0022)	0.009*** (0.0022)	0.010*** (0.0022)	0.010*** (0.0022)
Level 4+		-0.012*** (0.0032)	-0.015*** (0.0031)	-0.012*** (0.0032)	-0.011*** (0.0032)	-0.011*** (0.0032)	-0.010*** (0.0032)
Social class (ref. Manual)							
Petit Bourgeoisie		0.011** (0.0042)	0.011** (0.0042)	0.007* (0.0040)	0.011** (0.0042)	0.012*** (0.0043)	0.010** (0.0043)
Intermediate		0.002 (0.0026)	0.002 (0.0026)	0.001 (0.0025)	0.002 (0.0026)	0.002 (0.0026)	0.001 (0.0026)
Service		0.002 (0.0026)	0.002 (0.0026)	-0.002 (0.0025)	0.002 (0.0026)	0.001 (0.0026)	0.001 (0.0026)
Partner's ethnicity (ref. non-white)							
No partner		0.032* (0.0164)	0.024 (0.0165)	0.027* (0.0164)	0.097*** (0.0209)		0.034** (0.0164)
Other		0.016 (0.0194)	0.008 (0.0195)	0.011 (0.0193)	0.073*** (0.0232)		0.016 (0.0194)
White British		0.071*** (0.0164)	0.063*** (0.0165)	0.066*** (0.0163)	0.132*** (0.0208)		0.074*** (0.0164)
Interactions							
Indian*Level 2+3			0.023 (0.0473)				
Indian*Level 4+			0.080* (0.0465)				
Pakistani*Level 2+3			-0.014				

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)	Eq. iii (with partner)
Pakistani*Level 4+			(0.0567)				
Bangladeshi*Level 2+3			0.176*** (0.0633)				
Bangladeshi*Level 4+			-0.085 (0.1060)				
Caribbean*Level 2+3			-0.050 (0.1357)				
Caribbean*Level 4+			-0.006 (0.0525)				
African*Level 2+3			0.048 (0.0538)				
African*Level 4+			-0.028 (0.1628)				
Indian*Petit Bourgeoisie			0.212 (0.1419)	0.108 (0.1088)			
Indian*Intermediate				0.090* (0.0516)			
Indian*Service				0.127*** (0.0465)			
Pakistani*Petit Bourgeoisie				0.414*** (0.1361)			
Pakistani*Intermediate				0.117* (0.0605)			
Pakistani*Service				0.217*** (0.0590)			

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)	Eq. iii (with partner)
Bangladeshi*Petit Bourgeoisie			-0.059				
			(0.1627)				
Bangladeshi*Intermediate			0.198				
			(0.1256)				
Bangladeshi*Service			0.174				
			(0.1143)				
Caribbean*Petit Bourgeoisie			-0.009				
			(0.1858)				
Caribbean*Intermediate			-0.035				
			(0.0580)				
Caribbean*Service			0.040				
			(0.0545)				
African*Petit Bourgeoisie			0.199				
			(0.2936)				
African*Intermediate			0.307**				
			(0.1435)				
African*Service			0.320***				
			(0.1183)				
Indian*No partner					-0.182***		
					(0.0438)		
Indian*Other					0.206		
					(0.1808)		
Indian*white British					0.197***		
					(0.0590)		
Pakistani*No partner					-0.090		
					(0.0559)		
Pakistani*Other					-0.093		

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)	Eq. iii (with partner)
Pakistani*white British					(0.2403)		
Bangladeshi*No partner					0.242** (0.1218)		
Bangladeshi*Other					-0.116 (0.1005)		
Bangladeshi*white British					0.000 (0.0000)		
Caribbean*No partner					-0.096 (0.3312)		
Caribbean*Other					-0.215*** (0.0575)		
Caribbean*white British					0.097 (0.1642)		
African*No partner					0.126 (0.0822)		
African*Other					-0.433*** (0.1286)		
African*white British					0.000 (0.0000)		
Indian*Q3					-0.099 (0.1936)		
Indian*Q4+5						-0.016 (0.0487)	-0.013 (0.0486)
Pakistani*Q3						-0.057 (0.0415)	-0.054 (0.0414)
						-0.084 (0.0668)	-0.084 (0.0664)

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)	Eq. iii (with partner)
Pakistani*Q4+5						-0.200*** (0.0585)	-0.205*** (0.0581)
Bangladeshi*Q3						-0.161 (0.1207)	-0.165 (0.1217)
Bangladeshi*Q4+5						-0.347*** (0.0981)	-0.349*** (0.0981)
Caribbean*Q3						-0.100* (0.0525)	-0.102* (0.0524)
Caribbean*Q4+5						-0.055 (0.0510)	-0.057 (0.0509)
African*Q3						-0.004 (0.1403)	-0.002 (0.1407)
African*Q4+5						-0.253* (0.1299)	-0.248* (0.1305)
Carstairs quintile (ref. Q1: least deprived)							
Q2	0.004 (0.0024)	0.003 (0.0023)	0.003 (0.0023)	0.003 (0.0023)	0.003 (0.0023)	0.005** (0.0023)	0.004* (0.0023)
Q3	0.008*** (0.0024)	0.007*** (0.0024)	0.007*** (0.0024)	0.007*** (0.0024)	0.007*** (0.0024)	0.009*** (0.0024)	0.008*** (0.0024)
Q4	0.010*** (0.0026)	0.010*** (0.0026)	0.009*** (0.0025)	0.009*** (0.0025)	0.010*** (0.0025)	0.010*** (0.0026)	0.010*** (0.0026)
Q5	0.010*** (0.0029)	0.010*** (0.0029)	0.010*** (0.0029)	0.010*** (0.0029)	0.010*** (0.0029)	0.008*** (0.0030)	0.008*** (0.0030)
Tenure (ref. owner)							
Social rent	-0.007*** (0.0022)	-0.007*** (0.0023)	-0.008*** (0.0022)	-0.008*** (0.0022)	-0.007*** (0.0022)	-0.008*** (0.0023)	-0.008*** (0.0023)
Private rent	0.008***	0.007**	0.007**	0.007**	0.008***	0.004	0.003

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)	Eq. iii (with partner)
Number of cares (ref. none)							
1 car	(0.0030)	(0.0030)	(0.0030)	(0.0030)	(0.0030)	(0.0030)	(0.0030)
2+ cars	0.013*** (0.0023)	0.012*** (0.0023)	0.012*** (0.0023)	0.012*** (0.0023)	0.012*** (0.0023)	0.013*** (0.0023)	0.012*** (0.0023)
Persons per room (ref. 1 ppp)							
> 1.5 persons	-0.013** (0.0066)	-0.010 (0.0066)	-0.010 (0.0065)	-0.009 (0.0065)	-0.012* (0.0064)	-0.011* (0.0066)	-0.009 (0.0065)
1.5 persons	-0.019** (0.0093)	-0.018** (0.0092)	-0.018** (0.0092)	-0.018** (0.0092)	-0.016* (0.0092)	-0.017* (0.0093)	-0.016* (0.0092)
>1 & <1.5 persons	-0.009*** (0.0032)	-0.008** (0.0032)	-0.008** (0.0032)	-0.007** (0.0032)	-0.007** (0.0032)	-0.008** (0.0033)	-0.007** (0.0033)
>= 0.75 & <1 person	0.004* (0.0023)	0.004* (0.0023)	0.004* (0.0023)	0.004* (0.0023)	0.004* (0.0023)	0.005** (0.0023)	0.005** (0.0023)
<0.75 person	-0.002 (0.0024)	-0.001 (0.0024)	-0.001 (0.0024)	-0.001 (0.0024)	-0.001 (0.0024)	-0.001 (0.0024)	-0.001 (0.0024)
Parental social class (ref. Manual (V+VI+VII))							
No earners/No code	-0.012*** (0.0044)	-0.010** (0.0044)	-0.010** (0.0043)	-0.010** (0.0043)	-0.010** (0.0043)	-0.012*** (0.0044)	-0.011** (0.0044)
Routine non-manual (III)	-0.003 (0.0025)	-0.002 (0.0025)	-0.003 (0.0025)	-0.003 (0.0025)	-0.003 (0.0024)	-0.004 (0.0025)	-0.004 (0.0025)
Petit Bourgeoisie (IV)	0.003 (0.0028)	0.003 (0.0028)	0.003 (0.0028)	0.003 (0.0028)	0.003 (0.0028)	0.003 (0.0028)	0.003 (0.0028)
Service (I+II)	-0.010*** (0.0024)	-0.007*** (0.0024)	-0.006*** (0.0024)	-0.006*** (0.0024)	-0.007*** (0.0024)	-0.010*** (0.0024)	-0.009*** (0.0024)
Age							

	Base	Eq. i	Eq. ii (*education)	Eq. ii (*class)	Eq. ii (*partner)	Eq. iii (without partner)	Eq. iii (with partner)
Age in destination	-0.000 (0.0002)	-0.001*** (0.0002)	-0.001*** (0.0002)	-0.001*** (0.0002)	-0.001*** (0.0002)	-0.000 (0.0002)	-0.001*** (0.0002)
Origin year (ref. 1971)							
1981	-0.001 (0.0014)	-0.002 (0.0014)	-0.002 (0.0014)	-0.002 (0.0014)	-0.002 (0.0014)	-0.001 (0.0014)	-0.002 (0.0014)
1991	-0.015*** (0.0025)	-0.013*** (0.0024)	-0.013*** (0.0024)	-0.013*** (0.0024)	-0.013*** (0.0024)	-0.011*** (0.0025)	-0.009*** (0.0024)
Number of census points (ref. 2)							
4 census points	0.002 (0.0065)	0.003 (0.0065)	0.003 (0.0065)	0.000 (0.0065)	0.002 (0.0065)	0.001 (0.0065)	0.002 (0.0065)
5 census points	0.013* (0.0068)	0.009 (0.0068)	0.009 (0.0068)	0.007 (0.0067)	0.008 (0.0068)	0.012* (0.0068)	0.009 (0.0067)
Constant	0.960*** (0.0089)	0.916*** (0.0189)	0.924*** (0.0190)	0.925*** (0.0188)	0.853*** (0.0227)	0.942*** (0.0091)	0.901*** (0.0189)
Adjusted R-squared	0.168	0.175	0.176	0.177	0.180	0.163	0.169
N	83,972	83,972	83,972	83,972	83,972	83,972	83,972

* p-value<.10 ** p-value<.05 *** p-value<.01; robust (clustered) standard errors in parentheses

Population: Individuals between 20 and 55 years old

Source: Author's own calculations based on ONS-LS

Table 8.27: Probability of being in a neighbourhood with a low share of non-whites (Quintiles 1-2) and low deprivation (quintiles 1-3). Replication of Equation a) from Tables 6.12 and 6.13 and from Tables 8.23 and 8.24, using logistic regression with average marginal effects; in the table: average marginal effects, robust (clustered) standard errors and p-value

	Non-white quintile 1+2						Deprivation quintile 1-3					
	Men			Women			Men			Women		
	dy/dx	SE	p-value	dy/dx	SE	p-value	dy/dx	SE	p-value	dy/dx	SE	p-value
NW quintile (ref. Q1: lowest share)												
Q2	-0.07	0.00	0.00	-0.07	0.00	0.00	-0.03	0.00	0.00	-0.03	0.00	0.00
Q3	-0.17	0.01	0.00	-0.17	0.01	0.00	-0.07	0.01	0.00	-0.08	0.01	0.00
Q4	-0.21	0.01	0.00	-0.20	0.01	0.00	-0.17	0.01	0.00	-0.18	0.01	0.00
Q5	-0.24	0.02	0.00	-0.22	0.02	0.00	-0.24	0.01	0.00	-0.25	0.01	0.00
Ethnic group (ref. white British)												
Indian	-0.06	0.01	0.00	-0.08	0.01	0.00	-0.05	0.02	0.02	-0.06	0.02	0.00
Pakistani	-0.12	0.02	0.00	-0.16	0.02	0.00	-0.24	0.03	0.00	-0.19	0.03	0.00
Bangladeshi	-0.15	0.03	0.00	-0.12	0.03	0.00	-0.18	0.05	0.00	-0.11	0.05	0.04
Caribbean	-0.10	0.02	0.00	-0.14	0.02	0.00	-0.19	0.03	0.00	-0.25	0.02	0.00
African	-0.10	0.05	0.03	-0.09	0.03	0.00	-0.21	0.09	0.02	-0.30	0.06	0.00
Partner's ethnicity (ref. non-white)												
No partner	0.03	0.01	0.00	0.01	0.01	0.24	-0.01	0.02	0.46	0.01	0.02	0.72
Other	0.02	0.01	0.08	0.00	0.01	0.79	0.02	0.02	0.36	0.04	0.02	0.09
White British	0.07	0.01	0.00	0.05	0.01	0.00	0.06	0.02	0.00	0.10	0.02	0.00
Social class (ref. Manual)												
Petit Bourgeoisie	0.01	0.00	0.11	0.01	0.00	0.01	0.08	0.01	0.00	0.11	0.01	0.00
Intermediate	0.00	0.00	0.46	0.00	0.00	0.38	0.04	0.01	0.00	0.07	0.01	0.00
Service	0.00	0.00	0.62	0.00	0.00	0.62	0.10	0.01	0.00	0.08	0.01	0.00
Education (ref. Level 1 or less)												
Level 2+3	0.01	0.00	0.01	0.01	0.00	0.00	0.03	0.00	0.00	0.05	0.00	0.00

	Non-white quintile 1+2						Deprivation quintile 1-3					
	Men			Women			Men			Women		
	dy/dx	SE	p-value	dy/dx	SE	p-value	dy/dx	SE	p-value	dy/dx	SE	p-value
Level 4+	-0.02	0.00	0.00	-0.01	0.00	0.00	0.05	0.01	0.00	0.07	0.01	0.00
Carstairs quintiles (ref. Q1: less deprivation)												
Carstairs Q2	0.00	0.00	0.78	0.00	0.00	0.13	0.00	0.01	0.69	0.00	0.00	0.43
Carstairs Q3	0.00	0.00	0.37	0.01	0.00	0.01	0.00	0.01	0.79	0.00	0.01	0.67
Carstairs Q4	0.01	0.00	0.02	0.01	0.00	0.00	0.01	0.01	0.62	0.03	0.01	0.00
Carstairs Q5	0.00	0.00	0.20	0.01	0.00	0.00	0.02	0.01	0.15	0.04	0.01	0.00
Tenure (ref. owner)												
Social rent	-0.01	0.00	0.00	-0.01	0.00	0.00	-0.07	0.00	0.00	-0.07	0.00	0.00
Private rent	0.00	0.00	0.31	0.01	0.00	0.04	-0.01	0.01	0.13	-0.01	0.01	0.02
Number of cars (ref. none)												
1 car	0.01	0.00	0.00	0.01	0.00	0.00	0.06	0.00	0.00	0.07	0.00	0.00
2+ cars	0.01	0.00	0.06	0.01	0.00	0.00	0.09	0.01	0.00	0.10	0.01	0.00
Persons per room (ref. 1 ppp)												
> 1.5 persons	-0.01	0.01	0.08	-0.01	0.00	0.11	-0.05	0.01	0.00	-0.06	0.01	0.00
1.5 persons	-0.02	0.01	0.02	-0.01	0.01	0.12	-0.05	0.01	0.00	-0.07	0.01	0.00
>1 & <1.5 persons	-0.01	0.00	0.00	-0.01	0.00	0.02	-0.04	0.01	0.00	-0.02	0.01	0.00
>= 0.75 & <1 person	0.00	0.00	0.36	0.00	0.00	0.04	0.01	0.00	0.10	0.01	0.00	0.01
<0.75 person	0.00	0.00	0.24	0.00	0.00	0.61	0.02	0.00	0.00	0.02	0.00	0.00
Parental social class (ref. Manual (V+VI+VII))												
No earners/No code	-0.01	0.00	0.09	-0.01	0.00	0.06	0.01	0.01	0.41	0.02	0.01	0.01
Routine non-manual (III)	0.00	0.00	0.06	0.00	0.00	0.24	0.02	0.00	0.00	0.03	0.00	0.00
Petit Bourgeoisie (IV)	0.00	0.00	0.43	0.00	0.00	0.14	0.06	0.01	0.00	0.05	0.01	0.00
Professional/Managerial (I+II)	-0.01	0.00	0.00	-0.01	0.00	0.00	0.03	0.01	0.00	0.04	0.00	0.00
Age												
Age in destination	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.54
Origin year (ref. 1971)												

	Non-white quintile 1+2						Deprivation quintile 1-3					
	Men			Women			Men			Women		
	dy/dx	SE	p-value	dy/dx	SE	p-value	dy/dx	SE	p-value	dy/dx	SE	p-value
1981	0.00	0.00	0.76	0.00	0.00	0.21	-0.02	0.00	0.00	-0.03	0.00	0.00
1991	-0.01	0.00	0.00	-0.01	0.00	0.00	-0.06	0.01	0.00	-0.07	0.00	0.00
Number of census points (ref. 3)												
4 census points	0.01	0.01	0.30	0.00	0.00	0.83	0.00	0.01	0.69	-0.01	0.01	0.55
5 census points	0.01	0.01	0.04	0.01	0.01	0.20	0.01	0.01	0.41	0.00	0.01	0.92
Pseudo R-squared	0.1858			0.2047			0.1033			0.1179		
N	77196			83972			77196			73972		

Note: the coefficients are very similar with respect to those observed in the equivalent models presented in the chapter: the substantive results remain therefore the same.
Population: Individuals between 20 and 55 years old
Source: Author's own calculations based on ONS-LS

9 ANNEX B: A Comparison of ‘Pooled’ and ‘Unique’ data

The main aim of this Annex is to explore the extent to which the data that pools cases, that is, which allows more than one measurement per individual, varies from data in which only one origin/destination for each individual is randomly chosen.

The main rationale for pooling data is that it allows one to have more cases. Working with ethnic minorities is always problematic in this regard, and by allowing multiple entrances per individual I have achieved more stable models. Of course, there is the issue of to what extent pooling models generates noise in the results. In this Annex, therefore, I offer some descriptive statistics of how key variables behave for a version of the data in which only one individual is present. The more similar the distribution of variables, the more we can say that the pooled version of the data is an ‘extended’ version of the individual version of the data, and also an expression a ‘life course average’ of each individual. This exploration is complemented, in Annex C, with an analysis of the effect of origin/destination years.

Table 9.1 shows the number of pooled and unique cases by group for the so-called initial sample (see Chapter 2). We can see that there are variations between groups: in particular, Bangladeshis and Africans, and those who have less-repeated measurements. This is related to the fact that they are the populations with the least number of cases and, in the case of Bangladeshis, are also younger, which means that they are less likely to be in earlier census points.

Table 9.1: Pooled and unique cases by ethnic group; initial sample

	Chapters 3 & 5			Chapter 6		
	<i>Pooled</i>	<i>Unique</i>	<i>% Unique</i>	<i>Pooled</i>	<i>Unique</i>	<i>% Unique</i>
British	399807	155089	38.8	183739	130907	71.2
Indian	7117	2940	41.3	2727	1883	69.1
Pakistani	4432	2038	46.0	1439	1022	71.0
Bangladeshi	1323	685	51.8	381	311	81.6
Chinese	844	350	41.5	299	211	70.6
Caribbean	3563	1584	44.5	1434	1064	74.2
African	724	386	53.3	208	174	83.7
Total	<i>417810</i>	<i>163072</i>	<i>39.0</i>	<i>190227</i>	<i>135572</i>	<i>71.3</i>

Source: Author's own calculations based on ONS-LS

Tables 9.2-9.4 show the distribution of parental social class, education and the service class and for the six ethnic minority groups and white British, using pooled and unique data (in both cases, the so-called initial samples are used). In the first case, all possible values of these variables for each individual are considered; in the second, each individual is randomly assigned one parental social class, education and social class (note that in Chapter 6 only the parental social class varies; education and occupation refer to 2001). I have selected these variables since they can be considered as key indicators of average socio-economic conditions of groups in *origin* (parental social class) and *destination* (education and social class).

These tables reveal that that for all groups, the distribution the key selected variables is very similar in the pooled and unique datasets. In other words, the distribution of class of origin, education and the service class for each group does not reveal important differences across datasets. This suggests that, on average, the pooled and unique datasets are similar in terms of their structure and the way the variables behave: pooling the cases has probably not harmed the substantive findings (recall that I still make a correction for the standard errors). However, it could also be argued that differences might exist for different origin/destination years: I explore this further in Annex C.

Table 9.2: Parental social class by ethnic group; initial sample, pooled and unique cases

	Pooled						Unique					
	NE/ NC	V+VI +VII	III	IV	I+II	Total	NE/ NC	V+VI +VII	III	IV	I+II	Total
Chapters 3 & 5												
White British	5.5	38.0	15.5	11.1	29.9	399767	5.9	37.5	16	11.1	29.5	155075
Indian	6.1	50.9	10.5	14.2	18.2	7117	6.7	48.9	10.9	15.3	18.2	2940
Pakistani	16.1	60.0	4.0	12.3	7.7	4431	16.7	58.4	3.9	13.2	7.8	2037
Bangladeshi	27.8	52.3	3.1	11.3	5.5	1322	28.2	52.8	2.5	10.4	6.1	684
Chinese	11.0	24.1	5.5	40.9	18.6	844	10.9	23.7	6.6	42.9	16.0	350
Caribbean	14.0	47.1	22.1	2.3	14.5	3563	14.3	46.0	23.7	2.1	14.0	1584
African	18.4	27.8	24.8	1.5	27.5	723	21.2	28.0	23.1	0.0	27.7	386
Chapter 6												
White British	5.0	40.0	15.8	10.8	28.5	183726	5.0	40.1	16.4	10.7	27.9	130978
Indian	6.2	56.4	9.4	12.0	16.0	2727	6.8	57.6	9.4	11.3	14.9	1887
Pakistani	14.5	64.8	2.9	10.6	7.2	1439	13.7	65.3	2.9	10.6	7.5	1012
Bangladeshi	28.1	50.9	3.7	11.8	5.5	381	28.4	51.1	3.2	11.2	6.1	313
Chinese	10.1	25.0	7.4	42.2	17.2	296	9.4	25.9	9.0	41.5	14.2	212
Caribbean	11.7	52.9	19.4	1.9	14.2	1431	10.3	54.8	18.7	2.0	14.2	1060
African	15.0	29.9	27.6	4.7	22.9	214	14.9	31.6	30.5	0.0	23.0	174

I+II: Professional/managerial; III: Routine non-manual; IV: Bourgeoisie; V+VI+VII: Manual; NE/NC: No earners/no code.

Source: Author's own calculations based on ONS-LS

Table 9.3: Education by ethnic group; initial sample, pooled and unique cases

	Pooled				Unique			
	<i>Level 1 or less</i>	<i>Level 2+3</i>	<i>Level 4+</i>	<i>Total</i>	<i>Level 1 or less</i>	<i>Level 2+3</i>	<i>Level 4+</i>	<i>Total</i>
<u>Chapters 3 & 5</u>								
British	36.4	36.7	27.0	397662	37.6	36.0	26.4	154370
Indian	21.2	30.4	48.4	6991	21.1	31.0	47.9	2894
Pakistani	35.5	32.0	32.5	4391	36.5	31.9	31.7	2025
Bangladeshi	36.7	33.4	29.9	1311	37.9	32.5	29.7	681
Chinese	14.1	29.8	56.1	823	19.0	27.8	53.2	342
Caribbean	34.1	35.7	30.2	3544	34.4	36.9	28.7	1577
African	15.2	31.3	53.5	712	14.8	31.1	54.1	379
<u>Chapter 6</u>								
British	41.4	37.0	21.6	182334	42.8	35.3	22.0	130192
Indian	26.0	35.3	38.6	2638	27.7	33.8	38.6	1839
Pakistani	38.8	32.6	28.7	1410	40.4	30.6	29.0	994
Bangladeshi	40.1	38.4	21.5	372	42.8	36.3	20.9	306
Chinese	13.7	37.0	49.3	284	16.3	34.0	49.8	203
Caribbean	38.4	35.5	26.1	1424	40.0	33.7	26.3	1055
African	21.0	30.7	48.3	205	21.6	29.8	48.5	171

Source: Own calculations based on ONS-LS

Table 9.4: Access to the service class by ethnic group; initial sample, pooled and unique cases

	Pooled		Unique	
	<i>Service class</i>	<i>Total</i>	<i>Service class</i>	<i>Total</i>
<u>Chapters 3 & 5</u>				
White British	38.8	381668	38.4	148003
Indian	52.2	6259	51.5	2600
Pakistani	35.5	3934	35.1	1812
Bangladeshi	34.1	1180	31.5	607
Chinese	51.4	706	51.2	297
Caribbean	39.5	3324	39.1	1464
African	49.3	605	51.0	310
<u>Chapter 6</u>				
White British	37.6	174559	38.1	125770
Indian	48.2	2237	48.7	1605
Pakistani	33.2	1202	33.3	867
Bangladeshi	33.8	321	33.0	269
Chinese	48.4	227	47.9	170
Caribbean	39.5	1333	39.9	1001
African	53.4	189	54.5	153

Source: Author's own calculations based on ONS-LS

10 ANNEX C: Origin and Destination Effects

Chapters 3, 5 and 6 are not mainly concerned with exploring changes over time; rather, I am interested in average results. However, some differences between years do emerge, for example in Chapter 3 when studying employment. This Annex provides, first of all, descriptive statistics for selected (origin and destination) key variables from each chapter by origin and destination year. It is not my aim here to discuss these findings in detail, but to reveal potential differences for various origin/destination years. Secondly, I show the results of some key models for different origin/destination years. Since these models control for all relevant variables, including age, I expect to explore in a more direct way whether there are year effects worth considering.

Regarding origin variables, Table 10.1 shows that except for Bangladeshis, those raised in more recent years (and most of those measured in 2001) are less likely to have lower-class parents. The results on the distribution of groups in neighbourhoods show that for Indians the share of co-ethnics in the neighbourhood is lower in more recent origin years. Similar results are observed for white British and Indians when the share of non-whites is estimated. For the other groups, the share of co-ethnics (and for most groups also the share of non-whites) is the highest in 1981 (and also when measured in 2001). As regards key destination variables, individuals are in general more likely to be employed and more likely to be in the service class in 2011 than in 2001. Another outcome to note is that individuals raised in 1991 are less likely to be found in a non-white neighbourhood: this might be related to an age effect, in the sense that those raised in 1991 are still too young to make a move to a more white area in 2011.

Table 10.1: Distribution of key variables by group and origin/destination years; final samples

	1971	1981	1991	2001	2011
Variables measured in origin					
% Low parental class (manual or less)					
White British	50.9	46.6	32.1	46.4	42.7
Indian	76.3	65.8	44.0	67.8	55.5
Pakistani	86.8	79.9	73.7	82.1	76.0
Bangladeshi	61.1	78.0	82.7	81.6	79.8
Chinese	-	39.5	38.2	34.1	36.5
Caribbean	71.5	61.6	41.2	65.2	60.7
African	45.7	48.3	43.4	44.5	46.8
% Q5 co-ethnic					
Indian	35.0	27.2	20.2	28.1	25.1
Pakistani	19.9	25.7	23.1	25.8	22.9
Bangladeshi	-	25.1	23.5	24.2	23.8
Caribbean	16.1	17.8	16.0	16.3	17.5
African	14.5	35.0	25.1	27.2	24.3
% Q45 non-white					
White British	2.5	2.2	1.7		
Indian	60.1	52.1	44.3		
Pakistani	50.5	55.2	53.3		
Bangladeshi	-	50.4	61.1		
Caribbean	46.2	44.9	37.7		
African	47.9	47.1	-		
Variables measured in destination					
% Employed					
White British	82.5	82.8	82.1	81.6	83.6
Indian	83.4	84.2	84.2	81.8	85.6
Pakistani	65.8	62.9	63.0	57.6	66.5
Bangladeshi	50.0	62.3	63.9	55.4	66.1
Chinese	87.0	89.5	87.3	91.5	86.5
Caribbean	79.0	78.3	75.5	75.4	81.3
African	78.3	86.3	78.9	80.4	82.1
% Service class					
White British	38.6	39.8	35.5	36.8	40.1
Indian	46.0	53.7	54.6	48.0	55.7
Pakistani	44.4	37.7	31.1	32.7	37.7
Bangladeshi	39.3	37.6	31.9	32.6	34.7
Chinese	55.2	50.8	52.5	49.0	53.7

	1971	1981	1991	2001	2011
Caribbean	40.6	40.3	40.5	38.4	42.7
African	51.9	54.5	41.3	53.3	47.4
% Q1+2 non-white					
White British	95.0	94.7	94.0		
Indian	50.9	51.4	46.4		
Pakistani	44.0	33.4	31.4		
Bangladeshi	-	30.4	34.5		
Caribbean	43.6	43.8	29.9		
African	42.5	47.1	-		

Note: Percentages are calculated using the final samples: for % Low parental class, % Q5 co-ethnic, % Employed and % Service class, the final samples for Chapters 3 and 5 are used; for % Q45 non-white and % Q1+2 non-white, the final sample for Chapter 5 is used. Some percentages are not shown due to the low number of cases. For the approximate totals by year and ethnicity refer to Table 2.5 in Chapter 2.

Source: Author's own calculations based on ONS-LS

Tables 10.2-10.4 replicate Model 5 from Tables 3.5-3.8 and Model 2 from Tables 3.9 and 3.10 in Chapter 3, but dividing by origin and destination years. In other words, the models that test for ethnic penalties in employment (Tables 3.5 and 3.6) and access to the service class (Tables 3.7 and 3.8) and the models that explore social mobility patterns, after controlling for education (Tables 3.9-3.10) are estimated separately for people raised in 1971, 1981 and 1991 and for people whose outcomes are measured in 2001 and 2011. Similarly, Tables 10.5 and 10.6 replicate Model 5 from Tables 5.3 and 5.7 in Chapter 5: this model estimates the effect of the share of co-ethnics in the origin neighbourhood in the access to employment and in the probability of avoiding routine and semi-routine occupations, after controlling for background characteristics and for each ethnic group. Finally, Table 10.7 replicates Eq. i from Tables 6.12 and 6.13 in Chapter 6, which tests for the existence of ethnic enclave/place stratification models. The full models are available upon request.

Starting with Chapter 3, as regards access to employment (Table 10.2), the results are very similar to those observed in the chapter. Among men, the penalty for Pakistanis and Caribbeans and the advantage of the Chinese is observed in most of estimations (note that in 2011 the penalty disappears, as Chapter 3 also shows). Among women, the disadvantage of Pakistanis and Bangladeshis is more than evident, and constant across all models, although for Bangladeshis the situation seems to improve over time. As regards access to the service class (Table 10.3), the advantage for Indians (both men and women) is clear in all models; moreover, the advantage for

Caribbean women also seems to be quite constant, while the advantage for Bangladeshi and Chinese men less so (still, most of coefficients are positive). Regarding the estimations of social mobility (Table 10.4), we see that the positive effect of parental social class IV for Indians occurs mainly in the recent cohort/destination year; while for Pakistani men/women and Caribbean men it is in the older cohorts/destination year where the positive/negative effects of parental social class I+II is most prevalent.

Moving to Chapter 5, Tables 10.4 and 10.5 show that the negative neighbourhood effect found for Pakistani and Bangladeshi women is, to a greater or lesser extent, negative in all cohorts/destination years. The same can be said of the positive effect for Indian men in terms of occupation, and the negative effect for Bangladeshi and black populations. Table 10.6, finally, which refers to Chapter 6, shows results pooled for men and women, given that no strong gender effects were observed in the chapter itself. We can see that the coefficients go in the same direction as the ones observed in the main chapter.

Table 10.2: Access to employment for individuals raised in different origin years (1971-1991) and individuals measured in different destination years (2001-2011). Test for Chapter 3.

	Men					Women				
	1971	1981	1991	2001	2011	1971	1981	1991	2001	2011
Ethnic group (ref. white British)										
Indian	0.027* (0.0146)	0.008 (0.0093)	-0.010 (0.0110)	0.000 (0.0127)	0.008 (0.0089)	0.033* (0.0189)	0.005 (0.0120)	-0.015 (0.0133)	0.022 (0.0150)	-0.005 (0.0115)
Pakistani	-0.024 (0.0255)	-0.034** (0.0152)	-0.049*** (0.0176)	-0.087*** (0.0211)	-0.018 (0.0141)	-0.207*** (0.0347)	-0.217*** (0.0174)	-0.157*** (0.0181)	-0.227*** (0.0216)	-0.188*** (0.0164)
Bangladeshi	-0.090 (0.0891)	0.062** (0.0269)	0.024 (0.0247)	-0.028 (0.0383)	0.050** (0.0211)	-0.433*** (0.1161)	-0.244*** (0.0363)	-0.084*** (0.0245)	-0.225*** (0.0381)	-0.162*** (0.0250)
Chinese	0.140*** (0.0223)	0.079*** (0.0191)	-0.007 (0.0297)	0.073** (0.0304)	0.039* (0.0230)	-0.040 (0.0913)	0.069** (0.0327)	0.041 (0.0297)	0.118*** (0.0312)	0.001 (0.0340)
Caribbean	-0.027 (0.0175)	-0.033** (0.0166)	-0.053 (0.0329)	-0.069*** (0.0191)	0.002 (0.0182)	0.017 (0.0168)	0.002 (0.0174)	-0.028 (0.0300)	-0.001 (0.0178)	0.005 (0.0184)
African	0.031 (0.0511)	0.058* (0.0349)	-0.006 (0.0392)	-0.027 (0.0497)	0.044 (0.0277)	-0.017 (0.0426)	0.049 (0.0356)	-0.009 (0.0442)	0.027 (0.0372)	-0.032 (0.0322)
Adjusted R2	0.088	0.104	0.126	0.088	0.124	0.081	0.136	0.206	0.106	0.146
N	59,721	76,320	44,499	91,497	89,043	62,693	80,133	46,111	95,597	93,340

All models control for: age, number of census points, class of origin, tenure, number of persons per room, number of cars and deprivation quintile at the ward level. Moreover, models for 1971-1991 control for destination year, while models for 2001-2011 control for origin year.

* p-value<.10 ** p-value<.05 *** p-value<.01. Robust (clustered) Robust (clustered) standard errors in parentheses.

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

Table 10.3: Access to the service class for individuals raised in different origin years (1971-1991) and individuals measured in different destination years (2001-2011). Test for Chapter 3.

	Men				Women					
	1971	1981	1991	2001	2011	1971	1981	1991	2001	2011
Ethnic group (ref. white British)										
Indian	0.056*** (0.0196)	0.082*** (0.0123)	0.082*** (0.0146)	0.078*** (0.0154)	0.074*** (0.0129)	0.023 (0.0203)	0.053*** (0.0131)	0.077*** (0.0154)	0.042** (0.0165)	0.060*** (0.0138)
Pakistani	0.039 (0.0282)	0.014 (0.0162)	-0.023 (0.0170)	0.011 (0.0188)	0.008 (0.0160)	0.059* (0.0342)	-0.008 (0.0171)	-0.001 (0.0178)	-0.008 (0.0225)	0.009 (0.0163)
Bangladeshi	-0.008 (0.1156)	0.017 (0.0329)	0.051* (0.0281)	0.095** (0.0381)	0.037 (0.0266)	0.153 (0.1142)	0.041 (0.0357)	0.004 (0.0229)	0.041 (0.0391)	0.019 (0.0236)
Chinese	-0.040 (0.0764)	0.052 (0.0384)	0.090** (0.0432)	0.064 (0.0470)	0.059 (0.0375)	0.137* (0.0757)	-0.015 (0.0347)	-0.042 (0.0380)	-0.032 (0.0493)	-0.005 (0.0353)
Caribbean	-0.014 (0.0206)	-0.001 (0.0202)	0.064* (0.0385)	-0.011 (0.0210)	0.020 (0.0235)	0.050*** (0.0188)	0.035* (0.0189)	-0.009 (0.0323)	0.045** (0.0197)	0.030 (0.0211)
African	-0.026 (0.0823)	0.065 (0.0534)	0.040 (0.0548)	0.127** (0.0597)	-0.007 (0.0422)	-0.045 (0.0517)	0.035 (0.0494)	-0.164*** (0.0541)	-0.001 (0.0490)	-0.068 (0.0424)
Adjusted R2	0.267	0.255	0.232	0.248	0.262	0.261	0.254	0.241	0.248	0.253
N	58,180	73,817	42,113	89,067	85,043	60,616	76,635	43,357	91,902	88,706

All models control for: age, number of census points, class of origin, tenure, number of persons per room, number of cars and deprivation quintile at the ward level. Moreover, models 1971-1991 control for destination year, while models 2001-2011 control for origin year.

* p-value<.10 ** p-value<.05 *** p-value<.01. Robust (clustered) standard errors in parentheses.

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

Table 10.4: Access to the service class (models of social mobility) for individuals raised in different origin years (1971-1991) and individuals measured in different destination years (2001-2011). Test for Chapter 3.

	Men					Women				
	1971	1981	1991	2001	2011	1971	1981	1991	2001	2011
Ethnic group (ref. white British)										
Indian	0.039* (0.0231)	0.077*** (0.0162)	0.071*** (0.0248)	0.070*** (0.0189)	0.064*** (0.0181)	0.036 (0.0233)	0.054*** (0.0167)	0.053** (0.0244)	0.041** (0.0202)	0.049*** (0.0188)
Pakistani	0.007 (0.0322)	-0.009 (0.0197)	-0.008 (0.0247)	-0.006 (0.0223)	0.003 (0.0203)	0.043 (0.0381)	0.009 (0.0206)	-0.004 (0.0251)	0.004 (0.0267)	0.011 (0.0211)
Bangladeshi	0.113 (0.1546)	0.053 (0.0410)	0.085** (0.0411)	0.151*** (0.0447)	0.068* (0.0355)	0.055 (0.1471)	-0.005 (0.0435)	0.006 (0.0303)	0.034 (0.0500)	0.001 (0.0289)
Chinese	0.312 (0.3045)	0.048 (0.0839)	-0.045 (0.1045)	0.079 (0.0936)	-0.007 (0.0778)	0.309*** (0.0691)	0.015 (0.0665)	0.009 (0.0739)	0.006 (0.0776)	-0.002 (0.0635)
Caribbean	0.006 (0.0244)	0.021 (0.0285)	0.093 (0.0664)	0.028 (0.0260)	0.008 (0.0323)	0.042* (0.0234)	0.023 (0.0282)	0.012 (0.0628)	0.044* (0.0240)	0.023 (0.0286)
African	-0.024 (0.1508)	0.073 (0.0795)	-0.134* (0.0796)	0.062 (0.0790)	-0.039 (0.0636)	-0.098 (0.0898)	-0.042 (0.1454)	-0.192* (0.1090)	-0.082 (0.0944)	-0.097 (0.0906)
Parental social class - reduced (ref. V+VI+VII)										
No earners / No code	0.024*** (0.0092)	0.019** (0.0083)	0.008 (0.0099)	0.024*** (0.0070)	0.024*** (0.0071)	-0.001 (0.0083)	0.018** (0.0075)	-0.001 (0.0086)	0.014** (0.0062)	0.003 (0.0066)
III (Routine non-manual)	0.054*** (0.0058)	0.053*** (0.0060)	0.029*** (0.0066)	0.043*** (0.0046)	0.045*** (0.0049)	0.026*** (0.0054)	0.028*** (0.0056)	0.029*** (0.0065)	0.027*** (0.0044)	0.020*** (0.0048)
IV (Pet B)	-0.021*** (0.0070)	-0.006 (0.0065)	0.001 (0.0076)	-0.007 (0.0056)	-0.008 (0.0059)	0.003 (0.0066)	0.006 (0.0061)	0.012 (0.0076)	0.009 (0.0055)	0.001 (0.0057)
I + II (Professional/Managerial)	0.091*** (0.0058)	0.102*** (0.0053)	0.079*** (0.0067)	0.086*** (0.0048)	0.096*** (0.0049)	0.054*** (0.0055)	0.057*** (0.0050)	0.069*** (0.0066)	0.054*** (0.0046)	0.059*** (0.0048)
Interactions with parental social class										
Indian* No earners / No code	0.077 (0.0924)	-0.021 (0.0507)	-0.045 (0.0628)	0.031 (0.0526)	-0.052 (0.0433)	-0.117 (0.0942)	0.011 (0.0640)	-0.086 (0.0556)	-0.028 (0.0546)	-0.039 (0.0549)

	Men					Women				
	1971	1981	1991	2001	2011	1971	1981	1991	2001	2011
Indian*III	0.098 (0.0734)	0.005 (0.0403)	-0.013 (0.0460)	0.027 (0.0513)	0.000 (0.0392)	0.054 (0.0814)	0.015 (0.0511)	0.020 (0.0475)	0.031 (0.0482)	0.020 (0.0417)
Indian*IV	-0.057 (0.0904)	0.014 (0.0421)	0.091** (0.0379)	0.028 (0.0443)	0.070** (0.0326)	-0.204*** (0.0750)	-0.048 (0.0425)	0.079* (0.0429)	-0.034 (0.0516)	0.024 (0.0352)
Indian*I+II	0.044 (0.0509)	0.014 (0.0297)	-0.022 (0.0377)	-0.018 (0.0389)	0.009 (0.0298)	-0.027 (0.0670)	0.005 (0.0326)	0.047 (0.0388)	0.016 (0.0436)	0.028 (0.0328)
Pakistani* No earners / No code	0.107 (0.1003)	0.018 (0.0445)	-0.089** (0.0352)	-0.040 (0.0418)	-0.040 (0.0348)	-0.005 (0.1535)	-0.081* (0.0469)	-0.014 (0.0406)	-0.019 (0.0493)	-0.043 (0.0352)
Pakistani*III	0.106 (0.1076)	0.075 (0.1017)	0.089 (0.0903)	0.102 (0.1095)	0.077 (0.0665)	0.313** (0.1221)	0.136 (0.1426)	0.033 (0.0849)	0.140 (0.1192)	0.065 (0.0839)
Pakistani*IV	0.230 (0.1412)	0.065 (0.0564)	-0.006 (0.0497)	0.106* (0.0599)	0.014 (0.0447)	0.121 (0.1007)	-0.038 (0.0489)	0.035 (0.0519)	-0.034 (0.0654)	0.025 (0.0434)
Pakistani*I+II	0.120** (0.0567)	0.105** (0.0508)	0.036 (0.0670)	0.155** (0.0674)	0.038 (0.0517)	-0.147 (0.1405)	-0.131** (0.0652)	-0.027 (0.0598)	-0.157* (0.0885)	-0.062 (0.0503)
Bangladeshi* No earners / No code	-0.786*** (0.1550)	-0.045 (0.0786)	-0.092 (0.0590)	-0.106 (0.0759)	-0.054 (0.0539)	0.214 (0.1477)	0.078 (0.0926)	0.002 (0.0468)	0.012 (0.0797)	0.023 (0.0483)
Bangladeshi*III	-0.169 (0.2265)	-0.141 (0.2439)	-0.128 (0.1498)	-0.192 (0.1874)	-0.155 (0.1574)	0.214 (0.1477)	0.277*** (0.0442)	0.535*** (0.1127)	0.079 (0.1863)	0.565*** (0.1243)
Bangladeshi*IV	-0.169 (0.2265)	-0.057 (0.0972)	0.013 (0.0954)	-0.126 (0.1054)	0.002 (0.0789)	0.104 (0.1158)	-0.094 (0.0784)	-0.094 (0.1389)	-0.088 (0.1389)	-0.009 (0.0915)
Bangladeshi*I+II	-0.745** (0.3048)	-0.205 (0.1420)	-0.061 (0.1577)	-0.109 (0.1560)	-0.170* (0.1240)	0.359** (0.1474)	0.344*** (0.1301)	-0.193 (0.1337)	0.230 (0.1672)	0.014 (0.1503)
Chinese* No earners / No code	-0.556* (0.3223)	0.093 (0.0853)	0.220 (0.2282)	0.127 (0.1351)	0.144 (0.1503)	-0.520*** (0.1709)	-0.081 (0.0680)	-0.045 (0.1912)	-0.011 (0.1675)	-0.096 (0.1271)
Chinese*III	-0.308 (0.3260)	-0.061 (0.1029)	0.104 (0.1250)	-0.035 (0.1123)	0.015 (0.0950)	-0.192 (0.1198)	-0.026 (0.0856)	-0.085 (0.0948)	-0.093 (0.0921)	0.028 (0.0838)
Chinese*IV	-0.151 (0.3260)	0.099 (0.1029)	0.221* (0.1250)	0.112 (0.1123)	0.152* (0.0950)	-0.151 (0.1198)	-0.094 (0.0856)	-0.023 (0.0948)	-0.038 (0.0921)	-0.018 (0.0838)

	Men					Women				
	1971	1981	1991	2001	2011	1971	1981	1991	2001	2011
Caribbean* No earners / No code	(0.3070) 0.028 (0.0771) -0.076 (0.0705) 0.249 (0.2820) -0.120**	(0.0937) 0.036 (0.0605) -0.059 (0.0452) -0.033 (0.1161) -0.165*	(0.1238) -0.023 (0.1210) -0.027 (0.1034) -0.406*** (0.1507) -0.042	(0.1012) 0.002 (0.0653) -0.096** (0.0474) -0.170 (0.1147) -0.154**	(0.0900) 0.063 (0.0623) 0.017 (0.0493) 0.070 (0.1395) -0.023	0.049 (0.0701) 0.016 (0.0631) -0.189* (0.0994) 0.023 (0.0493) 0.175 (0.2377) 0.190 (0.1256) -0.109 (0.0905) -0.067 (0.1287)	(0.1088) 0.086 (0.0570) 0.012 (0.0440) -0.024 (0.0916) -0.049 (0.0685) 0.046 (0.1791) 0.152 (0.1625) -0.076 (0.1455) 0.063 (0.1680)	(0.1186) -0.028 (0.1022) -0.015 (0.0903) -0.063 (0.1527) -0.034 (0.0868) 0.100 (0.1429) 0.058 (0.1634) 0.594*** (0.1122) -0.068 (0.1444)	0.072 (0.0622) -0.005 (0.0441) -0.075 (0.1132) -0.033 (0.0535) 0.015 (0.1345) 0.222* (0.1215) 0.285* (0.1598) -0.001 (0.1221)	(0.1019) 0.031 (0.0570) 0.016 (0.0426) -0.094 (0.0791) 0.003 (0.0517) 0.096 (0.1179) 0.120 (0.1093) 0.093 (0.2365) -0.085 (0.1095)
African* No earners / No code	(0.0569) -0.052 (0.3326) -0.066 (0.1989) 0.796***	(0.0939) -0.183 (0.1428) -0.056 (0.1298)	(0.0985) 0.380** (0.1792) 0.139 (0.1310) 0.843***	(0.0610) 0.261 (0.2086) -0.041 (0.1205) 0.696***	(0.0605) 0.013 (0.1211) -0.001 (0.0913) 0.822***	(0.0493) 0.175 (0.2377) 0.190 (0.1256) -0.109 (0.0905) -0.067 (0.1287)	(0.0685) 0.046 (0.1791) 0.152 (0.1625) -0.076 (0.1455) 0.063 (0.1680)	(0.0868) 0.100 (0.1429) 0.058 (0.1634) 0.594*** (0.1122) -0.068 (0.1444)	0.015 (0.1345) 0.222* (0.1215) 0.285* (0.1598) -0.001 (0.1221)	(0.0517) 0.096 (0.1179) 0.120 (0.1093) 0.093 (0.2365) -0.085 (0.1095)
Adjusted R2	0.267	0.255	0.232	0.248	0.261	0.261	0.254	0.242	0.248	0.253
N	58,180	73,817	42,113	89,067	85,043	60,616	76,635	43,357	91,902	88,706

All models control for: Controls for: education, age, other origin variables, origin year, destination year and number of census points.

2 + means a positive interaction; - means a negative interaction; and ns means a non-significant interaction (p-value >= .10). Effects refer to educational level 4+ vs. Level 1 or less.

* p-value < .10 ** p-value < .05 *** p-value < .01

Standard errors in parentheses

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

Table 10.5: Access to employment for individuals raised in different origin years (1971-1991) and individuals measured in different destination years (2001-2011). Test for Chapter 5.

	Men					Women				
	1971	1981	1991	2001	2011	1971	1981	1991	2001	2011
Co-ethnic quintile (ref. Q1: lowest concentration)										
Q2	-0.098 (0.0611)	0.042 (0.0327)	-0.016 (0.0348)	-0.001 (0.0430)	-0.005 (0.0290)	0.097 (0.1411)	-0.029 (0.0476)	-0.003 (0.0441)	0.054 (0.0541)	-0.049 (0.0383)
Q3	-0.043 (0.0586)	0.003 (0.0340)	0.033 (0.0335)	-0.023 (0.0436)	0.027 (0.0280)	0.106 (0.1396)	0.005 (0.0449)	0.018 (0.0415)	0.037 (0.0527)	-0.001 (0.0350)
Q4	-0.059 (0.0549)	0.018 (0.0350)	0.051 (0.0346)	0.009 (0.0436)	0.024 (0.0294)	0.166 (0.1362)	0.015 (0.0460)	-0.012 (0.0450)	0.025 (0.0525)	0.014 (0.0367)
Q5	-0.084 (0.0551)	0.022 (0.0364)	0.051 (0.0374)	-0.029 (0.0472)	0.050 (0.0303)	0.176 (0.1373)	0.017 (0.0457)	0.039 (0.0441)	0.066 (0.0544)	0.026 (0.0380)
Ethnic group (ref. Indian)										
Pakistani	-0.121 (0.0826)	-0.095* (0.0510)	-0.080 (0.0545)	-0.105 (0.0668)	-0.084* (0.0443)	-0.098 (0.1564)	-0.161*** (0.0618)	-0.089* (0.0482)	-0.180*** (0.0681)	-0.119*** (0.0447)
Bangladeshi	-0.176 (0.1309)	-0.009 (0.0692)	0.007 (0.0667)	-0.196* (0.1149)	0.047 (0.0481)	-0.570*** (0.1512)	-0.204** (0.0999)	-0.130** (0.0662)	-0.147 (0.1246)	-0.179** (0.0748)
Caribbean	-0.087 (0.0629)	0.022 (0.0476)	-0.001 (0.0766)	-0.038 (0.0564)	0.013 (0.0485)	0.124 (0.1402)	0.039 (0.0540)	-0.023 (0.0818)	0.051 (0.0622)	-0.006 (0.0531)
African	-0.140 (0.1932)	-0.213 (0.1930)	0.046 (0.1015)	-0.190 (0.1837)	-0.003 (0.0905)	0.229 (0.1617)	0.024 (0.1157)	-0.028 (0.1017)	0.141 (0.1015)	-0.067 (0.1080)
Ethnic group * co-ethnic quintile										
Pakistani * Q5	0.032 (0.1027)	0.047 (0.0618)	-0.035 (0.0702)	0.017 (0.0816)	0.016 (0.0533)	-0.276 (0.1801)	-0.128* (0.0732)	-0.123* (0.0654)	-0.090 (0.0822)	-0.178*** (0.0580)
Bangladeshi * Q5	0.344** (0.1454)	-0.054 (0.1020)	-0.056 (0.0911)	0.187 (0.1455)	-0.108 (0.0722)	-0.099 (0.1610)	-0.267** (0.1171)	-0.070 (0.0890)	-0.244* (0.1408)	-0.132 (0.0906)

	Men					Women				
	1971	1981	1991	2001	2011	1971	1981	1991	2001	2011
Caribbean * Q5	0.021 (0.0840)	-0.068 (0.0642)	-0.162 (0.1294)	-0.066 (0.0776)	-0.051 (0.0630)	-0.166 (0.1484)	-0.056 (0.0686)	-0.052 (0.1118)	-0.117 (0.0758)	-0.005 (0.0662)
African * Q5	0.349* (0.2012)	0.287 (0.1974)	-0.085 (0.1293)	0.178 (0.2078)	0.070 (0.1011)	-0.346* (0.1998)	-0.111 (0.1347)	-0.059 (0.1453)	-0.165 (0.1162)	-0.091 (0.1295)
Adjusted R2	0.058	0.073	0.097	0.078	0.076	0.114	0.184	0.182	0.175	0.164
N	1,385	3,177	2,288	2,760	4,090	1,577	3,390	2,470	3,085	4,352

All models control for: age, number of census points, class of origin, tenure, number of persons per room, number of cars and deprivation quintile at the ward level. Moreover, models 1971-1991 control for destination year, while models 2001-2011 control for origin year.

* p-value<.10 ** p-value<.05 *** p-value<.01. Robust (clustered) standard errors in parentheses.

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

Table 10.6: Avoidance of routine and semi-routine occupations for individuals raised in different origin years (1971-1991) and individuals measured in different destination years (2001-2011). Test for Chapter 5.

	Men					Women				
	1971	1981	1991	2001	2011	1971	1981	1991	2001	2011
Co-ethnic quintile (ref. Q1: lowest concentration)										
Q2	0.077 (0.0649)	0.090** (0.0367)	0.076** (0.0347)	0.086 (0.0521)	0.082*** (0.0270)	0.041 (0.0946)	0.004 (0.0385)	0.062 (0.0390)	0.057 (0.0452)	0.029 (0.0293)
Q3	0.071 (0.0670)	0.030 (0.0382)	0.036 (0.0369)	0.057 (0.0510)	0.026 (0.0293)	-0.033 (0.0952)	0.008 (0.0388)	0.074** (0.0359)	0.062 (0.0430)	0.021 (0.0286)
Q4	0.004 (0.0663)	0.086** (0.0397)	0.043 (0.0380)	0.081 (0.0501)	0.042 (0.0302)	-0.035 (0.0909)	0.009 (0.0407)	0.011 (0.0395)	0.019 (0.0438)	0.006 (0.0313)
Q5	0.031 (0.0646)	0.078* (0.0421)	0.092** (0.0400)	0.084 (0.0532)	0.063* (0.0325)	-0.037 (0.0916)	-0.012 (0.0419)	0.028 (0.0420)	0.003 (0.0484)	0.009 (0.0337)
Ethnic group (ref. Indian)										
Pakistani	-0.090 (0.0970)	0.032 (0.0477)	0.043 (0.0536)	0.062 (0.0708)	0.003 (0.0441)	-0.051 (0.1042)	0.023 (0.0455)	0.066 (0.0410)	0.002 (0.0566)	0.062* (0.0331)
Bangladeshi	0.047 (0.1007)	0.099 (0.0658)	0.018 (0.0834)	0.078 (0.1011)	0.037 (0.0559)	0.027 (0.0557)	0.012 (0.1211)	0.057 (0.0648)	-0.110 (0.1343)	0.130** (0.0572)
Caribbean	-0.049 (0.0687)	0.007 (0.0537)	0.100 (0.0766)	-0.004 (0.0665)	0.015 (0.0491)	0.000 (0.0937)	0.009 (0.0509)	-0.060 (0.0722)	0.038 (0.0518)	-0.017 (0.0458)
African	0.078 (0.0913)	0.242*** (0.0675)	0.146** (0.0670)	0.129 (0.1668)	0.149*** (0.0343)	-0.032 (0.1289)	-0.199 (0.1246)	-0.242* (0.1256)	-0.391** (0.1652)	-0.014 (0.0796)
Ethnic group * co-ethnic quintile										
Pakistani * Q5	0.172 (0.1134)	-0.072 (0.0628)	-0.172** (0.0710)	-0.132 (0.0843)	-0.046 (0.0560)	0.023 (0.1371)	-0.116* (0.0616)	-0.207*** (0.0655)	-0.098 (0.0764)	-0.164*** (0.0521)
Bangladeshi * Q5	-0.095 (0.2279)	-0.327*** (0.0947)	-0.070 (0.1089)	-0.260* (0.1381)	-0.111 (0.0787)	-0.164 (0.1506)	-0.115 (0.0922)	0.054 (0.1671)	0.054 (0.0804)	-0.181** (0.0804)

	Men					Women				
	1971	1981	1991	2001	2011	1971	1981	1991	2001	2011
Caribbean * Q5	-0.081 (0.0926)	-0.143* (0.0745)	-0.285** (0.1381)	-0.148* (0.0882)	-0.134* (0.0732)	0.067 (0.1050)	-0.001 (0.0680)	-0.016 (0.1074)	-0.046 (0.0685)	0.053 (0.0579)
African * Q5	0.160 (0.1472)	-0.330*** (0.1073)	-0.146 (0.1262)	-0.073 (0.1934)	-0.229*** (0.0815)	0.023 (0.1511)	0.121 (0.1374)	0.066 (0.1591)	0.323* (0.1780)	-0.073 (0.0977)
Adjusted R2	0.148	0.202	0.180	0.182	0.167	0.113	0.155	0.184	0.157	0.154
N	1,320	3,024	2,100	2,621	3,823	1,449	3,057	2,179	2,776	3,909

All models control for: age, number of census points, class of origin, tenure, number of persons per room, number of cars and deprivation quintile at the ward level. Moreover, models 1971-1991 control for destination year, while models 2001-2011 control for origin year.

* p-value<.10 ** p-value<.05 *** p-value<.01. Robust (clustered) standard errors in parentheses.

Population: Individuals between 20 and 45 years old

Source: Author's own calculations based on ONS-LS

Table 10.7: Probability of being in a neighbourhood with a low share of non-whites (quintiles 1-2) for individuals raised in different origin years (1971-1991) and individuals measured in different destination years (2001-2011). Test for Chapter 6 (men and women pooled).

	1971	1981	1991
NW quintile (ref. Q1: lowest share)			
Q2	-0.055*** (0.0029)	-0.063*** (0.0032)	-0.110*** (0.0091)
Q3	-0.148*** (0.0070)	-0.176*** (0.0083)	-0.289*** (0.0207)
Q4	-0.171*** (0.0102)	-0.219*** (0.0119)	-0.390*** (0.0266)
Q5	-0.189*** (0.0143)	-0.298*** (0.0161)	-0.447*** (0.0299)
Ethnic group (ref. white British)			
Indian	-0.223*** (0.0221)	-0.211*** (0.0169)	-0.233*** (0.0281)
Pakistani	-0.304*** (0.0341)	-0.374*** (0.0224)	-0.354*** (0.0344)
Bangladeshi	-0.109 (0.1299)	-0.406*** (0.0386)	-0.283*** (0.0442)
Caribbean	-0.344*** (0.0199)	-0.321*** (0.0232)	-0.384*** (0.0495)
African	-0.335*** (0.0582)	-0.278*** (0.0595)	-0.349*** (0.1153)
Education (ref. Level 1 or less)			
Level 2+3	0.007*** (0.0018)	0.007*** (0.0020)	0.005 (0.0040)
Level 4+	-0.009*** (0.0026)	-0.018*** (0.0029)	-0.033*** (0.0061)
Social class (ref. Manual)			
Petit Bourgeoisie	0.006** (0.0028)	0.008** (0.0037)	0.012 (0.0097)
Intermediate	-0.000	0.000	0.004

	1971	1981	1991
Service	(0.0026) 0.003 (0.0021)	(0.0028) -0.000 (0.0023)	(0.0049) 0.001 (0.0045)
Partnership (ref. non-white)			
No partner	0.083*** (0.0149)	0.057*** (0.0151)	-0.038 (0.0287)
White British	0.123*** (0.0148)	0.093*** (0.0151)	-0.012 (0.0287)
Other	0.073*** (0.0166)	0.038** (0.0178)	-0.057 (0.0385)
Adjusted R-squared	0.125	0.192	0.252
Observations	78,148	64,664	18,356

All models control for: age, number of census points, class of origin, tenure, number of persons per room, number of cars and deprivation quintile at the ward level. Moreover, models 1971-1991 control for destination year, while models 2001-2011 control for origin year.

* p-value < .10 ** p-value < .05 *** p-value < .01. Robust standard errors in parentheses.

Population: Individuals between 20 and 55 years old

Source: Author's own calculations based on ONS-LS

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