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**THE SOCIOECONOMIC POSITION
OF ETHNIC MINORITIES IN
TWO NORTHERN CITIES**

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ABSTRACT

For the first time, a British Census has provided not only data on ethnicity but has crossclassified ethnic status by a variety of socioeconomic indicators in the Local Base Statistics of the 1991 Census. This paper explores the patterns revealed by these new data.

Section 2 of the paper outlines the spatial distribution of six ethnic groups: Whites, Blacks (an aggregation of three groups), Indians, Pakistanis, Bangladeshis and Others in two Northern cities - Leeds and Bradford. Non-white groups all show a familiar inner city concentration but with some interesting locational differences. The section also looks at the degree of change over the 1981-91, utilising synthetic estimates of ethnic group for 1981 based on country of birth (COB) converted into ethnic group using conditional probabilities of ethnicity given COB. The degree of spatial change and dispersion is evaluated.

Sections 3 and 4 then examine the socio-demographic characteristics of each ethnic group using some 30 indicators grouped into six domains: demographic, household, employment, education, social class and housing/consumption. The rationale for indicator extraction and use is first described and the degree of reliance which can be placed in the statistics is assessed. The differences in profile between ethnic groups are established at city level first, and then the pattern of variation across wards in each city is described. A fascinating picture unfolds of disadvantage and advantage across the ethnic groups which establishes their socioeconomic position in the two Northern city carbon societies.

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INTRODUCTION

The population of Great Britain can be grouped socially using many different classifications. One of the classifications of persistent interest is that of "ethnicity". At the simplest level, an ethnic group is a set of people with a distinct racial or national origin. At a more detailed level, the concept of ethnicity becomes more complex: it not only involves elements of distinctiveness in terms of race and nationality, but also in terms of birthplace, language, culture and religion. These characteristics have varying degree of permanence. A person's "race" is fixed for life as is their birthplace. This renders them distinct and, the evidence suggests, is likely to help shape their opportunities for integration into the majority population, which may have socially labelled them as separate and possibly inferior (Jackson, 1987; Donald and Rattansi, 1992). Culture, language and religion are principally determined in the family of origin, but can change over a person's life either through integration/assimilation or, as in the case of the British Rastafarian, through a retrenchment of cultural difference. Finally, nationality is acquired through a set of rules relating to a person's birth and the nationality of parents, but can change through acquisition of a different national citizenship later in life. These observations mean that counting the numbers of people in different ethnic groups and interpreting the statistics has been fraught with difficulty. These issues are discussed in the first section of the paper.

Once measurement difficulties have been resolved, it is possible to examine the geographical distribution (by residence) of ethnic group populations. Section two of the paper explores the ethnic geography of two northern cities drawing on the ethnic group tabulations of the 1991 Census and on estimates of ethnic group numbers in 1981.

Having counted the numbers of people in different ethnic groups and examined their residential distribution we are then interested in their other attributes: their demographic and household structures, and their position in the learning-working-earning-consuming social system. These social attributes are subject to both evolution over time (age, family composition) and to the changing structure of opportunities in the educational, employment and housing markets.

Prior to the 1991 Census, it has only been possible to establish the socio-demographic attributes of ethnic groups at the national or regional scale using information from one of the large national household surveys (Labour Force Survey, General Household Survey). For small geographical areas, such as individual labour/housing markets or residential communities, it has only been feasible to infer the socio-demographic make up of individual ethnic groups from the general attributes of the area population. Because few residential areas are completely dominated by one ethnic group, this can result in a misleading picture of the socioeconomic geography of a given ethnic group. The 1991 Census Local Base Statistics provide at least 8 detailed tables that cross classify ethnicity by other socio-demographic attributes. The findings revealed by an analysis of selected variables from these tables are discussed in section four of the paper, section three being devoted to a discussion of the confidence that can be placed in the data, given its statistical characteristics.

In the final section of the paper an interpretation is offered of the processes influencing the geographical and social/demographic patterns for ethnic groups.

1. THE MEASUREMENT OF ETHNICITY

1.1 Indicators used prior to 1991

Censuses in the United Kingdom have asked a question on place of birth since 1851. Up to and including the Census of 1951, extensive tables were provided for county populations which showed **birthplace by county** within the UK as well as abroad and which were used principally to investigate internal migration. In 1961 a direct question was asked about migration, and the birthplace tables were restricted to **country of birth**. Tables giving country of birth were published for counties, districts and small areas in the 1971 and 1981 Censuses. These tables have been used to estimate the size of ethnic group populations in Great Britain.

Country of birth statistics provide reasonable estimates of the size of an ethnic group during a period of immigration from that country, provided the flow is an ethnically homogeneous one. However, as new persons are added through birth in the UK to the ethnic group, the country of birth statistics become less reliable. They fail to count those members born within the UK.

Two devices were used to circumvent these problems. In 1971 a question on **birthplace of parents** was added so that UK born persons could be classified by parental origin. This proved an unpopular question in ethnic minority communities because of its close association with legislation on Immigration. After an unsuccessful attempt to add an ethnic question to the 1981 Census, Tables were introduced that classified persons by the **country of birth of the household head**. This meant that persons born in the UK to families could be assigned to the head's birthplace group.

This statistical device was useful but had several drawbacks associated with use of birthplace as an ethnicity indicator.

- (1) There were still substantial numbers of white household heads born in the New Commonwealth or Pakistan in the 1981 population.

- (2) Second generation immigrants born in the UK were beginning to form and therefore head households. They would be misclassified using the birthplace of head indicator. The degree of misclassification could only get worse as the proportions in non-white ethnic groups who were born in this country increased.
- (3) The classification of head's birthplace provided in the Small Area Statistics (Table 37 - born in the UK, in the Irish Republic, in the New Commonwealth and Pakistan and in the Rest of the World) was very broad, placing together in the NCWP category ethnic groups with very different characteristics.

An unsuccessful attempt was made to include an ethnic group question in the 1981 Census (Teague 1991), but the House of Commons Home Affairs Sub-Committee on Race Relations and Immigration recommended renewed efforts to design and test an acceptable question. Considerable experience was built up in the use of an ethnic question in the Labour Force Survey (from 1979) and in Census Office test surveys, in consultation with ethnic minority organisations. An ethnic question was, as a result, included in the 1991 Census.

1.2 The 1991 Census ethnic question and ethnic classification

Figure 1 shows the form of the 1991 Census question and the categories used in the Labour Force Survey prior to 1991 (Teague 1991). The question relies on an assessment by the member(s) of the household filling in the questionnaire. There are seven simply defined, pre-coded groups and two, "Black-Other" and "Any other ethnic group", which are more complex and which have been further subcoded into 28 groups (Teague 1993, p13). The Local Base Statistics (provided for county, district and ward areas in England and Wales, and region, district and postal sector areas in Scotland) use a ten group summary (Figure 1B). These categories can be matched to most of those used in the Labour Force Survey (Figure 1D). However, the Census categories Black Other, Other Asian and Other-Other (Non Asian) are made up of both mixed and non-mixed groups and so cannot be matched directly to the LFS mixed origin category.

A. The ethnic group question in the 1991 Census of Great Britain

Ethnic group

Please tick the appropriate box

White ----- 0
Black-Caribbean ----- 1
Black-African ----- 2
Black-Other ----- 3

please describe

.....

Indian ----- 4
Pakistani ----- 5
Bangladeshi ----- 6
Chinese ----- 7
Any other ethnic group -----

please describe

.....

If the person is described from more than one ethnic or racial group, please tick the group to which the person considers he/she belongs, or tick the "any other ethnic group" box and describe the person's ancestry in the space provided.

Ethnic group categories

B. The standard ten group classification

C. Groups used in this paper

D. Groups in the Labour Force Survey (prior to 1992)

White
Black Caribbean

Black African
Black Other
Indian
Pakistani
Bangladeshi
Chinese
Other groups-Ass.
- Other (non-A)

White
Black
)
)
)
Indian
Pakistani
Bangladeshi
)
Other
)
)

White
West Indian or
Guyanese
Indian
Pakistani
Bangladeshi
Chinese
African
Arab
Mixed origin
Other

Sources: OPCS (1993), Teague (1993, p12)

FIGURE 1. The ethnic group questions in the 1991 Census and Labour Force Survey

For the purposes of this paper the ten standard categories have been grouped into six (Figure 1C). The principal reason for this was to ensure sufficient numbers in each group at ward scale for meaningful analysis. Within the Black group, the largest sub group are Blacks of Caribbean in mixed origin; within the Other groups the largest sub groups are Other Asians.

1.3 The estimation of ethnic change 1981-91

It is clearly important to be able to place the 1991 Census counts of ethnic group numbers in the context of change over the past decade. This can be done by comparison of the same inferior statistics on persons in households with heads born in the NCWP. However, Owen (1993a) demonstrates, for local authority districts in Lancashire, that only a minority of the non-white population resides in 1991 in NCWP households, that the measure underestimates the ethnic minority population in areas of established ethnic minority settlement and overestimates the percentages in the coastal, resort and rural districts.

The alternative approach is to try to estimate the ethnic group populations in 1981 using the 1981 Census data on country of birth of individual and by head of household together with supplementary information that links country of birth and ethnicity.

Haskey (1991) has produced estimates of ten ethnic group populations for local authority areas. This involved computing the probability of ethnic group membership given country of birth from the 1981 Labour Force Survey for metropolitan counties and region remainders, and multiplying the matrix of probabilities by the vector of persons born in each country drawn from the 1981 Census for each local authority. The problem with this approach is that an "average" probability for each metropolitan country or region remainder is applied to both areas of traditional ethnic minority settlement and to areas of suburban and rural character with few ethnic minority numbers.

Owen (1993b) has proposed using data from the Longitudinal Study (LS) for 1981-91 to refine the computation of the probabilities of ethnic group membership along with information from the 1991 Census LBS (Table L51). He has suggested, however, that early 1980s local survey information and data derived from names analysis may be more useful to estimate ethnic group numbers in small areas. The problem, however, with local surveys is their very variable coverage and quality; the problem with the analysis of names on the electoral register is that it provides information on selected groups only such as Asian sub-groups, Poles or Italians.

In this paper, we use the aggregate results of a method developed for estimating age-gender disaggregated ethnic group populations for mid-1981 (used in the West Yorkshire Population Model and Information System being developed by GMAP Ltd and the School of Geography, University of Leeds for the metropolitan districts of West Yorkshire). The datasets and steps in the algorithm are set out in Figure 2. The essence of the method (for the all age-gender results) is contained in step (4). Simplifying, we multiply the populations classified by country of birth of head by the probabilities of ethnic group given country of birth of head:

$$\text{Pop81 } (e|w) = \sum_c \text{Prob91 } (e|c,w) \text{ Pop81}(c,w) \quad (1)$$

where

$\text{Pop81 } (e,w)$ = population in 1981 of ethnic group e in ward w

$\text{Prob91}(e|c,w)$ = probability of ethnic group e given country of birth
of head c for ward w

$\text{Pop81}(c,w)$ = population in 1981 by country of birth of head c in
ward w.

The major advantage of this method over that of Haskey is that the probabilities are specific to the areas (wards) concerned rather than being general to a much larger area. The disadvantage of this approach is that the probabilities are derived from the 1991 Census rather than the 1981. Demographic change has occurred over the 1981-91 decade

A.

Data sets
1981 Census

- (1) SAS Table 37 : persons by birth place of head and broad age : wards
- (2) SAS Table 4 : persons by birthplace : wards
- (3) ST 1833 : persons by birthplace head, age and gender: district

1991 Census

- (4) LBS Table L51 : persons by birth place of head and ethnic group : wards

Estimates

- (5) Mid-1981 : persons by gender and single year of age : wards

Sources : OPCS

- 1981 Census : Small Area Statistics, purchased by ESRC, Crown Copyright.
- : Special Tables, purchased by Local Authorities. Crown Copyright.
- 1991 Census : Local Base Statistics, purchased and ESRC. Crown Copyright.
- Mid-1981 ests. : West Yorkshire Population Model and Information System, incorporating OPCS estimates for LAs, 1981 SAS data, OPCS estimates for England and Wales and OPCS Vital Statistics.

B.

Steps

- (1) Adjust all 1981 ward data to 1991 ward basis.
- (2) Disaggregate SAST37 data to target birth place groups using probabilities based on SAST4 breakdown.
- (3) Disaggregate step (2) estimates to target age classification using probabilities derived from ST1833 and mid-1981 estimates.
- (4) Convert from birthplace groups to ethnic groups using probabilities based on L51 data for heads.
- (5) Adjust ethnic group estimates by age and gender for wards to mid-1981 population estimates for wards.

FIGURE 2.

Data sets and algorithm for deriving mid-1981 population estimates by ethnic group, age and gender for wards.

which will have altered these probabilities. In particular, the numbers UK born with non-white ethnicity will have increased because of higher non-white fertility while the numbers of non-UK born with non-white ethnicity will have decreased. These effects will work in opposite directions and produce some compensation. An ideal method would involve estimating the conditional probabilities using the 1991 Census Table L51 data and the 1981 LFS data, together with data from the LS, but this would involve a national computation. Our judgement is that the spatial biases in the LFS method will be much more serious than the temporal biases in the L51 method. The 1991 ward populations for ethnic groups are also adjusted on a pro rata basis to fit the 1991 mid-year population estimates (revised rebased) for the district. Such adjustment compensates for underenumeration in the 1991 Census and helps raise the relative share of ethnic minority populations because of their concentration in the younger ages of greatest underenumeration. The patterns revealed by these estimates are now described.

2. ETHNIC CHANGE 1981-91: BRADFORD AND LEEDS

2.1 Ethnic change: city level

Two Northern cities, Bradford and Leeds, have been chosen for study, principally because of familiarity and because of a good base of previous studies (Rees and Birkin 1984; Rees and Ram, 1987; Ram 1986; Cater and Jones, 1979). Ethnic minorities make up 16.4% of Bradford's population which place it in the second rank of local authorities (10-24.9% ethnic minorities) in a national analysis (Teague 1993), although it has the highest concentration of people of Pakistani origin in Great Britain (9.9% 1991 Census data; 10.4% when this is adjusted to the revised rebased mid-year 1991 population estimates).

Leeds, on the other hand, houses an ethnic minority population of only 6.2% (mid-1991 estimates; 5.8% based on the 1991 Census statistics), which is just above the GB average of 5.5% (1991 Census). Leeds can be regarded as an "average" British city in this and many other respects with no single sub-group predominating.

The population changes for Bradford and Leeds are set out in Table 1, based on the method of estimation described above, together with not-quite-comparable figures from the 1981 and 1991 Labour Force Survey which provides estimates for Great Britain. The GB population grew by between 2 and 3% (depending on source) between 1981 and 1991, while the Bradford population gained just under 2% with Leeds losing just over a tenth of a percent. The picture is quite different for the component groups.

The white population grew by just over 2% in the country as a whole but shrank by 2% in Bradford and 1% in Leeds.

The black population grew by nearly 6% in GB but declined by 9% and 2% in Bradford and Leeds respectively. These figures mask a decline in the West Indian origin population nationally by 12%, and an increase of 250% in the Black African population. The West Indian loss reflects both a net out-migration from the UK in the decade and a declining birth rate. The African gain reflects strong in-migration and a high birth rate.

The Indian population posted modest gains nationally (16.3%) and in Leeds (17.2%) but experienced a decrease in Bradford. We see later that this is probably due to out-migration to the western suburbs of Leeds.

Dramatic gains are revealed for the Pakistani and Bangladeshi origin populations, both nationally and in the two cities with increases of 73% in Bradford and 64% in Leeds. The Bradford and Leeds gains are, however, substantially lower than the national estimates at 187%. This possibly suggests that the two cities are failing to attract their past share of continuing net surplus of immigration over emigration for these groups.

More modest increases are recorded for the Other ethnicities category of 7% in Bradford and 11% in Leeds, but these increases are again much

TABLE 1. Population change by ethnic group, 1981-91:
Great Britain, Leeds and Bradford

Group	1981 estimate	1991 estimate	Change	% Change	% 1981	% 1991
BRADFORD						
White	404,484	395,516	-8,968	-2.2	87.0	83.6
Black ¹	6,178	5,602	-576	-9.3	1.3	1.2
Indian	12,913	12,687	-226	-1.8	2.8	2.7
Pakistani	33,622	49,388	15,766	46.9	7.2	10.4
Bangladeshi	2,317	4,006	1,689	72.9	0.5	0.8
Other ²	5,338	5,729	391	7.3	1.1	1.2
Total	464,852	472,929	8,077	1.7	100.0	100.0
LEEDS						
White	679,966	672,427	-7,539	-1.1	94.8	93.8
Black	12,184	11,970	-214	-1.8	1.7	1.7
Indian	9,273	10,870	1,597	17.2	1.3	1.5
Pakistani	7,008	10,721	3,713	53.0	1.0	1.5
Bangladeshi	1,202	1,973	771	64.1	0.2	0.3
Other ²	7,966	8,807	841	10.6	1.1	1.2
Total	717,598	716,768	-830	-0.1	100.0	100.0
Group	1981 LFS	1991 LFS	Change LFS	% Change LFS	1991 Census	% 1991 Census
GREAT BRITAIN (NUMBERS IN 1000s)						
White	50,914	51,981	1,067	2.1	51,086	94.5
Black ¹	584	618	34	5.8	871	1.6
Indian	719	836	117	16.3	835	1.5
Pakistani	283	550	267	94.3	474	0.9
Bangladeshi	52	149	97	186.5	161	0.3
Other ²	538	706	168	31.2	628	1.1
Not stated	608	303	-305	-50.2	-	-
Total	53,697	55,143	1,446	2.7	54,056	100.0

Notes:

1. Census categories: Black Caribbean, Black African, Black other (residents in household)
LFS categories: West Indian or Guyanese, African (private household pop)
2. Census categories: Chinese, Other Asian, Other other (non Asian) (residents in households)
LFS categories: Chinese, Arab, Mixed Origin, Other (private household pop)

Sources:

1981 and 1991 Labour Force Survey, Crown Copyrights

Source for Estimates described in text

lower than in Great Britain as a whole (31%). In compositional terms, both white and black groups lose share in the two cities over the decade, while the Asian and other groups gain (except for Indians in Bradford).

2.2 Ethnic change: ward level

The residential distributions of the six ethnic groups are investigated for 1991 Census wards. These electoral units contain quite large populations: the 30 wards of Bradford (in 1991) contain between 13 and 18 thousand residents, while the 33 wards of Leeds (in 1991) house between 14 and 26 thousand residents. Wards are used for local government elections each year and their boundaries are subject to periodic revision by the Boundary Commissions.

Fortunately, between 1981 and 1991 there were no major revisions of ward boundaries in either Bradford or Leeds so that 1981 Census and 1991 Census wards can be regarded as comparable. Wards do hide a great deal of fine variation in population characteristics but the sub ward census units, enumeration districts, differ substantially between the two censuses. An additional consideration is that enumeration districts contain populations that are too small for the reliable computation of socioeconomic indicators for ethnic groups, and that the census crosstabulations available are very much coarser in ethnic and socioeconomic classifications.

A suite of maps (Figures 4 to 13) has been prepared that display the essential geography of each of the six ethnic groups. For each group four indicators have been mapped:

(1) the numbers resident in wards in 1991, (2) the change in numbers between 1981 and 1991, (3) the percentage share in 1991 of the ward population and (4) the location quotient (LQ) for the ward. The location quotient is defined as the ratio of the percentage share of a ward population in an ethnic group to its share in the whole district (all ward) population:

$$LQ(e,w) = [100 \cdot (\text{pop91}(e,w)/\text{Pop91}(w)) / 100 \cdot (\text{Pop91}(e,d)/\text{Pop91}(d))] \quad (2)$$

where

$\text{Pop91}(e,w)$ = the 1991 population of ethnic group e in ward w

$\text{Pop91}(w)$ = the 1991 population in ward w

$\text{Pop91}(e,d)$ = the 1991 population of ethnic group e in district d

$\text{Pop91}(d)$ = the 1991 population in district d

To interpret the maps it is important to note that in Bradford the city centre is located in the South east of the district and in Leeds in the middle of the district.

The percentage and location quotient maps use quantile classes (with 7, 8 or 9 wards in each class). The top and bottom figures on the shaded map legends indicate the maximum and minimum ward value and the figures located between the legend boxes indicate the dividing value.

To aid interpretation and comparison of the ethnic group maps, a set of indices of dissimilarity have been computed between all groups in 1981 and in 1991, and between the same groups in 1981 and 1991. These are set out in Tables 2 and 3.

The ethnic groups are discussed in turn.

2.2.1 Whites (Figures 3 and 4)

Whites are concentrated in the suburban periphery in both Bradford and Leeds, while conversely non-whites are centrally clustered. Whites are in a majority in all Leeds wards, but in Bradford University and Bradford Moor wards have ethnic minority majorities (of 75% and 53% respectively). The majority of both Bradford and Leeds Wards show losses of Whites over the decade, with exception of a few suburban and a handful of central wards around the main high education institutions (Headingley and University wards in Leeds, University and Undercliffe wards in Bradford).

TABLE 2. Index of dissimilarity analysis for ethnic groups - 1981-91:
Bradford

Results for 1981

Group	White	Black	Ethnic Group				Total
			Indian	Pakistani	Bangladeshi	Other	
White	0.0	46.3	61.2	65.6	75.0	42.3	7.6
Black	46.3	0.0	32.4	38.8	52.9	17.6	39.6
Indian	61.2	32.4	0.0	23.3	55.1	25.5	54.0
Pakistani	65.6	38.8	23.3	0.0	50.0	30.0	58.1
Bangladeshi	75.0	52.9	55.1	50.0	0.0	52.0	68.7
Other	42.3	17.6	25.5	30.0	52.0	0.0	35.1
Total	7.6	39.6	54.0	58.1	68.7	35.1	0.0

Results for 1991

White	0.0	44.1	57.2	63.6	75.1	42.4	9.5
Black	44.1	0.0	31.3	41.4	54.0	18.6	35.7
Indian	57.2	31.3	0.0	29.3	53.8	23.5	48.7
Pakistani	63.6	41.4	29.3	0.0	48.0	30.4	54.1
Bangladeshi	75.1	54.0	53.8	48.0	0.0	50.5	68.3
Other	42.4	18.6	23.5	30.4	50.5	0.0	33.3
Total	9.5	35.7	48.7	54.1	68.3	33.3	0.0

Results for 1981-91

Group	IOD
White	2.0
Black	8.1
Indian	13.1
Pakistani	6.7
Bangladeshi	13.1
Other	3.6
Total	1.8

Notes:

1. Computed from the 1981 and 1991 ethnic group estimates
2. The Index of Dissimilarity (IOD) is the sum over all wards of the absolute value of the differences in the group percentages being compared. The group percentages express the ward population in a group as a percentage of the population in the group of all wards.
3. The maximum IOD is 100, indicating complete dissimilarity of the distributions of the two groups and the minimum IOD is 0, indicating completely similarity of the distributions of the two groups.

TABLE 3. Index of dissimilarity analysis for ethnic groups - 1981-91: Leeds

Results for 1981

Group	White	Black	Ethnic Group				Total
			Indian	Pakis- tani	Bangl- adeshi	Other	
White	0.0	60.3	48.5	65.3	80.4	44.1	2.8
Black	60.3	0.0	31.4	37.8	54.0	29.9	57.7
Indian	48.5	31.4	0.0	27.5	51.5	21.7	45.9
Pakistani	65.3	37.8	27.5	0.0	35.2	33.9	62.6
Bangladeshi	80.4	54.0	51.5	35.2	0.0	61.6	78.2
Other	44.1	29.9	21.7	33.9	61.6	0.0	41.6
Total	2.8	57.7	45.9	62.6	78.2	41.6	0.0

Results for 1991

White	0.0	59.6	44.0	63.9	82.8	41.9	3.2
Black	59.6	0.0	38.6	39.9	59.5	26.9	56.7
Indian	44.0	38.6	0.0	34.4	64.8	21.0	41.0
Pakistani	63.9	39.9	34.4	0.0	43.9	36.3	60.7
Bangladeshi	82.8	59.5	64.8	43.9	0.0	67.3	80.8
Other	41.9	26.9	21.0	36.3	67.3	0.0	38.9
Total	3.2	56.7	41.0	60.7	80.8	38.9	0.0

Results for 1981-91

Group	10D
White	1.8
Black	6.1
Indian	15.8
Pakistani	11.0
Bangladeshi	13.6
Other	8.9
Total	1.7

Notes:

1. See Table 2

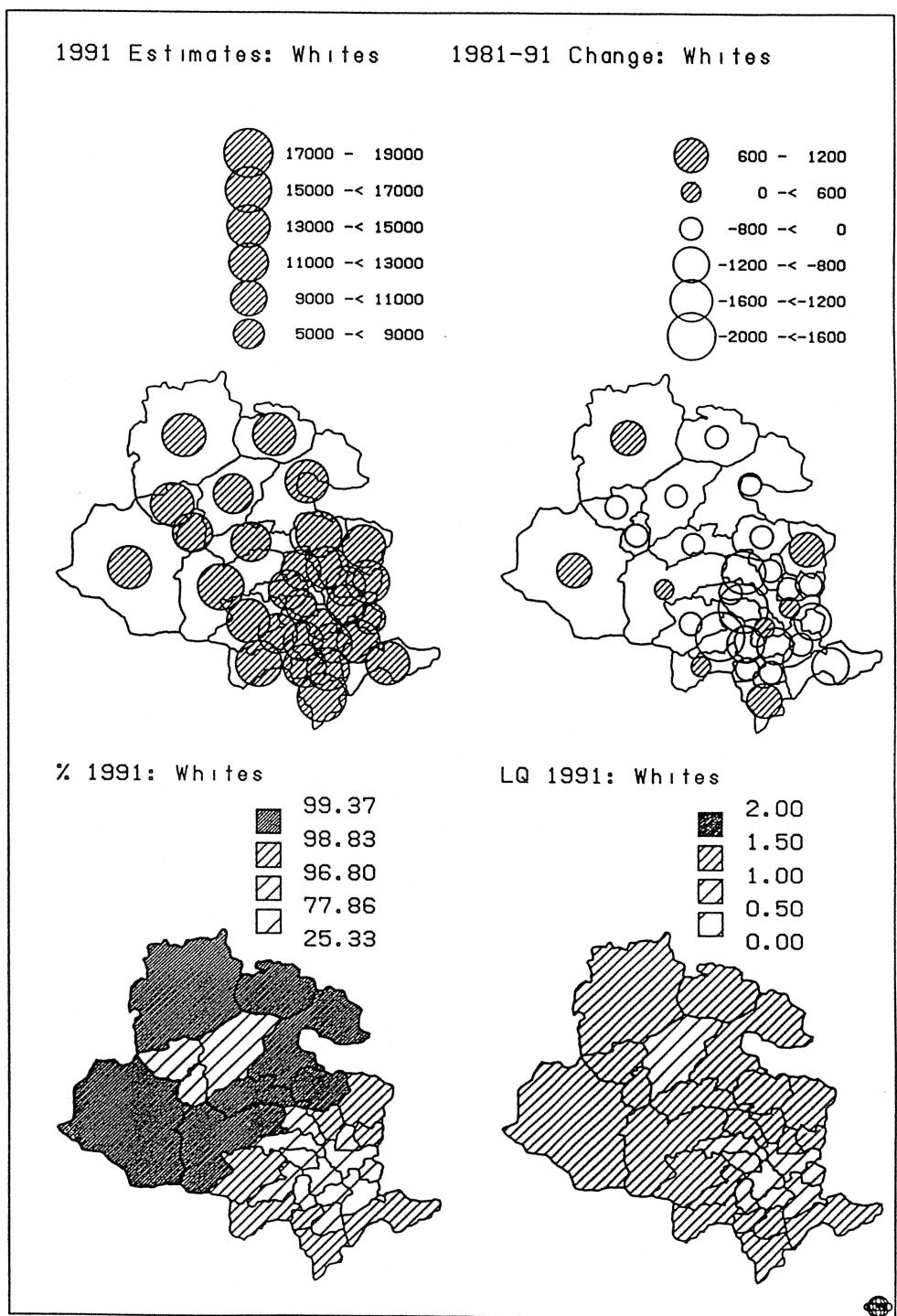


FIGURE 3. Ethnic distribution and change in Bradford, 1981-91: Whites

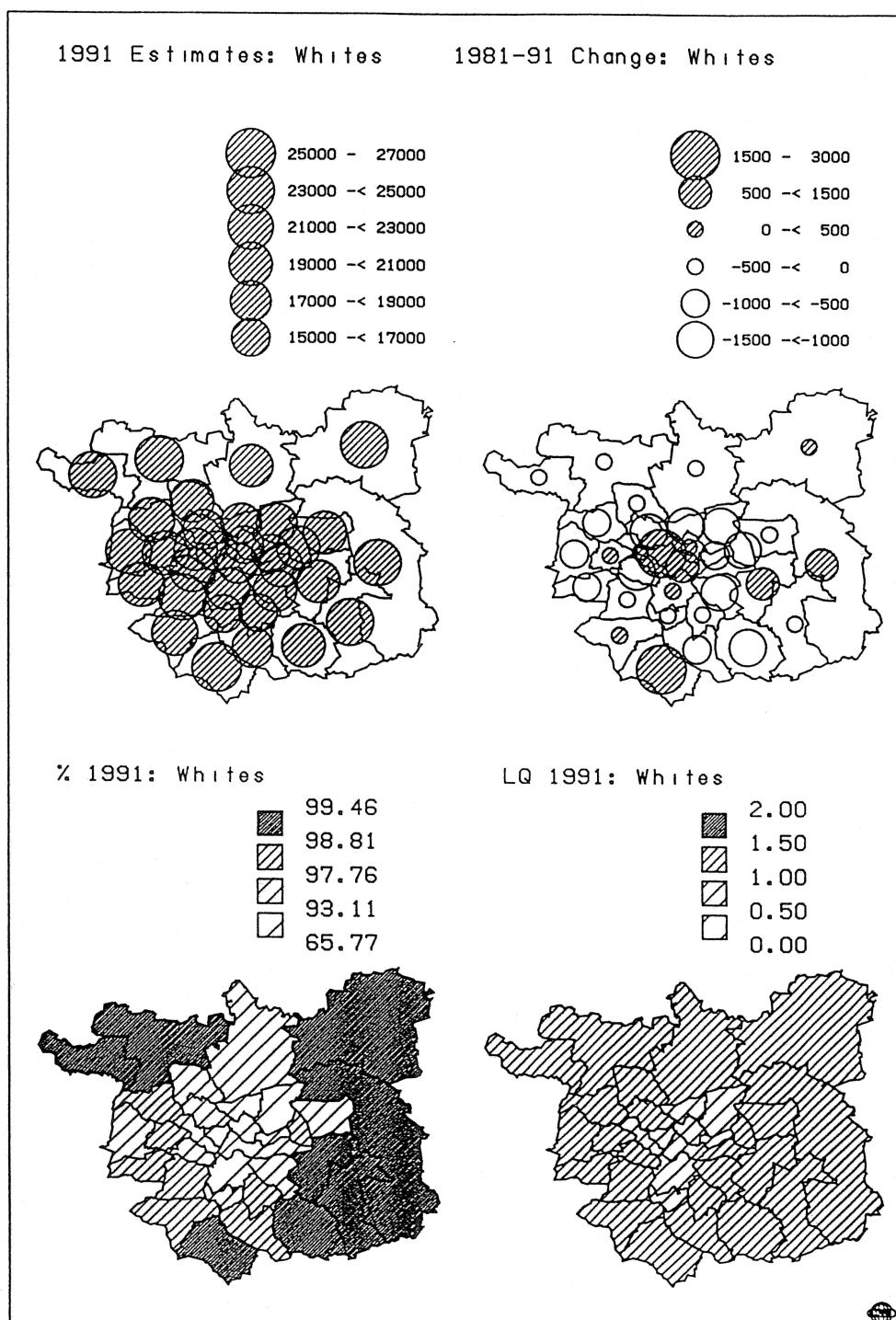


FIGURE 4. Ethnic distribution and change in Leeds, 1981-91: Whites

2.2.2 Blacks (Figures 5 and 6)

Blacks are concentrated in central wards in both cities, although small numbers are found in all peripheral wards. The degree of concentration is, however, greater in Leeds than in Bradford.

Some 61% of the Leeds Black population is concentrated in just three wards (Chapel Allerton - 34%; University - 15%; Harehills - 13%) while the equivalent Bradford figure is 35%. However, in both Leeds and Bradford the wards of highest Black concentration are losing population and adjacent wards are gaining. A modest degree of suburbanisation has occurred, with the increases in the black population of Headingley and University ward probably associated with recruitment of African students to the two Leeds Universities. The indices of dissimilarity between blacks and the total population and between blacks and whites have decreased between 1981 and 1991, though more in Bradford than in Leeds.

2.2.3 Indians (Figures 7 and 8)

The distribution of Indians is again concentrated in the inner city wards in Bradford, showing a higher degree of concentration than that of Blacks. The converse is true in Leeds; here Indians have a more dispersed pattern than Blacks with high location quotients in the suburban north (Alwoodley, Shadwell) and Pudsey North wards. The pattern of change is one of dispersion to wards adjacent to the principal Indian clusters. In Leeds Indians have moved into Moortown, Roundhay, North, Cookridge, Weetwood and Kirkstall wards, while in Bradford Indians have increased in Bolton, Heaton, Clayton and Great Horton wards.

The increases in Pudsey North and South wards in Leeds can probably be interpreted as a result of movement of households out of Bradford Moor ward in Bradford.

These geographical shifts produce the largest decreases in IOD between whites and other groups in both Leeds and Bradford, while the Indian

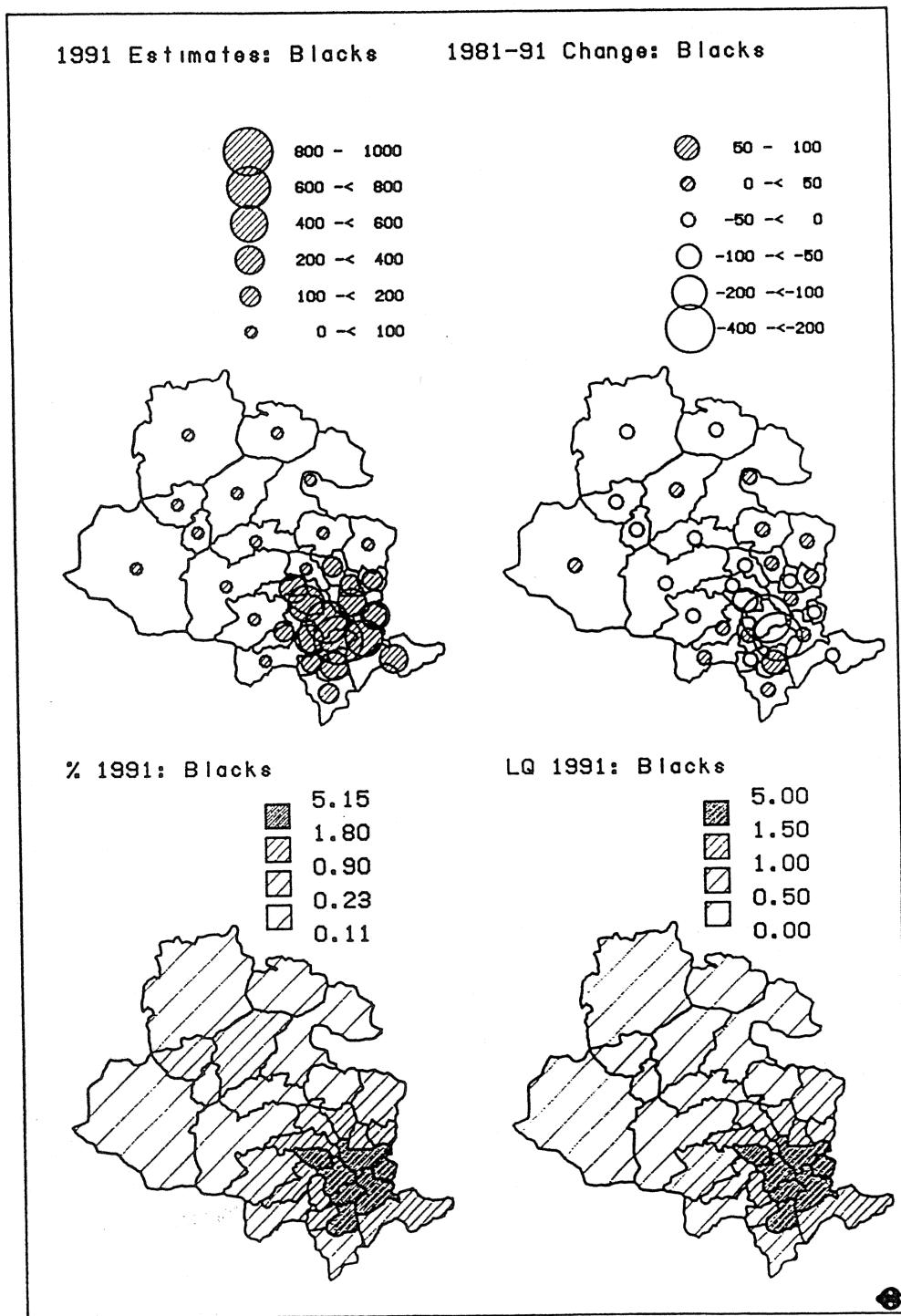


FIGURE 5. Ethnic distribution and change in Bradford, 1981-91:
Blacks

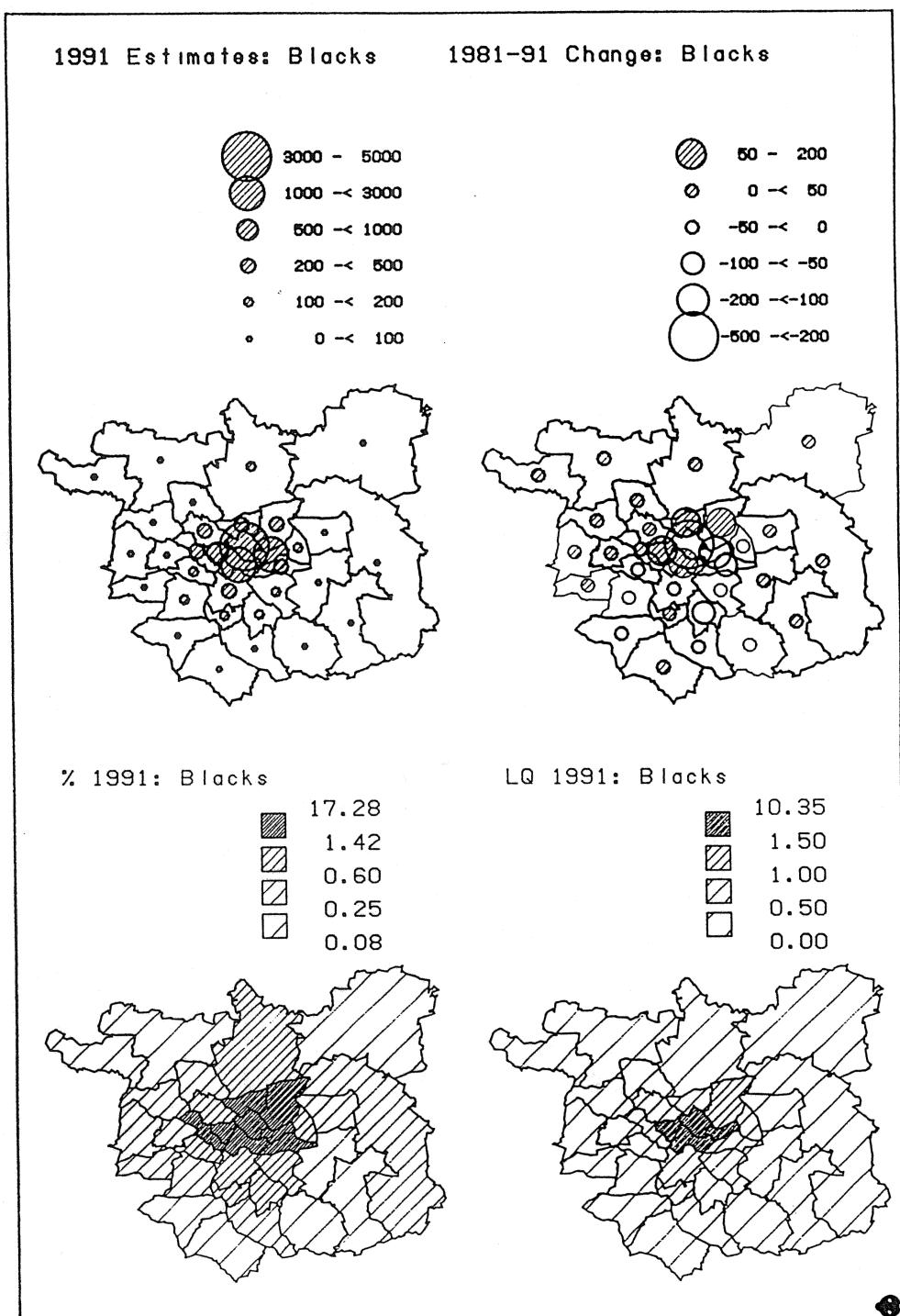


FIGURE 6. Ethnic distribution and change in Bradford, 1981-91: Blacks

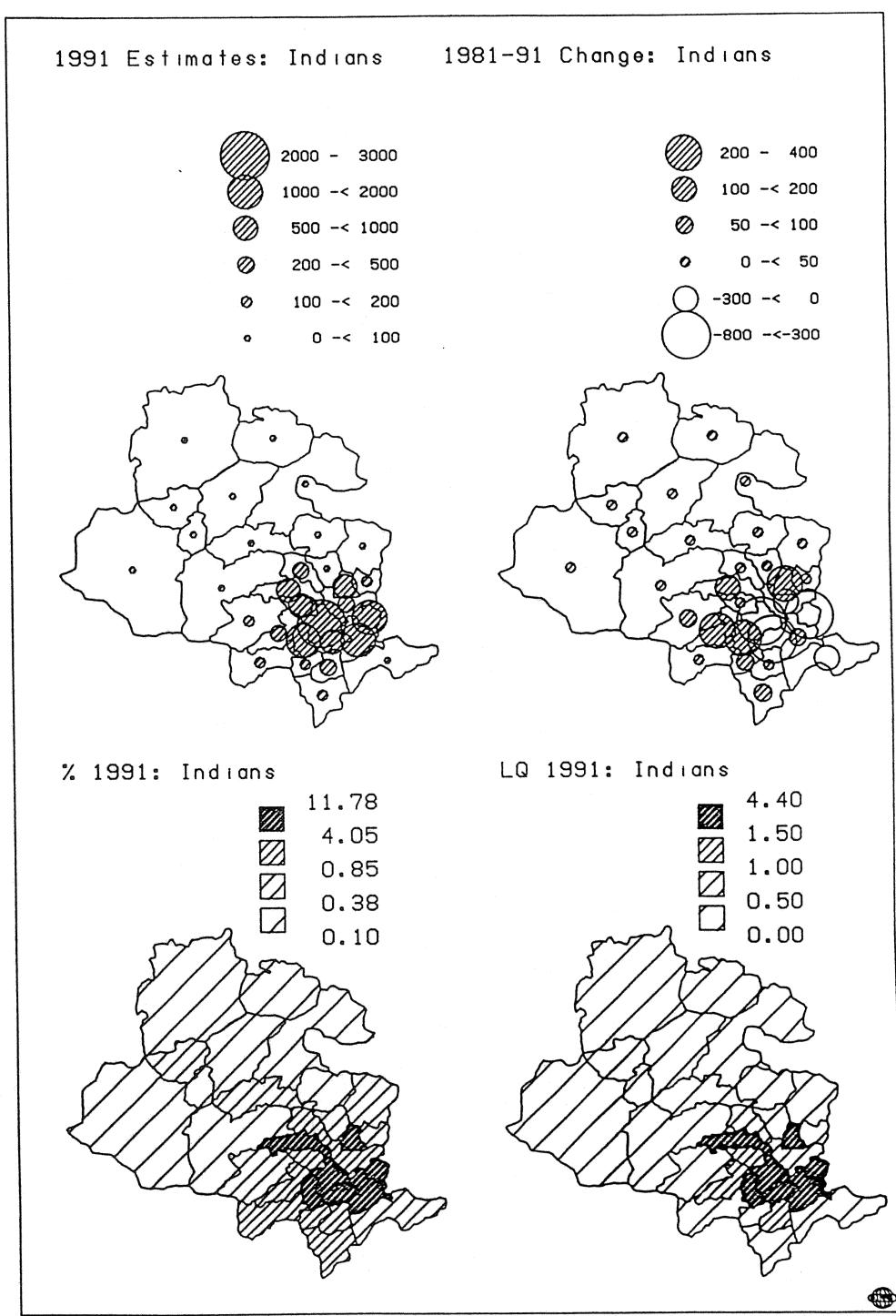


FIGURE 7. Ethnic distribution and change in Bradford, 1981-91: Indians

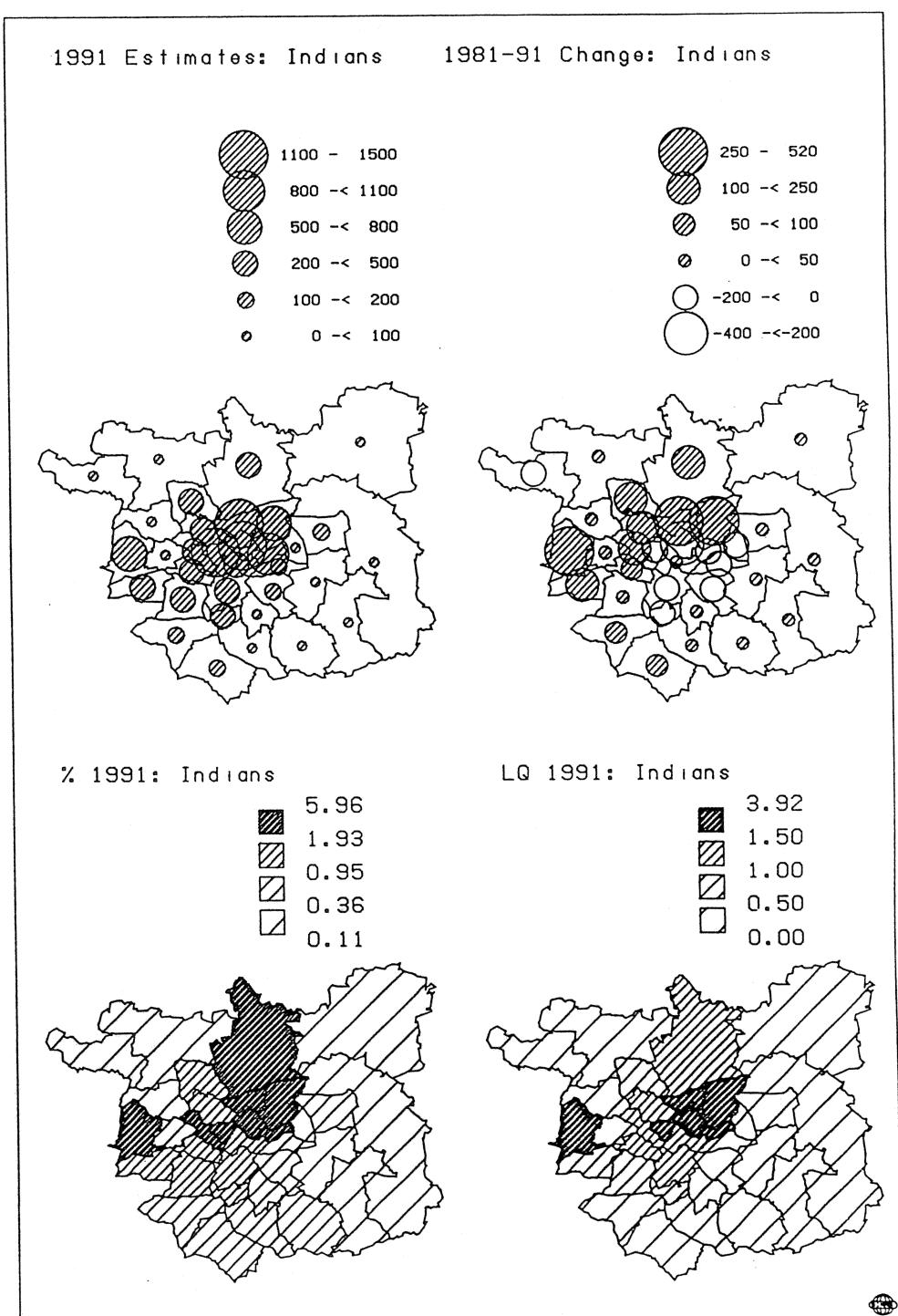


FIGURE 8. Ethnic distribution and change in Leeds, 1981-91:
Indians

distribution shows the greatest degree of change between 1981 and 1991 in the two cities.

2.2.4 Pakistanis (Figures 9 and 10)

Pakistanis are concentrated in the inner city wards of both Bradford and Leeds, but their distributions exhibit interesting differences from those of Blacks and Indians. In Bradford the wards of Keighley (a small textile town in the upper Aire Valley) contain small Pakistani communities. In Leeds the Pakistani community is located in City and Holbeck, Beeston and Armley wards as well as the ethnic core wards of Harehills, Chapel Allerton, University and Headingley.

The pattern of Pakistani population change is very largely one of additional increases in already settled wards rather than any major dispersion of settlement to new wards. This contrasts with the suburbanisation trends observed for the Black and Indian communities. The Pakistani community has experienced high fertility and therefore addition of new members to existing families over the 1981-91 period.

2.2.5 Bangladeshis (Figures 11 and 12)

Bangladeshis are the smallest of the six ethnic groups. They are concentrated in many fewer wards than the other Asian groups. In Leeds, only four wards contain more than a 100 persons in the group (Harehills, City and Holbeck, Chapel Allerton and Beeston) and in Bradford only seven wards (Undercliffe, Keighley North, Bowling, University, Keighley South, Little Horton, Bradford Moor). In both cities the majority of wards have either no Bangladeshi households or only one. As a result the group exhibits the highest IOD in comparison with the total population and with whites.

The pattern of change for Bangladeshis is one of additional increases in the wards of concentration, and on Leeds this leads to slightly higher IODs. The principal processes at work are continued growth of households through the addition of children and reunification of family members.

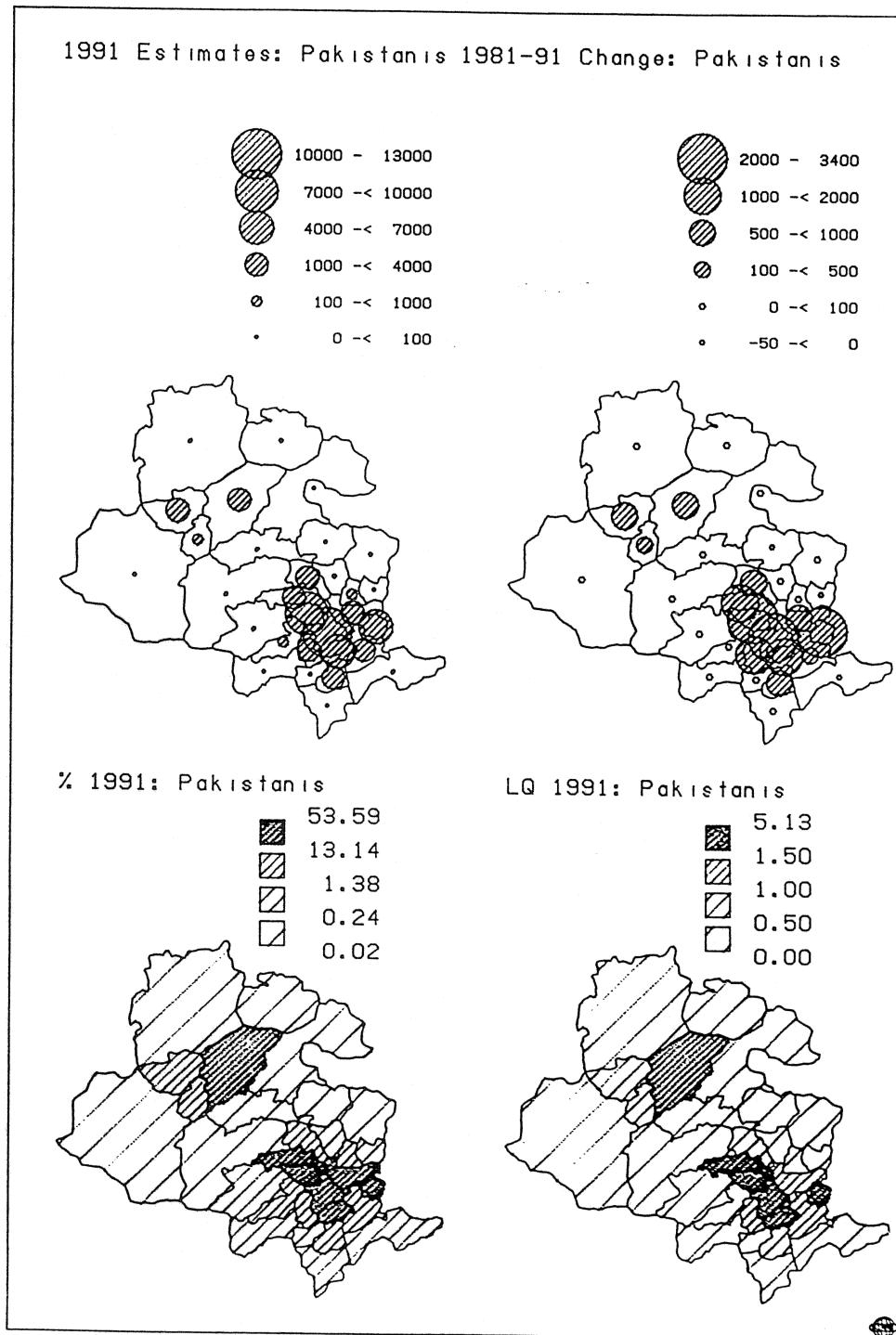


FIGURE 9. Ethnic distribution and change in Leeds, 1981-91: Pakistanis

1991 Estimates: Pakistanis 1981-91 Change: Pakistanis

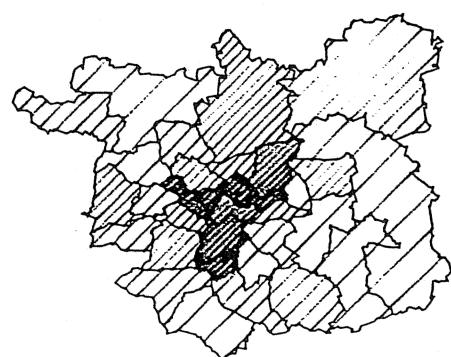
- 2000 - 3000
- 1000 -< 2000
- 500 -< 1000
- 200 -< 500
- 100 -< 200
- 0 -< 100

- 600 - 900
- 400 -< 600
- 200 -< 400
- 100 -< 200
- 0 -< 100
- -50 -< 0



% 1991: Pakistanis

■	11.75
▨	2.27
▨	0.23
▨	0.08
▨	0.02



LQ 1991: Pakistanis

■	7.83
▨	1.50
▨	1.00
▨	0.50
▨	0.00

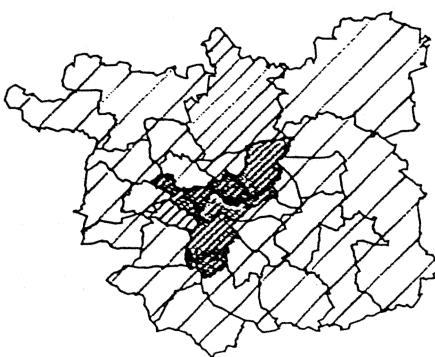


FIGURE 10. Ethnic distribution and change in Leeds, 1981-91: Pakistanis

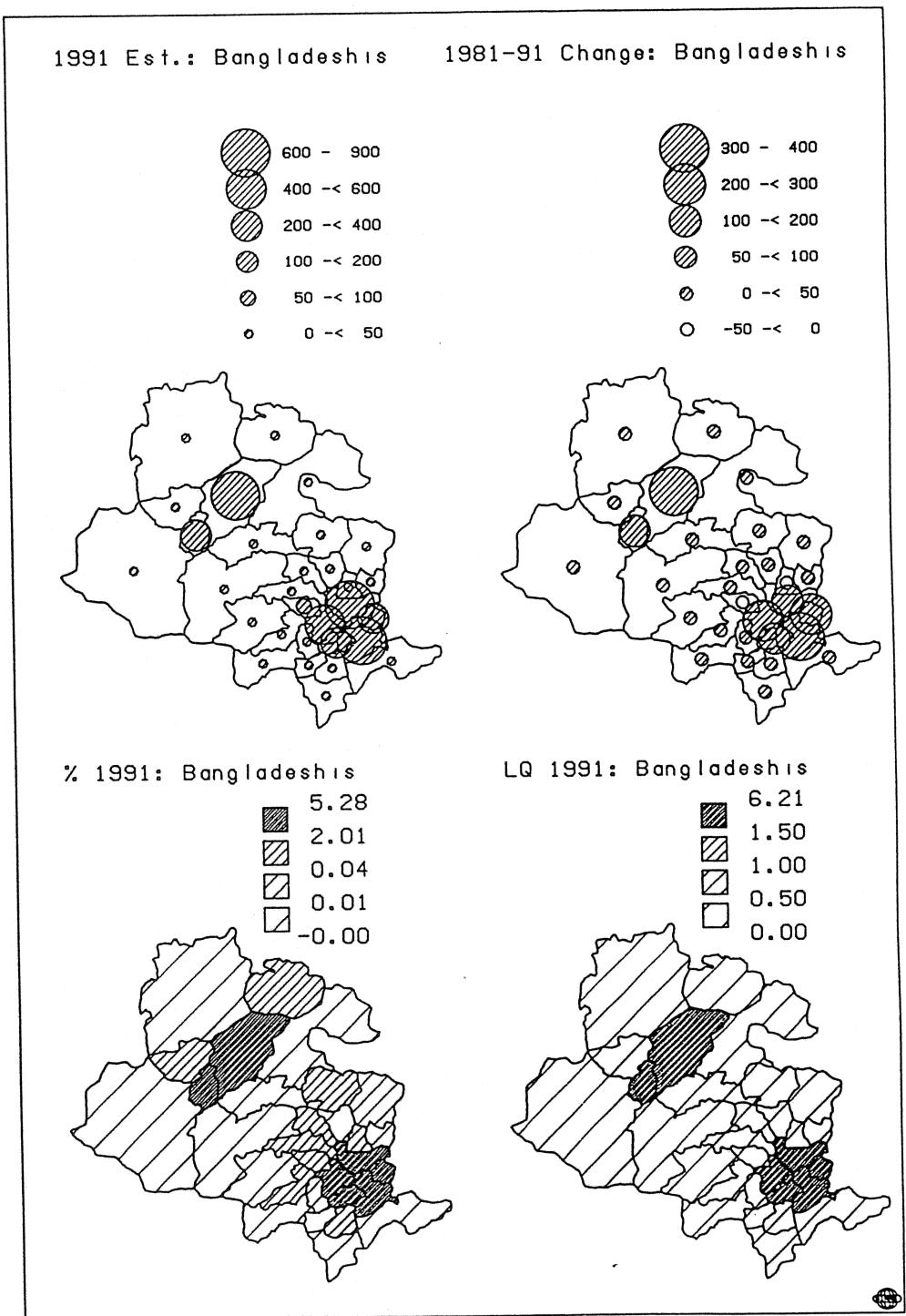


FIGURE 11. Ethnic distribution and change in Bradford, 1981-91: Bangladeshis

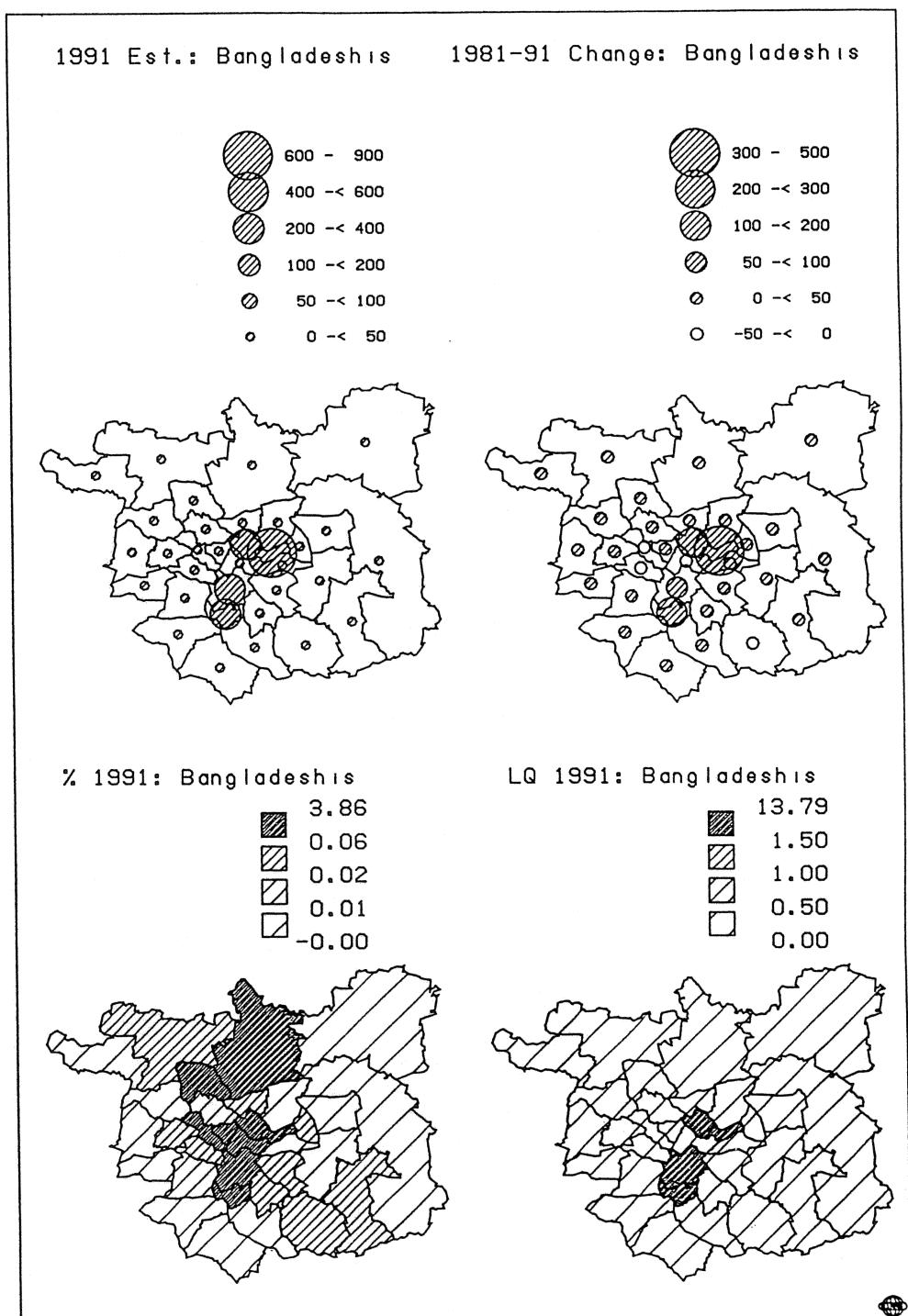


FIGURE 12. Ethnic distribution and change in Leeds, 1981-91: Bangladeshis

2.2.6 Other ethnic groups (Figures 13 and 14)

This group is made up of three identifiable components (as a result of aggregation): Chinese (13% of the group in Bradford, 26% in Leeds), Other Asians (30% of the group in Bradford and 20% in Leeds) and all other non-Asians (57% of the group in Bradford and 54% in Leeds). Together they exhibit the most dispersed pattern of all non-white groups with gains in 1981-91 in most but not all wards.

2.3 Inference from the geographical patterns

What can be said, on the basis of the geographical evidence, about the socioeconomic position of the six ethnic groups, assuming knowledge of the general character of each ward? The most favourably distributed group is undoubtedly the Whites with their suburban dominance. The next most favoured distribution is probably that of Indians, who are increasingly relocating to selected more favoured suburban wards. The Other ethnic groups show the closest correlation with the White distribution and probably follow the Indian group. The inner city concentration of Blacks and Pakistanis is similar but the former group shows signs of suburbansation absent from the latter so they should be placed in that order. Bottom of the socioeconomic hierarchy must come the Bangladeshi community with its extreme concentration in the poorest wards of both cities.

However, we no longer have to rely on such indirect inference because the 1991 Census provides a moderate number of cross tabulations of sociodemographic characteristics against ethnicity. We consider how these can be used in the next section of the paper.

3. ETHNIC CROSSTABULATIONS FROM THE 1991 CENSUS DATA, CONFIDENCE AND METHODS

3.1 Data

A brief description is provided here of the nature of the data and its extraction and manipulation.

The data source is the Local Base Statistics for Great Britain which

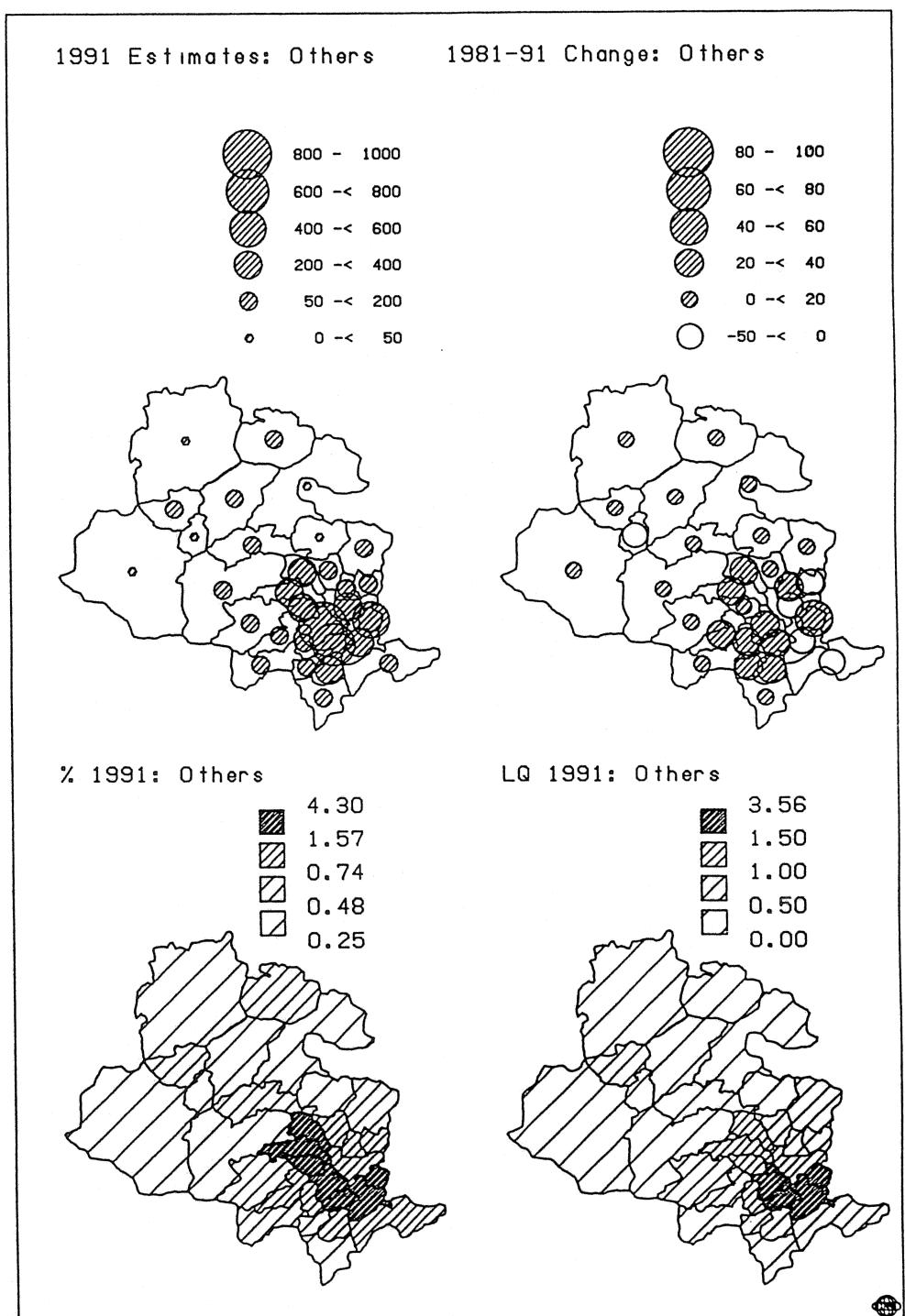


FIGURE 13. Ethnic distribution and change in Bradford, 1981-91: Other ethnicities

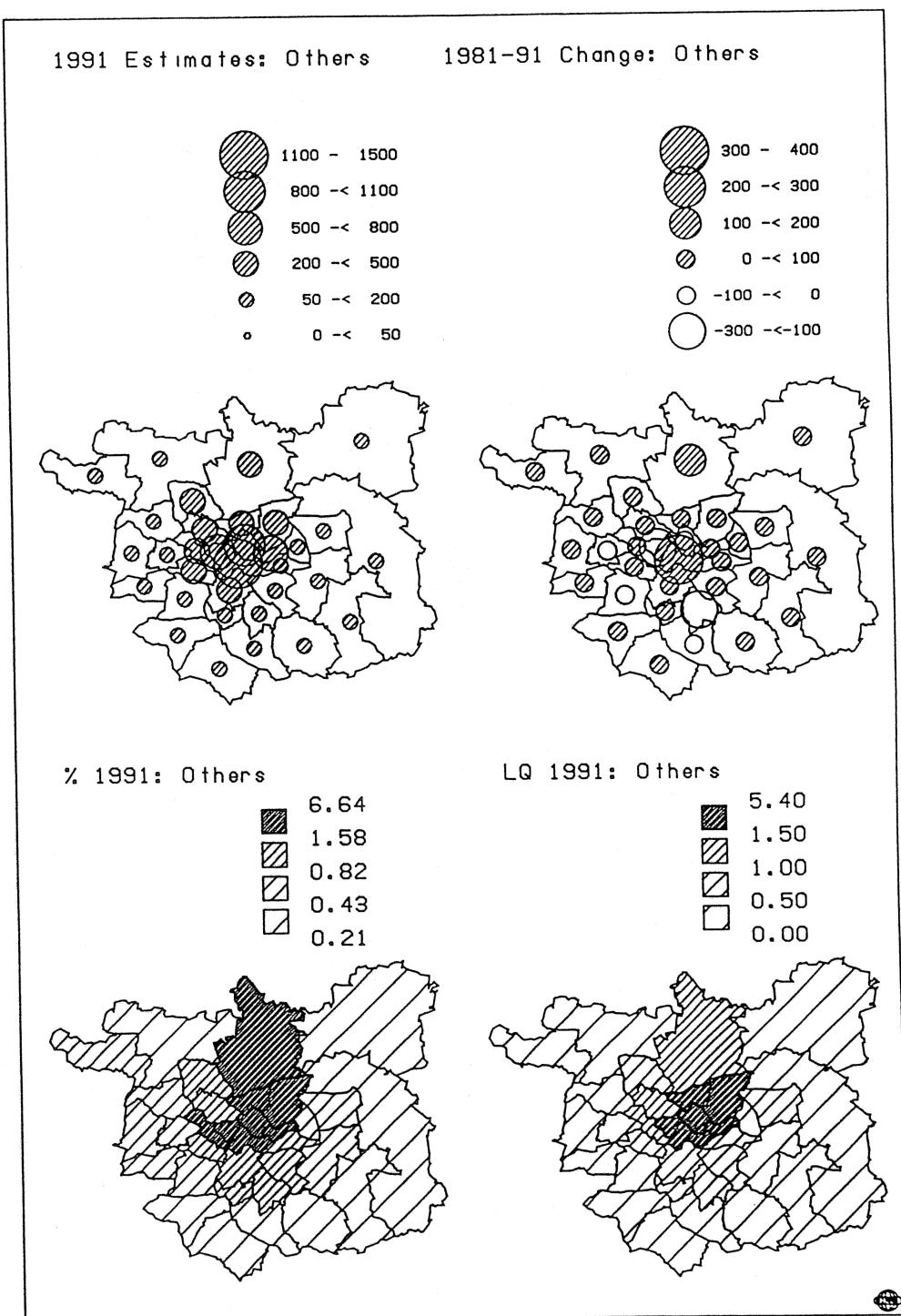


FIGURE 14. Ethnic distribution and change in Leeds, 1981-91: Other ethnicities

are a set of 99 tables (crosstabulations and concatenated crosstabulations) from the 1991 Census returns. These tables are published in the printed County and National Reports for countries, regions, counties and districts, and in computer readable form for these areas and for wards. They have been purchased for academic use by the Economic and Social Research Council and Joint Information Systems Committee of the Higher Education Funding Councils and placed at Manchester Computing Centre for general access via the Joint Academic Network where a program called SASPAC91 provides users with an interface to the data (see Rees 1992, 1993 for details).

To extract the data a command file was constructed and used with the SASPAC91 package to produce 38 raw counts for each ethnic group for each area of interest. From these raw counts an SPSS program was used to derive 30 indicators per ethnic group. The derived indicators are set out in Table 4.

The indicators are set out in an order which reflects progress through the life course by individuals, families and groups. The first indicator refers to birth (start of the life course). Indicators 2 through 6 measure the demographic make-up of the population. Indicator 7 measures recent mobility. Indicators 8 to 11 measure aspects of household structure, related in part to the demographic structure of each group. The first major activity in the life course is participation in education and indicator 12 uses the available statistics on post school attainments. After schooling comes the job market, and indicators 13 to 15 capture the degree of success therein. For those within employment, indicators 16 to 23 measure their position in the traditional classification of occupations. From jobs and through transfers, households receive incomes which are spent on housing and other goods. Indicators 24 to 28 measure the housing tenure distribution of each ethnic group. The final two indicators, 29 and 30, measure the extent to which households have purchased durable goods to improve their lifestyle - central heating for their homes and a car for transport. These 30 indicators were constructed for the

**TABLE 4. Ethnic crosstabulations from the 1991 Census
and derived sociodemographic indicators**

Concept	LBS Table	Indicators constructed for each ethnic group
Nativity	L51	1. % residents in households born in the UK
Age/Sex	L06	2. % residents aged <16 3. % residents aged 16-39 4. % residents aged 40-59 5. % residents aged 60+ 6. % residents, male
Mobility	L17	7. % residents aged 1+, with different address 1 year before
Household	L43	8. % households, 1 adult with children 9. % households, 2+ adults with children 10. % households, with pensioners only L49 11. % households with >1.5 persons per room
Education	L85 (10%)	12. % residents 18+, qualified at levels a, b, c
Employment	L09	13. % economically active, employed full time 14. % economically active, self-employed 15. % economically active, unemployed
Occupation	L93 (10%)	16. % residents 16+, employed, social class I 17. % residents 16+, employed, social class II 18. % residents 16+, employed, social class III 19. % residents 16+, employed, social class III 20. % residents 16+, employed, social class IV 21. % residents 16+, employed, social class V 22. % residents 16+, employed, armed forces 23. % residents 16+, employed, not stated or inadequately described
Housing tenure	L49	24. % households with residents, owner occupied-owned outright 25. % households with residents, owner occupied - buying 26. % households with residents, rented privately 27. % households with residents, rented from a HA ¹ 28. % households with residents, rented from LA, NT, SH ²
Household consumption	L49	29. % households with residents, no central heating 30. % households with residents, no car

Notes:

1. HA = housing association
2. LA, NT, SH = local authority, new town or Scottish Homes

following areas:

- (1) Great Britain
- (2) Bradford metropolitan district
- (3) Leeds metropolitan district
- (4) the wards of Bradford
- (5) the wards of Leeds

The degree of reliance we can place on the derived statistics declines down the list. For the country as a whole and the two cities, the Census data are simple unmodified counts. For the wad indicators, however, we need to take cognizance of the blurring procedure applied to cell counts in Local Base Statistics tables. This means that the indicators for wards where the ethnic group population is small cannot be regarded as reliable. In addition, we need to bear in mind that indicators 12 and 16 to 23 are based on a 10% sample of enumeration returns and the rules of inferential statistics must be applied when making comparisons between ethnic groups.

3.2 Analysis of confidence intervals

For the 10% sample statistics from the 1991 Census it is a straightforward task to compute the 95% confidence intervals around any percentage indicator. Table 5 exemplifies such a computation for the percent of the 16+ employed population reporting professional occupations. Confidence levels around each percentage for each group are computed at three scales: national, district and ward. In the final column of the table, a determination is made as to whether the % professional in an ethnic group is significantly different from that for Whites by inspecting whether the confidence intervals of the group and of whites overlap.

The results suggest that we can use the sample statistics at national level with confidence, at district level with some care, but that even in the Bradford ward with the greatest ethnic population it is only possible to say that Pakistanis had a lower percentage than whites. Use of indicators 12 and 16-23 was abandoned at ward scale therefore.

TABLE 5. Confidence limits for selected 10% sample statistics

Ethnic Group	N	Professional (Social Class I)	% residents 16+, employed	95% Confidence levels		Different from White
				Upper	Lower	
GREAT BRITAIN						
White	2,247,535	4.8	4.83	4.77	na	
Black	31,412	3.2	3.39	3.01	Yes	
Indian	32,493	9.2	9.51	8.89	Yes	
Pakistani	8,909	5.9	6.02	5.78	Yes	
Bangladeshi	2,470	4.9	5.75	4.05	No	
Other	22,404	10.6	11.00	10.20	Yes	
Total	2,254,899	4.9	4.93	4.87	Yes	
BRADFORD						
White	12,572	3.7	4.03	3.27	na	
Black	188	1.6	3.39	<0	No	
Indian	421	6.2	8.50	4.90	Yes	
Pakistani	644	2.3	3.46	1.14	No	
Bangladeshi	48	2.6	7.10	<0	No	
Other	108	11.1	17.06	5.14	Yes	
Total	18,102	3.8	4.08	3.52	No	
UNIVERSITY WARD						
White	162	8.6	12.92	4.28	na	
Black	14	0.0	-	-	-	
Indian	64	3.1	5.27	0.93	No	
Pakistani	142	0.7	2.07	<0	Yes	
Bangladeshi	3	0.0	-	-	-	
Other	10	20.0	44.79	<0	No	
Total	395	4.8	6.91	2.69	No	

Notes:

1. Upper Confidence Limit = % + 1.96 $\sqrt{(\%) (100-\%) / N}$

2. Lower Confidence limit = % - 1.96 $\sqrt{(\%) (100-\%) / N}$

- 3. N = number in sample from which the % is derived
- 4. na = not applicable
- = confidence levels cannot be computed

The confidence interval is computed somewhat differently for the 100% statistics at ward scale. The LBS tables are blurred at time of production by the Census Office. Blurring involves the double addition of a random variable of either 0 or +1 or -1 to each cell count in a table. Thus, cell counts can differ by +2, +1, 0, -1 or -2 from their true value, although because twice as many zeroes are applied as +1 or -1, and because of cancelling in the successive blurring, there should be few departures of + or -2. We recompute the percentage statistics for the situation where a count of 2 has been added or when a count of 2 has been subtracted from the numerator to give approximate upper and lower bounds.

Figure 15 provides an example that compares the unemployment rates for Whites and Indians in Leeds wards which were quite close together at 8.7 and 11.5% for the city population as a whole. The vertical axis of the graph plots the percentage unemployed. Along the horizontal axis are arranged the wards of Leeds from least to most deprived (the derivation of this ranking is described later). The continuous line plots the percentages unemployed among whites (the range is generally under 0.1% for this statistic). The circles plot the percentage unemployed in a ward for Indians while the bars link the upper and lower limits possible. Where the bars cross the line for Whites we cannot be confident that the Indian and White percentages for the ward are different. Inspection of the denominator numbers (total economically active in this graph) for this and other percentages suggested a threshold denominator population of 50, below which we could not be confident that true differences could be determined. In the subsequent analysis of the ward data, the number of ward observations considered will differ from group to group. We can only examine the socioeconomic geography of an ethnic group where there are more than a small number of members.

3.3 Methods of analysis

Two methods are used to present the results. The first is to prepare sets of tables that displays the percentage statistics for the six

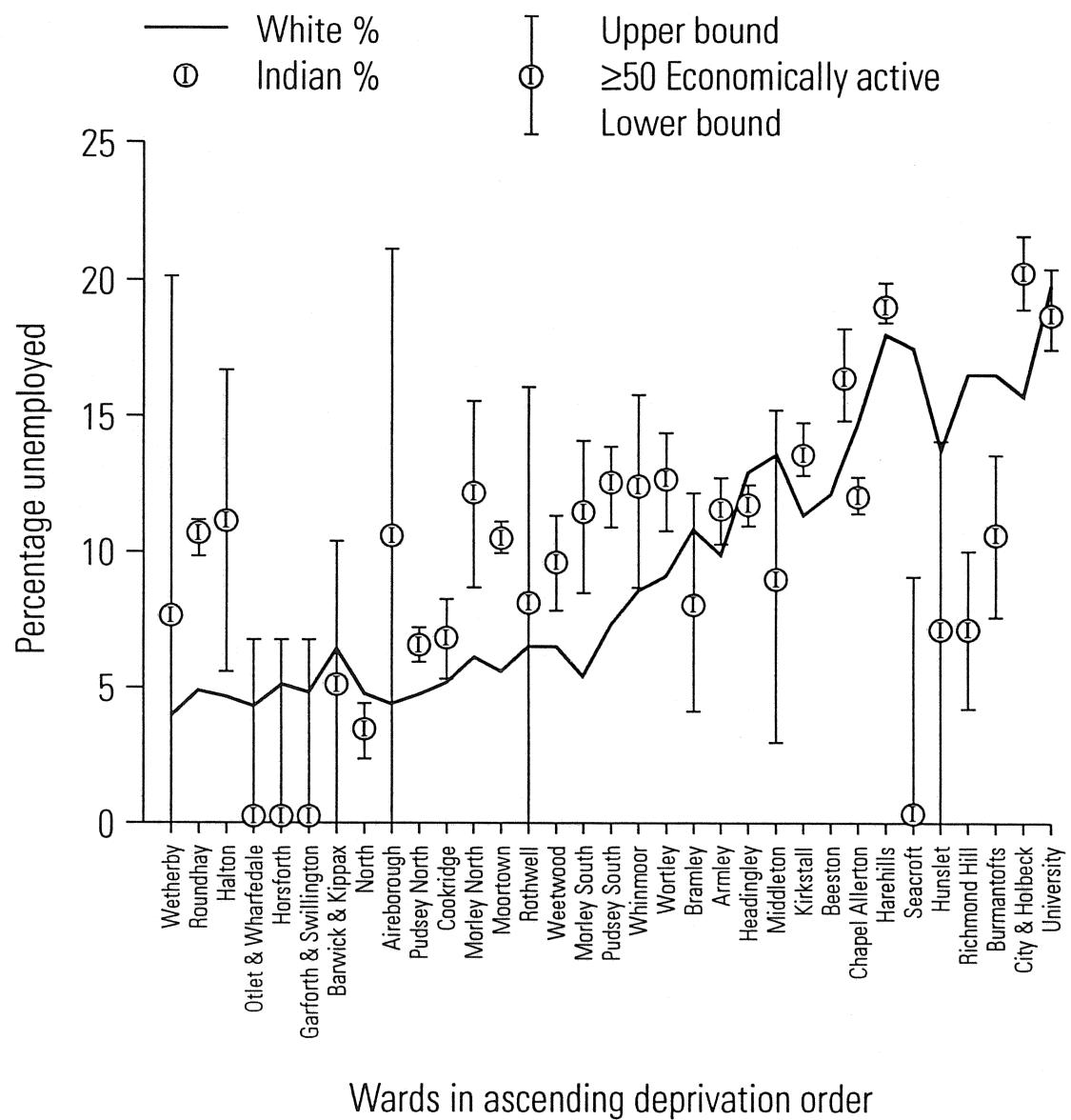


FIGURE 15. Comparison of White and Indian % unemployed

ethnic groups for Great Britain, Bradford and Leeds. Where appropriate we draw on the Labour Force Survey for comparisons over the 1981-91 decade. The second is to prepare sets of graphs which displays the percentage statistics for the six ethnic groups for the wards of Bradford and Leeds. A graph is a more suitable device for making comparisons than a set of equivalent maps or tables. The graphs are constructed with the vertical axis for plotting the percentage statistic while the wards are ranked by deprivation order on the horizontal axis. The single indicator percent of households with no car is chosen for the ranking, though in further work it would be preferable to combine a series of indicators using multivariate analysis. On the graph are plotted the ward statistics for each ethnic group where the relevant denominator counts exceed 50. The percentages for the White groups are linked to give a visual reference for White-Non-White group comparisons.

4. ETHNIC CROSSTABULATIONS FROM THE 1991 CENSUS: RESULTS

In this section of the paper, results for a selection of the 30 indicators listed in Table 4 are presented.

4.1 **Nativity**

The association of non-White ethnic status with birth outside the UK has been declining (as discussed in Section 1). The expectation would be that the more recent the arrival of the ethnic group in the UK, the lower would be the percentage born in this country. We would expect the groups to be ranked in the order listed in the 1991 Census: Afro-Caribbeans, Indians, Pakistanis and Bangladeshis.

Table 6 indicates this is not the case with Blacks having the lowest percentage born in the UK and Pakistanis the highest. Other factors are clearly at work, including high levels of fertility in the UK among the Asian groups and some contribution of recent African immigration to the Black statistic.

TABLE 6. Percentage born in UK for ethnic groups:
Great Britain, Bradford and Leeds, 1991 Census

Ethnic group	% residents born in the United Kingdom		
	GREAT BRITAIN	BRADFORD	LEEDS
White	95	97	97
Black	32	22	36
Indian	42	49	47
Pakistani	51	53	52
Bangladeshi	37	40	41
Other	41	59	49
Total	93	90	95
Number (1000's)	54,056	451.0	672.8

Source:

computed from 1991 Census.
 OPCS and GRO(S) (1993) 1991 Census, Local base statistics Crown Copyright.
 Purchased for academic use by the ESRC and JISC and supplied by the Census
 Dissemination Unit at Manchester Computing Centre

4.2 Demographic structure

Table 7 presents the age structure of the ethnic groups in Great Britain in 1981 and 1991 and in Bradford and Leeds in 1991. The ordering of the ethnic groups from White to Bangladeshi corresponds to increasing youthfulness while the Other ethnicities group falls between Indians and Pakistanis. The Bradford groups have slightly younger age structures than Great Britain as a whole while those for Leeds are about average. The final column of Table 7 reports total fertility rates (numbers of children per woman) for each ethnic group, which are closely associated with the age structures. Note, however, the significant falls that have occurred since 1981 in non-White fertility. Black and Indian fertility rates have now joined Whites at sub-replacement level, while Pakistani and Bangladeshi TFRs have fallen by between 1 and 2 children over the decade. This will result in ageing of these ethnic populations in coming decades

Is there any variation across the residential space of our two cities in the age structure of the six ethnic groups or are the district profiles of Table 7 reproduced in all wards? Figure 16 graphs the percentage under 16 for Leeds. There is relatively little variation for whites except for lower percentages in the two wards of concentrated student residence (Headingley and University).

Although there is a good deal of scatter within each of the other ethnic groups, they do not show significant trends away from their city wide average when wards are ranked in deprivation order. A similar finding applies to Bradford, although the variation increases notably in magnitude in the more deprived wards.

4.3 Household structure

The differences between the ethnic groups in age structure carry over into the distribution across household types. Table 8 reports the percentage distribution of households in selected household types for each ethnic group. Only Whites have significant share of pensioner-only households, although these are now beginning to become important

TABLE 7. Age structure of ethnic groups: Great Britain, Bradford and Leeds (percentages), 1981 and 1991

Ethnic group	Age Group %					TFR	
	<16	16-29	30-44	45-PA	PA+		
GREAT BRITAIN, 1981 LFS							
White	22	21	20	20	18	50,914	1.70
West Indian	31	28	20	18	2	519	2.66
Indian	33	29	21	14	3	719	2.79
Pakistani	45	25	17	12	1	283	4.45
Bangladeshi	48	22	13	17	1	52	6.39
All origins	23	21	20	20	17	53,697	
GREAT BRITAIN, 1991 CENSUS							
White	19	34	24	22		51,874	1.81
Black	29	45	18	7		891	2.00
Indian	30	43	21	7		840	1.89
Pakistani	43	39	15	4		477	3.16
Bangladeshi	47	35	15	3		163	4.53
Others	32	45	18	5		645	1.93
Total	20	35	24	21		54,889	
BRADFORD, 1991 CENSUS							
White	20	34	24	23		386.0	1.94
Black	31	44	17	8		5.3	1.39
Indian	31	44	18	7		11.7	2.05
Pakistani	47	37	13	4		45.3	4.55
Bangladeshi	51	31	15	3		3.7	5.72
Others	46	42	10	3		5.3	2.47
Total	24	35	22	20		457.3	
LEEDS, 1991 CENSUS							
White	19	35	24	22		641.0	1.85
Black	30	43	18	9		10.8	1.36
Indian	30	43	20	7		9.9	1.98
Pakistani	44	39	13	4		9.3	3.95
Bangladeshi	51	31	14	4		1.8	5.89
Others	38	46	12	4		7.9	1.79
Total	20	35	24	21		680.7	

Sources:

LFS - OPCS (1983) Labour force survey 1981. Series LFS no 3
HMSO, London

Census - OPCS and GRO(S) (1993) 1991 Census, Local base statistics
Crown Copyright. Purchased for academic use by the ESRC and
JISC and supplied by the Census Dissemination Unit at Manchester
Computing Centre

Notes:

1. White, Indian, Pakistani and Bangladeshi groups are defined similarly in the LFS and 1991 Census
 2. West Indians in the LFS include Guyanese
 3. Black = Black Caribbean, Black African, Black -Other
 4. TFR = total fertility rate - author's estimates from published and unpublished OPCS Birth Statistics
- The TFRs are for England and Wales in the Great Britain Tables

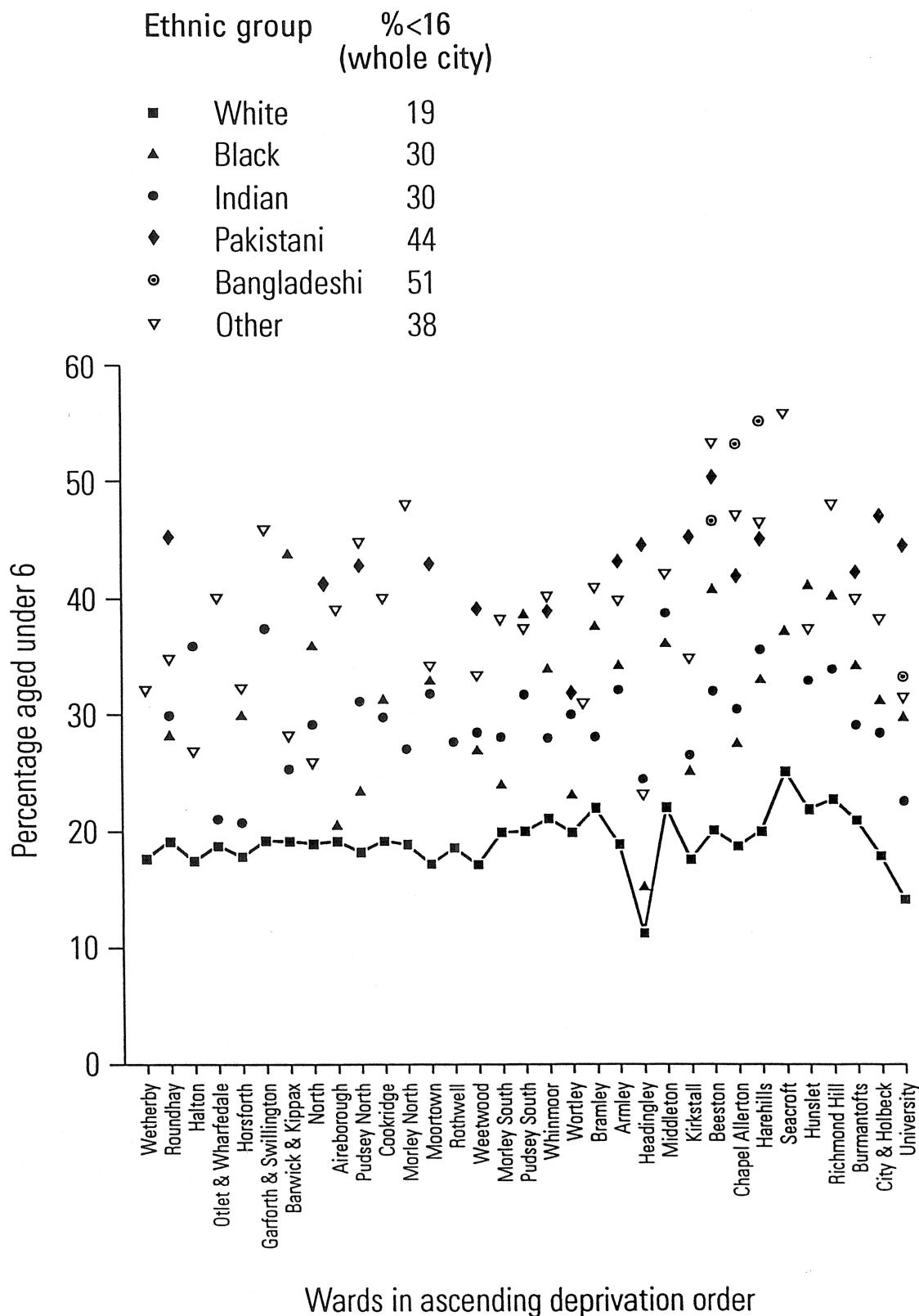


FIGURE 16. The variations in % under 16 by ethnic group across wards, 1991 Census: Leeds

TABLE 8. Household structure of ethnic groups: Great Britain,
Bradford and Leeds, 1991 Census

Ethnic group	% households					Total households (1000s)	Persons per household
	1 adult with children	2+ adults with children	With pensioners only	With >1.5 persons per room			
GREAT BRITAIN							
White	4	25	26	0.4	21,027	2.5	
Black	17	26	6	2.4	328	2.7	
Indian	3	51	4	2.7	226	3.7	
Pakistani	5	50	1	7.9	101	4.7	
Bangladeshi	4	49	1	19.1	31	5.3	
Others	7	41	4	3.0	185	3.5	
Total	4	26	25	0.5	21,897	2.5	
BRADFORD							
White	5	24	27	0.2	158.91	2.4	
Black	13	25	5	1.4	1.96	2.7	
Indian	3	51	4	3.0	2.96	4.0	
Pakistani	4	50	1	9.5	8.48	5.3	
Bangladeshi	4	48	1	17.8	0.62	6.0	
Others	8	49	2	4.0	1.17	4.5	
Total	5	28	25	0.8	174.08	2.6	
LEEDS							
White	5	23	26	0.2	269.88	2.4	
Black	16	21	7	1.1	4.27	2.5	
Indian	3	49	3	1.9	2.60	3.8	
Pakistani	6	48	1	7.3	1.92	4.8	
Bangladeshi	4	46	1	11.0	0.29	6.2	
Others	7	40	4	2.6	2.19	3.6	
Total	5	24	25	0.4	281.15	2.4	

Source: 1991 Census - as Table 7

in the Black and Indian groups.

Lone parent households figure prominently among the Black group, although they are still significantly fewer in number than family households with children. In Great Britain as a whole and in Leeds though not in Bradford, an above average percentage of Pakistani households are lone parent, as are the Other ethnicities households in all three areas. The Indian and Bangladeshi groups have slightly lower than average percentages in lone parent households.

Average household sizes vary in line with the youthfulness and fertility levels of the different ethnic groups with Whites having the smallest households and Pakistanis and Bangladeshis the largest. There is clearly considerable pressure on housing space in the latter two groups with significant percentages reporting overcrowding.

4.4 Educational qualifications

The 1991 census provides information about the percentage of the population 18 and over qualified at diploma, degree or higher degree level. Table 9 provides the statistics for the three populations. Whites, Blacks and Indians have roughly comparable percentages of qualified members while Other ethnicities report qualification levels two to two and a half times the average. These attainments for Blacks, Indians and Other Ethnicities should assist their advancement in the late 1990s in the labour market. It is nevertheless important to note that educational advancement amongst the Indians and Other Ethnicities (especially the Chinese) has brought significant diversity in the level of educational qualification within the sub-groups. For example, there is still a high proportion of Indians with few educational qualifications (Jones, 1993).

The Pakistani and Bangladeshi groups have, however, much lower educational attainment, particularly in Bradford where the qualification levels are lower than half those of the two groups in Great Britain as a whole.

**Table 9. Educational qualifications of ethnic groups:
Great Britain, Bradford and Leeds, 1991 Census**

Ethnic group	% residents 18 and over qualified at diploma or degree or higher degree level		
	GREAT BRITAIN	BRADFORD	LEEDS
White	13	12	13
Black	14	12	13
Indian	15	10	12
Pakistani	7	2	5
Bangladeshi	5	2	5
Other	25	28	31
Total	13	11	13
Number (1000s)	41,758	332.4	516.7

Source: 1991 Census - as Table 7

4.5 Employment

The socio-demographic characteristics so far discussed take time to change (age structure, household structure, education) but employment attributes will fluctuate with the economic cycle. The 1991 Census was taken at a time of economic slowdown, though the bottom of the downturn was not reached until late 1992. Table 10 provides a snapshot for April 1991.

The variable "%employed full-time" measures the extent to which a group holds more secure and better paying jobs (compared with temporary and part-time work). Whites, Black, Indians and Others are clustered around the national average with Pakistanis and Bangladeshis significantly lower. Self employment rates are highest among the Indian and Pakistani groups, particularly in Leeds, but not among the Bangladeshis.

Unemployment rates vary dramatically across the six ethnic groups. The Pakistani and Bangladeshi communities have suffered worst with rates 3 to 4 times those of whites. The unemployment rate of Indians has been much closer to that of Whites with Blacks and Other ethnics occupying the ground between these two extremes. A recent analysis by the Policy Studies Institute (reported in Chote 1993) using LFS data shows that over the period mid-1984 to mid-1992, the Pakistani/Bangladeshi and Afro-Caribbean workforces were treated as a "reserve army of labour": jobless rates fell much faster during recoveries for these minorities than for whites but rose faster during recessions. The same period saw a significant worsening in the household income of Pakistanis compared with Whites while Indians, Chinese and Afro-Caribbeans held their own at just above, at about and just below White levels. A period of sustained economic prosperity will be needed to reduce the differences exhibited in Table 10.

To what extent are these inter-ethnic differences in unemployment modified within the residential space of the city? Are the ethnic minority residents of the inner city significantly worse off than the

TABLE 10. Employment and unemployment rates by ethnic group:
Great Britain, Bradford and Leeds, 1991 Census

Ethnic group	% of economically active:			Total (=100%, in 1000s)
	employed full time	self employed	unemployed	
GREAT BRITAIN				
White	62	12	9	25,475
Black	61	5	21	446
Indian	59	17	13	395
Pakistani	45	16	29	139
Bangladeshi	47	12	32	42
Other	59	14	14	280
Total	62	12	9	26,777
BRADFORD				
White	63	10	9	190.54
Black	59	5	21	2.66
Indian	59	16	15	5.48
Pakistani	42	12	36	11.40
Bangladeshi	44	8	36	0.81
Other	50	15	22	1.56
Total	61	10	11	212.45
LEEDS				
White	63	9	9	318.21
Black	58	4	21	5.19
Indian	53	25	12	4.63
Pakistani	38	20	30	2.73
Bangladeshi	41	6	38	0.43
Other	52	16	17	2.78
Total	63	10	9	333.96

Source: 1991 Census as Table 7

average and their fellow ethnics in the suburbs better off?

Figure 17 plots the unemployment rate for the six ethnic groups for wards with at least 50 members of the ethnic group economically active. The White group points are joined together to form a reference gradient of rising unemployment from low deprivation to high deprivation wards. Black, Indians, Pakistanis and Other Ethnics also exhibit this same gradient although both Blacks and Pakistanis in less deprived wards have significantly higher unemployment rates than Whites and Indians.

The city-wide ordering of ethnic groups by unemployment rate does change in individual wards. In five wards Indians have a lower unemployment rate than Whites and in three wards Other ethnics have lower than White rates. On the other hand Pakistani and Bangladeshi rates remain above those of the other groups in wards where they are represented. The picture in Bradford is more or less identical.

4.6 Occupations

The analysis is confined here to national and city populations, because of the very wide confidence bands around the ward 10% sample statistics for ethnic groups (section 3.2). Table 11 provides the distributions across the six social classes for the six ethnic groups in GB, Bradford and Leeds. Note that the distributions apply to persons in employment, the proportions of which vary substantially between groups (Table 10).

Compared with Whites the ethnic group that has the most favoured occupational distribution is the Other ethnicities group (Chinese, Other Asians, Other non-Asians), which records much higher percentages in the Professional category and higher percentages in the Managerial and Technical category, and lower than White percentages in the manual occupations. The Indian group has higher than White percentages in social class I in all three areas, is close to the White percentages in classes II and III nationally. However, in Bradford and Leeds the group has a lower percentage white collar and higher percentage blue collar than in GB.

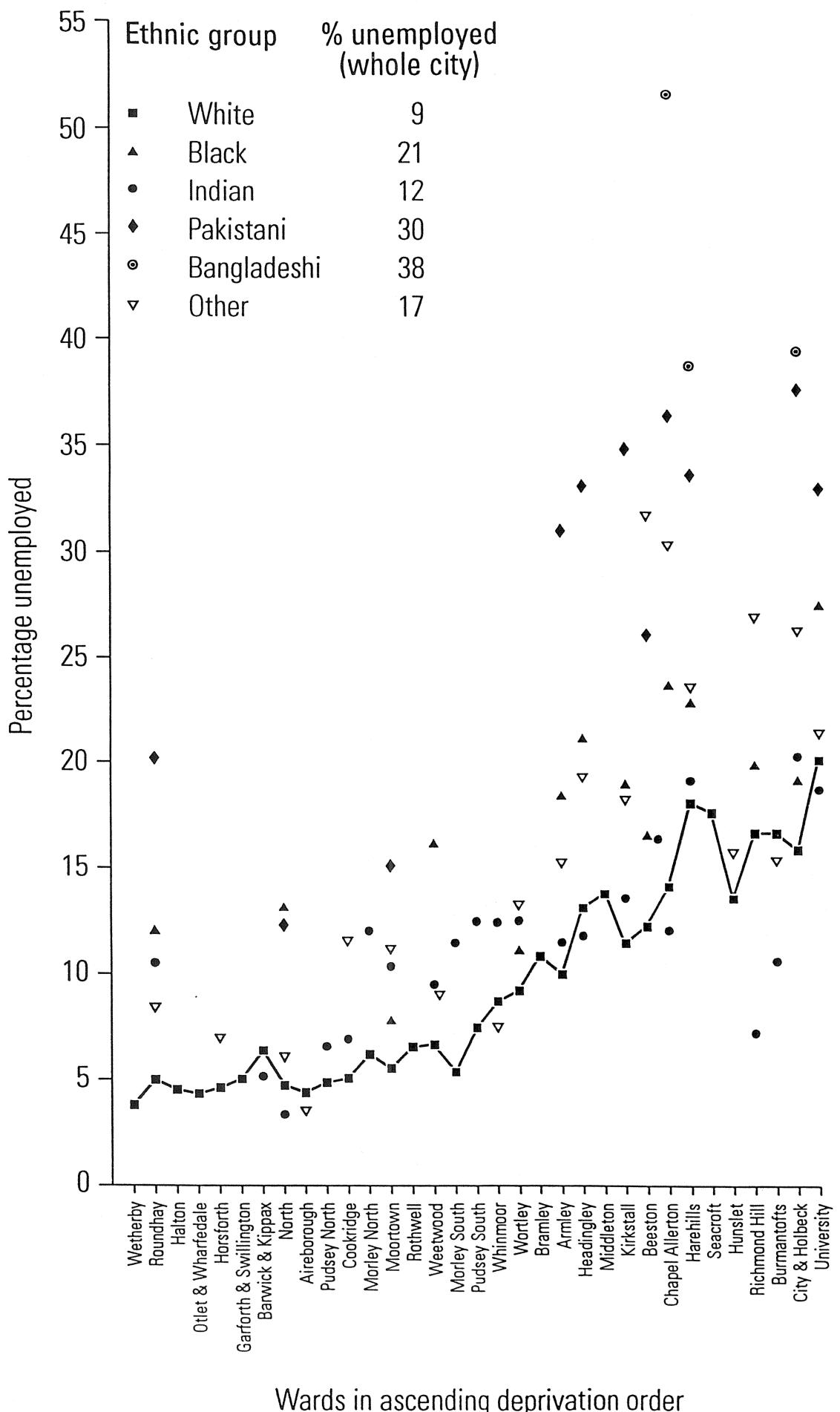


FIGURE 17. The variation in % unemployed by ethnic group across wards, 1991 Census: Leeds

TABLE 11. Social class distribution for ethnic groups:
Great Britain, Bradford and Leeds, 1991 Census

Ethnic group	% of residents aged 16+, employees and self-employed							
	Prof. I	Man & Technical II	Skilled Non-Man III	Skilled Manual III	Partly skilled IV	Un-skilled V	Non-Manual NM	Manual M
GREAT BRITAIN								
White	5	28	23	21	15	6	56	42
Black	3	25	23	19	18	7	51	44
Indian	9	27	22	16	21	3	58	40
Pakistani	6	23	18	23	22	4	47	49
Bangladeshi	5	13	19	26	29	4	37	59
Other	11	31	24	15	12	4	66	31
Total	5	28	23	21	15	6	56	42
BRADFORD								
White	4	28	24	22	17	5	56	44
Black	2	25	19	20	27	5	46	52
Indian	6	21	20	15	28	6	47	49
Pakistani	2	16	15	26	30	9	33	65
Bangladeshi	3	8	26	18	21	11	37	50
Other	11	33	18	19	14	3	62	36
Total	4	27	23	22	18	6	54	46
LEEDS								
White	5	27	25	22	15	6	57	43
Black	2	25	21	21	22	7	48	50
Indian	6	30	18	17	25	3	54	45
Pakistani	4	25	17	23	19	7	46	49
Bangladeshi	4	16	8	36	24	4	28	64
Other	14	29	21	19	13	4	64	36
Total	5	27	25	22	15	6	57	43

Source: 1991 Census - as Table 7

Blacks have an occupational distribution quite close to that of White nationally but with a greater manual concentration in Leeds and Bradford.

Pakistanis and Bangladeshis are concentrated in manual occupations in Leeds and Bradford, particularly Pakistanis in the latter city. The occupational distribution of Pakistanis in Bradford is disadvantaged compared with Whites in Bradford and with Pakistanis in Leeds and in Great Britain as a whole. However, the most disadvantaged group in the whole table are Bangladeshis in Leeds.

4.7 Housing tenure

One of the largest items of household expenditure is on housing. Housing is supplied either for sale (owner occupation) or for rent. Owner occupation is divided into two categories in the 1991 Census, owned outright and buying (through repayment of a loan). Renting is divided into rental from a private landlord, rental from a public body (local authority, new town or Scottish Homes) or from a housing association.

Table 12 sets out the tenure distributions of the six ethnic groups for GB, Bradford and Leeds. In only one instance, Bangladeshis in GB, do fewer than 50% of households in an ethnic group own their home. Indian and Pakistani households are overwhelmingly owner occupiers and in both Bradford and Leeds over a fifth own their home outright. Both Whites and Blacks are concentrated in the public rental sector compared with other groups, while Blacks and Other ethnicities are concentrated in the private rental sector as well. There is also a notable over-representation of Blacks in the Housing Association sector, particularly in Leeds. This reflects recent initiatives within this tenure which have encouraged minority group access.

The high level of Asian owner occupation persists across all wards as Figure 18 demonstrates. Indian, Pakistani and Bangladeshi households seek to occupy, within each ward, housing in the owner occupied sector.

TABLE 12. Housing tenure and characteristics:
Great Britain, Bradford and Leeds, 1991 Census

Ethnic group	% households with tenure				
	Owner occupied: owned outright	Owner occupied buying	Renting privately	Renting housing assoc	Renting local authority etc
GREAT BRITAIN					
White	24	42	7	3	21
Black	7	36	11	10	37
Indian	17	65	2	2	6
Pakistani	19	57	14	2	17
Bangladeshi	5	39	10	6	37
Others	10	46	20	5	16
Total	24	42	7	3	21
BRADFORD					
White	26	44	7	4	18
Black	8	46	14	9	26
Indian	25	63	2	1	2
Pakistani	23	64	2	1	1
Bangladeshi	12	61	16	4	6
Others	12	47	24	6	10
Total	25	46	8	4	17
LEEDS					
White	21	41	6	3	28
Black	8	36	14	14	31
Indian	19	65	3	1	9
Pakistani	21	53	9	3	8
Bangladeshi	15	51	14	8	12
Others	10	40	25	9	15
Total	21	41	7	4	27

Source: 1991 Census or Table 7. Provisional computations subject to revision.

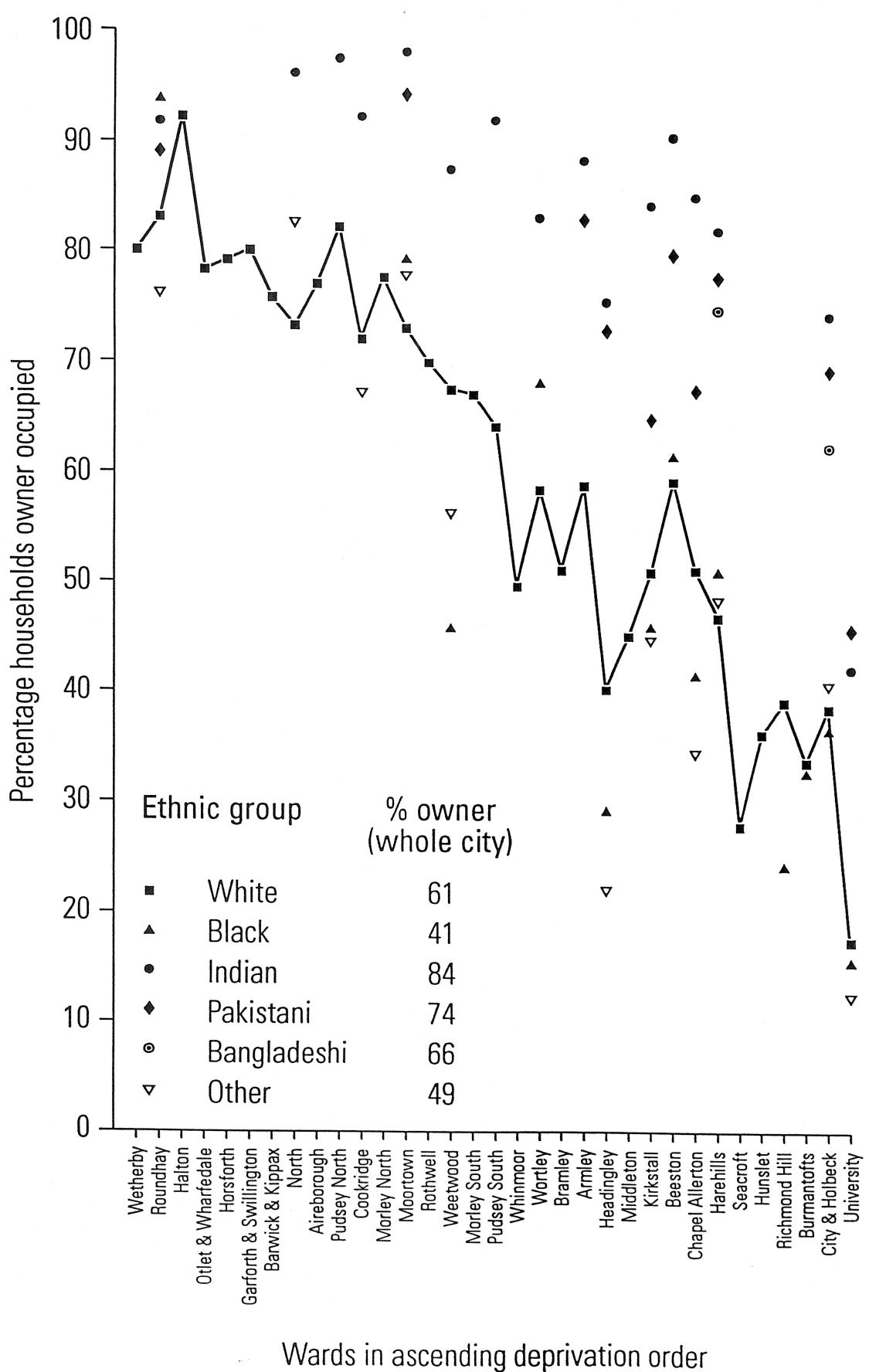


FIGURE 18. The variation in owner occupation by ethnic group across wards, 1991 Census: Leeds

4.8 Household consumption

Two indicators of household consumption were constructed: the percentages of households in an ethnic group without any form of central heating, and without any car available. Table 13 provides the statistics for Bradford and Leeds as a whole.

Compared with Whites, Indian households show considerable advantage in the Central Heating indicator in both cities and Pakistani households in Bradford are also in a better position in this respect than Whites. Blacks and Other Ethnicities have percentages close to the White or total figures. The Bangladeshi group has by far the highest percentage of households with no central heating.

A similar pattern characterises car ownership: Indians are advantaged, Pakistanis and Other Ethnic groups take up an average position while Blacks and Bangladeshis are disadvantaged. These rankings are in line with earlier ones based on employment and occupation, but the Pakistani group does improve its position on these household consumption indicators. Two factors may be at work here. Firstly, household consumption is based on the combined household income and larger households (eg Pakistani households) may be better able to afford such purchases even though per capita income is low. Secondly, large numbers of Pakistanis (particularly in Leeds) are taxi drivers and the better than expected position of Pakistani households may result from the presence of owner-drivers in those households.

Figure 19 shows the variation across the wards of Leeds in the ethnic group percentages of households with no car available. All of the Indian and Pakistani indicators lie well below the White line and so do most of the Other ethnicities' observations. The scatter of Black indicators falls around the White line, while those for the Bangladeshi population lie well above. All groups other than the Bangladeshi exhibit a rising gradient of car deprivation in line with the general deprivation ranking. The patterns exhibited in this graph contrast strongly with earlier graphs of age structure and employment indicators.

TABLE 13. Car ownership and central heating for ethnic groups,
Bradford and Leeds, 1991 Census

Ethnic group	% of households with:	
	No Central Heating	No car
BRADFORD		
White	35.6	40.4
Black	39.1	61.2
Indian	3.9	29.6
Pakistani	12.1	46.8
Bangladeshi	69.5	74.0
Other	43.9	40.9
Total	37.3	40.9
LEEDS		
White	34.3	41.2
Black	35.5	63.1
Indian	9.2	21.3
Pakistani	36.8	39.6
Bangladeshi	61.0	74.7
Other	31.7	42.2
Total	34.4	41.3

Source: 1991 Census - See Table 7

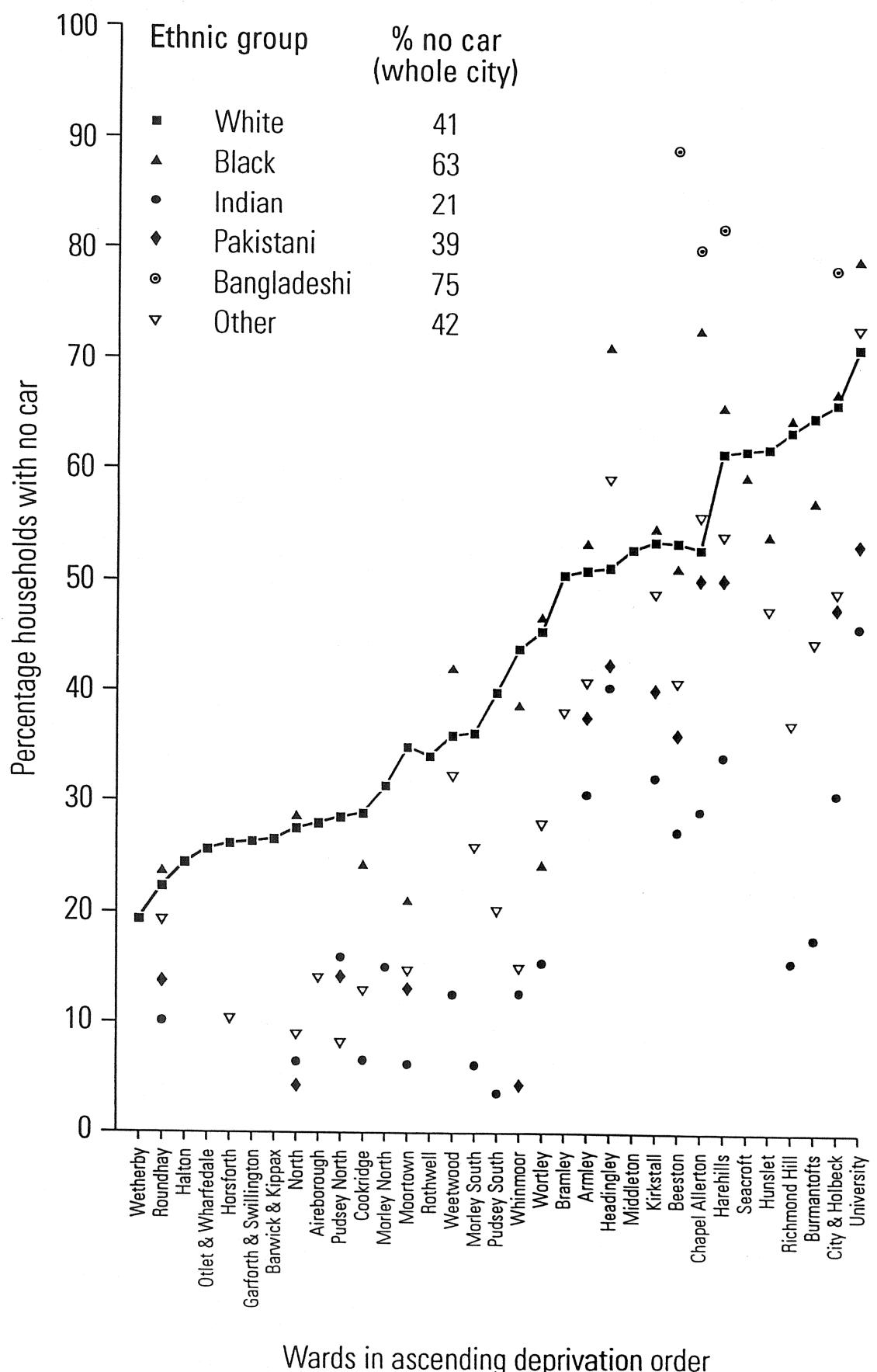


FIGURE 19. The variation in % households with no car by ethnic group across wards, 1991 Census: Leeds

5. INTERPRETATION

The paper has presented a rich set of observations about the residential geography and socioeconomic position of ethnic groups in contemporary Britain. Here a synthesis of the findings is presented.

- (1) It is clear, from all the analyses, that we can no longer view the non-White population of Britain as a homogenous group. This observation is not new but is underlined by the results of the 1991 Census. In fact, it would have been better, in retrospect, to have preserved the ten group classification rather than used the six group aggregation. It is certainly evident that the terms "ethnic minority" or "Asian minority" are no longer particularly useful descriptive categories.
- (2) Although the non-White groups are concentrated in the same sort of inner city areas, examination of the maps and indices of dissimilarity show that they have quite distinct spatial patterns.
- (3) The levels of spatial concentration of the non-White ethnic groups are moderately high, but only for the smallest and poorest group, the Bangladeshis, are there large numbers of wards where no group households live.
- (4) The levels of spatial concentration have been declining over the past decade a little for most groups, except for Bangladeshis. The shifts in residential geography have, however, been varied. Blacks have shown clear signs of dispersion from major concentrations and some minor degree of suburbanisation. Indians have exhibited quite a high degree of dispersion and suburbanisation. In Bradford this was to wards adjacent to all major concentrations. In Leeds the suburbanisation was preferentially to the North and North West of the inner city wards. For the Pakistani and Bangladeshi group the pattern was one of increasing numbers within wards of existing concentration.
- (5) The 1991 Census showed expected profound differences in the demographic and household structure of the ethnic groups. Whites had by far the oldest age structure and smallest households

(particular pensioner only households). Blacks, Indians and Other ethnicities had moderately youthful age structures, but these showed signs of ageing which should accelerate in the next decade as a result of the reduction in fertility rates over the past decade. Pakistanis and Bangladeshis had a very youthful age structure, which can be expected to get older in the next decade but not very quickly given declining but still quite high fertility rates.

- (6) There were few pronounced spatial variations in age structure for any group.
- (7) Examination of the socioeconomic indicators for ethnic groups revealed very different patterns of advantage or disadvantage, depending on the sphere of activity investigated. This suggests that it would be unwise to rely any summary or synthetic measures. The non-White ethnic groups fared best compared with Whites on the education, housing tenure and car ownership indicators, but scored worst on the employment and occupational indicators.
- (8) There were, however, wide differences between the groups. Indians experienced unemployment rates only marginally above those of whites and occupational distributions of a similar kind, with household incomes probably marginally higher. The Other ethnicities group was very well placed in terms of educational qualifications and concentration in professional occupations, but fared less well on the employment indicators. Blacks had a worse experience than Whites in the job market, but this was nothing like as bad as the experience of Pakistanis and Bangladeshis. To generalise, Indians have a class distribution with substantial and increasing middle class elements; the Other ethnicities have similar characteristics; the Black population has a more working class distribution. The Pakistani and Bangladeshi populations (and particularly the latter) find themselves in very difficult circumstances in the socioeconomic system with fewer qualifications, high unemployment, poor jobs and low incomes.

(9) However, despite these difficult circumstances the Pakistani group has been able to invest in owner occupation and in car ownership, along with Indians. Their larger households are able to devise strategies for making some progress in the socioeconomic system. Further analysis of variables from the Sample of Anonymised Records (eg housing type) is needed to clarify the quality of the housing purchased by this and other groups. It is well established that, in the past, owner occupation amongst the Asian sub-groups has not necessarily been synonymous with high status housing (Brown, 1984; Phillips, 1987).

The analysis of the 1991 Census data and the changes experienced over the previous decade has provided important insights into the status and progress of groups who have now been settled in Britain for up to four decades. The findings presented here are just a beginning to our further understanding of the process of change. As indicated above, further refinements in the analysis are required and there are other dimensions of variation to be explored. Most obviously absent from our analysis at this stage is an exploration of gender differences within and between groups. Emerging evidence suggests that there is likely to be gender differentiation in all spheres of activity, especially education and employment (Jones, 1993).

We also need to be mindful to interpret our Census findings against a backcloth of studies which depict the experience of Blacks and Indians, for example, in competing for jobs, housing or places in good schools. These provide a different sort of data from the Census. Hence, a recent study of the experience of ethnic minority graduates competing for jobs reveals that although most ethnic minority graduates, like White graduates, eventually found reasonable jobs, it took them longer and resulted in poorer promotion prospects than for their white counterparts (Brennan and McGeevor, 1990). Similarly, studies of the housing market indicate that housing purchase can be more costly, time consuming and discriminatory for the Black or Indian purchaser when

compared with the white (Phillips and Karn, 1992). New evidence is also emerging concerning the treatment of Indian hospital doctors when applying for posts. Thus, while the socio-economic advancement of some groups is clearly evident from the Census data, we also need a qualitative understanding of this progress.

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GLOSSARY

- SAS Small Area Statistics (1981 Census)
ST Special Tabulation
LBS Local Base Statistics (1991 Census)
OPCS Office of Population Censuses and Surveys
GROS General Register Office Scotland
HMSO Her Majesty's Stationery Office
IOD Index of Dissimilarity

Key to Bradford wards



- | | |
|--------------|-----------------|
| 1=Ba ildon | 16=Keigh. W |
| 2=Bingley | 17=L. t. Horton |
| 3=Bingley R | 18=Odsal |
| 4=Bolton | 19=Queensbury |
| 5=Bow ling | 20=Rombal ds |
| 6=Brad.Moor | 21=Ship ley E |
| 7=Clayton | 22=Ship ley W |
| 8=Craven | 23=Thornton |
| 9=Eccleshill | 24=Toller |
| 10=Gt.Horton | 25=Tong |
| 11=Heaton | 26=Undercliffe |
| 12=Idle | 27=University |
| 13=Ik ley | 28=Wibsey |
| 14=Keigh. N | 29=Worth Val. |
| 15=Keigh. S | 30=Wyke |

Key to Leeds wards



- | | |
|----------------|------------------|
| 1=Aireboro. | 18=Moortown |
| 2=Ar mley | 19=Mor ley N |
| 3=Barwick&K | 20=Mor ley S |
| 4=Beeston | 21=N orth |
| 5=Bramley | 22=Otley & Wharf |
| 6=Burmanf ts | 23=Pudsey N |
| 7=Chapel A | 24=Pudsey S |
| 8=City & Hol | 25=Richmond Hill |
| 9=Cookridge | 26=Rothwell |
| 10=Garforth&S | 27=Roundhay |
| 11=Halton | 28=Seacroft |
| 12=Harehill s | 29=University |
| 13=Head ingley | 30=Weetwood |
| 14=Horsforth | 31=Wetherby |
| 15=Hunslet | 32=Wh inmoor |
| 16=Kirkgate | 33=Wort ley |
| 17=Middleton | |

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