THE CENTRE FOR MARKET AND PUBLIC ORGANISATION

The Centre for Market and Public Organisation (CMPO) is a leading research centre, combining expertise in economics, geography and law. Our objective is to study the intersection between the public and private sectors of the economy, and in particular to understand the right way to organise and deliver public services. The Centre aims to develop research, contribute to the public debate and inform policy-making.

CMPO, now an ESRC Research Centre was established in 1998 with two large grants from The Leverhulme Trust. In 2004 we were awarded ESRC Research Centre status, and CMPO now combines core funding from both the ESRC and the Trust.

Centre for Market and Public Organisation
Bristol Institute of Public Affairs
University of Bristol
2 Priory Road
Bristol BS8 1TX

Tel: (0117) 33 10799
Fax: (0117) 33 10705
E-mail: cmpo-office@bristol.ac.uk

‘Sleep-Walking Towards Segregation?’ The Changing Ethnic Composition of English Schools, 1997-2003: An Entry Cohort Analysis

Ron Johnston, Simon Burgess, Richard Harris and Deborah Wilson

September 2006

Working Paper No. 06/155

ISSN 1473-625X

CMPO Working Paper Series No. 06/155

'Sleep-Walking Towards Segregation'? The Changing Ethnic Composition of English Schools, 1997-2003 – an Entry Cohort Analysis

Ron Johnston[1], Simon Burgess[2], Richard Harris[1] and Deborah Wilson[2]

[1] *School of Geographical Sciences and CMPO, University of Bristol*
[2] *CMPO, University of Bristol*

September 2006

Abstract

There has been considerable public debate recently in England regarding levels of segregation (and changes in those levels) not only by neighbourhood but also in schools. Little data are available to evaluate claims that such segregation has been increasing in the country's schools. This paper uses a data set released by the Department for Education and Skills which indicates the ethnic identity for every student in the entry cohorts for all English primary and secondary schools between 1997-8 (for primary and secondary schools respectively) and 2003. Analysis indicates that there has been some increase in segregation levels in some cities, but only to the expected extent given the changing relative size of the ethnic minority populations there. Segregation is relatively high there, but has only increased if the minority groups' share of the entry cohorts has been increasing.

Keywords: ethnic segregation, schools

JEL Classification: I20

Acknowledgements

This research was conducted in the Centre for Market and Public Organisation at the University of Bristol, with support from both the ESRC and the Leverhulme Trust, which is gratefully acknowledged. Thanks also to the DfES for access to the PLASC/NPD data.

Address for Correspondence
CMPO, Bristol Institute of Public Affairs
University of Bristol
2 Priory Road
Bristol
BS8 1TX
Simon.burgess@bristol.ac.uk
R.Johnston@bristol.ac.uk
www.bris.ac.uk/Depts/CMPO/

CMPO is jointly funded by the Leverhulme Trust and the ESRC

The issue of ethnic segregation in British towns and cities has been a topic of considerable public debate in recent years, much of it stimulated by analyses of the 2001 census data. A broader context for the debate, however, was provided by the conflicts ('riots') in a number of northern cities in 2001, plus growing concern about immigration – illegal and otherwise.

Underlying that concern has been a widely-held feeling that segregation is both substantial and increasing. The former point was made by Cantle (2005, 26), for example, who argued that

> Britain is a multicultural society, but most people do not live in multicultural communities. Most of the ethnic population lives in London and a few other regional centres. The White population dominates the rest of the country. Even in areas that are mixed, the separation is often just as evident, with most towns and cities divided by neighbourhoods.

Furthermore, he claimed that

> …"segregated" communities are so dominated by particular groups that the possibility of contact with the majority population or another minority group is limited. These "parallel lives" do not meet, leaving little or no opportunity to explore differences and build mutual respect. We cannot issue edicts about where people should live, but we should always remember that a segregated society is a divided society.

On the same day, a leading article in a major newspaper claimed that 'communities which do not overlap or have meaningful cultural interchanges, breed fear, distrust and division' (*The Guardian*, 21 January 2005, 29). Segregation is seen as a major threat to a healthy multi-cultural society which should respect difference and celebrate diversity.

This case was taken up and extended by the Chair of the Commission for Racial Equality, who argued in a widely-discussed speech in September 2005 that 'Our ordinary schools ... are becoming more exclusive', at the same time as residential segregation is increasing, especially for Asians.[1] According to his analysis, the country is 'sleepwalking into New Orleans-style racial segregation … [producing a] Britain of passively coexisting ethnic and religious communities, eyeing each other uneasily over the fences of our differences'.[2] Indeed, according to the Ouseley Report (2001) on the disturbances in several northern English cities in 2001, these occurred in part because of 'a segregated school system that has failed to challenge negative attitudes and stereotypes and that has played a marginal role in brokering cultural shifts between family, school, and public life' (Amin, 2002, 962; see also Amin, 2003).[3]

These concerns reflect (or are reflected in) growing public belief that ethnic segregation is increasing. A poll taken for the think tank/pressure group Migration Watch by YouGov in March 2006 asked people whether they agreed or disagreed with the statement 'I am concerned that British society is becoming increasingly racially segregated'. Almost three-quarters agreed (35 per cent strongly agreed and a further 38 per cent simply agreed); only ten per cent disagreed. This was clearly linked to concerns about overcrowding (69 per cent agreed that 'Britain is already overcrowded'), the rate of immigration (76 per cent agreed that 'there must be an annual limit to the number of immigrants allowed to come to Britain'), and about the cultural impacts of immigration (60 per cent agreed with a statement that 'The current

levels of immigration are making good community relations more difficult to achieve' and 69 per cent with 'I am concerned that Britain is losing its own culture'). Linked to this, the 2005 Home Office Citizenship Survey (Murphy, Wedlock and King, 2005) found not only that nearly half of the British population thinks that there is more racial prejudice than there was five years ago, but that this percentage has increased significantly from the figure recorded by the 2001 survey; interestingly, White respondents were more likely to consider that racial prejudice has increased than were Blacks and Asians.[4]

This apparent general belief regarding increased residential segregation is not consistent with the empirical evidence provided by academic studies (Simpson, 2004; though see Johnston et al, 2005). These have suggested that residential segregation increased slightly in a small number of places (Bradford, Leicester and Oldham) over the decade 1991-2001, but has declined elsewhere – and has in any case never reached the very high levels associated with Black populations in US cities such as New Orleans (see also Peach, 1996, 1999; Johnston et al, 2001).

But what of the country's schools, often the source of hope for future generations being better integrated? Until recently, little has been known about ethnic segregation in schools, because of the absence of relevant data. Release of such data has allowed investigations of the current situation.[5] These have shown that ethnic segregation is somewhat higher in England's primary and secondary schools than in the residential areas on which they draw – especially in cities with relatively large populations drawn from either or both of the main South Asian and Black communities (see Burgess and Wilson, 2005; Burgess et al, 2005; Johnston et al, 2004, 2005, 2006).

But is that segregation increasing: are our 'ordinary schools … becoming more [ethnically] exclusive'? That question is addressed here for the first time on a national scale, using data for the period 1997-2003. Our data quantify the ethnic composition of every state primary and secondary school in England. The first set of analyses looks at the situation at the school level, identifying whether the ethnic composition of schools has changed over recent years and, if so, in what ways, and in what places. The second set of results describes the evolution of indices of segregation across these cohorts for each ethnic group in specified Local Education Authorities (LEAs).

School ethnic composition: the PLASC data

This paper reports on investigations of the extent to which there has been change in the ethnic composition of English primary and secondary schools in recent years using the Pupil Level Annual School Census (PLASC) data set, which covers all state primary and secondary schools in England. It records the ethnicity of each student at each school, using the 16-fold classification deployed by the Office of National Statistics for the 2001 Census.[6] It comprises the following categories:

White British	White-Irish	White-Other
Mixed White-Black Caribbean		
Mixed White-Black African		
Mixed White-Asian	Mixed White-Other	
Indian	Pakistani	Bangladeshi
Other Asian		
Black Caribbean	Black African	Black Other

Chinese Other

Each student's ethnicity is recorded by the school in January of each year, but is open to inspection and alteration by parents.

The pupil census underlying PLASC has so far been undertaken three times: 2002 (relating to the school year 2001/02), 2003 and 2004. The ethnicity coding in PLASC 2002 was more aggregated than in the subsequent two years, so we use the 2003 and 2004 censuses. But because each census covers all school years, we can with some supplementary assumptions analyse more school entry cohorts. These are set out in Table 1. Table 1b illustrates the structure: by treating older cohorts as 'frozen' entry cohorts for earlier years, we are able to investigate a longer time-span, assessing changes in the ethnic composition of those entering the country's schools over the period 1997-2003 for primary schools and 1998-2003 for secondary schools. Because children attend primary schools from ages 5-11, there are data for seven cohorts, whereas there are only six for secondary schools – for those attending between ages 12-16 (the official school-leaving age).

It is of course the case that students move between schools (as well as in and out of the educational system) during the school year. Such moves may accentuate the levels of segregation if, for example, the majority of moves are made to schools where the moving student's ethnic group forms a majority. If this occurs on a substantial scale, then schools will become increasingly segregated within as well as across years. Consider Table 1b and suppose that ethnic minority pupils moving between schools between years tend to move to schools with more of their own group, thus making the cohort more segregated. In this case, the year 8 cohort in 2003 would be more segregated than it had been when it was the entry cohort in the previous year. Thus our estimate of the degree of segregation for entry cohort in year 2002 would be too high. Consequently, we would under-estimate any rise in segregation and potentially mistake between-school mobility for a fall in segregation.

Our analysis of the extended time period thus relies on the assumption that across-school moves are orthogonal to school ethnic composition. That is to say, we assume that such moves do occur but leave measures of ethnic segregation unchanged. In fact we can test the extent to which this is true, by comparing a true entry cohort (year 7 in 2003) with the same cohort of pupils a year later (year 8 in 2004), to see whether measured segregation changes. We use a paired t-test for each minority ethnic group in all LEAs in which the group is at least 5% of the student population. The results for all bar one group show no change anywhere near significance, with p-values of 0.95 for Indian students, 0.26 for Pakistani students and 0.84 for Black Caribbean students for example. The exception is Black African students for whom we do find a change that is statistically significant, but quantitatively trivial: the index changes by 3%. These results give us confidence that the changes between cohorts at a point in time can be interpreted as changes in entry years over time, with little change in ethnic segregation as a cohort moves through school. In the absence of other data covering such a span of years, the data available from PLASC provide a valuable insight into the changing ethnic composition of schools.

Using these data, in the remainder of this paper we:

1. *Indicate the level of segregation of school entry-cohorts at the start of the period*;
2. *Identify the ethnic composition of school entry-cohorts nationally over the period*;
3. *Establish whether schools have experienced substantial change in the ethnic composition of their entry cohorts over the period and then –*
    - *Identify where the schools experiencing most change are*; and
    - *Assess the impact of that change in terms of segregation levels.*

and

4. *Explore the segregation experience of individual students in the main ethnic groups and establish the extent to which this has changed over the period.*

The national pattern of cohort ethnic composition

If there have been changes in the ethnic composition of the entry cohorts to individual schools, this will have taken place within a national context of only slight variation over time. Table 2 gives the ethnic identity of all students in each cohort for the country as a whole. At both levels, those identified as White-British predominate, although their percentage of the total fell more across the seven years for the primary schools – from 83.17 to 80.09. Against this there were substantial increases – in relative if not absolute terms – in the percentages identifying with one of the mixed (or dual) groups (which may reflect changing practices in self-identification: these mixed categories were only introduced by the ONS at the end of the 1990s in preparation for the 2001 Census), as well as in the percentages of Pakistani, Bangladeshi and Black African students, and in those in the White-Other and Other categories.

Change was much less at secondary school level. There was some (relative) growth in the percentages in the mixed-identity categories, but among the five largest non-white groups only Black Africans increased their share of the total. Clearly this growth will not have been even across the country as some LEAs have experienced greater change in their populations. Those geographical variations are the core of the analyses reported here.

The pattern of segregation at the beginning of the period

The measurement of segregation is a topic of considerable debate among social scientists. For the present purposes, however, all that is needed is a brief overview of the situation at the start of the study period, to provide a baseline against which change in subsequent years can be compared. For a more detailed analysis of the level of ethnic segregation in England's schools, see Burgess and Wilson (2005), Burgess, Wilson and Lupton (2005), Johnston, Wilson and Burgess (2004, 2005) and Johnston, Burgess, Wilson and Harris (2006).

Schools have been categorised according to the percentage of their initial entry cohort (Table 1) that was in each ethnic group, with these percentages then being grouped into four bands (0-24, 25-49, 50-74, 75-). The percentage of students in each ethnic group in each of those bands for that group was then calculated, as an indicator of the degree to which they were segregated in the primary and secondary entry cohorts. The first block of data in Table 3 shows the national pattern. For example, 92 per cent

of all White British primary students were in the entry cohorts for schools where White British students formed 75-100 per cent of the total (band 4) whereas only 19 per cent of Pakistanis were in primary school entry cohorts where their co-ethnics formed 75-100 per cent of the total: not surprisingly, given their predominance in the school population, White British students were the most segregated.

Most groups other than the White British were in entry cohorts where their co-ethnics formed less than 15 per cent of the total (i.e. band 1). The exceptions were Indians, Pakistanis and Bangladeshis, among whom 20-38 per cent of primary students and 21-29 per cent of secondary students entered schools where their co-ethnics were in a majority (i.e. bands 3-4). For Black Caribbeans and Black Africans, although only small percentages entered schools where they formed a majority in the cohort, much larger percentages did so than was the case with other groups (apart from the three for South Asia): significant percentages of Black Caribbeans and Africans were in cohorts where their co-ethnics formed at least 25 per cent of the total (i.e. band 2).

Most members of the minority ethnic groups live in only a small number of cities and towns within England, however, and so the second block of data in Table 3 looks at the situation in a selection of those places. Leicester, for example, has one of the largest concentrations of students from Indian ethnic backgrounds; they formed 31 per cent of all students entering primary schools there in 1997 and 37 per cent of those entering secondary schools in 1998. If these students were evenly distributed across the city's schools, therefore, one would expect to find Indians comprising about one-third of the entry-cohort at each level. Almost half of all Indian secondary students entered schools where Indians comprised at least 75 per cent of the cohort, however, with a further third entering schools where they formed 50-74 per cent of the cohort – much greater segregation than a random allocation of students to schools would generate – a function of the residential segregation of the country's largest ethnic minority groups and its reflection in school ethnic composition (Johnston et al, 2006). Similar levels of segregation characterised both Pakistanis in Bradford (where they formed 25 per cent of primary and 26 per cent of secondary school students in those intake cohorts) and Bangladeshis in Tower Hamlets (an LEA within Greater London where they formed 57 per cent of the borough's primary schools' entry cohort and 60 per cent of the secondary schools').

Students of Black Caribbean and Black African ethnicity are strongly concentrated within Greater London, apart from a relatively small population of Caribbeans in Birmingham (where they formed 6 per cent of both primary and secondary school entry-cohorts). Lambeth LEA has the largest number of students in both groups (Black Caribbeans formed 24 per cent of the LEA's primary and secondary school entry cohorts in the relevant years; Black Africans formed 21 and 25 per cent respectively). These were somewhat segregated, with large percentages in band 2 schools (those in which the relevant ethnic group comprised 25-49 per cent of the school cohort), but not to the same extent as the South Asians.

In LEAs where South Asian and Black students formed a substantial proportion of the student population, therefore, they tended to be segregated in the schools there. Much larger percentages from those groups entered schools where they formed a substantial proportion of the entry cohort (25-49 per cent in the case of Blacks; a majority in the case of South Asians) than would have occurred if they had been evenly distributed

across the LEAs' schools (with the complementary pattern that there were also schools in which they formed a much smaller percentage of the entry cohort, which was dominated by White British students). Ethnic segregation was the norm in school entry cohorts for those groups in the first years of this study, therefore; was there any significant subsequent change?

Changes in the ethnic composition of individual school entry cohorts

Although there may have been little change in the ethnic composition of school entry cohorts nationally, this need not have applied consistently across the country. To explore the extent of any such intra-national variations, we compared the ethnic composition of end-year cohorts (1997 and 2003 for primary schools; 1998 and 2003 for secondary schools) using a simple *index of change (IC).* This summary index value ranges from 0.0 (no change) to 100.0 (total change) and is calculated as:

$$IC_{ijk} = \{ S_{|} \; P_{ikm} - P_{jkm_{|}} \; \} / 2 \qquad (1)$$

where
P_{ikm} is the percentage of students in ethnic group m in school k in cohort i;
P_{jkm} is the percentage of students in ethnic group m in school k in cohort j;
summation is over all m ethnic groups; and
IC_{ijk} is the index of change for school k between cohorts i and j.

Table 4 gives a simple example of the calculation of this index, using a hypothetical school whose students are distributed across ethnic groups A-E in each of the two cohorts. Thus 70 per cent of the students in the school's first cohort (C_1) were in ethnic group A, for example, as were 65 per cent in the final cohort (C_7). The table's final column gives the absolute differences (i.e. irrespective of sign) between the two cohorts for each ethnic group. Half of the sum of that column is the Index of Change (IC). This can be interpreted as the percentage of one column that would have to be redistributed in order to get a distribution exactly the same as that of the other column – in this case six percentage points. The larger the value of IC (it ranges from 0.0 – no change – to 100.0 – complete change), the greater the difference. In the context for which they are used here, the higher the IC values the greater the change in the ethnic composition of a school's entry cohort.

We are not looking directly at levels of segregation in this part of the analysis, therefore, but rather at changes in the ethnic composition of school entry-cohorts. If there was change, whether it involved greater or lesser segregation would depend very much on the norm being applied: a greater percentage of the entry cohort in the White British category would indicate greater segregation in one direction; a greater percentage in, say, the Indian category would indicate greater segregation in another. The nature of change – if any – is discussed below. Here we look only at the volume of change. The question addressed in this first set of analyses is – *did the ethnic composition of school entry cohorts change much over the period 1997-2003?*

Although it is possible to compare the ethnic composition of each pair of cohorts (i.e. cohorts 1-2, 2-3, 2-4 etc.) we concentrate here only on the two end-years, 1997 and 2003 for primary schools, 1998 and 2003 for secondary schools. Histograms for these two sets of change indices are in Figures 1-2 (primary and secondary schools

respectively). Both are very positively skewed, with modes indicating only a small amount of change and tails indicating few schools where the ethnic composition has changed by more than, say, 20 percentage points. This is confirmed by the summary statistics and frequency distributions in Table 5. The median index for primary schools was 6.90 and for secondary schools 4.49, indicating very little change over the seven-six year period in the ethnic composition of the average schools' entry cohorts.

Despite this low median value – and also the low means – the full frequency distributions indicate quite considerable change in a substantial proportion of schools. With primary schools, for example, the 90th percentile of 23.88 indicates that ten per cent of all schools had an almost 25 per cent change in their entry cohorts' ethnic composition, and the figure of 37.45 for the 98th percentile indicates that 1-in-50 schools experienced much more change. The respective figures for secondary schools were somewhat lower at 16.85 and 26.18.[7]

Two questions follow from these findings that a small number of schools experienced substantial change in the ethnic composition of their entry cohorts over the period in question: *where are they?*; and *what was the nature of the change?*

The geography of change

Regarding the geography of schools showing the greatest amount of change in their ethnic composition, we expected concentration in certain parts of the country only, because many districts have few non-white students. Table 6 confirms this, with information on all LEAs containing at least one per cent of those schools in the top decile for change – i.e. primary schools with IC values exceeding 23.88 and secondary schools with ICs exceeding 16.85.

Over half of the primary schools in this category (column A) are in Greater London (which has only 11 per cent of the national total of primary schools). Outside London, only Birmingham has more than 3 per cent of the primary schools displaying most ethnic change. (Birmingham has 1.8 per cent of the country's primary schools.) Column B in Table 6 indicates the percentage of the schools in each LEA (group of LEAs, in the case of Inner and Outer London) which are in the top decile for change: Inner London stands out with 44 per cent of its schools in that category. No other LEA has anything like as many of its primary schools in that top decile: Birmingham, Manchester and Reading all have 20-21 per cent of their schools in that category, Outer London has 17 per cent, and only five other LEAs have more than 10 per cent. Substantial change was thus not only concentrated in a few parts of the country – mainly London and a small number of other cities – but also outside Inner London it affected only a small proportion of all schools in the LEA. Most of those schools in the top decile for change, as shown by Column C of Table 6, experienced a decline in the percentage of their students categorised as 'White British' – only Leicester and Liverpool had a minority of their 'top decile schools' experiencing an increase in their White British component.

As with the situation with primary schools, the right-hand block of data in Table 6 shows that over half of the secondary schools in the top decile for change were in Greater London, although slightly more so in Outer than in Inner London. (Greater London has 12 per cent of England's secondary schools.) Two-thirds of all Inner London secondary schools were in that top decile, however, as against just over one-third for Outer London (and also for Birmingham and Slough; Leicester had just under one-third of its schools experiencing substantial change in their ethnic composition). Much less so than the case with primary schools, however, column C shows that in most places outside London only a minority of those schools experiencing substantial change in the ethnic composition of their entry cohorts did so because of a decline in their White British components.

The nature of change

Turning to the nature of the change, Figure 3 is a scatter-graph showing the proportion of students classified as 'White British' in the earliest and latest cohorts for those primary schools that were in the highest decile for change between those cohorts (i.e. with an IC of 23.88 or greater: Table 5). The scatter shows a clear bifurcation, with relatively few schools along the main diagonal.[8] To a degree, this has to be true. This diagram graphs schools with large changes, and since White British are generally the largest group, being a 'large change' school will generally involve a substantial change in the percentage White British, and hence being off the 45^{o} line. Schools to the right of the main diagonal are showing substantial declines in the proportion 'White British' between the 1997 and 2003 entry cohorts, and schools to the left of it substantial increases in the proportion 'White British'. This graph also shows the implications for segregation.

Schools with a high percentage of White British students in 1997 recording even higher percentages in 2003 alongside other schools with low percentages in 1997 recording even lower percentages in 2003 describes a situation of increasing segregation. In terms of the Figure, this would be represented by a clustering of data points clustering around a line steeper than the 45^{o} line. Conversely, if schools with high White British percentages saw this fraction fall, and those with low percentages experienced a rise, this describes decreasing segregation. This would show up as a line flatter than the main diagonal. In fact, there is a diverse pattern here – the bulk of the data lie along a line reflecting the general fall in the percentage White British, but with a significant minority of schools becoming increasingly mono-ethnic. Bifurcation of the data points either side of the main diagonal indicate schools moving in opposite directions in terms of their ethnic composition.

The implication of column C in Table 6 is that, in most of the LEAs depicted, many more schools have had an increase in the 'non-White British' share of their entry cohorts than vice versa. Figure 4 indicates that this is indeed the case for Inner and Outer London and for four other LEAs with substantial numbers of their primary schools in the decile displaying the greatest amount of change between 1997 and 2003. In Inner London for example, of the schools with less than 40% White British in 1997, the majority of these saw a fall in this percentage. However, a sizeable minority of these saw an increase in this percentage. Indeed among schools with less than 20% White British in the base period, many of them saw in increase in percentage White British. At the other end, schools that had been 60% or more White

British in 1997 all saw a fall in this percentage. There was thus a general trend in Inner London among the schools in the top decile (i.e. with the greatest change in the ethnic composition of their entry cohorts) for a decline in the White British component of their intakes – reflecting, no doubt (as we discuss in more detail below) the changing ethnic composition of the LEA student populations. The comparison with Outer London is striking. Here the bulk of the big-change schools lie along a line reflecting the area change in proportion White British, but with a significant minority substantially increasing the proportion White British.

A very similar pattern is shown in the other four graphs in Figure 4. In each case, the majority of the primary schools there whose entry cohorts had experienced a major change in their ethnic composition had a much smaller White British component in 1997 than 2003. But there were exceptions, indicating the opposite trend and suggestive of increased segregation. In Bradford, for example, most of the 'large change' schools shown in Figure 4 experienced a substantial and uniform fall in their White British proportion – including some that were overwhelmingly White in the 1997 entry cohort. On the other hand, two schools changed from having 65 per cent of their 1997 entry cohort classified as White British to 92 and 95 per cent respectively in 2003.

Thus across those LEAs where there were relatively many 'non-White British' pupils in the entry cohort in 1997 and substantial change in the ethnic composition of some of their schools' entry cohorts, the pattern of change is complex. There is clearly increased mixing in some schools, as their White British components decline, alongside increased segregation – sometimes with quite dramatic changes – in other schools in the same LEA.

Figure 5 plots the data for secondary schools in the decile showing most change. It shows a similar national pattern for to that in Figure 3 for primary schools, although generally, as the schools are bigger, the changes in percentage points are smaller. In 'large change' schools with low (<0.2) proportions of White British pupils in 1997, more schools increased this proportion than reduced it, and among 'large change' schools with a percentage of White British pupils in 1997 above 60%, as many schools saw this fall as saw it rise. So in this sense, there is more mixing of pupils across this simple dichotomous split. But there is also evidence of bifurcation. For example, in Birmingham's 27 'large change' schools, 10 were on the main diagonal, 6 in the off-diagonal cells to the right and 11 in the off-diagonal cells to the left.

This analysis of schools with substantial change in ethnic composition reveals patterns that resist simple characterisation. It is <u>not</u> the case that among those schools where there has been substantial change in the ethnic composition of their intakes, majority white schools are becoming more white, and majority non-white schools less white. In that sense, segregation is not increasing. However, along the range of proportion White British schools, we see a bifurcation – some schools increasing their proportion White British alongside others where it is falling.[9]

A different way of showing this 'hollowing-out' of the ethnic composition of schools in some places is illustrated in Table 7 for the case of one LEA, Blackburn with Darwen. We have data for 51 primary and nine secondary schools. The overall ethnic composition of the school entry cohorts shows that between two-thirds and three-

quarters are White British with the majority of the remainder almost equally divided between those of Indian and Pakistani ethnicity: the White British component fell by five percentage points between the 1997 and 2003 cohorts, but increased slightly in the secondary school entry cohorts.

Using the straightforward grouping of entry cohorts into four categories deployed in Table 3 – 0-24, 25-49, 50-74 and 75-100 per cent White British – Table 7 shows that over the period most White British students entered schools that were predominantly (75%+) White British. For the Indian and Pakistani students, however, there has been a substantial change. In the 1997 cohort for primary school entry, for example, just under 60 per cent of both Indian and Pakistani students entered schools where less than 25 per cent of the cohort was White British and a further fifth where White British students comprised 25-49 per cent of the entry. In 2003, none went to schools where White British students formed 25-49 per cent of the cohort and fully 87 per cent of both groups entered schools where White British were only a small minority. A similar situation applied to the secondary school cohorts. Over the 6-7 year period, therefore, a small number of schools in Blackburn have become increasingly dominated by non-White British students in their entry cohorts. Note that this occurred in a context of slightly rising proportion of White British students in secondary schools.

Finally, the analysis of the nature of change and the geography of change can be combined for one example in Figure 6, which displays a selection of primary schools in one big city with substantial change in school composition. The map preserves relative distances, but is distorted to anonymise schools. The map further illustrates the bifurcation. In the northeast of the area shown, schools where the intakes are changing in different directions are located close to each other, so the outcome undoubtedly reflects more than the neighbourhoods around the schools changing in their ethnic composition.

The student experience – calculating segregation indices

Given these overall findings regarding the situation across schools, what of the individual students' experience? Did members of the various ethnic groups experience greater or less segregation at their primary and secondary schools over the period? This can be examined by using the *index of isolation*, a widely-employed measure in studies of segregation which is readily interpreted. We have calculated these indices for each cohort and each ethnic group, in each LEA.

The formula for the index of isolation for any one cohort is:

$$II_{im} = ? \ [(x_{ikm}/X_{im}) *(x_{ikm}/ T_k)] \qquad (2)$$

where
x_{ikm} is the number of students in ethnic group m in school k in LEA i;
X_{im} is the total number of students in ethnic group m in LEA i;
T_k is the total number of students in school k;
summation is over all k schools; and
II_{im} is the index of isolation for ethnic group m in LEA i.

Table 8 provides an example of the calculations, for an LEA (i) with five schools (A-E). The first column gives the number of students in ethnic group m in the relevant entry cohort for that school, and the second gives the total number of students in that cohort. The next two columns give the two terms in formula (2) – successively the proportion of all students in ethnic group m who entered that school and the proportion that ethnic group made of the total cohort for that school – and the final column gives the product of those two terms which, when summed, gives the index. This has a straightforward probabilistic interpretation; if one takes a member of a specified ethnic group within an LEA at random, the index of isolation (II) gives the probability that another randomly-selected student going to the same school comes from the same ethnic group. An index of 1.0 indicates that all students in the ethnic group went to schools where that group formed 100 per cent of the entry cohort: an index of 0.4 indicates a 40 per cent likelihood that two members of the ethnic group selected at random from within any LEA's entry cohort entered the same school. The greater the index, therefore, the greater the segregation of the members of that ethnic group (i.e. their isolation from members of other groups) within that LEA's schools.

Indices of isolation are shown in Tables 9-13 for each cohort at primary and secondary school (the former is the first line for each LEA, and the latter the second) for all LEAs where one of the following five ethnic groups formed at least 5 per cent of the cohort: Indian, Pakistani, Bangladeshi, Black Caribbean and Black African. (None of the other groups was substantial enough in any LEA for there to be any evidence of significant segregation.) Also shown in those tables is the group's percentage of the oldest cohort.

The data for Indians in Table 9 cover 19 separate LEAs, the first eight in Outer London Boroughs, the next ten in large urban areas of the Midlands and North, and one in a London exurban town – Slough. The sequence of indices provides little evidence of increased segregation: in 24 of the 38 cases, the index for the most recent cohort is smaller than that for the oldest; in 5, the two indices have the same value; and in only 9 is the most recent index larger. Of the nine sequences in the last category, six refer to Walsall, Kirklees and Slough. Apart from those, every other LEA with at least 5 per cent of its primary and secondary school students claiming Indian ethnicity has experienced some decline in the levels of segregation, quite substantially so in some cases – notably Brent, Ealing and Hounslow in north-west London.

In considerable contrast to the patterns shown for Indians, the sequences of isolation indices for Pakistani students provide little evidence of a general trend towards desegregation. Only 9 of the 23 sequences shown in Table 10 have a smaller isolation index for the most recent than for the oldest cohort, with a further six showing no change: 31 indicate increased segregation. Many of the changes are small, but some are quite substantial: in Walsall, for example, the index for the primary school cohorts increased from 0.31 to 0.43 (a 23 per cent increase); that for primary schools in Calderdale increased from 0.59 to 0.76 (a 29 per cent increase); and Blackburn had a 24 per cent increase for its primary cohorts and a 30 per cent increase for its secondary school cohorts. All of the substantial increases occurred outside London.

Bangladeshis form more than 5 per cent of the school cohorts in only six LEAs, with Tower Hamlets in Inner London having larger percentages than the other five

combined. In general, the sequences indicate little change (Table 11). There was, however, a substantial increase in the isolation index for the primary school cohorts in Luton and a considerable drop in Oldham – which stands out as having much higher levels of segregation than other LEAs with comparable cohort percentages. (Oldham also has a large, very segregated, Pakistani community: Table 10.)

Turning to the two Black ethnic minority groups, of the 19 LEAs with more than 5 per cent of their school cohorts claiming Black Caribbean ethnicity, all but one are in London. In general, the levels of segregation are low (the highest index in Table 12 is 0.30), and there is little evidence of substantial change: 23 of the sequences indicate decline (though only in Westminster for both levels and in Brent for the primary cohorts only is this substantial), 6 indicate no change, and the remaining 9 indicate slight increases. Only LEAs in Greater London have more than 5 per cent of their student cohorts comprised of Black Africans. Although levels of segregation are generally low – with only Southwark having all 13 indices above 0.3 – the general trend is slightly upwards: 33 of the 44 sequences show an increase, with 5 showing no change and 6 a decline (Table 13).

Two features stand out in these tables. The first is that, for all groups, the levels of segregation appear relatively high, certainly much higher than would result if members of the five ethnic groups were randomly distributed across all schools in their LEA, as indicated by the percentages that each group formed of the relevant cohort total. The second characteristic is that, in general, the levels of segregation shown by the isolation indices are greater, the larger the ethnic group as a share of the LEA's school entry cohort. This is shown in Figure 7 for Pakistani secondary school students in the first year of the sequence: there is a very strong positive relationship between the percentage of Pakistanis in the LEA's cohort and the isolation index there. Further, as the graph also indicates, on average levels of segregation were lower in London's LEAs than elsewhere. This could be for two reasons: first, as a multi-ethnic cosmopolitan city, London has less segregation than other places, which tend to have one large non-white group only; and, secondly, because they are relatively small, the London Borough LEAs have fewer schools and thus less potential for segregation, especially at the secondary level, than some larger LEAs elsewhere.

To explore this relationship more formally, we conducted regression analyses for each of the five ethnic groups, at both primary and secondary levels, for the first of the cohorts. The dependent variable was the isolation index, and three independent variables were included, as follows:

$$II_{im} = a + b_1 PC_{im} + b_2 S_i + b_3 L_i \qquad (3)$$

where
II_{im} is the index of isolation for ethnic group m in LEA i;
PC_{im} is the proportion of students in LEA i who are in ethnic group m;
S_i is the number of schools in LEA i; and
L_i is a dummy variable, coded 1 if the LEA is in Greater London and 0 otherwise.

Table 14 reports the regression results, most of which have large R^2 values, indicating excellent goodness-of-fit; the exceptions are for the Bangladeshis (who are found in substantial numbers in only six LEAs) and for Indian primary school

students. Figure 8 shows that last relationship: there is a strong positive trend, but with three substantial outliers – Bolton, Blackburn and Kirklees, all of which have high isolation indices for relatively small Indian populations. (They have large Pakistani populations, however, suggesting that the segregation of Indians – many of whom may be Muslims – is linked to the segregation of that other South Asian group.)

In all cases, excluding the Bangladeshis, there is a significant b_1 regression coefficient, indicating that the larger the group as a percentage of the total LEA cohort the greater its segregation as measured by the index of isolation. Further, in all cases except that for Black African secondary school students, the b_1 regression coefficient is greater than 1.0, indicating that as the group's proportion of the cohort increased, its isolation index increased at a greater rate: segregation is greater, the larger the group (a relationship that is further indicated by the positive constant terms in all of the regressions).[10] Regarding the other variables, there are only two significant b_2 coefficients indicating that the larger the number of schools in an LEA the greater the isolation indices; whereas the negative coefficients for b_3 indicate lower levels of segregation for Pakistanis in Greater London than elsewhere.

Finally what of the situation for the dominant group in the schools – the White British. These formed at least 75 per cent of the initial entry cohort in all but 35 of the LEAs: isolation indices for those 35 (26 of them in Greater London) are in Table 15. Again, the overall impression is of very little change, with 37 of the sequences showing a decline in the isolation index, 7 no change, and 26 an increase. Most of the changes are small.

As with the minority ethnic groups, there is a strong trend indicating greater segregation the larger the White British percentage of the LEA student cohort (e.g. Figure 9): this is confirmed by the regression equations for the first cohorts reported in Table 14, with lower levels of segregation, holding constant the White British percentage, for primary school cohorts in London than elsewhere (the negative b_3 coefficients). Further, as with the other groups also, there is much greater segregation than would be the case with a random allocation of students across an LEA's schools.

These relationships show clear links between an ethnic group's relative size in the primary and secondary school entry cohorts and their segregation levels: the bigger the group (as a percentage of the cohort total), the more segregated its members across an LEA's schools. The implication is that as a group's relative size changes, so should its isolation index – and that once any such change is taken into account, it should be possible to inquire whether there have been other changes in segregation levels across the cohorts. To test whether this was so, we have tested the following model

$$II_{ijm} = a + b_1 PC_{ijm} + b_2 S_{ij} + b_3 L_i + b_{4\ldots9} C_j \qquad (4)$$

where
II_{ijm} is the index of isolation for ethnic group m in cohort j in LEA i;
PC_{ijm} is the percentage of students in cohort j in LEA i who are in ethnic group m;
S_{ij} is the number of schools in cohort j in LEA i;

L_i is a dummy variable, coded 1 if the LEA is in Greater London and 0 otherwise; and
C_j is a dummy variable for each cohort j (2…7 for primary schools; 2…6 for secondary schools) contrasted with the first cohort.

Data for all seven primary school cohorts and all six secondary cohorts are included: the dummy variables (C_j) test whether there are significant differences between each cohort and the first, holding constant the relationships between isolation indices. The results are in the first block of data in Table 16, which shows that there were no significant regression coefficients for any of those dummy variables: segregation levels did not change over time, once a group's size was held constant.

The b_1 regression coefficients in that first block of data in Table 16 show that in general across all entry cohorts the level of segregation, as indicated by the isolation index, not only increased with a group's relative size in each cohort but also increased at a faster rate than did the group's size: as stressed before, segregation is greater, the larger the group.

The key fact for this paper from Table 16 is that there is no sign of a significant change in the level of segregation. This finding is robust. We re-ran the regressions in a number of different ways: with a simple time trend rather than individual year dummies; a dummy comparing the first half of the period with the second half; interacting the various time effects with the size of the group to see if there was a change for LEAs where the group was more numerous; and all of these weighted by group size and unweighted[11]. In none of these regressions was there any significant change over time.

One problem with the II (as also with ID) is that it is not scale independent; its size is partly a function of the group's size across all schools within the LEA. If an ethnic group forms 80 per cent of the LEA total it is more likely to be segregated (i.e. that two students chosen at random go to the same school) than if it forms only 10 per cent. The index shows how isolated (segregated) any group is in a particular place at a particular time – and hence those reported in Tables 10-14 indicate the 'actual' situations that students experience. However, for formal comparisons either across time or across places it is desirable to hold the group's size constant in order to assess whether there have been changes in segregation levels that are independent of those which are related to the group's relative size.

The II can be standardised to take group size into account, and so all of the indices analysed here have been modified, following Cutler and Glaeser (1999) and Noden (2000), using the formula:

$$MII_{ijm} = II_{ijm} - P_{im} \qquad (5)$$

where
MII_{ijm} is the modified index of isolation for ethnic group m in cohort j in LEA i;
II_{ijm} is the index of isolation for ethnic group m in cohort j in LEA i; and
P_{ijm} is the proportion of students in cohort j in LEA i who are in ethnic group m.

If MII is positive, this indicates that members of the group are more segregated than would occur with a random allocation across an LEA's schools; if it is negative, they are less segregated than would occur with such an allocation.

The regressions reported in the first block of Table 16 have been re-run with the modified indices as the dependent variables. If there is a significant relationship between the modified indices for any group and the group's size, this will indicate segregation levels over and above what might be anticipated from the group's size alone and random allocation (or parental choice) processes within each LEA. Similarly, significant regression coefficients for the dummy variables would indicate changes in segregation levels between cohorts greater than those anticipated from changes in the groups' size.

Regarding those anticipations, the absence of any significant regression coefficients for the cohort dummy variables in the second block of results in Table 15 further stresses the earlier conclusion that there have been no significant changes in segregation levels – either increases or decreases – across cohorts during the 1997-2003 period, other than those which might have occurred as a result of changing group sizes within individual cohorts. Many of the b_1 coefficients are significant, however, albeit associated with lower R^2 values than in the analyses of the unmodified indices. Most are positive, indicating that for Indians, Pakistanis and Black Africans at both primary and secondary levels, and for Black Caribbeans at secondary level only, the levels of segregation are greater than expected on the basis of the group's size.

Members of ethnic minority groups are segregated in the primary and secondary school entry cohorts in those LEAs where they form more than 5 per cent of the student population, therefore. Furthermore, they are more segregated, the larger the group is as a proportion of the LEA's total student population – and they are much more segregated than would be the case if they were randomly allocated to the schools there. As those minority groups expand relative to the total student population, so their segregation has increased in recent years – but by no more than expected given the general relationship between group size and segregation level. There have been no trends towards greater ethnic segregation in England's schools other than those generated by the growing relative size of the groups concerned in some of England's LEAs.

Conclusions

The analyses reported here have not produced evidence which sustains the claim that 'our ordinary schools … are becoming more exclusive'. Instead, we have shown that:

- The ethnic composition of school entry cohorts changed from 1997/8 to 2003 in some LEAs, especially in Greater London and a few other cities;
- Reflecting this initial segregation at the school level and the subsequent changes, analyses of the situation for individual students in the largest ethnic minority groups (Indians, Pakistanis, Bangladeshis, Black Caribbeans and Black Africans) showed some increases in segregation, as measured by the isolation index;

- Those increases, however, were linked to changes in the ethnic composition of LEAs' entry cohorts – where a group became larger over time, it tended to become more segregated;
- There is no evidence of increased segregation over time (1997/8-2003), independent of changes in the ethnic composition of primary and secondary school entry cohorts.

In part, school segregation levels identified here reflect neighbourhood segregation; if members of the group are concentrated residentially in parts of an LEA, then attendance at local schools will guarantee comparable levels of school segregation. But – as aggregate analyses have shown (Burgess, Wilson and Lupton, 2005, Johnston et al, 2006) and Dench et al (2006) have recently described from their detailed study of Tower Hamlets – school segregation is greater than residential segregation, possibly as a result of parental choice using ethnic composition as a criterion in their selection process.

For some ethnic groups in some LEAs there have been increases in segregation, and some of these are quite substantial. But while segregation has increased over the period studied here, this is generally explained by members of the main ethnic minority groups becoming relatively more numerous in some LEAs' school entry cohorts. Accounting for these population changes, we find no evidence for an overall increase in school segregation for any ethnic group.

Acknowledgements

This research was conducted in the Centre for Market and Public Organisation at the University of Bristol, with support from both the ESRC and the Leverhulme Trust, which is gratefully acknowledged. Thanks also to the DfES for access to the PLASC/NPD data.

Notes

[1] The speech received substantial pre-presentation coverage in *The Sunday Times* (18 September, 2005); the quotations repeated here were taken from *Times Online* (http://www.timesonline.co.uk/ accessed 18 September 2005.
[2] A year later, Trevor Phillips revised his (over-) interpretation of the data on residential segregation: see http://www.cre.gov.uk/Default.aspx.LocID-0hgnew0jl.RefLocID-0hg00900c002.Lang-EN.htm and http://news.bbc.co.uk/1/hi/uk/5297760.stm.
[3] In a report on the situation in Oldham, and various initiatives taken there after the 2001 disturbances, Cantle et al (2006, 37) note that 'whilst there is little evidence of increased contact between children of different cultures outside of school' a project involving twinning primary schools with different ethnic intakes has increased contact within the school context. The report did also note 'evidence that the degree of segregation in Oldham's primary and secondary schools in overall terms is changing for the better, with six primary schools becoming less diverse but fourteen secondary schools becoming more diverse in recent years. [however] These changes would appear to be the result of shifts in the pattern of settlement within the Borough' (p. 40).
[4] This was exemplified in the May 2006 local government elections, when the British National Party won several seats on some local councils, notably in east London, as an apparent protest against what was seen as immigrants getting preferential treatment in the allocation of state housing and other public services (see also Dench et al, 2006).
[5] This is the Pupil Level Annual Schools Census (PLASC), administrative data collected by the Department for Education and Skills (DfES).
[6] More disaggregate classifications are also available, but low numbers in some groups limits the usefulness of these,
[7] The primary school with apparently a total change (i.e. an index of 100.0) is undoubtedly a creation of changes in the reporting process: in the oldest cohort, all of its entry are recorded as 'white other'; in the latest as 'other'. (In another case, most of the entrants were classified as 'white British' in the oldest cohort but 'white other' in the latest.)
[8] This is not the case for the schools in the other nine deciles, of course, where there has been little change in the ethnic composition of their entry cohorts: most of them lie along the main diagonal.
[9] Since these are the 'large change' schools, it is unlikely that this is random fluctuations or measurement error.
[10] Research has shown that this is also the case with ethnic residential segregation (Johnston et al, forthcoming).
[11] Results available from the authors.

References

AMIN, A. (2002) Ethnicity and the multicultural city: living with diversity. *Environment and Planning A* 34: 959-980.

AMIN, A. (2003) Unruly strangers? The 2001 urban riots in Britain. *International Journal of Urban and Regional Research* 27: 460-463.

BURGESS, S. and WILSON, D. (2005) Ethnic segregation in England's schools. *Transactions of the Institute of British Geographers* NS30: 20-36.

BURGESS, S., WILSON, D. and LUPTON, R. (2005) Parallel lives? Ethnic segregation in schools and neighbourhoods. *Urban Studies* 42: 1027-1056.

CANTLE, T. (2005) Self-segregation is still divisive. *The Guardian*, 21 January 2005: 26.

CANTLE, T. ET AL (2006) *Challenging local communities to change Oldham*. Coventry: University of Coventry Institute of Community Cohesion.

CUTLER, D. M., GLAESER, E. L. and VIGDOR, J. L. (1999) The rise and decline of the American ghetto. *Journal of Political Economy* 107: 456-506.

DENCH, G., GAVRON, K. and YOUNG, M. (2006) *The new East End: kinship, race and conflict*. London: Profile Books.

JOHNSTON, R. J., BURGESS, S., WILSON, D. and HARRIS, R. (2006) School and residential segregation: an analysis of variations across England's Local Education Authorities. *Regional Studies*,

JOHNSTON, R. J., POULSEN, M. F. and FORREST, J. (2001) The ethnic geography of EthniCities: The American model' and residential concentration in London. *Ethnicities*, 2, 209-235.

JOHNSTON, R. J., POULSEN, M. F. and FORREST, J. (2005) On the measurement and meaning of residential segregation: a response to Simpson. *Urban Studies*, 42, 1221-1227.

JOHNSTON, R. J., POULSEN, M. F. and FORREST, J. (forthcoming) The geography of ethnic residential segregation: a comparative study of five countries. Available at http://www.ggy.bris.ac.uk/staff/personal/RonJohnston/CurrentPapers/index.html

JOHNSTON, R. J., WILSON, D. and BURGESS, S. (2004) School segregation in multi-ethnic England. *Ethnicities* 4, 259-291

JOHNSTON, R. J., WILSON, D. and BURGESS, S. (2005) England's multi-ethnic educational system? A classification of secondary schools. *Environment and Planning A* 37: 45-62.

MURPHY, R., WEDLOCK, E. and KING, J. (2005) *Early findings from the Home Office 2005 Citizenship Survey*. London: The Home Office, Research Report 49/05.

NODEN, P. (2000) Rediscovering the impact of marketisation: dimensions of social segregation in England's secondary schools. *British Journal of Sociology of Education* 21: 372-390.

OUSELEY REPORT (2001) *Community pride not prejudice*. Bradford: Bradford City Council.

PEACH, C. (1996) The meaning of segregation. *Planning Perspectives*, 11, 137-150.

PEACH, C. (1999) London and New York: contrasts in British and American models of segregation. *International Journal of Population Geography*, 5, 319-351.

SIMPSON, L. (2004) Statistics of racial segregation: measures, evidence and policy. *Urban Studies*, 41, 661-681.

Table 1a. The school entry cohorts analysed

Primary		Secondary	
Cohort	Entry Date	Cohort	Entry Date
1	1997	1	1998
2	1998	2	1999
3	1999	3	2000
4	2000	4	2001
5	2001	5	2002
6	2002	6	2003
7	2003		

Table 1b: Structure of the data illustrated for secondary schools

Age:	Entry year:					
	1998	1999	2000	2001	2002	2003
16						
15						
14						
13						
Entry						

Table 2. The national ethnic composition of the school entry cohorts – primary schools (percentages of the total)

	Cohort (see Table 1 for definition)						
Ethnic Group	1	2	3	4	5	6	7
Primary Schools							
White British	83.17	81.93	81.74	81.50	80.86	80.55	80.09
White Irish	0.48	0.49	0.47	0.47	0.48	0.47	0.49
White Other	2.05	2.22	2.23	2.31	2.42	2.49	2.59
White-Caribbean	1.06	1.10	1.11	1.12	1.20	1.21	1.22
White-African	0.24	0.27	0.29	0.29	0.33	0.36	0.37
White-Asian	0.55	0.58	0.60	0.64	0.67	0.71	0.75
White-Other	1.01	1.06	1.10	1.11	1.17	1.24	1.22
Indian	2.27	2.32	2.28	2.25	2.28	2.27	2.26
Pakistani	2.76	2.99	3.01	2.97	3.05	3.09	3.29
Bangladeshi	1.05	1.09	1.18	1.25	1.31	1.36	1.44
Other Asian	0.62	0.69	0.69	0.72	0.75	0.77	0.80
Black Caribbean	1.56	1.61	1.60	1.55	1.51	1.52	1.44
Black African	1.67	1.99	2.00	2.09	2.19	2.20	2.24
Black Other	0.39	0.40	0.41	0.43	0.43	0.46	0.44
Chinese	0.32	0.36	0.34	0.34	0.34	0.33	0.32
Other	0.82	0.91	0.96	0.94	1.00	0.97	1.01

	Cohort (see Table 1 for definition)					
Ethnic group	1	2	3	4	5	6
Secondary Schools						
White British	84.41	84.37	83.99	84.06	83.79	83.77
White Irish	0.44	0.44	0.45	0.45	0.45	0.43
White Other	1.97	2.04	2.11	2.10	2.03	1.99
White-Caribbean	0.68	0.73	0.79	0.86	0.96	1.03
White-African	0.14	0.17	0.19	0.20	0.22	0.26
White-Asian	0.33	0.38	0.41	0.42	0.48	0.53
White-Other	0.70	0.73	0.78	0.80	0.84	0.90
Indian	2.60	2.48	2.30	2.27	2.20	2.11
Pakistani	2.50	2.46	2.43	2.44	2.55	2.67
Bangladeshi	1.01	0.97	0.98	1.03	1.01	1.02
Other Asian	0.56	0.61	0.64	0.63	0.69	0.70
Black Caribbean	1.58	1.53	1.57	1.53	1.51	1.39
Black African	1.47	1.49	1.64	1.61	1.66	1.66
Black Other	0.45	0.44	0.45	0.46	0.46	0.43
Chinese	0.38	0.37	0.41	0.36	0.33	0.33
Other	0.76	0.79	0.85	0.81	0.82	0.79

Table 3. Ethnic segregation in the first school entry-cohorts: percentage of students in each ethnic group entering primary and secondary according to the percentage of their co-ethnics in that cohort

	Primary				Secondary			
Band	1	2	3	4	1	2	3	4
National								
White British	1	2	5	92	1	2	6	91
White Irish	95	4	1	0	100	0	0	0
White Other	89	8	1	3	86	7	4	3
White-Caribbean	99	1	0	0	100	0	0	0
White-African	100	0	0	0	100	0	0	0
White-Asian	100	0	0	0	100	0	0	0
White-Other	99	1	0	0	100	0	0	0
Indian	58	23	14	6	61	18	15	6
Pakistani	37	24	19	19	56	23	15	7
Bangladeshi	51	20	10	20	61	10	10	19
Other Asian	98	2	0	0	99	1	0	0
Black Caribbean	73	23	3	1	87	12	0	1
Black African	72	22	5	1	81	18	0	1
Black Other	97	3	0	0	100	0	0	0
Chinese	100	0	0	0	100	0	0	0
Other	91	8	1	0	97	3	0	0
Individual places								
Indian: Leicester	13	8	44	36	17	3	31	49
Pakistani: Bradford	8	11	27	55	15	5	40	40
Bangladeshi:								
Greater London	42	19	14	24	46	9	18	27
Tower Hamlets	1	12	29	58	1	18	29	53
Black Caribbean								
Birmingham	51	38	7	4	95	5	0	0
Greater London	69	26	4	2	80	18	0	2
Lambeth	32	62	5	1	40	60	0	0
Black African								
Greater London	67	25	6	2	76	22	0	1
Lambeth	51	43	7	0	21	79	0	0

Key to bands: 1 – less than 25 per cent that ethnic group; 2 – 25-49 per cent that ethnic group; 3 – 50-74 per cent that ethnic group; 4 – 75 per cent or over that ethnic group

Table 4. Calculation of the index of change for change in a school entry cohorts' ethnic composition

	C_1	C_7	$\lvert C_1 - C_7 \rvert$
A	70	65	5
B	15	18	3
C	8	9	1
D	4	3	1
E	3	5	2
?	100	100	12
ID			6

C_1 – the percentage in the first entry cohort; C_7 – the percentage in the final entry cohort; $\lvert C_1 - C_7 \rvert$ - the absolute difference between the two percentages.

Table 5. Frequency distributions for the indices of change comparing school ethnic composition in the earliest and the latest entry cohort

Percentiles	Primary	Secondary
0	0.00	0.00
10	0.00	1.36
20	2.33	2.12
30	3.70	2.80
40	5.26	3.52
50	6.90	4.49
60	8.82	5.79
70	11.72	7.73
80	16.36	11.12
90	23.88	16.85
92	25.93	18.42
94	28.35	20.30
96	32.01	22.94
98	37.45	26.18
100	100.00	94.86
Median	6.90	4.49
Mean	9.83	7.08
SD	9.81	7.27

Table 6. The geography of schools experiencing most change in the ethnic composition of their entry cohorts

	Primary			Secondary		
	A	B	C	A	B	C
Inner London	32	44	70	28	67	49
Outer London	24	17	74	36	36	57
Metropolitan						
Birmingham	7	21	81	10	37	44
Coventry	1	13	55	-	-	-
Sandwell	1	10	70	1	22	25
Walsall	-	-	-	1	17	67
Liverpool	1	4	40	-	-	-
Manchester	3	20	75	2	23	80
Bradford	3	14	91	-	-	-
Kirklees	-	-	-	2	22	20
Leeds	2	7	94	1	10	50
Sheffield	1	7	91	1	8	50
Newcastle	1	8	83	-	-	-
Other	8	3	88	2	1	80
Urban						
Bristol	1	9	50	1	24	25
Luton	1	8	80	-	-	-
Derby	1	6	60	1	15	0
Leicester	1	11	44	2	31	20
Reading	1	21	88	-	-	-
Slough	-	-	-	1	36	25
Nottingham	1	12	75	1	25	50
Other						
Lancashire	1	2	100	1	3	33
Hertfordshire	2	5	80	1	6	0
Remainder	9	1	12	8	1	47

A – percentage of schools nationally in top decile for change;
B – percentage of schools in LEA in top decile for change;
C – percentage of schools in top decile where ‘White British’ percentage fell.

Table 7. The changing ethnic composition of school entry cohorts in Blackburn and Darwen LEA.

(Note: WB – White British, I – Indian, P – Pakistani ethnicity)

	Percentage of Students in those Schools					
	Primary			Secondary		
	WB	I	P	WB	I	P
	1997 cohort			*1998 cohort*		
Group percentage	69	13	13	71	13	13
Cohort % White British						
75-100	85	3	9	75	7	11
50-74	10	21	14	19	17	22
25-49	4	18	21	6	31	31
0-24	1	58	56	1	45	37
	2003 cohort			*2003 cohort*		
Group percentage	64	14	17	73	10	13
Cohort % White British						
75-100	85	3	6	76	7	10
50-74	10	10	7	19	19	15
25-49	0	0	0	0	0	0
0-24	5	87	87	5	75	75

Table 8. An example of the calculations for the index of isolation.

School	x_{ikm}	T_k	(x_{ikm}/X_{im})	(x_{ikm}/ T_k)	$(x_{ikm}/X_{im})*(x_{ikm}/ T_k)$
A	40	100	0.36	0.40	0.144
B	50	200	0.45	0.25	0.113
C	10	150	0.09	0.07	0.006
D	5	100	0.05	0.05	0.003
E	5	80	0.05	0.06	0.003
? (X_{jm})	110		1.00		0.268

For key to column titles, see formula (3)

Table 9. Indices of isolation for Indians at primary and secondary schools in the named LEAs, for all LEAs in which they formed at least five per cent of the entry cohort in the first year studied. (For each LEA, the first row gives the data for primary schools and the second for secondary schools.)

		Cohort						
LEA	%G	Oldest						Latest
Barnet	6.12	.17	.16	.14	.15	.13	.12	.11
	10.67	.17	.16	.17	.18	.15	.15	
Brent	17.59	.35	.37	.32	.30	.30	.31	.30
	28.19	.43	.43	.39	.37	.36	.37	
Ealing	18.63	.41	.43	.39	.43	.39	.38	.38
	26.62	.50	.46	.40	.43	.36	.34	
Harrow	22.19	.33	.36	.34	.30	.33	.31	.31
	26.15	.33	.33	.27	.33	.30	-	
Hillingdon	11.34	.31	.32	.29	.31	.27	.29	.31
	12.59	.30	.30	.29	.30	.31	.36	
Hounslow	19.75	.41	.39	.36	.35	.42	.38	.35
	23.46	.46	.46	.42	.43	.40	.39	
Newham	11.54	.22	.21	.19	.22	.21	.21	.19
	16.42	.20	.17	.16	.17	.18	.16	
Redbridge	16.47	.27	.26	.25	.25	.26	.24	.24
	19.21	.26	.27	.25	.24	.24	.26	
Birmingham	5.78	.25	.22	.26	.22	.23	.22	.24
	7.86	.29	.26	.24	.23	.22	.23	
Coventry	8.99	.22	.16	.21	.20	.18	.18	.17
	9.15	.17	.17	.14	.17	.14	.17	
Sandwell	9.64	.21	.25	.23	.24	.24	.24	.24
	11.56	.21	.19	.18	.18	.16	.150	
Walsall	6.09	.19	.19	.20	.19	.23	.20	.23
	7.97	.16	.15	.17	.15	.13	.18	
Wolverhampton	14.68	.35	.30	.33	.31	.31	.33	.34
	16.60	.34	.31	.28	.28	.27	.28	
Bolton	8.12	.49	.40	.45	.41	.41	.44	.42
	7.44	.22	.25	.22	.26	.22	.22	
Blackburn	13.24	.42	.40	.43	.39	.44	.45	.44
	12.52	.34	.28	.29	.29	.32	.28	
Kirklees	5.71	.42	.43	.37	.44	.44	.47	.43
	5.09	.19	.18	.18	.22	.20	.23	
Derby	5.02	.19	.16	.16	.14	.16	.17	.16
	6.27	.16	.16	.13	.14	.11	.16	
Leicester	30.55	.61	.59	.61	.60	.60	.59	.58
	36.86	.61	.57	.55	.54	.51	.54	
Slough	15.45	.23	.28	.26	.26	.24	.26	.25
	19.35	.29	.26	.31	.33	.31	.32	

%G – percentage of the oldest cohort who were Indians

Table 10. Indices of isolation for Pakistanis at primary and secondary schools in the named LEAs, for all LEAs in which they formed at least five per cent of the entry cohort in the first year studied. (For each LEA, the first row gives the data for primary schools and the second for secondary schools.)

		Cohort						
LEA	%G	Oldest						Latest
Wandsworth	5.53	.14	.19	.13	.14	.12	.14.	14
	6.21	.09	.10	.08	.09	.08	.10	
Brent	7.58	.17	.14	.14	.142	.12	.12	.12
	7.41	.12	.12	.11	.10	.10	.12	
Ealing	7.04	.14	.11	.16	.15	.15	.14	.16
	7.04	.11	.11	.11	.12	.13	.14	
Hounslow	7.48	.15	.16	.15	.15	.14	.15	.16
	7.41	.13	.13	.14	.13	.14	.12	
Newham	12.85	.22	.23	.20	.21	.21	.20	.22
	12.83	.15	.15	.15	.21	.18	.20	
Redbridge	10.43	.23	.23	.22	.23	.25	.23	.25
	8.48	.14	.17	.16	.17	.22	.20	
Waltham Forest	14.61.28	.28	.29	.28	.28	.26	.29	
	16.01	.27	.23	.26	.23	.24	.25	
Birmingham	16.88	.57	.57	.58	.56	.55	.57	.56
	16.86	.47	.46	.45	.46	.47	.48	
Walsall	6.20	.31	.36	.37	.42	.44	.35	.43
	5.74	.20	.24	.23	.21	.22	.23	
Bury	5.33	.39	.49	.47	.42	.38	.47	.45
	6.04	.16	.16	.14	.17	.15	.16	
Manchester	10.20	.42	.40	.39	.37	.43	.38	.40
	10.48	.28	.28	.30	.29	.31	.31	
Oldham	10.75	.70	.73	.69	.72	.69	.72	.68
	9.34	.36	.38	.43	.38	.40	.43	
Rochdale	13.68	.57	.57	.58	.56	.63	.59	.60
	12.74	.32	.35	.30	.31	.31	.33	
Bradford	24.79	.70	.72	.72	.71	.73	.72	.72
	24.65	.62	.59	.60	.60	.64	.65	
Calderdale	8.35	.59	.62	.66	.69	.69	.69	.76
	9.24	.45	.46	.47	.45	.41	.44	
Kirklees	13.77	.47	.49	.52	.51	.52	.53	.53
	11.71	.30	.31	.29	.33	.33	.31	
Luton	14.10	.39	.41	.37	.40	.43	.43	.42
	13.77	.36	.39	.40	.36	.32	.38	
Buck'hamshire	6.11.37	.39	.38	.38	.36	.36	.37	
	6.93	.32	.27	.28	.27	.29	.28	
Derby	7.20	.60	.62	.58	.61	.63	.60	.61
	6.83	.24	.20	.23	.25	.25	.26	
Slough	21.84	.38	.40	.45	.39	.41	.43	.45
	20.97	.46	.46	.43	.45	.39	.37	
Peterborough	11.03	.60	.59	.61	.56	.59	.58	.60
	8.23	.23	.21	.24	.21	.27	.30	
Blackburn	13.24	.38	.43	.44	.46	.43	.48	.47
	12.52	.27	.35	.31	.33	.31	.35	
Nottingham	7.42	.30	.28	.27	.32	.34	.34	.32
	5.06	.11	.12	.13	.12	.11	.17	

%G – percentage of the oldest cohort who were Pakistanis

Table 11. Indices of isolation for Bangladeshis at primary and secondary schools in the named LEAs, for all LEAs in which they formed at least five per cent of the entry cohort in the first year studied. (For each LEA, the first row gives the data for primary schools and the second for secondary schools.)

		Cohort						
LEA	%G	Oldest						Latest
Camden	14.51	.36	.37	.37	.40	.33	.38	.37
	11.13	.31	.27	.32	.32	.29	.28	
Tower Hamlets	57.12	.75	.77	.78	.79	.77	.79	.79
	57.77	.75	.74	.71	.71	.71	.71	
Westminster	9.22	.25	.25	.19	.20	.21	.22	.23
	8.94	.15	.17	.13	.15	.14	.12	
Newham	13.28	.22	.21	.23	.21	.23	.22	.23
	12.44	.17	.21	.20	.22	.21	.21	
Oldham	9.72	.75	.64	.65	.64	.65	.68	.62
	7.57	.58	.56	.58	.54	.58	.60	
Luton	6.39	.21	.21	.24	.31	.27	.29	.33
	6.19	.19	.15	.18	.18	.25	.18	

%G – percentage of the oldest cohort who were Bangladeshis

Table 12. Indices of isolation for Black Caribbeans at primary and secondary schools in the named LEAs, for all LEAs in which they formed at least five per cent of the entry cohort in the first year studied. (For each LEA, the first row gives the data for primary schools and the second for secondary schools.)

		Cohort						
LEA	%G	Oldest						Latest
Camden	5.21	.11	.09	.11	.10	.08	.08	.07
	6.17	.09	.07	.06	.06	.06	.07	
Hackney	19.23	.24	.24	.22	.22	.23	.24	.21
	17.10	.16	.21	.22	.21	.18	.18	
Hammersmith	11.68	.17	.23	.24	.18	.15	.15	.16
	12.11	.18	.19	.16	.18	.17	.13	
Islington	7.84	.11	.15	.13	.14	.12	.12	.12
	9.27	.10	.12	.12	.14	.12	.10	
Kensington	8.11	.17	.15	.13	.14	.12	.12	.12
	7.12	.08	.10	.13	.13	.11	.09	
Lambeth	23.66	.30	.27	.30	.28	.27	.27	.24
	24.48	.27	.26	.23	.26	.29	.30	
Lewisham	17.84	.24	.26	.27	.24	.24	.22	.25
	19.73	.23	.25	.19	.20	.18	.21	
Southwark	14.67	.24	.23	.22	.23	.21	.19	.20
	19.51	.23	.23	.24	.21	.22	.22	
Wandsworth	12.98	.22	.20	.17	.19	.18	.20	.19
	17.08	.16	.20	.21	.15	.19	.18	
Westminster	9.78	.19	.18	.18	.15	.15	.15	.11
	11.91	.15	.13	.13	.11	.11.	.10	
Brent	15.23	.29	.25	.26	.24	.24	.24	.20
	13.20	.14	.15	.17	.17	.18	.16	
Croydon	10.49	.20	.20	.21	.21	.19	.22	.20
	11.93	.17	.20	.20	.20	.187	.16	
Ealing	5.70	.09	.11	.13	.10	.09	.11	.09
	8.12	.11	.11	.09	.10	.10	.08	
Enfield	7.18	.15	.13	.14	.15	.12	.13	.13
	6.99	.09	.09	.10	.11	.12	.10	
Haringey	15.25	.22	.20	.23	.21	.20	.21	.20
	17.76	.25	.25	.25	.25	.22	.23	
Merton	7.35	.11	.11	.09	.13	.11	.11	.11
	5.71	.09	.10	.09	.08	.11	.09	
Newham	6.72	.12	.12	.11	.12	.11	.12	.10
	8.00	.10	.10	.11	.10	.09	.08	
Waltham Forest	10.39	.16	.15	.14	.15	.16	.13	.14
	10.43	.14	.14	.14	.13	.14	.14	
Birmingham	5.55	.23	.20	.22	.22	.20	.21	.21
	6.21	.13	.16	.15	.17	.15	.14	

%G – percentage of the oldest cohort who were Black Caribbeans

Table 13. Indices of isolation for Black Africans at primary and secondary schools in the named LEAs, for all LEAs in which they formed at least five per cent of the entry cohort in the first year studied. (For each LEA, the first row gives the data for primary schools and the second for secondary schools.)

		Cohort						
LEA	%G	Oldest						Latest
Camden	12.80	.17	.20	.19	.20	.21	.21	.21
	9.91	.12	.15	.17	.18	.16	.15	
Greenwich	12.49	.22	.25	.25	.25	.27	.29	.29
	11.38	.13	.15	.17	.16	.17	.21	
Hackney	20.62	.27	.32	.28	.30	.30	.29	.31
	20.20	.21	.24	.22	.25	.22	.26	
Hammersmith	13.17	.19	.18	.20	.22	.22	.20	.19
	9.97	.15	.15	.16	.13	.12	.16	
Islington	13.67	.20	.19	.20	.22	.22	.20	.19
	20.06	.22	.21	.19	.16	.18	.22	
Kensington	11.18	.18	.14	.14	.15	.18	.16	.17
	10.76	.16	.11	.09	.11	.14	.12	
Lambeth	20.80	.27	.30	.30	.29	.32	.31	.32
	24.96	.29	.28	.30	.32	.31	.30	
Lewisham	11.38	.23	.22	.22	.25	.24	.24	.22
	11.4	.13	.14	.15	.13	.17	.17	
Southwark	28.10	.36	.37	.39	.39	.41	.39	.40
	32.58	.33	.38	.35	.38	.35	.36	
Wandsworth	11.60	.21	.22	.23	.23	.20	.22	.25
	12.09	.15	.14	.11	.13	.15	.16	
Westminster	7.78	.11	.13	.14	.13	.14	.16	.15
	14.37	.16	.16	.17	.18	.19	.18	
Barking	8.65	.16	.17	.18	.20	.19	.19	.20
	6.59	.10	.12	.11	.11	.12	.13	
Barnet	7.00	.14	.15	.16	.16	.18	.19	.18
	7.55	.13	.14	.16	.15	.17	.18	
Brent	12.20	.19	.22	.21	.22	.23	.22	.24
	11.68	.15	.15	.15	.15	.16	.13	
Croydon	7.14	.13	.14	.13	.14	.14	.15	.16
	9.09	.16	.17	.14	.13	.12	.16	
Ealing	7.44	.12	.14	.17	.18	.19	.17	.19
	7.68	.09	.13	.13	.10	.12	.10	
Enfield	9.16	.15	.17	.17	.17	.18	.18	.20
	8.48	.15	.12	.13	.15	.16	.17	
Haringey	17.34	.26	.27	.26	.25	.27	.29	.28
	17.32	.18	.19	.17	.21	.24	.23	
Merton	10.12	.15	.19	.18	.18	.17	.14	.15
	8.45	.09	.09	.10	.10	.10	.09	
Newham	17.17	.25	.27	.27	.27	.28	.26	.26
	14.79	.187	.20	.19	.21	.23	.22	
Redbridge	5.51	.08	.10	.10	.11	.11	.11	.10
	5.10	.07	.08	.10	.08	.09	.09	
Waltham Forest	7.67.12	.14	.12	.16	.14	.13	.13	
	8.22	.12	.11	.15	.13	.13	.11	

%G – percentage of the oldest cohort who were Black Africans

Table 14. Regression analyses of the isolation indices for each ethnic group, for the first cohort, in LEAs in which they formed at least five per cent of the entry cohort

	a	b1	b2	b3	R	N
Indian						
Primary	0.145	1.334	-	-	0.38	19
Secondary	0.042	1.498	-	-	0.85	19
Pakistani						
Primary	0.280	1.161	-	-0.223	0.56	23
Secondary	0.043	2.009	-	-0.111	0.81	23
Bangladeshi						
Primary	-	-	-	-	0.52	6
Secondary	0.150	1.049	-	-	0.64	6
Black Caribbean						
Primary	0.094	1.085	-	-	0.80	19
Secondary	0.012	1.051	0.008	-	0.88	19
Black African						
Primary	0.022	1.142	-	-	0.91	22
Secondary	0.014	0.932	0.002	-	0.94	22
White British						
Primary	0.307	0.686	-	-0.069	0.97	145
Secondary	0.243	0.706	-	-	0.78	145

Only significant regression coefficients at the 0.05 level or better are shown

Table 15. Indices of isolation for White British at primary and secondary schools in the named LEAs, for all LEAs in which they formed less than seventy-five per cent of the entry cohort in the first year studied. (For each LEA, the first row gives the data for primary schools and the second for secondary schools.)

		Cohort						
LEA	%G	Oldest						Latest
Camden	34.97	.43	.41	.38	.35	.36	.36	.36
	41.54	.46	.44	.44	.41	.45	.42	
Greenwich	60.29	.66	.65	.65	.62	.63	.63	.62
	55.14	.60	.57	.54	.57	.59	.61	
Hackney	17.18	.25	.22	.22	.24	.23	.25	.26
	14.50	.22	.21	.20	.22	.22	.22	
Hammersmith	32.92	.42	.39	.36	.36	.37	.39	.40
	37.31	.46	.42	.43	.46	.44	.49	
Islington	38.56	.46	.44	.45	.43	.43	.44	.45
	24.09	.28	.33	.34	.32	.36	.38	
Kensington	30.96	.35	.35	.33	.35	.35	.35	.34
	27.43	.32	.32	.29	.28	.35	.43	
Lambeth	21.39	.27	.25	.26	.28	.28	.27	.29
	19.00	.29	.33	.30	.32	.37	.32	
Lewisham	39.55	.47	.44	.44	.43	.43	.41	.39
	38.39	.39	.42	.37	.39	.35	.40	
Southwark	30.64	.42	.43	.42	.39	.39	.39	.39
	21.54	.28	.28	.38	.33	.30	.33	
Tower Hamlets	23.87	.45	.39	.41	.38	.41	.39	.35
	20.36	.34	.39	.38	.34	.36	.36	
Wandsworth	40.21	.49	.49	.48	.50	.49	.47	.51
	33.97	.35	.38	.30	.32	.32	.38	
Westminster	22.61	.38	.28	.33	.29	.34	.32	.32
	21.30	.31	.35	.35	.29	.33	.30	
Barnet	50.05	.58	.55	.55	.55	.52	.53	.55
	42.03	.47	.46	.47	.47	.49	.47	
Brent	15.68	.42	.40	.38	.43	.40	.39	.40
	10.59	.15	.18	.15	.18	.17	.19	
Croydon	55.06	.65	.65	.64	.60	.61	.61	.59
	51.06	.61	.62	.60	.62	.62	.61	
Ealing	31.83	.47	.43	.44	.43	.40	.42	.41
	27.97	.37	.42	.40	.47	.43	.42	
Enfield	43.07	.54	.52	.52	.50	.49	.47	.50
	44.60	.49	.46	.47	.47	.46	.46	
Haringey	21.89	.39	.39	.38	.43	.40	.44	.43
	20.90	.33	.35	.30	.36	.37	.43	
Harrow	36.42	.45	.43	.43	.45	.42	.43	.45
	33.30	.39	.37	.41	.39	.38	-	
Hillingdon	66.58	.74	.71	.71	.70	.70	.70	.68
	68.32	.73	.74	.72	.72	.73	.70	
Hounslow	44.76	.63	.57	.59	.57	.55	.56	.53

	40.33	.55	.53	.54	.54	.55	.57	
Kingston	70.62	.73	.70	.73	.70	.70	.71	.72
	67.59	.70	.66	.70	.70	.69	.69	
Merton	52.88	.55	.56	.58	.54	.57	.57	.56
	59.89	.63	.60	.58	.59	.57	.56	
Newham	20.45	.37	.28	.31	.29	.26	.26	.27
	20.47	.32	.31	.30	.35	.37	.36	
Redbridge	41.33	.56	.58	.55	.56	.56	.54	.54
	41.64	.48	.47	.49	.46	.52	.52	
Waltham Forest	39.28	.57	.48	.48	.47	.46	.45	.47
	36.82	.53	.50	.52	.53	.50	.54	
Birmingham	53.68	.77	.76	.75	.75	.75	.74	.74
	50.20	.71	.72	.72	.72	.72	.73	
Sandwell	71.99	.80	.79	.78	.76	.77	.75	.76
	72.00	.79	.78	.78	.78	.76	.79	
Wolverhampton	67.34	.75	.74	.75	.75	.73	.74	.72
	65.15	.71	.71	.73	.71	.71	.71	
Manchester	66.82	.82	.82	.80	.79	.79	.78	.78
	66.37	.76	.78	.79	.79	.79	.79	
Bradford	65.12	.87	.86	.86	.85	.85	.85	.84
	67.40	.76	.78	.78	.77	.78	.82	
Luton	52.59	.67	.64	.65	.66	.64	.62	.64
	52.63	.67	.66	.67	.67	.66	.65	
Leicester	47.26	.74	.72	.73	.74	.71	.71	.71
	44.23	.68	.65	.66	.67	.68	.66	
Slough	45.37	.58	.56	.59	.55	.55	.54	.53
	39.94	.49	.51	.51	.49	.53	.52	
Blackburn	69.02	.88	.88	.88	.86	.87	.88	.88
	71.36	.85	.88	.86	.86	.86	.87	

%G – percentage of the oldest cohort who were White British

Table 16. Regression analyses of the isolation indices ands modified isolation indices across all cohorts, for each ethnic group. In LEAs in which they formed at least five per cent of the entry cohort.

	a	b1	b2	b3	b4…	R^2	N
Isolation indices							
Indian							
Primary	0.139	1.417	-	-0.065	-	0.53	133
Secondary	0.050	1.474	0.001	-0.033	-	0.80	114
Pakistani							
Primary	0.291	1.205	0.004	-0.241	-	0.62	161
Secondary	0.063	1.913	0.014	-0.120	-	0.79	138
Bangladeshi							
Primary	0.350	1.067	0.007	-0.241	-	0.70	36
Secondary	0.063	0.996	0.018	-0.158	-	0.75	42
Black Caribbean							
Primary	0.028	0.922	0.005	0.023	-	0.81	114
Secondary	-0.008	1.122	0.011	-	-	0.88	133
Black African							
Primary	0.050	1.113	0.009	-0.048	-	0.90	132
Secondary	0.006	1.058	0.023	-	-	0.95	154
White British							
Primary	0.301	0.694	0.001	-0.077	-	0.97	1015
Secondary	0.225	0.724	-	-0.056	-	0.84	870
Modified isolation indices							
Indian							
Primary	0.139	0.417	-	-0.065	-	0.18	133
Secondary	0.050	0.474	0.001	-0.033	-	0.30	114
Pakistani							
Primary	0.201	0.205	0.004	-0.241	-	0.52	161
Secondary	0.063	0.914	0.014	-0.120	-	0.62	138
Bangladeshi							
Primary	0.350	-	0.007	-0.241	-	0.44	36
Secondary	0.063	-	0.018	-0.158	-	0.44	42
Black Caribbean							
Primary	0.028	-	0.005	0.023	-	0.44	114
Secondary	-0.008	0.122	0.011	-	-	0.31	133
Black African							
Primary	0.050	0.113	0.009	-0.048	-	0.56	132
Secondary	0.006	0.058	0.023	-	-	0.33	154
White British							
Primary	0.301	-0.306	0.001	-0.077	-	0.66	1015
Secondary	0.225	-0.276	-	-0.056	-	0.27	870

Only significant regression coefficients at the 0.05 level or better are shown

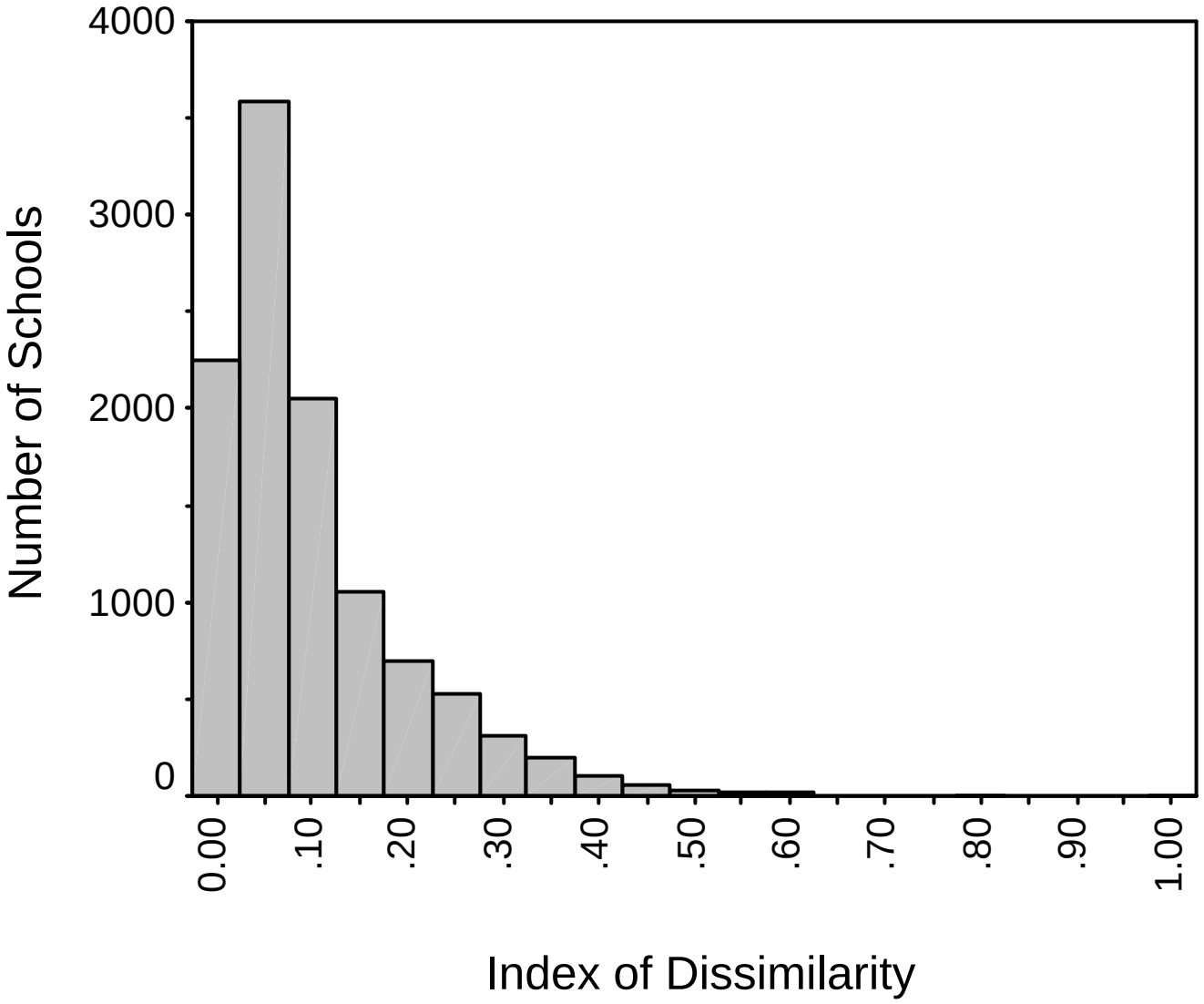

Figure 1. Histogram of the indices of change comparing the ethnic composition of entry cohorts 1-7 for primary schools.

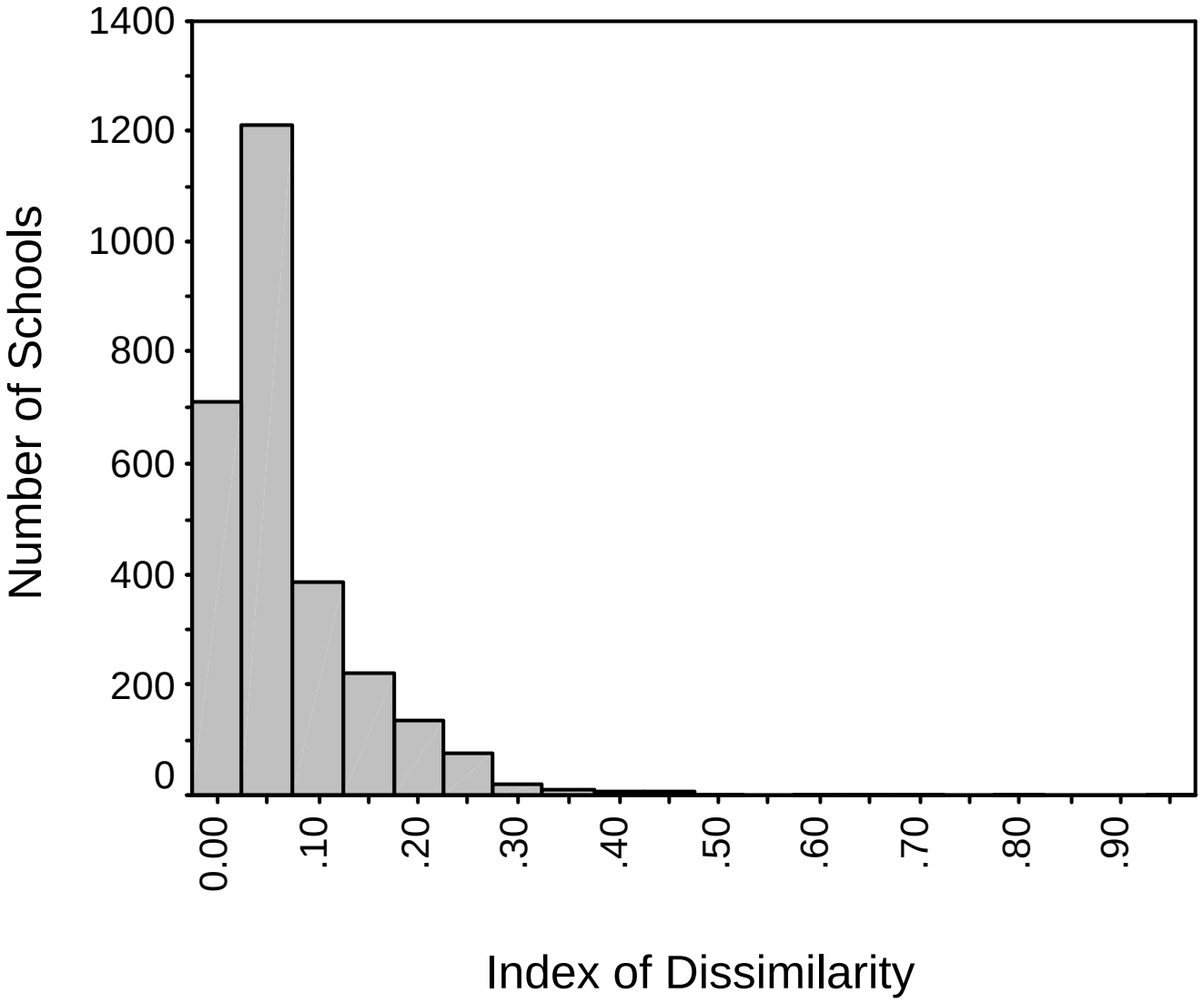

Figure 2. Histogram of the indices of change comparing the ethnic composition of entry cohorts 1-6 for secondary schools.

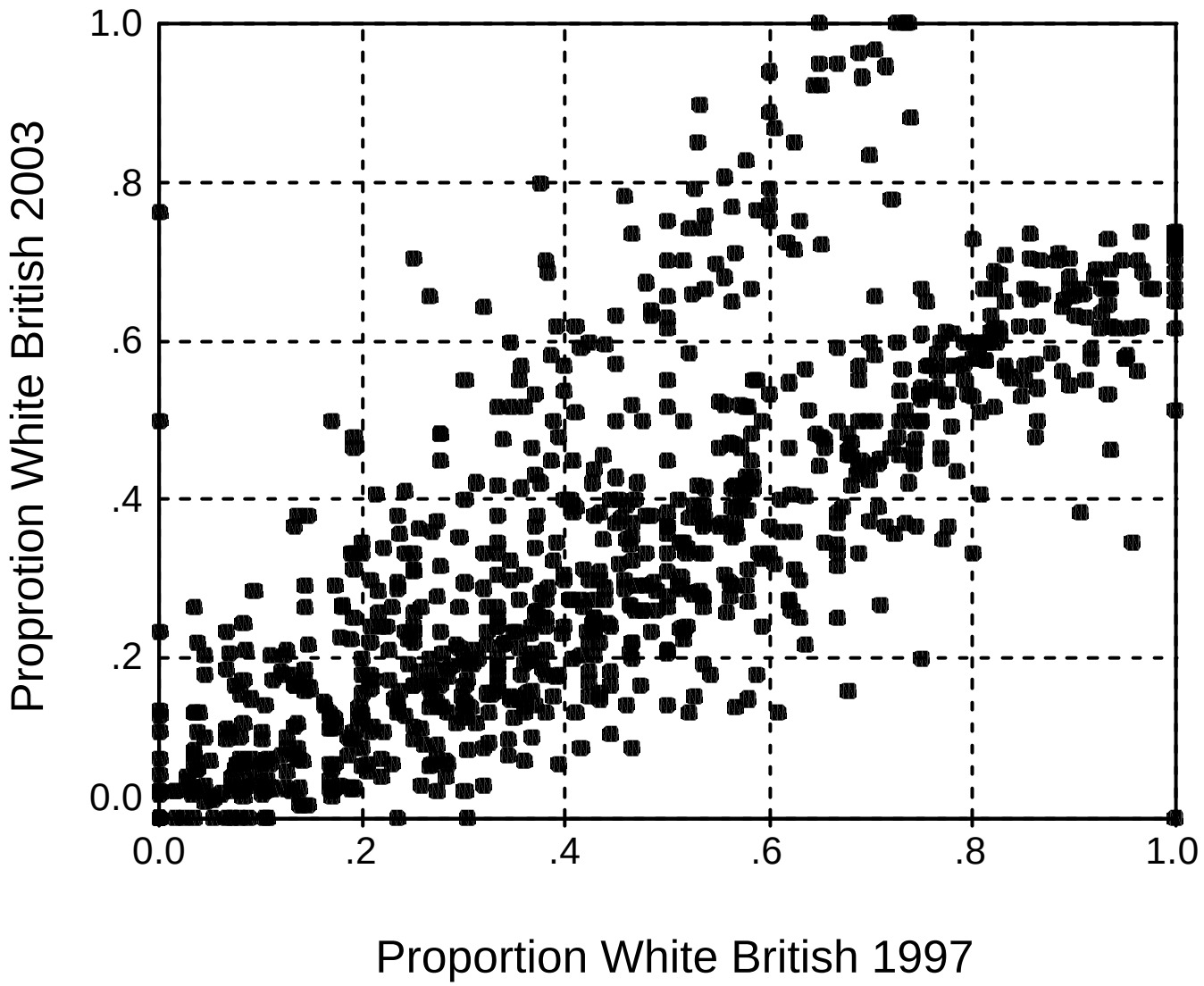

Figure 3. Scatter-graph showing the proportion of students classified as 'White British' in the 1997 and 2003 entry cohorts for the ten per cent of primary schools showing the greatest amount of change in their ethnic composition between those cohorts.

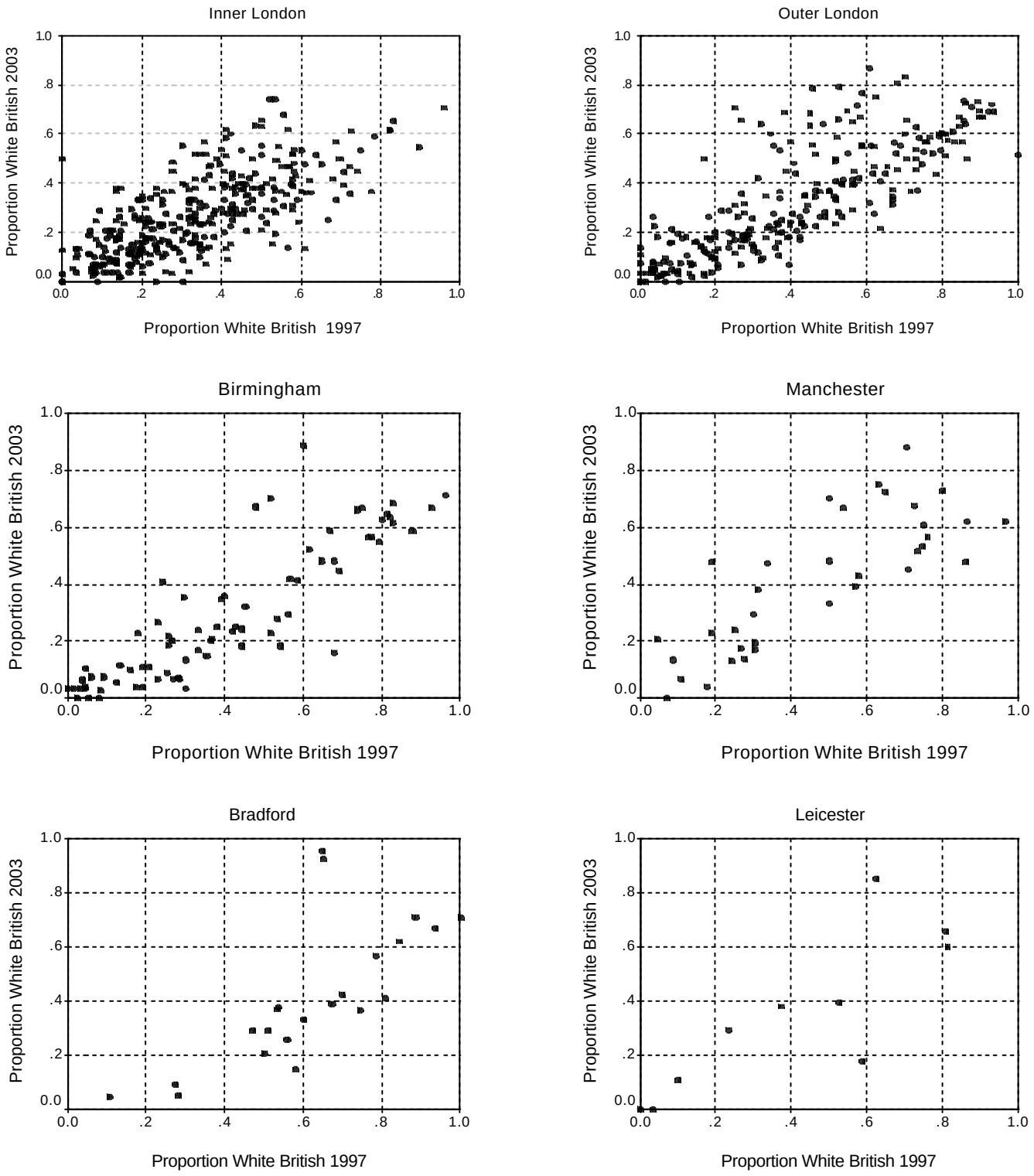

Figure 4. Scatter-graph showing the proportion of students classified as 'White British' in the 1997 and 2003 entry cohorts for the ten per cent of primary schools showing the greatest amount of change in their ethnic composition between those cohorts, in Inner and Pouter London and four separate LEAs.

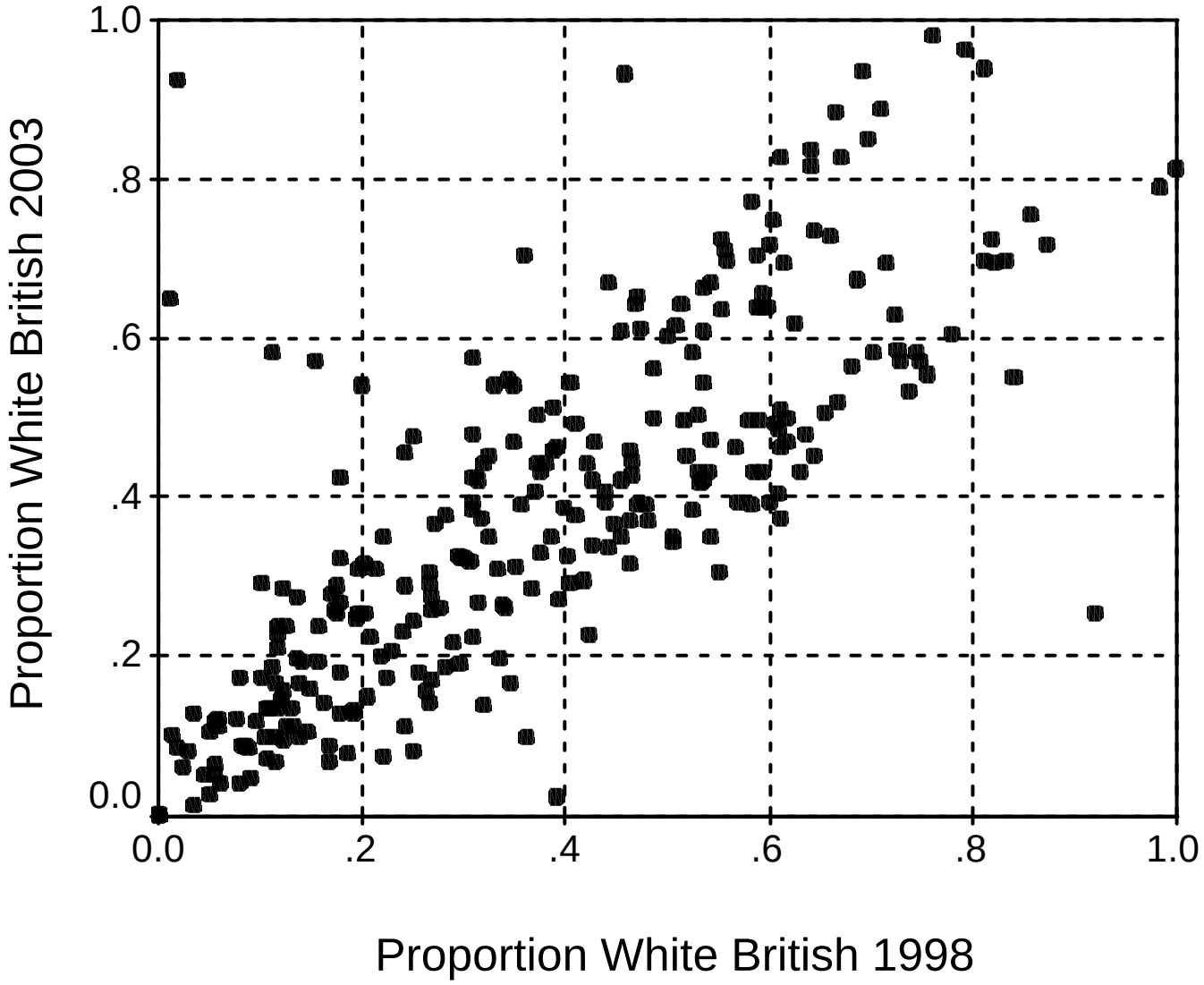

Figure 5. Scatter-graph showing the proportion of students classified as 'White British' in the 1998 and 2003 entry cohorts for the ten per cent of secondary schools showing the greatest amount of change in their ethnic composition between those cohorts.

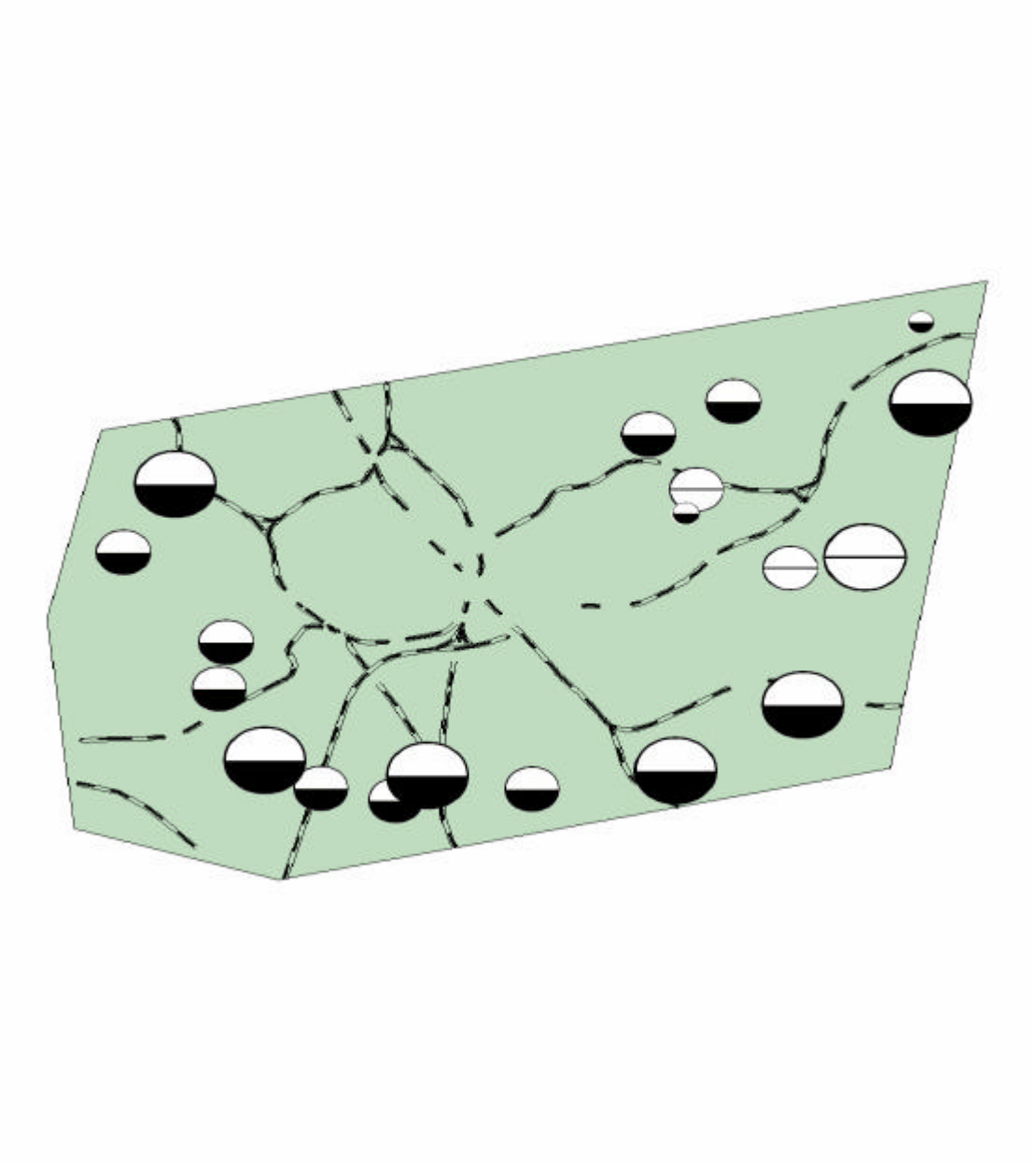

Figure 6. Primary schools in a particular city that experienced substantial change in the ethnic composition of their primary school entry cohorts between 1997 and 2003 (i.e. are in the top decile for such change, as described in the text). Schools whose White British proportion increased over the period are shown as white symbols: those whose White British proportion declined are shown by black/white symbols: the radius of the symbol is proportional to the magnitude of the change.

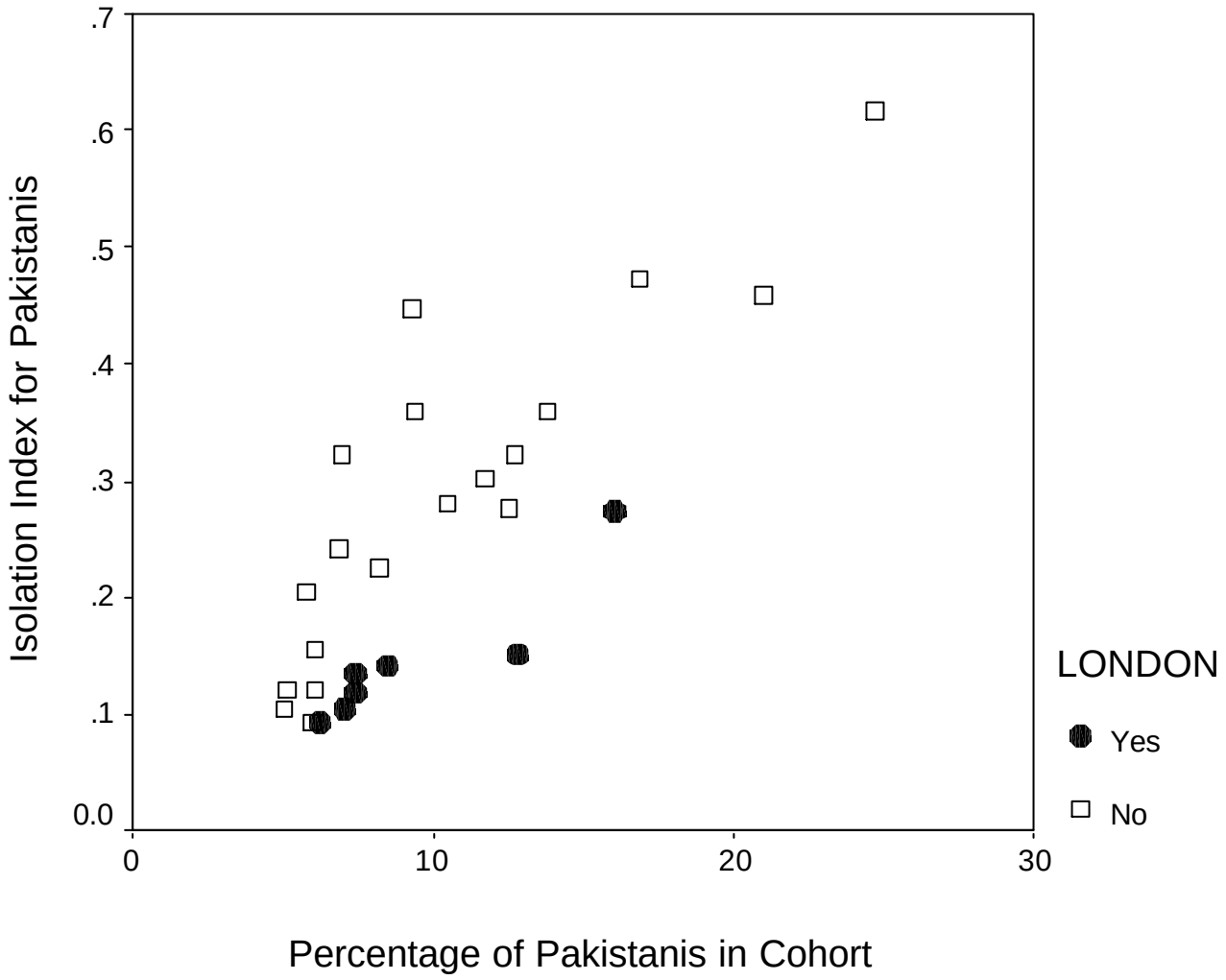

Figure 7. The relationship between the relative size of the Pakistani component of an LEA's secondary school entry cohort and the index of isolation for that group.

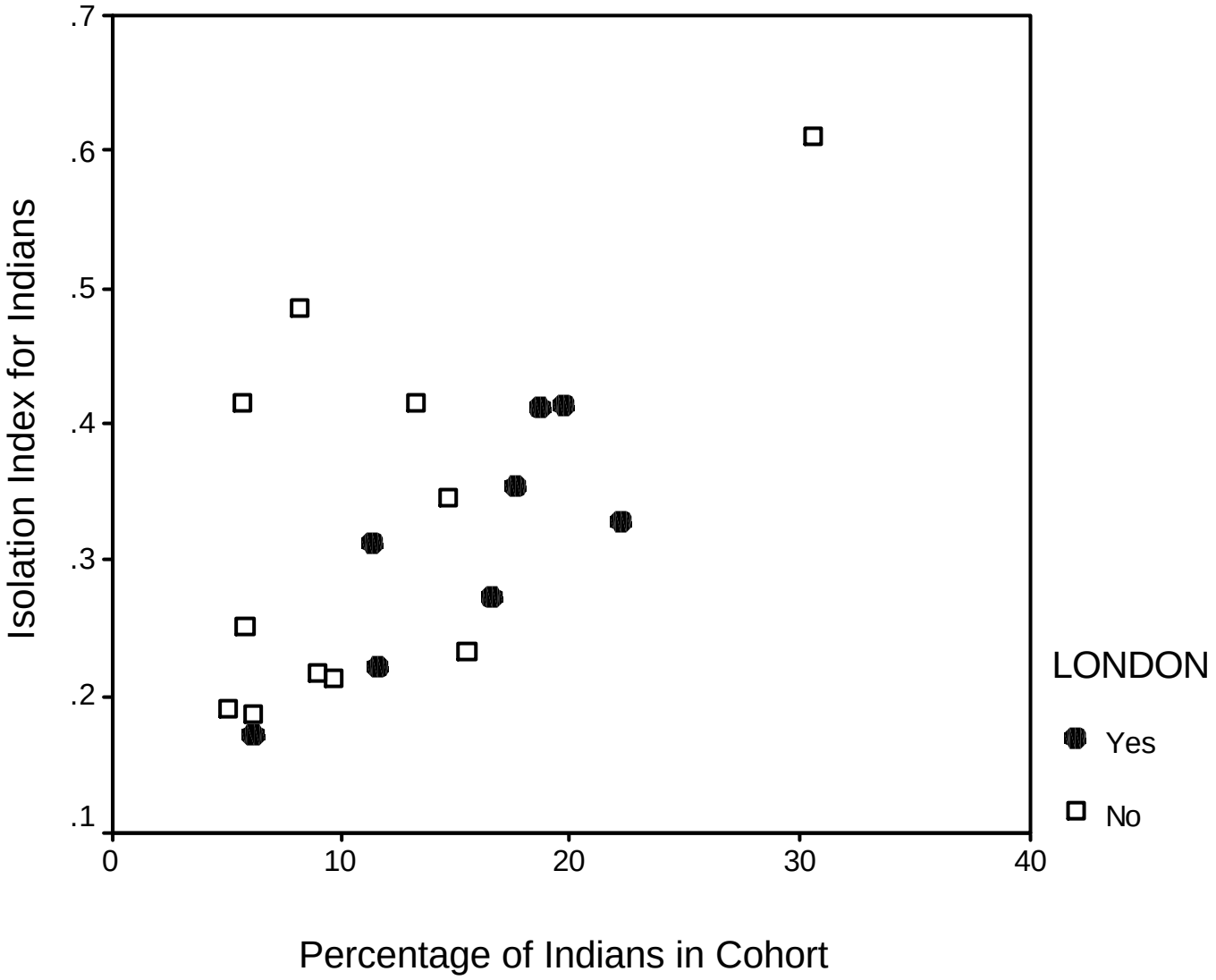

Figure 8. The relationship between the relative size of the Indian component of an LEA's primary school entry cohort and the index of isolation for that group.

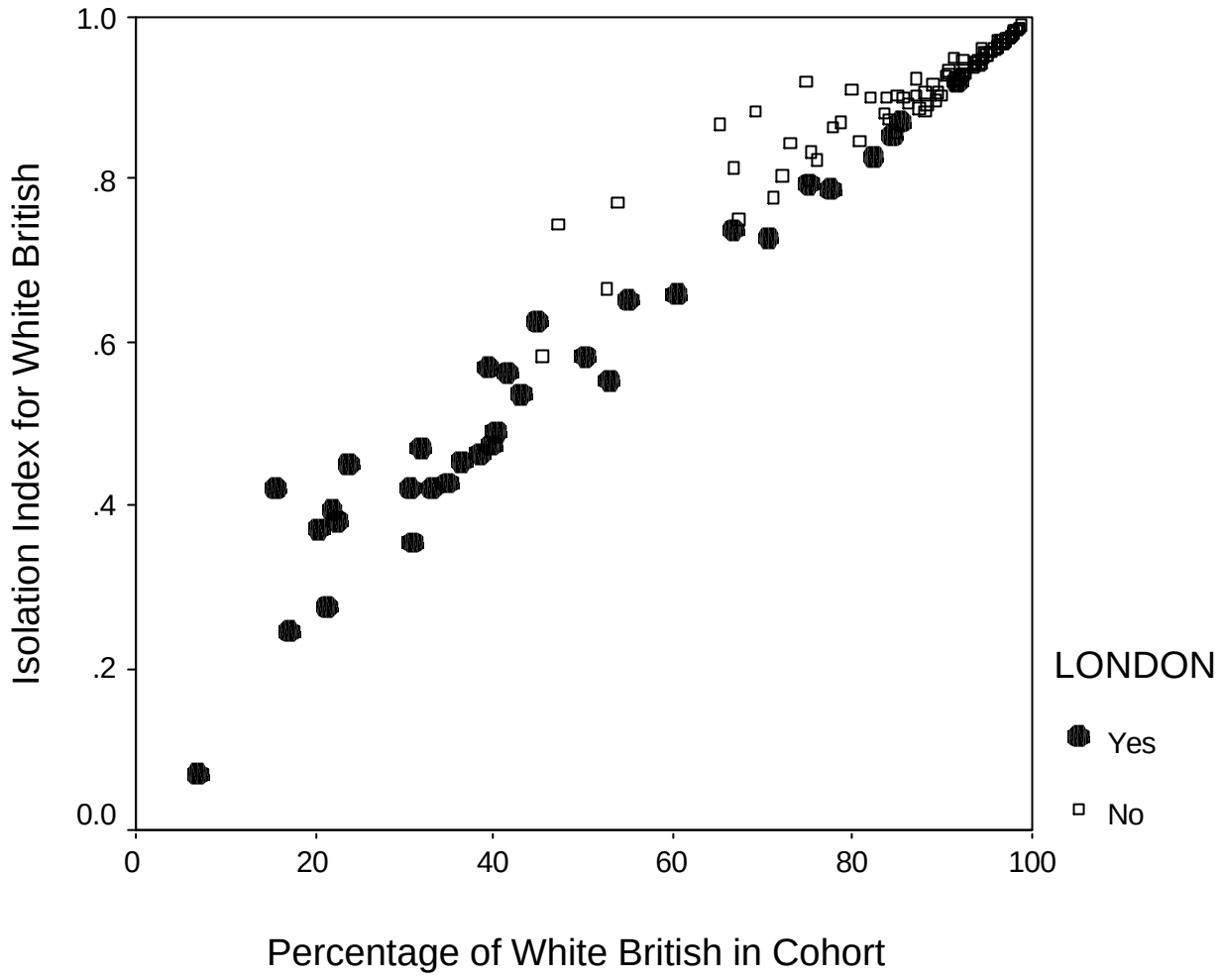

Figure 9. The relationship between the relative size of the White British component of an LEA's primary school entry cohort and the index of isolation for that group.