

Data Management and Analysis Group

Ethnic Diversity Indices



DMAG Briefing 2005/12

March 2005

DMAG Briefing 2005/12

March 2005

Ethnic Diversity Indices

For more information please contact:

Baljit Bains

Data Management and Analysis Group
Greater London Authority
City Hall (5 East)
The Queen's Walk
London SE1 2AA

Tel: 020 7983 4613
baljit.bains@london.gov.uk

Copyright © Greater London Authority, 2005

All Census data produced in this briefing has been reproduced with the permission of the Controller of Her Majesty's Stationery Office and the Queen's Printer for Scotland and is ©Crown Copyright.

All maps are © Crown Copyright. All rights reserved. (Greater London Authority) (LA100032379) (2005)

Acknowledgments

Many thanks to Gareth Baker (DMAG) for kindly producing the maps.

ISSN 1479-7879

Introduction

It is often stated that London is the most diverse city in the UK, but it is not always clear what data and assumptions lay behind such statements. While diversity is often used to refer simply to the percentage of the population which does not belong to the majority White British group, this can mask important differences between areas. It is possible for example that in an area which has a high percentage of people who are not White British, most of the minority population belongs to a single ethnic group. This can be contrasted with areas where the percentage that is not White British is similarly high but where the minority population is made up of members of many different groups. There is an obvious need for a quantified measure of diversity to capture these differences. Through the application of diversity indices it is possible to compare quantitatively diversity between areas within London with the rest of England and Wales. In the absence of any existing accepted single method of measuring diversity, this *DMAG Briefing* aims to explore the ethnic diversity of London's population using 2001 Census data at a number of different geographical levels using an established diversity index used in a range of other disciplines.

The UK is often referred to as a multi-cultural society. This phrase is often used to refer to the increasing proportion of the nation's population that is from ethnic minority groups. It can however carry the implication that most parts of the country contain a range of ethnic groups: however the majority of the ethnic minority population is concentrated in a few major cities and towns. Even within local authorities the various ethnic minority communities are likely to be distributed in very particular ways.

The term 'Diversity' in this *Briefing* is used synonymously with ethnic diversity.

The terms 'ethnic minority groups' and 'ethnic minority populations' are used here to refer collectively to all ethnic groups and populations categorised in the 2001 Census other than the White British ethnic group. Overleaf is a table showing the 2001 ethnic group categories.

This work further develops the initial study carried out by Vicky Clarke while on student placement at the GLA in 2004. Many thanks to Vicky for starting the study, in particular for her work into exploring the vastly different diversity indices available and for recommending the index used in this *Briefing*.

Table 1: 2001 Census ethnic group categories

White British

White Irish
White Other

Black or Black British: Caribbean
Black or Black British: African
Black or Black British: Other

Asian or Asian British: Indian
Asian or Asian British: Pakistani
Asian or Asian British: Bangladeshi
Asian or Asian British: Other Asian

Mixed: White and Black Caribbean
Mixed: White and Black African
Mixed: White and Asian
Mixed: Other Mixed

Chinese
Other Ethnic Group

**Ethnic Group
Populations**

Diversity in London and in England and Wales

The 2001 Census found that over 6.5 million residents of England and Wales are from an ethnic group other than White British. Of this population some 2.9 million live in London, with other major concentrations in Birmingham, Manchester, Leicester, Bradford and Slough.

In 2001 59 per cent of Londoners were White British (nearly 4.3 million people) and 41 per cent were from ethnic minority groups (nearly 2.9 million people). There is a particular concentration of ethnic minority populations in Inner London as well as in a crescent around northwest London, covering Brent and Harrow down to Ealing and Hounslow. Brent has the largest proportion of ethnic minorities, 71 per cent of the population is from an ethnic group other than White British. Nine boroughs have ethnic minority populations greater than 50 per cent. These include Newham, Tower Hamlets, Hackney and Ealing. London boroughs with the lowest proportions of ethnic minority populations tend to be in Outer London and these include Havering, Bexley, Bromley and Sutton all below 20 per cent ethnic minority populations. Hence Greater London contains a range of boroughs with varying concentrations of ethnic minority populations. However most London Boroughs have higher concentrations relative to the England and Wales average.

Map 1 The Boroughs of London



GREATERLONDONAUTHORITY

Produced by Data Management and Analysis Group
©Crown Copyright. All rights reserved.
(Greater London Authority) (LA100032379) (2005)

Diversity Indices

A diversity index is a mathematical measure of group diversity in an area. Diversity indices provide more information about community composition than simple analysis of data – numbers and percentages. Such an index also takes account of the relative abundances of all ethnic groups. Diversity indices have been used in the academic sphere and are now being applied to human populations to help quantify and understand ethnic diversity.

Any index measuring the diversity of a population needs to take into account:

- 1) The number of different groups present in the population
- 2) The sizes of these distinct groups relative to each other

All diversity indices have to satisfy the following two conditions:

- 1) for a given **richness** the value increases as equitability increases
- 2) for a given **equitability** the value increases as richness increases

In this context,

Richness is the number of different groups represented in the community where each person of the population can be allocated to one group and each group is distinct, and

Equitability is the evenness with which individuals are distributed among the different groups.

A number of indices were considered, some being more sensitive to richness such that groups that are 'rare' have a disproportionate influence on the index. Two indices (Shannon-Weiner and Simpson) were considered more carefully). Simpson's Index is less sensitive to 'rare' groups and has a more intuitive interpretation than Shannon-Weiner.

The chosen index, Simpson's Diversity Index, takes into account both richness and equitability. It has also been used by other demographers when measuring the diversity of a given population. See Phil Rees and Faisal Butt, "Ethnic change and diversity in England 1981-2001", October 2003. The method is also easily understood, easily applied and allows for the use of 2001 Census data when calculating the index values.

When considering the diversity of a community there are many contributing factors which could be considered. For example it may be beneficial to measure the spread of age, household type, native language, religion, socio-economic class, or any other quantitative variable. It is not the scope of this *Briefing* to explore such detailed issues.

Methodology

Simpson's Diversity Index has already been used by Rees and Butt to measure the diversity of ethnic groups in England and Wales, which has then been mapped at local authority level. The main purpose of their paper is to use the diversity index to compare areas over time. However, this involves aggregating the census data to compensate for the change in categories available, which means that final results are more of an approximation.

However, in this publication Simpson's Diversity Index has been calculated using the following 2001 Census data for:

1. The 16 ethnic groups as in the 2001 Census (see Table 2)
2. The five broad groups from the 2001 Census (see Table 2)
3. The aggregated ten groups proposed for GLA ethnic group population projections (see Table 3)

The following tables show the three aggregations and how the latter two are aggregations of the first.

Table 2: Ethnic group categories from the 2001 Census

16 Ethnic Group Categories	5 Ethnic Group Categories
White: British White: Irish White: Other White	White
Mixed: White and Black Caribbean Mixed: White and Black African Mixed: White and Asian Mixed: Other Mixed	Mixed
Asian or Asian British: Indian Asian or Asian British: Pakistani Asian or Asian British: Bangladeshi Asian or Asian British: Other Asian	Asian
Black or Black British: Caribbean Black or Black British: African Black or Black British: Other Black	Black
Chinese or other ethnic group: Chinese Chinese or other ethnic group: Other Ethnic Group	Chinese and Other

Table 3: 2001 Ethnic group categories aggregated for GLA ethnic group population projection purposes

16 Ethnic Group Categories	10 Ethnic Group Categories
White: British White: Irish White: Other White	White
Asian or Asian British: Indian Asian or Asian British: Pakistani Asian or Asian British: Bangladeshi	Asian or Asian British: Indian Asian or Asian British: Pakistani Asian or Asian British: Bangladeshi
Asian or Asian British: Other Asian Mixed: White and Asian	Asian or Asian British: Other Asian
Black or Black British: Caribbean Black or Black British: African	Black or Black British: Caribbean Black or Black British: African
Black or Black British: Other Black Mixed: White and Black Caribbean Mixed: White and Black African	Black or Black British: Other Black
Chinese or other ethnic group: Chinese	Chinese or other ethnic group: Chinese
Chinese or other ethnic group: Other Mixed: Other Mixed	Chinese or other ethnic group: Other Ethnic Group

By calculating Simpson's Index for differently aggregated ethnic groups we are better able to understand the ranges of values produced by the index. We are also able to test how different aggregate groupings affect the diversity rankings of London boroughs.

The formula for Simpson's Index is:

$$D = \frac{1}{\sum_{i=1}^s P(i)^2}$$

where: D is Simpson's Diversity Index
S is the total number of ethnic groups represented in a given area
P(i) is the size of a given ethnic group as a proportion of the total population in the study area

To calculate Simpson's Diversity Index the proportion of people in each ethnic group relative to the total population of that area is calculated and squared. The squared proportions for all ethnic groups are summed, and the reciprocal is taken.

A worked example of the calculation using the population of London is given below:

	Ethnic groups					Total
	White	Mixed	Asian	Black	Chinese and Other	
Population	5,103,203	226,111	866,693	782,849	193,235	7,172,091
P (i)	0.7115	0.0315	0.1208	0.1092	0.0269	
P (i) ²	0.5063	0.0010	0.0146	0.0119	0.0007	
$\sum P(i)^2$	0.5063 + 0.0010 + 0.0146 + 0.0119 + 0.0007					0.5345

$$D = \frac{1}{0.5345} = 1.871$$

In this example S is five ethnic groups

For a given number of ethnic groups represented in an area the value of the index increases as equitability increases, and for a given equitability the value of the index increases as the number of ethnic groups increases.

Calculating Simpson's Index for London for five ethnic groups (as shown above) yields an index of 1.871. This result needs to be understood in the context of the maximum and minimum values within the parameters of five ethnic groups. The maximum value would denote a totally diverse community ie an equally sized population within all ethnic group categories. The minimum value of one would denote a community where the entire population is in one ethnic group. The maximum value when calculating D is the value of S, the number of ethnic groups. In the calculation above this value would be five. The minimum value of Simpson's Diversity Index, regardless of the number of ethnic group categories is always 1. Hence London's Simpson's Index value for five ethnic groups of 1.871 is within the range one and five. The worked example below shows the mathematical derivation for the maximum value for 5 ethnic groups

	Ethnic groups					Total
	White	Mixed	Asian	Black	Chinese and Other	
Population	100	100	100	100	100	500
P (i)	0.200	0.200	0.200	0.200	0.200	
P (i) ²	0.040	0.040	0.040	0.040	0.040	
$\sum P(i)^2$	0.0400 + 0.0400 + 0.0400 + 0.0400 + 0.0400					0.200

$$D = \frac{1}{0.200} = 5.0$$

Results

For this *DMAG Briefing* Simpson's Diversity Index has been calculated for all local authorities and for all wards in England and Wales

For each set of analysis the Index was calculated for the following aggregations of ethnic group categories

- 1) 16 ethnic groups as in the 2001 Census
- 2) Five broad ethnic groups from the 2001 Census
- 3) Aggregated ten ethnic categories proposed for GLA ethnic group population projections

It should be noted that it has been assumed that the richness values for all authorities are the same in all tables (ie 16, ten and five). However, there are some authorities and wards where this is not true, but it does not affect the calculations. When considering only five ethnic groups there are authorities (eg Isles of Scilly) that only have populations in three of the groups. For London there are no such wards or local authorities.

Local Authority District Analysis

Table 4: Simpson's Diversity Index Values, England and Wales and London

	5 groups	10 groups	16 groups
England and Wales	1.196	1.198	1.303
Greater London	1.871	1.931	2.660

Tables 5 to 7 show the highest ranking local authorities for each of the aggregated ethnic group categories. The tables also enable comparisons between the Greater London averages, shown in table 4 and all other authorities. Looking at 16 ethnic groups, Greater London is higher than any non London authority. However, when considering the five groups both Slough and Leicester have higher values than Greater London with Birmingham close behind. The situation is similar with ten groups, but in this case Birmingham ranks just ahead of London. Therefore the statement that 'London is the most diverse city in the UK' remains hard to quantify using these indices. London is certainly more diverse than any other conurbation, but Slough, Leicester and Birmingham all have claims to be the diverse city.

Table 5: Top 50 local authority rankings for 16 ethnic groups

Rank	Local Authority	Simpson's Index	% of Range
1	Brent	6.463	36
2	Newham	5.871	32
3	Hackney	4.174	21
4	Ealing	4.044	20
5	Haringey	3.958	20
6	Lambeth	3.497	17
7	Westminster	3.469	16
8	Tower Hamlets	3.296	15
9	Harrow	3.264	15
10	Southwark	3.194	15
11	Camden	3.173	14
12	Kensington and Chelsea	3.118	14
13	Waltham Forest	2.992	13
14	Islington	2.857	12
15	Hounslow	2.857	12
16	Lewisham	2.823	12
17	Redbridge	2.782	12
18	Hammersmith and Fulham	2.716	11
19	Slough UA	2.648	11
20	Barnet	2.614	11
21	Enfield	2.505	10
22	Croydon	2.370	9
23	Merton	2.355	9
24	Leicester UA	2.301	9
25	Wandsworth	2.290	9
26	Luton UA	2.277	9
27	Birmingham	2.222	8
28	City of London	2.050	7
29	Greenwich	1.965	6
30	Hillingdon	1.856	6
31	Manchester	1.780	5
32	Kingston upon Thames	1.712	5
33	Wolverhampton	1.707	5
34	Oxford	1.672	4
35	Blackburn with Darwen UA	1.671	4
36	Bradford	1.664	4
37	Forest Heath	1.635	4
38	Sandwell	1.616	4
39	Coventry	1.607	4
40	Cambridge	1.596	4
41	Richmond upon Thames	1.586	4
42	Watford	1.583	4
43	Reading UA	1.529	4
44	Bedford	1.520	3
45	Barking and Dagenham	1.519	3
46	Nottingham UA	1.512	3
47	Oadby and Wigston	1.466	3
48	Preston	1.428	3
49	Sutton	1.421	3
50	Wycombe	1.419	3
	Max	16	
	Min	1	

Table 6: Top 50 local authority rankings for five ethnic groups

Rank	Local Authority	Simpson's Index	% of Range
1	Newham	3.228	56
2	Brent	3.088	52
3	Tower Hamlets	2.475	37
4	Ealing	2.404	35
5	Hackney	2.360	34
6	Harrow	2.280	32
7	Lambeth	2.171	29
8	Waltham Forest	2.160	29
9	Southwark	2.135	28
10	Redbridge	2.116	28
11	Haringey	2.091	27
12	Hounslow	2.059	26
13	Slough UA	2.053	26
14	Lewisham	2.027	26
15	Leicester UA	2.005	25
16	Croydon	1.907	23
17	Birmingham	1.860	21
18	Westminster	1.802	20
19	Luton UA	1.801	20
20	Camden	1.797	20
21	Barnet	1.755	19
22	Merton	1.717	18
23	Islington	1.702	18
24	Enfield	1.632	16
25	Greenwich	1.632	16
26	Hammersmith and Fulham	1.607	15
27	Wandsworth	1.604	15
28	Wolverhampton	1.591	15
29	Kensington and Chelsea	1.588	15
30	Hillingdon	1.549	14
31	Bradford	1.542	14
32	Blackburn with Darwen UA	1.539	13
33	Sandwell	1.523	13
34	Manchester	1.499	12
35	Coventry	1.391	10
36	Kingston upon Thames	1.386	10
37	City of London	1.385	10
38	Oadby and Wigston	1.383	10
39	Nottingham UA	1.373	9
40	Barking and Dagenham	1.363	9
41	Pendle	1.349	9
42	Preston	1.342	9
43	Kirklees	1.340	9
44	Watford	1.339	8
45	Oldham	1.322	8
46	Walsall	1.319	8
47	Reading UA	1.317	8
48	Oxford	1.310	8
49	Bedford	1.309	8
50	Derby UA	1.295	7
	Max	5	
	Min	1	

Table 7: Top 50 local authority rankings for aggregated ten ethnic groups

Rank	Local Authority	Simpson's Index	% of Range
1	Newham	4.742	42
2	Brent	3.796	31
3	Tower Hamlets	2.637	18
4	Ealing	2.619	18
5	Hackney	2.606	18
6	Harrow	2.499	17
7	Lambeth	2.374	15
8	Redbridge	2.317	15
9	Southwark	2.312	15
10	Waltham Forest	2.294	14
11	Slough UA	2.262	14
12	Haringey	2.211	13
13	Hounslow	2.192	13
14	Lewisham	2.167	13
15	Leicester UA	2.102	12
16	Croydon	1.972	11
17	Birmingham	1.948	11
18	Luton UA	1.881	10
19	Westminster	1.834	9
20	Camden	1.829	9
21	Barnet	1.784	9
22	Merton	1.753	8
23	Islington	1.734	8
24	Enfield	1.659	7
25	Greenwich	1.656	7
26	Hammersmith and Fulham	1.630	7
27	Wandsworth	1.627	7
28	Wolverhampton	1.606	7
29	Kensington and Chelsea	1.601	7
30	Blackburn with Darwen UA	1.596	7
31	Bradford	1.575	6
32	Hillingdon	1.572	6
33	Sandwell	1.548	6
34	Manchester	1.512	6
35	Coventry	1.403	4
36	Kingston upon Thames	1.394	4
37	City of London	1.392	4
38	Oadby and Wigston	1.391	4
39	Nottingham UA	1.379	4
40	Barking and Dagenham	1.371	4
41	Pendle	1.352	4
42	Kirklees	1.352	4
43	Preston	1.352	4
44	Watford	1.347	4
45	Oldham	1.336	4
46	Walsall	1.331	4
47	Reading UA	1.322	4
48	Bedford	1.316	4
49	Oxford	1.314	3
50	Derby UA	1.302	3
	Max	10	
	Min	1	

For all three aggregations of ethnic groups, London boroughs dominate the rankings of the most diverse local authorities in the country. In fact for all three aggregations the top ten ranking local authorities are all London boroughs.

Eight London boroughs appear in the top ten for all three aggregations. However, there are slight changes regarding which London boroughs these are. In the rankings for five groups and for the ten ethnic groups, Newham ranks number one. However for the 16 ethnic groups Brent ranks number one. For all three aggregations Ealing is ranked number four. Waltham Forest and Redbridge are not in the highest ten ranking local authorities for 16 categories but they both figure in the top ten rankings for five categories and for ten categories. For the latter two ethnic groupings Westminster and Haringey have been replaced by Waltham Forest and Redbridge.

Tower Hamlets is ranked 8th when calculating its index for 16 groups. However when looking at aggregations of five and ten ethnic groups, Tower Hamlets is ranked 3rd. The borough population is made of two dominant ethnic groups, the Bangladeshi population, making up 33 per cent and the White British population, comprising 43 per cent. There are also several relatively small populations within the other ethnic groups. These two characteristics combined give a relatively low index value because of the unevenness of the population distribution. When analysing 5-way and 10-way ethnic group classifications, Tower Hamlets is ranked higher. The smaller populations within some of the ethnic groups have been absorbed within broader groups, as have the larger populations in the Bangladeshi and White British ethnic groups. This results in a more even distribution of population within the broader classifications, resulting in relatively higher rankings.

When considering the range of values in each aggregation the highest Simpson's Diversity Index values for local authorities are no more than 56 per cent of the range between the minimum and maximum values in all three classifications. For 16 ethnic categories where the maximum index value is 16, Brent, with the ranking of one, has an index value of 6.463, 36 per cent of the range from minimum to maximum values for this aggregation. The respective value for five ethnic groups is Newham with a value of 3.228, 56 per cent of the range. The respective value for ten ethnic groups is Newham with an index value of 4.742, 42 per cent of the range for this aggregation. When all 16 Census ethnic groups are used there are several ethnic groups, notably the four Mixed categories, that all have relatively small populations. This immediately dilutes the value of the index. When the small groups are merged with others, as in the 10-way and 5-way classifications, it is possible for relatively higher equitability values to be measured.

Local authorities outside Greater London in the top rankings include Slough, Leicester, Birmingham and Luton. These authorities rank in the top 20 for aggregations of five and ten ethnic groups but for the 16 ethnic groups they only rank between 19 and 27. Other authorities in the top 40 rankings for all aggregations are Manchester, Wolverhampton, Blackburn with Darwen, Sandwell, Coventry and Bradford.

The top 50 rankings for the ten and five group classifications contain the same set of authorities. Five authorities that feature in the top 50 for 16 groups drop out in the other classifications. These are Forest Heath, Cambridge, Richmond upon Thames, Sutton and Wycombe. They have been replaced by Pendle, Kirklees, Oldham, Walsall and Derby. The common feature of those that dropped out of the top 50 are large White Other populations, whether they be USAF personnel at Forest Heath, or students

from many nationalities in Cambridge. The common feature of the five authorities that have entered the top 50 is that they have large Asian populations when summed to five groups that are predominantly formed of either one or two Asian ethnic groups out of the 16. For instance, Pendle's Asian population is predominantly Pakistani, as is Oldham's, while Kirklees, Walsall and Derby all have significant Indian and Pakistani populations but fewer Bangladeshis and Other Asians.

Chart 1

Simpson's Diversity Indices: Ranked

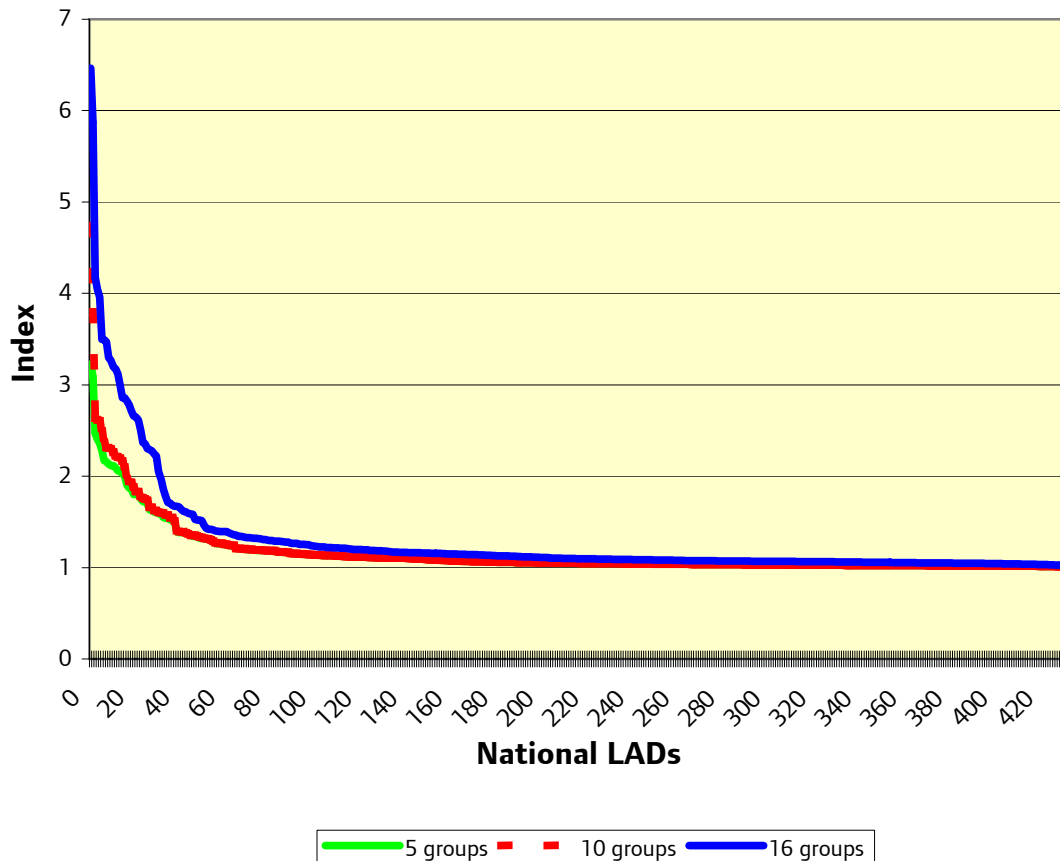


Chart 1 above shows Simpson's Diversity Index values for all local authority districts, counties and regions in England and Wales. The most diverse local authorities are small in number and hence there is clustering at the top end of the graph with the bulk of local authorities having an index value of one or slightly higher.

Tables 5 to 7 show how Simpson's Diversity Index values are sensitive to the way in which ethnic groups are aggregated and it is not possible to state that a local authority with an index of four is twice as diverse as a local authority with an index of two.

However the application the Index allows us to qualify any statements made about the diversity of London boroughs. The majority of London boroughs are undoubtedly the most diverse areas in the country.

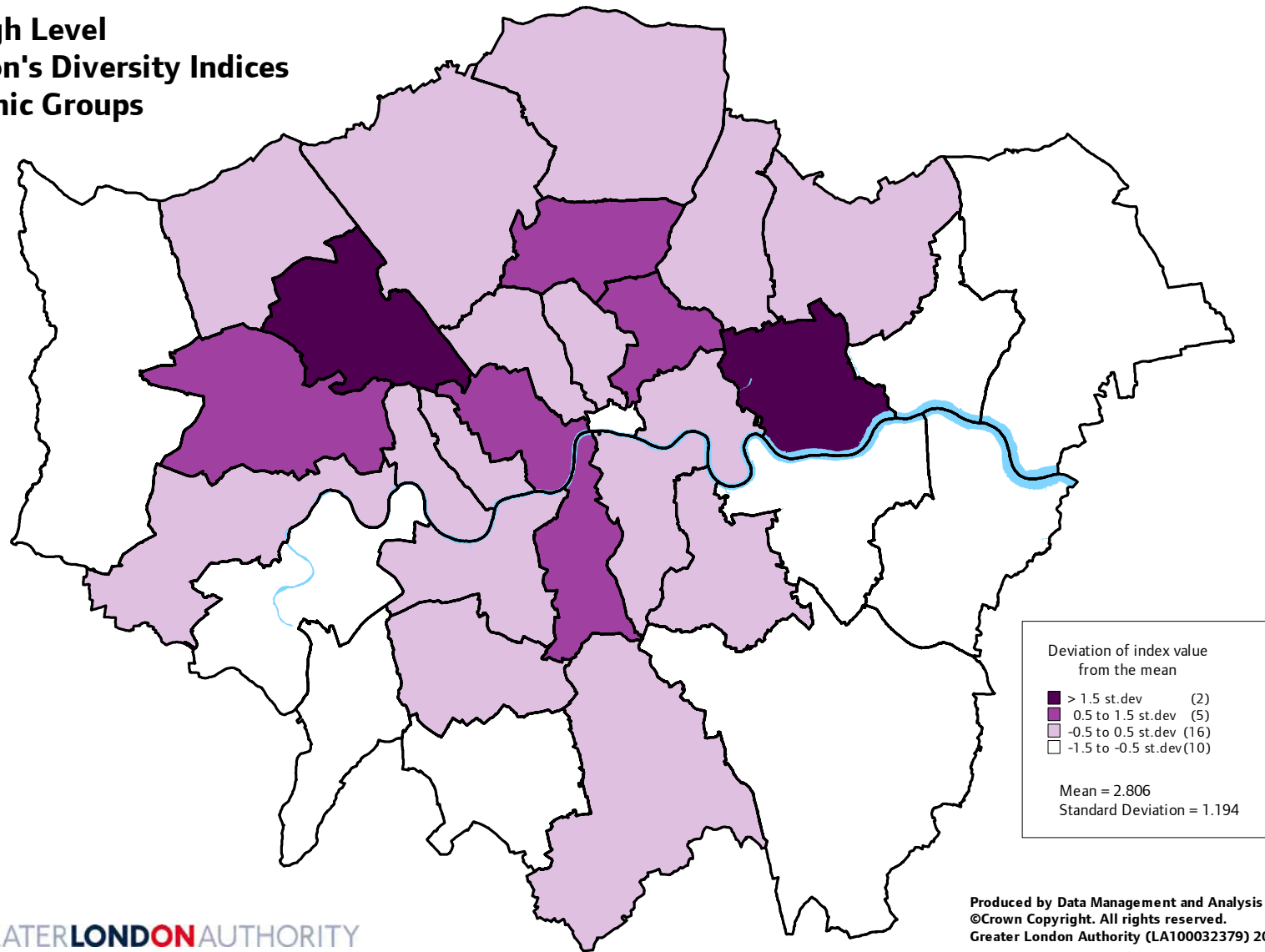
The following borough maps show diversity index values by three ethnic aggregations. The boroughs are grouped as follows:

- Very high
Index value is greater than the mean plus 1.5 standard deviations
- High
Index value is between the mean plus half and 1.5 standard deviations
- Average
Index value is the mean plus or minus half the standard deviation
- Low
Index value is between the mean and minus half and minus 1.5 standard deviations
- Very Low
Index value is less than the mean minus 1.5 standard deviations

The very low category is only evident in the borough map showing 5 aggregated ethnic groups.

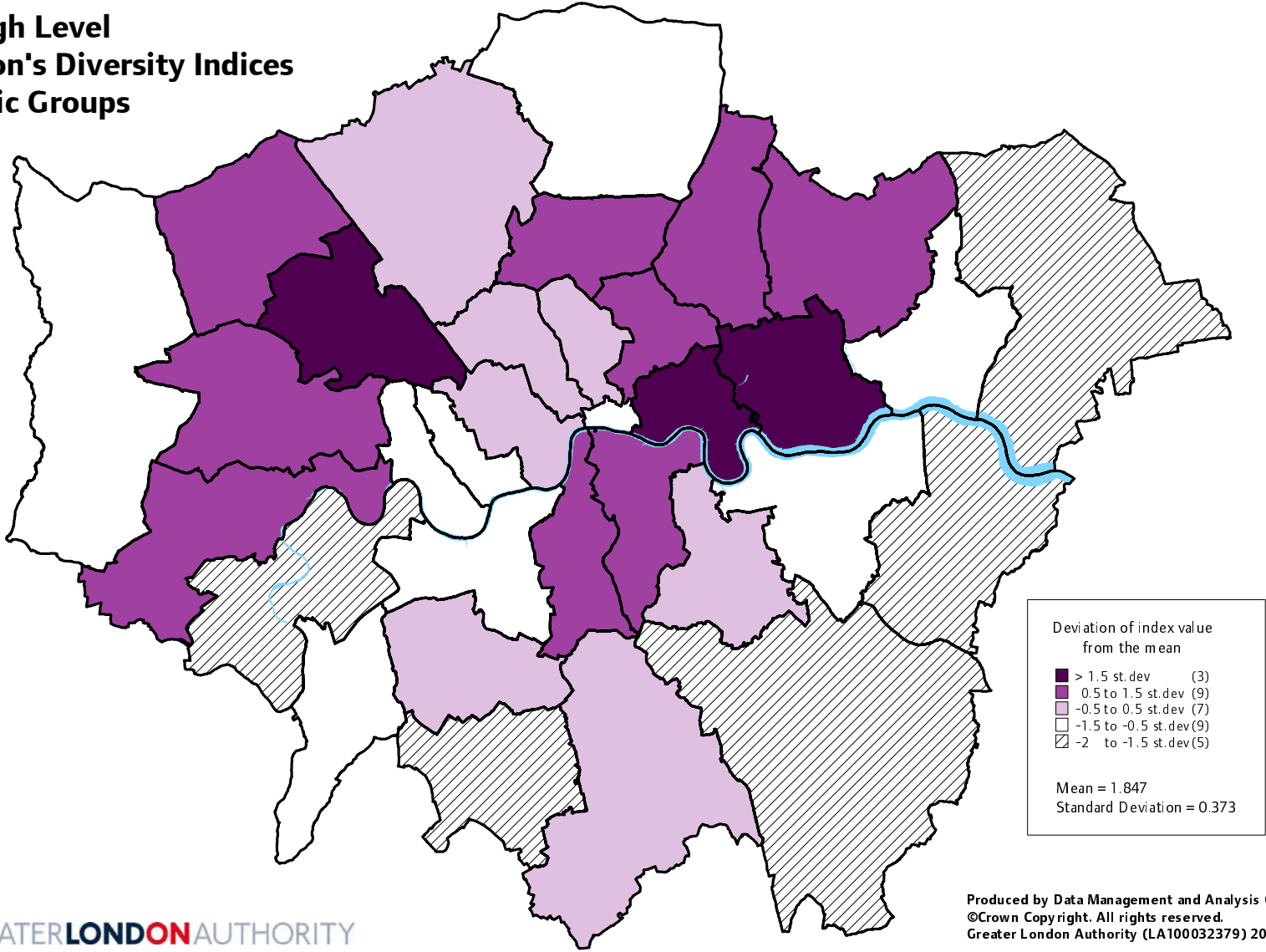
The derivations of mean and standard deviation in each map are only based on index values for London boroughs for that relevant ethnic group classification.

Map 2
Borough Level
Simpson's Diversity Indices
16 Ethnic Groups

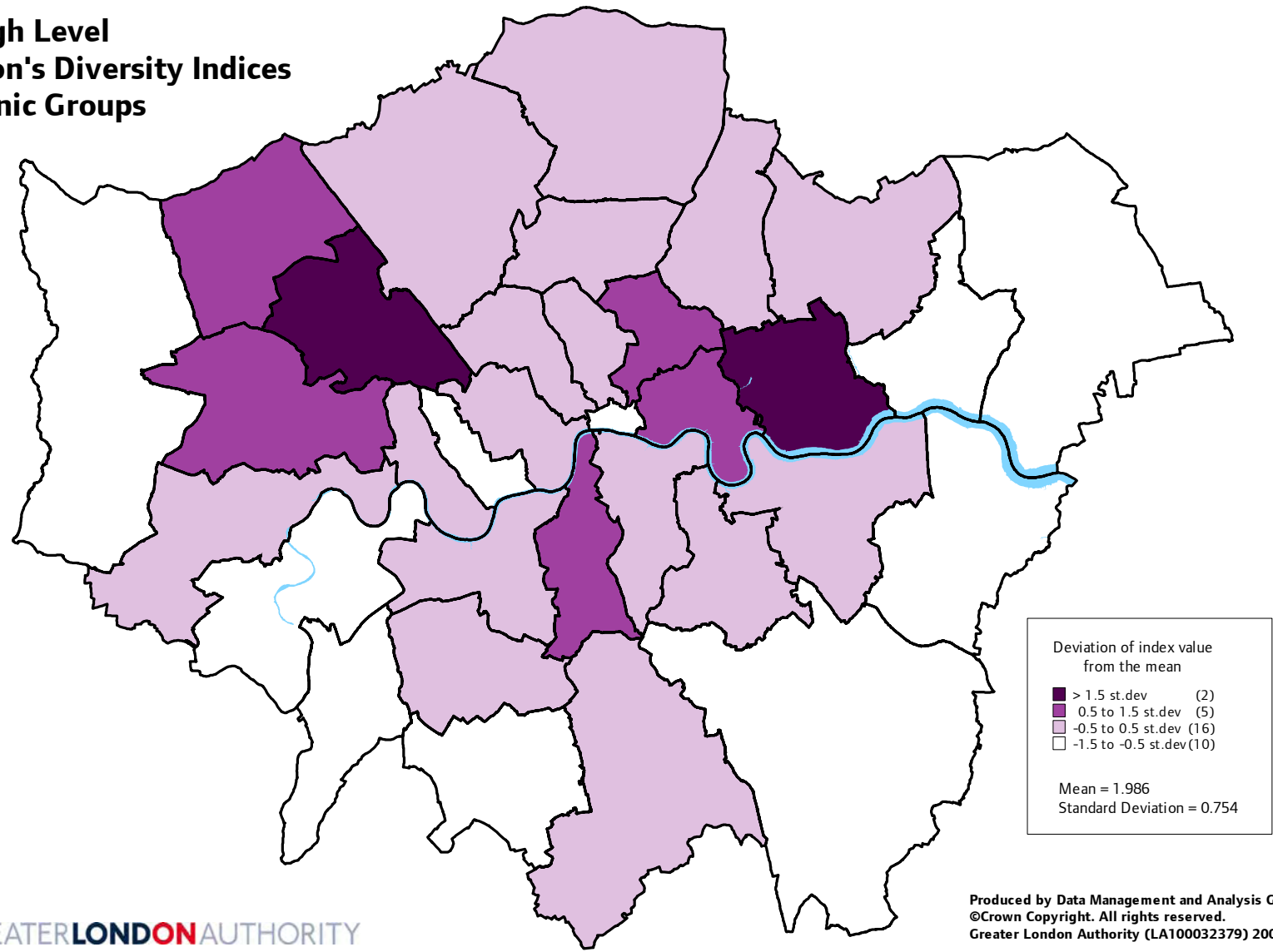


GREATER LONDON AUTHORITY

Map 3
Borough Level
Simpson's Diversity Indices
5 Ethnic Groups



Map 4
Borough Level
Simpson's Diversity Indices
10 Ethnic Groups



Ward Analysis

Simpson's Diversity Index was also calculated at ward level.

Tables 8 to 10 show the top 50 ranking wards for each of the three ethnic group aggregations.

For rankings of all three aggregations of ethnic group London wards figure highly. In the rankings for 16 groups, all but three of the wards are London wards with the others being in Birmingham. Wards in Newham and Brent dominate the top 15 wards. Both boroughs are in the top two positions in the equivalent borough rankings. However a ward in Redbridge appears in 5th position. Notably this ward, Loxford borders onto Newham and in particular the Newham Wards of Little Ilford and Wall End. Redbridge, however, is in 17th place in the equivalent borough rankings. Map 5 highlights this area for the five aggregate groupings.

Notably the wards at the top of the table for five ethnic group aggregations, Plaistow North (Newham) and Bensham Manor (Croydon) are in 12th and 33rd position respectively in the ward rankings for 16 ethnic groups. Forty-three of the 50 highest ranking wards for five aggregate ethnic groups are in London with seven outside London. The highest ranking non-London ward is Aston (Birmingham). Wards in Manchester, Trafford and Sandwell are also present in this ranking in addition to Birmingham. Two Croydon wards are in the top ten ranking for five aggregated ethnic groups. However Croydon is ranked 16th in the equivalent borough rankings.

In the ten aggregated ethnic group rankings once again fewer London wards are present. Forty of the top 50 wards in this ranking are London boroughs. However Newham wards heavily dominate the top ten positions, filling seven places. This refers in particular to one corner of Newham and Redbridge. The ten aggregated ethnic group ranking also includes two wards in Luton in addition to the previously mentioned wards in Birmingham, Slough, Sandwell, Trafford and Manchester.

The following ward maps show diversity index values by three ethnic aggregations. The wards are grouped as follows:

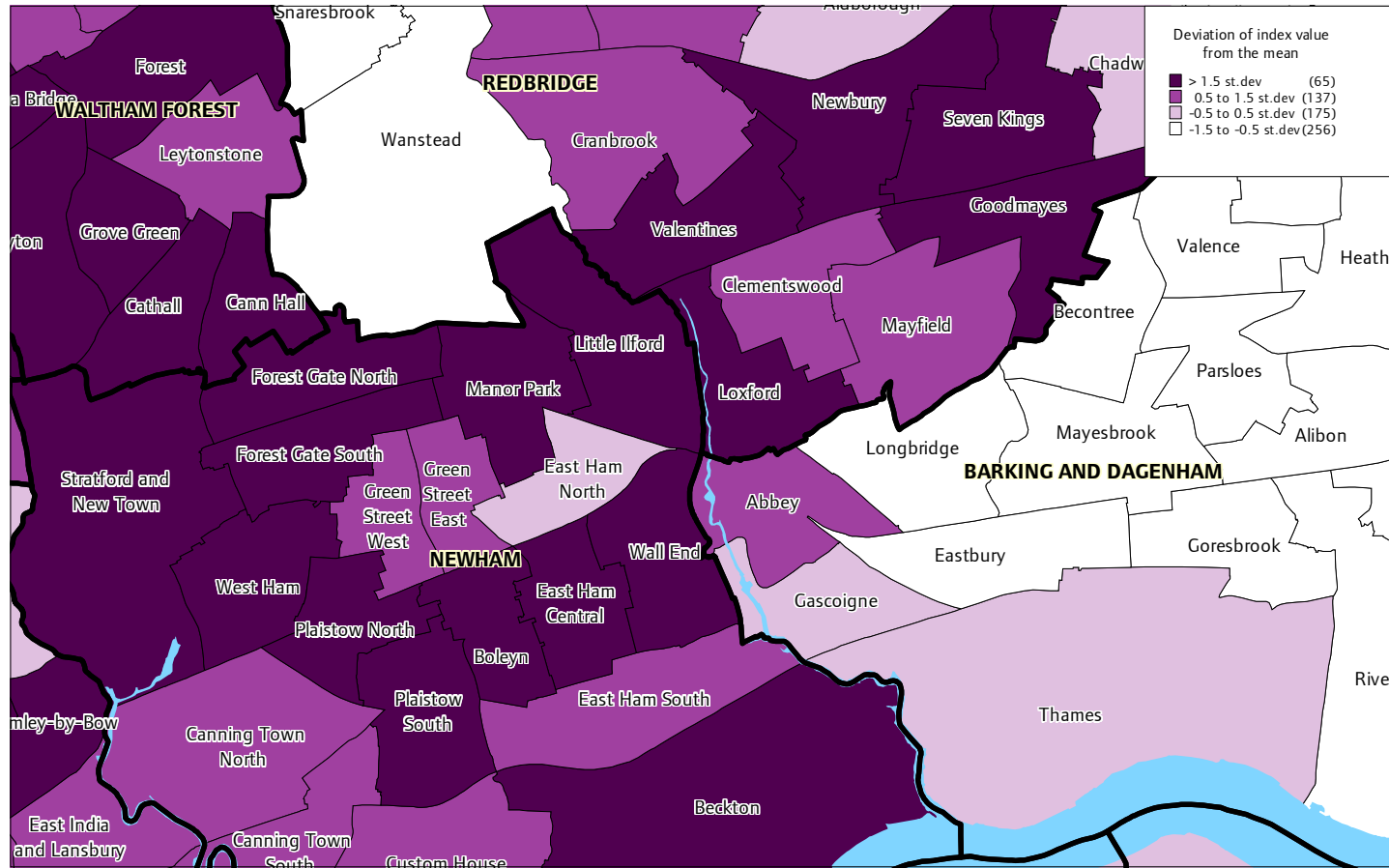
- Very high
Index value is greater than the mean plus 1.5 standard deviations
- High
Index value is between the mean plus half and 1.5 standard deviations
- Average
Index value is the mean plus or minus half a standard deviation
- Low
Index value is between the mean and minus half and minus 1.5 standard deviations

The derivations of mean and standard deviation in each map are only based on index values for London wards for that relevant ethnic group classification.

All three ward maps show similar pattern of high and very high diversity index values. There are a number of key areas:

- Northwest London centred on Brent
- An arc in Northeast and East London with centres in Haringey and Hackney, Newham, Redbridge
- Southeast London linking Lambeth, Southwark and Lewisham
- North Croydon spreading to parts of Merton and Wandsworth
- Western parts of Ealing and Hounslow

Map 5: Ward Level Simpson's Diversity Indices - 5 Ethnic Groups



GREATER LONDON AUTHORITY

Produced by Data Management and Analysis Group
 © Crown Copyright. All rights reserved. Greater London Authority (LA100032379) 2005

Table 8: Top 50 ward rankings for 16 ethnic groups

Rank	Ward	Local Authority	Simpson's Index	% of Range
1	Dollis Hill	Brent	7.399	43
2	Little Ilford	Newham	7.288	42
3	Manor Park	Newham	7.150	41
4	Wall End	Newham	7.008	40
5	Loxford	Redbridge	6.835	39
6	Dudden Hill	Brent	6.818	39
7	Forest Gate South	Newham	6.808	39
8	Stonebridge	Brent	6.753	38
9	Harlesden	Brent	6.632	38
10	East Ham Central	Newham	6.527	37
11	Tokyington	Brent	6.453	36
12	Plaistow North	Newham	6.336	36
13	Willesden Green	Brent	6.322	35
14	Handsworth	Birmingham	6.268	35
15	Sudbury	Brent	6.258	35
16	Welsh Harp	Brent	6.238	35
17	Green Street East	Newham	5.987	33
18	Tottenham Green	Haringey	5.960	33
19	Clementswood	Redbridge	5.959	33
20	Green Street West	Newham	5.930	33
21	Soho	Birmingham	5.856	32
22	Barnhill	Brent	5.803	32
23	Bruce Grove	Haringey	5.800	32
24	Northumberland Park	Haringey	5.792	32
25	Tottenham Hale	Haringey	5.789	32
26	Preston	Brent	5.780	32
27	Aston	Birmingham	5.775	32
28	Alperton	Brent	5.752	32
29	West Thornton	Croydon	5.678	31
30	Fryent	Brent	5.646	31
31	East Ham North	Newham	5.635	31
32	Kensal Green	Brent	5.619	31
33	Bensham Manor	Croydon	5.599	31
34	Boleyn	Newham	5.583	31
35	Kilburn	Brent	5.536	30
36	Leyton	Waltham Forest	5.491	30
37	West Green	Haringey	5.470	30
38	Forest Gate North	Newham	5.465	30
39	Lea Bridge	Waltham Forest	5.305	29
40	Cathall	Waltham Forest	5.279	29
41	King's Park	Hackney	5.235	28
42	Golborne	Kensington and Chelsea	5.214	28
43	St. Ann's	Haringey	5.182	28
44	Queen's Park	Westminster	5.179	28
45	Northwick Park	Brent	5.173	28
46	Perivale	Ealing	5.171	28
47	Graveney	Merton	5.144	28
48	Seven Sisters	Haringey	5.117	27
49	Leabridge	Hackney	5.107	27
50	West Ham	Newham	5.096	27
		Max	16	
		Min	1	

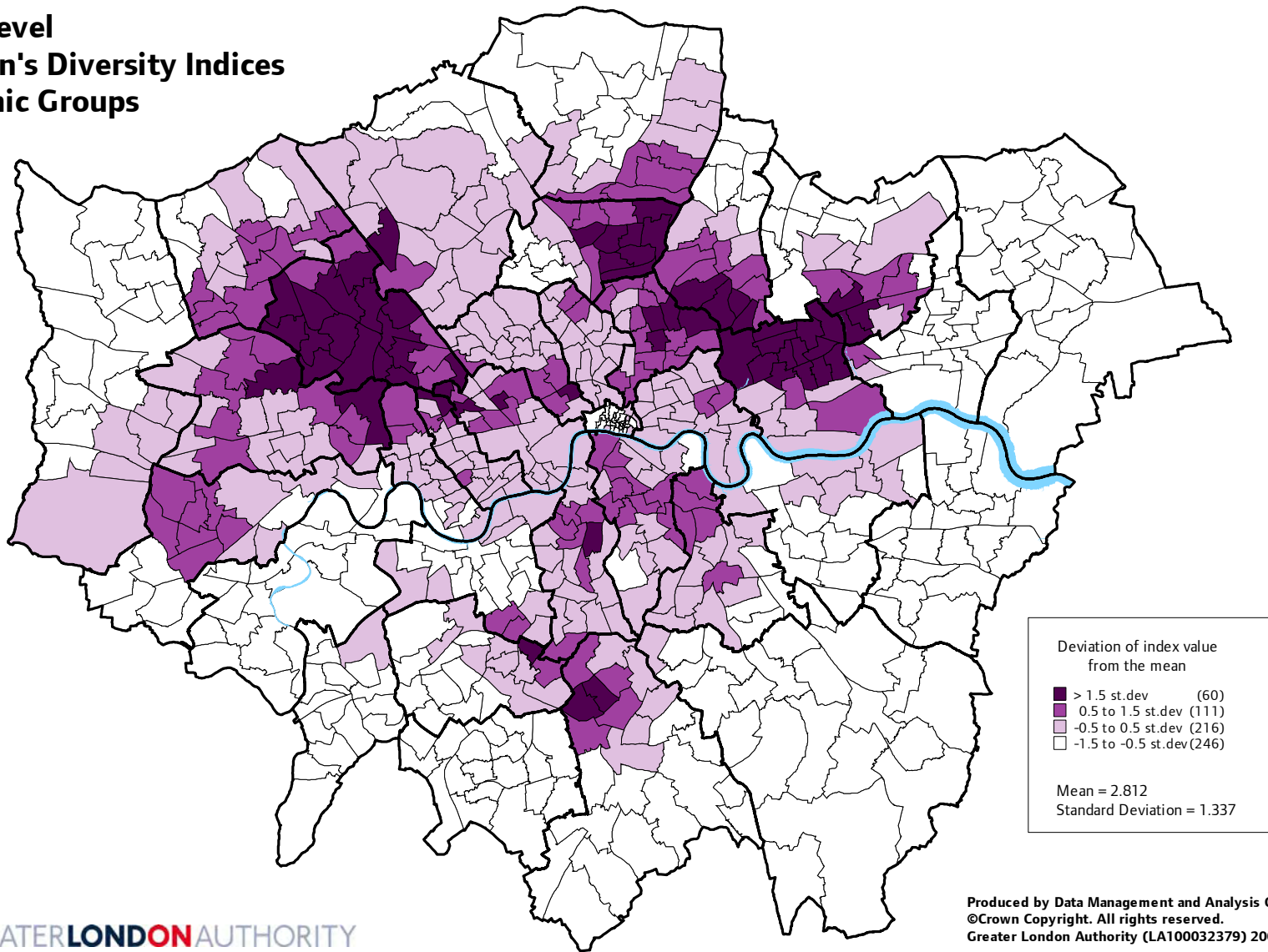
Table 9: Top 50 ward rankings for five ethnic groups

Rank	Ward	Local Authority	Simpson's Index	% of Range
1	Plaistow North	Newham	3.465	62
2	Bensham Manor	Croydon	3.289	57
3	Forest Gate South	Newham	3.279	57
4	West Thornton	Croydon	3.261	57
5	Tokyngton	Brent	3.248	56
6	Forest Gate North	Newham	3.186	55
7	Little Ilford	Newham	3.178	54
8	Aston	Birmingham	3.171	54
9	West Ham	Newham	3.153	54
10	Barnhill	Brent	3.151	54
11	Boleyn	Newham	3.097	52
12	Stratford and New Town	Newham	3.048	51
13	Soho	Birmingham	3.045	51
14	Preston	Brent	3.037	51
15	Leyton	Waltham Forest	3.025	51
16	Sudbury	Brent	3.023	51
17	Welsh Harp	Brent	3.020	51
18	Cathall	Waltham Forest	3.019	50
19	Lea Bridge	Waltham Forest	3.007	50
20	Soho and Victoria	Sandwell	2.992	50
21	Dollis Hill	Brent	2.985	50
22	Graveney	Merton	2.984	50
23	Beckton	Newham	2.982	50
24	Clifford	Trafford	2.953	49
25	Stonebridge	Brent	2.948	49
26	Colindale	Barnet	2.930	48
27	Plaistow South	Newham	2.926	48
28	Fryent	Brent	2.884	47
29	Harlesden	Brent	2.877	47
30	Leabridge	Hackney	2.876	47
31	Manor Park	Newham	2.874	47
32	Moss Side	Manchester	2.862	47
33	Loxford	Redbridge	2.860	47
34	Bromley-by-Bow	Tower Hamlets	2.848	46
35	Ladywood	Birmingham	2.838	46
36	Northwick Park	Brent	2.830	46
37	Sandwell	Birmingham	2.823	46
38	Alperton	Brent	2.819	45
39	Grove Green	Waltham Forest	2.802	45
40	Norbury	Croydon	2.788	45
41	Markhouse	Waltham Forest	2.773	44
42	Evelyn	Lewisham	2.769	44
43	Broad Green	Croydon	2.764	44
44	Norwood Green	Ealing	2.764	44
45	Dudden Hill	Brent	2.762	44
46	Forest	Waltham Forest	2.761	44
47	Wall End	Newham	2.754	44
48	Streatham South	Lambeth	2.750	44
49	Newbury	Redbridge	2.741	44
50	Tottenham Green	Haringey	2.738	43
		Max	5	
		Min	1	

Table 10: Top 50 ward rankings for ten ethnic groups

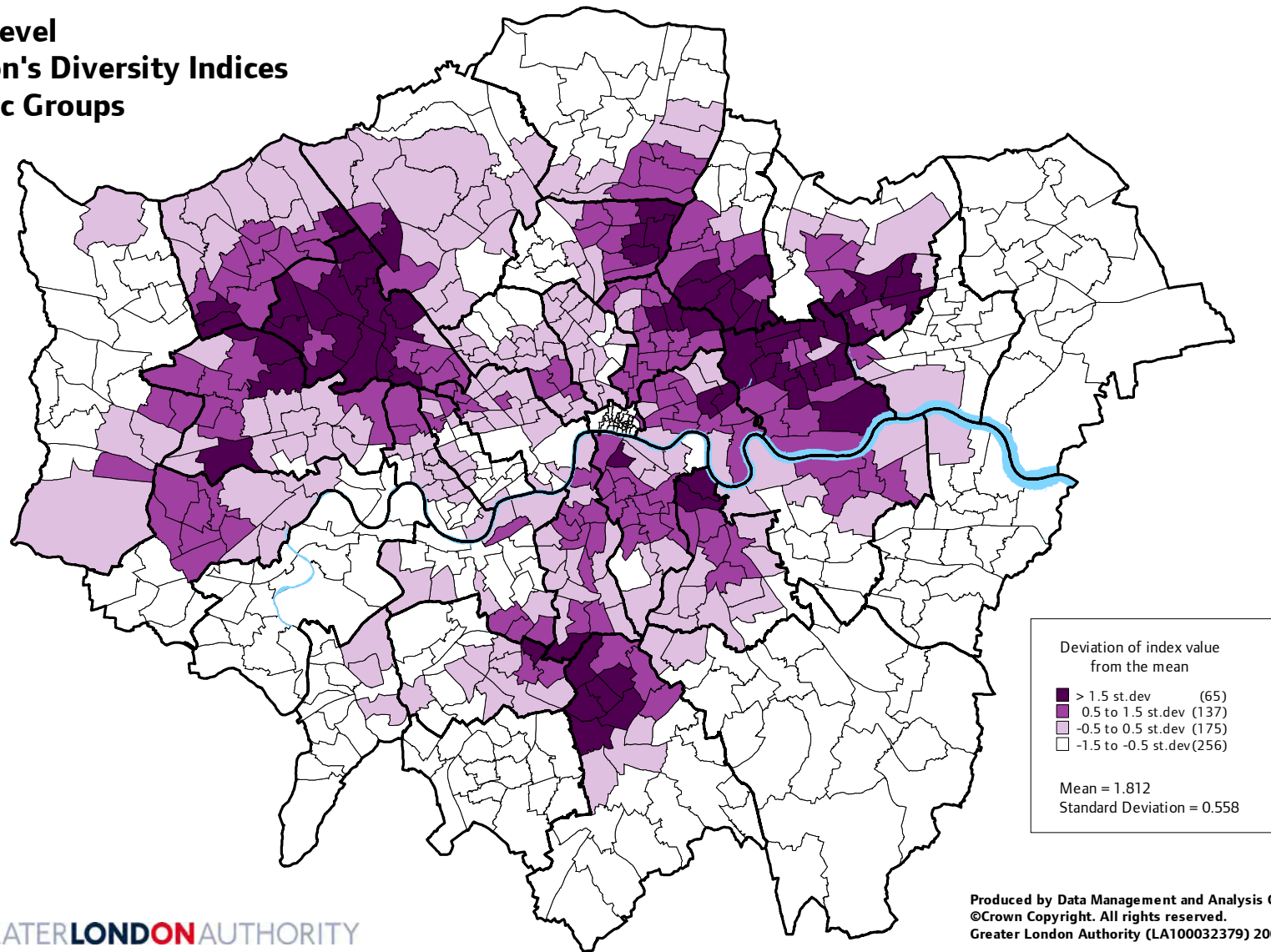
Rank	Ward	Local Authority	Simpson's Index	% of Range
1	Little Ilford	Newham	6.037	60
2	Manor Park	Newham	6.011	60
3	Wall End	Newham	5.881	59
4	Handsworth	Birmingham	5.844	58
5	Loxford	Redbridge	5.710	57
6	Green Street East	Newham	5.611	56
7	Green Street West	Newham	5.557	56
8	East Ham Central	Newham	5.441	54
9	East Ham North	Newham	5.338	53
10	Soho	Birmingham	5.337	53
11	Aston	Birmingham	5.172	52
12	Plaistow North	Newham	5.161	52
13	Forest Gate South	Newham	5.148	51
14	Clementswood	Redbridge	5.067	51
15	Tokyington	Brent	4.793	48
16	Stonebridge	Brent	4.741	47
17	West Thornton	Croydon	4.706	47
18	Boleyn	Newham	4.636	46
19	Alperton	Brent	4.635	46
20	Sudbury	Brent	4.483	45
21	Bensham Manor	Croydon	4.447	44
22	Wembley Central	Brent	4.294	43
23	Harlesden	Brent	4.271	43
24	Sparkbrook	Birmingham	4.202	42
25	Forest Gate North	Newham	4.200	42
26	Soho and Victoria	Sandwell	4.020	40
27	Valentines	Redbridge	3.975	40
28	Biscot	Luton	3.965	40
29	Dormers Wells	Ealing	3.964	40
30	West Ham	Newham	3.962	40
31	Preston	Brent	3.957	40
32	St. Pauls	Sandwell	3.956	40
33	Dallow	Luton	3.942	39
34	Norwood Green	Ealing	3.924	39
35	Sandwell	Birmingham	3.887	39
36	Stratford and New Town	Newham	3.861	39
37	Barnhill	Brent	3.830	38
38	Leyton	Waltham Forest	3.827	38
39	Peckham	Southwark	3.817	38
40	Newbury	Redbridge	3.747	37
41	Graveney	Merton	3.732	37
42	Lea Bridge	Waltham Forest	3.729	37
43	Cathall	Waltham Forest	3.729	37
44	Central	Slough	3.717	37
45	Clifford	Trafford	3.675	37
46	Queensbury	Brent	3.665	37
47	Welsh Harp	Brent	3.661	37
48	Northwick Park	Brent	3.607	36
49	Dollis Hill	Brent	3.591	36
50	Cranbrook	Redbridge	3.584	36
		Max	10	
		Min	1	

Map 6
Ward Level
Simpson's Diversity Indices
16 Ethnic Groups



GREATERLONDONAUTHORITY

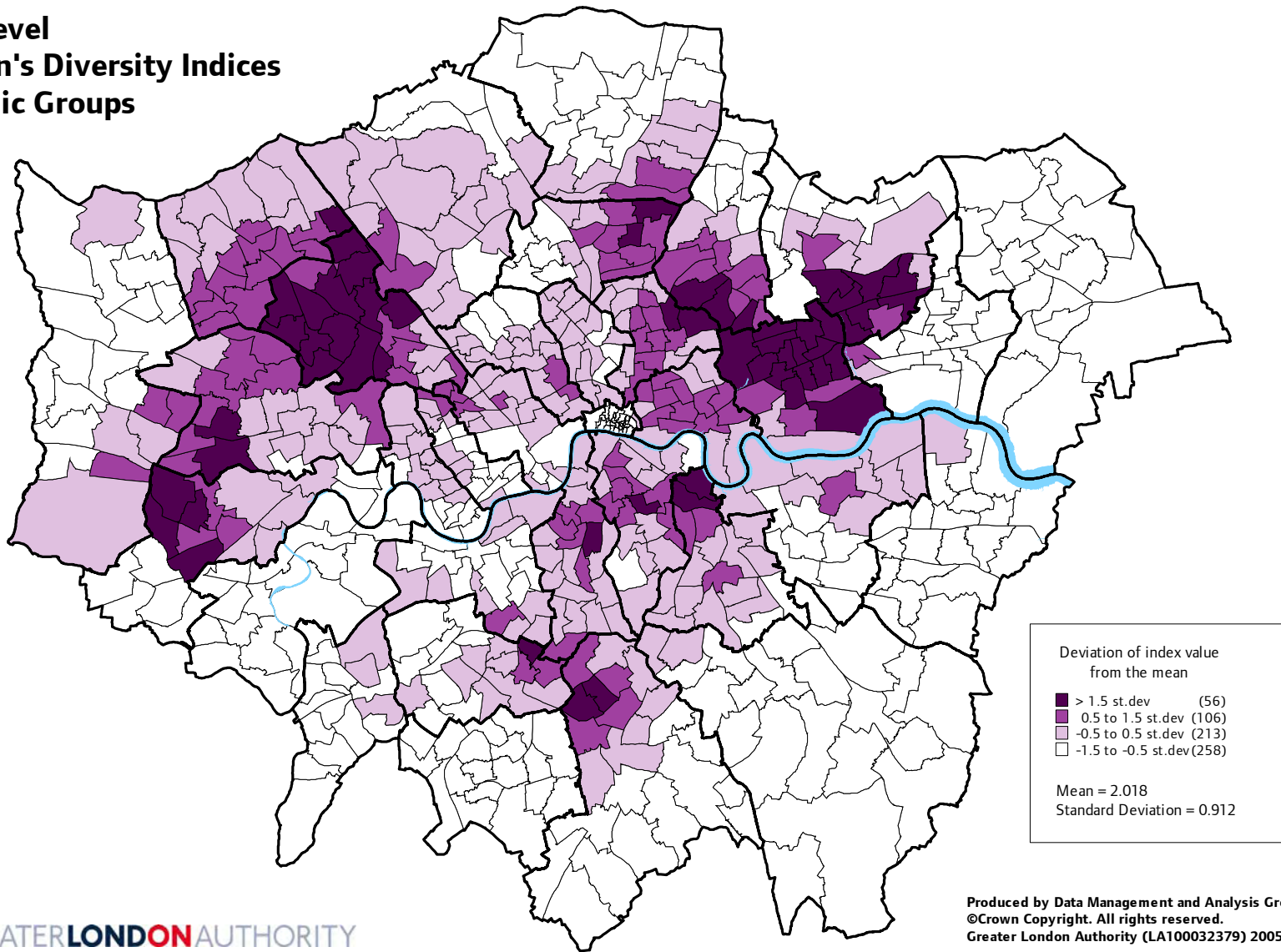
Map 7
Ward Level
Simpson's Diversity Indices
5 Ethnic Groups



GREATERLONDONAUTHORITY

Produced by Data Management and Analysis Group
©Crown Copyright. All rights reserved.
Greater London Authority (LA100032379) 2005

Map 8
Ward Level
Simpson's Diversity Indices
10 Ethnic Groups



GREATERLONDONAUTHORITY

Conclusion

The Simpson's Diversity Index gives us firm evidence that Greater London boroughs and wards are some of the most diverse areas in the country. It has allowed us to quantify and measure the extent of this diversity in a standardised manner and thus compare London with other areas in England and Wales.

In particular the Simpson's Diversity Index has a holistic and all-encompassing approach to diversity. Where previous methods of understanding the diversity of a community have solely analysed the size of the population from ethnic groups other than White British, the Simpson's Index approach measures diversity in a fuller way. It incorporates all ethnic groups in its measure.

Above all else Simpson's Diversity Index is simple and understandable yet more sophisticated than simple data analysis. There is also considerable scope to develop further this work to include other quantitative variables such as age structure, household type, religion, socio-economic class or country of birth.

Regular Briefings from the GLA Data Management and Analysis Group

Latest DMAG Briefings:

DMAG 2005/1	County of Birth and Labour Market Outcomes	Lorna Spence
DMAG 2005/2	2001 Census: London Country of Birth Profiles	Giorgio Finella
DMAG 2005/3	2001 Census: Economic Activity in London	Giorgio Finella
DMAG 2005/4	2001 Census Profiles: Pakistanis in London	Gareth Piggott
DMAG 2005/5	Indices of Deprivation 2004: Ward analysis	Lovedeep Vaid
DMAG 2005/6	London – The World in a City	Marian Mackintosh
DMAG 2005/7	Claimant Count Model: Technical Note	Lorna Spence/ Georgia Hay
DMAG 2005/8	London Pupil Dataset	David Ewens
DMAG 2005/9	Borough Fertility Rates 2000-02	John Hollis/ Georgia Hay
DMAG 2005/10	Borough Life Tables 2000-02	John Hollis/ Georgia Hay
DMAG 2005/11	Demography Team Workplan 2005-06	John Hollis

Recent DMAG Briefings:

DMAG 2004/1	2003 Round Ward Population Projections	Georgia Hay
DMAG 2004/2	London's Workers Part 1: 2001 Census results	Eileen Howes
DMAG 2004/3	Borough Demographic Profiles	Georgia Hay
DMAG 2004/4	DMAG Annual Review 2003	Jackie Maguire/ Rob Lewis
DMAG 2004/5	2003 Round Demographic Projections	John Hollis
DMAG 2004/6	Londoners' Qualifications: Analysis of 2001 Census data	Gareth Piggott
DMAG 2004/7	The Parliamentary General Election, 2001	Michael Minors/ Dennis Grenham/ Jackie Maguire
DMAG 2004/8	Constituency Demographic Profiles	Georgia Hay
DMAG 2004/9	Measuring Unemployment	Lorna Spence
DMAG 2004/10	Measures of Income	Rachel Leeser/ Lorna Spence
DMAG 2004/11	2001 Census Profiles: The Irish in London	Eileen Howes
DMAG 2004/12	Health in London Age-standardised Rates	Gareth Piggott
DMAG 2004/13	Data Sources on Refugees and Asylum Seekers	Ed Klodawski
DMAG 2004/14	Census Information Note 2004-1	Eileen Howes
DMAG 2004/15	2001 Census: Local Authority Population Studies	John Hollis
DMAG 2004/16	2001 Census Profiles: Bangladeshis in London	Gareth Piggott
DMAG 2004/17	London Plan Sub-Regional Demographic Profiles	Georgia Hay
DMAG 2004/18	Indices of Deprivation 2004	Rachel Leeser
DMAG 2004/19	2001 Census Profiles: Muslims in London	Eileen Howes
DMAG 2004/20	ONS Mid-Year Population Estimates: 2001 and 2002 (revised) and 2003	John Hollis/ Georgia Hay
DMAG 2004/21	School Register	Shen Cheng
DMAG 2004/22	Census Information Note 2004-2	Gareth Piggott
DMAG 2004/23	ONS Mid-year Population Estimates: 1991 to 2003	John Hollis/ Georgia Hay
DMAG 2004/24	Fertility of Ethnic Groups in London, 2002/03	Ed Klodawski
DMAG 2004/25	ONS 2003-based Subnational Projections	John Hollis/ Georgia Hay
DMAG 2004/26	Census Information Note 2004-3	Eileen Howes
DMAG 2004/27	PayCheck 2004	Lovedeep Vaid
DMAG 2004/28	Greater London Demographic Review 2003	Georgia Hay

If you would like copies of previous briefings, please contact Jackie Maguire at the GLA, jackie.maguire@london.gov.uk

Contact details for the Data Management and Analysis Group are as follows:

Rob Lewis (020 7983 4652) is **Head of the Data Management and Analysis Group**. rob.lewis@london.gov.uk

Bill Armstrong (020 7983 4653) works in the **Census Team** with particular responsibilities for **commissioned tables, workplace data** and **mapping**. bill.armstrong@london.gov.uk

Baljit Bains (020 7983 4613) works in the **Demography Team** and is responsible for **ethnic demography**, including **ethnic group projections**. baljit.bains@london.gov.uk

Gareth Baker (020 7983 4965) works in the **GIS Team**. gareth.baker@london.gov.uk

Shen Cheng (020 7983 4889) works on **Education data** and is responsible for **school roll projections**. shen.cheng@london.gov.uk

Hywel Davies (020 7983 4696) is responsible for the **SASPAC** project and for the development of **GIS** work. hywel.davies@london.gov.uk

David Ewens (020 7983 4656) is responsible for **Education research and data analysis**. david.ewens@london.gov.uk

Giorgio Finella (020 7983 4328) works in the **Census Team**. giorgio.finella@london.gov.uk

Dennis Grenham (020 7983 4532) works mostly on **statistical compendia, election statistics** and **special publications**. dennis.grenham@london.gov.uk

Georgia Hay (020 7983 4347) works in the **Demography Team** and is responsible for **ward level projections**, the **Demography Extranet** and **borough liaison**. georgia.hay@london.gov.uk

John Hollis (020 7983 4604) is responsible for the work of the **Demography Team** and the **Social Exclusion Team**, and particularly for **demographic modelling**. john.hollis@london.gov.uk

Eileen Howes (020 7983 4657) is responsible for the work of the **Census Team**. eileen.howes@london.gov.uk

Ed Klodawski (020 7983 4694) works in the **Demography Team**. His post is joint with the **London Health Observatory** and specialises in **ethnic** and **health** issues. edmund.klodawski@london.gov.uk

Rachel Leeser (020 7983 4699) works in the **Social Exclusion Team** with particular responsibilities for **indicators** and **income data**. rachel.leeser@london.gov.uk (maternity leave until late 2005)

Alan Lewis (020 7983 4348) is a member of the **SASPAC Team**. alan.lewis@london.gov.uk

Jackie Maguire (020 7983 4655) is responsible to the Group Head and co-ordinates the **administrative and financial** work of the Group. jackie.maguire@london.gov.uk

Michael Minors (020 7983 4654) is responsible for the work of the **General Statistics and Education Team**. michael.minors@london.gov.uk

Gareth Piggott (020 7983 4327) works in the **Census Team**. gareth.piggott@london.gov.uk

Lorna Spence (020 7983 4658) is a member of the **Social Exclusion Team**, with particular responsibilities for the **Labour Force Survey** and **benefits data**. lorna.spence@london.gov.uk

Lovedeep Vaid (020 7983 4699) works in the **Social Exclusion Team** with particular responsibilities for **deprivation indicators** and **income data**. lovedeep.vaid@london.gov.uk (maternity cover until late 2005)

Please use the above descriptions in deciding whom to contact to assist you with your information needs.