# Geography, Ethnicity and Poverty

## Newham in the 1991 Census

Greg Smith

Research Paper number nine

Department of Geography,
Queen Mary and Westfield College,
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# Geography, Ethnicity and Poverty

## Newham in the 1991 Census

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## Abstract

The small area statistics of the 1991 census, in particular the availability for the first time of an "ethnic" question, provide the opportunity for detailed geographical and ecological analysis of the most deprived and most ethnically diverse local authority district in England. A brief overview of the census statistics for the whole of Newham sets the scene. Various statistical techniques are used to examine the relationship between ethnicity and poverty and to suggest that the usual approach of urban policy makers, which attempts to reduce a range of variables to a single index of deprivation, is an inadequate framework. Factor Analysis is applied to show how particular types of deprivation are correlated with ethnicity at the enumeration district level. In particular overcrowding and poor housing conditions are found in neighbourhoods where South Asian Communities are concentrated, while lone parent families are more likely to be found in predominantly White and African Caribbean neighbourhoods with high levels of Council accommodation. Cluster Analysis is then used to break down the borough into fourteen distinct types of enumeration districts which are then mapped to show their location. With the exception of one cluster all the types show at least one indicator of above average deprivation. Finally, indices of dissimilarity are calculated to quantify the extent of ethnic segregation in the borough. The findings are discussed in the light of Chicago School Zone and Sector theory and with reference to Rex's notion of housing class as an explanation of growing ethnic conflict over housing policy. A final section suggests how this research can be used by the local authority and community groups to support campaigns for greater resources for the borough and to target the resources which are available in the most appropriate ways for the alleviation of poverty.

## Acknowledgements

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# 1 Introduction

Until recently, discussions of poverty in Britain have paid scant attention to ethnicity (Amin & Oppenheim 1992), although numerous research reports on racial disadvantage have repeatedly indicated that black people have generally poorer life chances, and that certain ethnic minorities such as Bangladeshis and Pakistanis are particularly disadvantaged in terms of employment, housing, and education (Jones 1993). The 1991 census for the first time included an "ethnic question" (Dale & Marsh 1993, Owen 1993) which allows us to explore a range of new questions about the interrelationships of ethnicity and other social indicators at areal levels as small as the enumeration district of a few hundred households. Clearly, such issues are of central concern both to members of minority communities, and to those who shape urban and social policy. Census data are of crucial importance in determining the allocation of state resources to local authorities, and in providing a rationale for urban regeneration interventions in particular localities. Politicians are easily seduced into measuring local need by a single index of deprivation, such as the commonly used DoE index of Local Conditions (Dept of Environment (DoE) 1994).

Significantly the 1981 index which included an ethnicity indicator as one of six component variables has been replaced, for good technical and political reasons, with a more sophisticated index based on the 1991 census. At a late stage in this research the detailed data for this index became available and was introduced as a reference point for our cluster analysis. However, there is nothing in this new data to challenge our supposition that such single index approaches obscure the complexity of the geographical distribution of disadvantage in multiracial urban areas such as East London. The main focus of this paper is to describe and analyse the complex relationship of ethnicity, geography and poverty in a London borough, and to examine some of the implications for urban policy and resource allocation in the area.

Research in the field of urban studies, whether of the pragmatic sort undertaken by local councils or central government, or of the more academic urban sociology, and urban geography which derives from the thinking of the Chicago school (Park, Burgess & McKenzie 1925), have a long tradition of using small area census data to describe and classify neighbourhoods, and to establish comparative measures of deprivation. Models of factorial ecology (Timms 1971, Robson 1969) and cluster analysis (Knox & MacLaran 1978, Folwell 1993) are now well established and have been used in studies from which indices and formulae for resource allocation have been derived. Generally factors corresponding to social class or status, familism, ethnicity and mobility have been extracted in different settings across the world. A complementary analytical method much used in studies of residential segregation (Robinson 1981, Peach (ed.) 1975, Massey 1986, Rex 1981) use measures such as indices of dissimilarity. Research along these lines has improved understanding of ethnic settlement patterns in urban neighbourhoods in Britain. Rex's (1968) concept of housing class has also been enlightening in the context of the British inner city where the role of municipal authorities in housing and changes in patterns of tenure have been so important, especially for the options and constraints for black people on residential location. Davies & Herbert (1993) cover a wider field and bring the literature of social network analysis, community studies and community development alongside that of urban social geography.

This paper draws together many of these methods and concerns and applies them to one inner London borough, Newham. The borough is situated about five miles East of the City of London on the north side of the Thames, bounded in the West by the River Lea and in the East by the River Roding. It is usually regarded as the outer fringe of the East End and includes the neighbourhoods of Stratford, Canning Town, Plaistow, Forest Gate, Manor Park and East Ham as well as the Docklands communities of Beckton, Custom House, Silvertown and North Woolwich. The research arose from empirical concerns in the context of community work, and is set in the context of much informal knowledge of the borough in which the author has lived, worked and been a community activist for nearly two decades. In his present post he is regularly being asked by a range of voluntary groups for census data about parishes and patches, which usually do not fit with ward boundaries, and therefore entail analysis at the ED level. Alongside this came involvement in Newham Council's Poverty Profile Project

(Griffiths/LBN 1994) which sought to provide a detailed picture of the extent, distribution and nature of poverty in the borough. This paper should, therefore, be read as a substantive contribution to the study of the locality, and to the politics of the borough, rather than as a primary contribution to methodology, urban theory or national policy.

The basic questions to be investigated were:

a) What is the residential settlement pattern of the various ethnic groups in Newham and why has this arisen?

b) What is the distribution pattern for indices of poverty and deprivation within the borough?

c) What is the relationship between a) & b) and what are the most useful theoretical explanations of the patterns?

d) What are the implications of these patterns for social and housing policy locally and for the allocation of resources in urban regeneration and poverty alleviation initiatives?

# 2 Newham: an overview

To begin this paper it is important to present some of the key census statistics for the borough as a whole. Obviously this is to give the reader an overview of the situation, but will also save as a check against the well known "ecological fallacy" (Timms 1971 p37). This is the assumption that, because there is a correlation between variables measured at the level of small geographical areas there are similar correlations between individuals; for example that because a ward has a relatively high number of Africans, and a high incidence of owner occupation, that Africans are likely to be owner occupiers – it may be of course that the Africans are highly concentrated in the minority of private rented homes in the ward. In order to safeguard against this it is worth presenting here some evidence from the raw census data for the entire population of Newham covering the demographic (age/gender) profiles broken down by ethnicity, housing tenure by ethnicity, and economic activity by ethnicity.

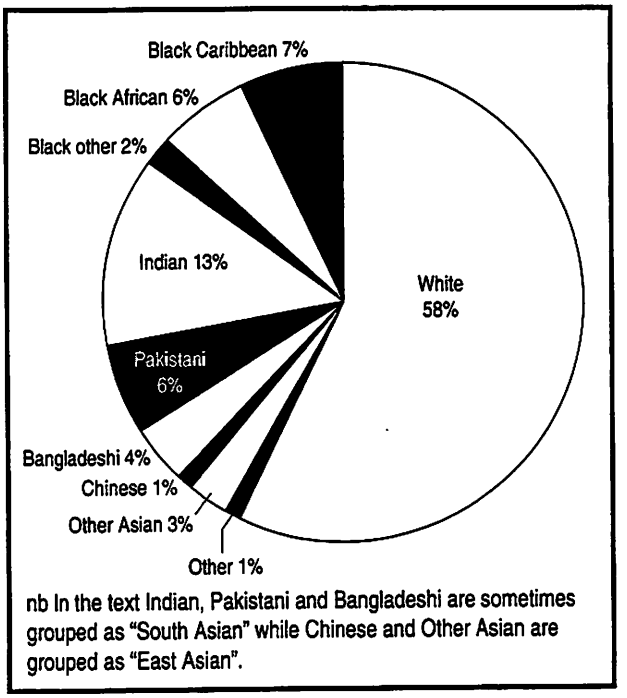


*Figure 1 London Borough of Newham ethnicity 1991 Census.*

Newham is now recognised by both the Department of Environment and independent academics as topping the Local Authority league tables for urban and material deprivation (DoE 1993, Forrest & Gordon 1993). Thirty eight percent of Newham's population (83,206 people) were estimated to be dependent on Income Support in November 1993 (Griffiths / LBN 1994). Newham is also the second "least white" area in the country (after Brent) with 42% of residents in the 1991 census belonging to ethnic minority groups, and with perhaps the widest range of ethnicities of any area. Figure 1 shows the basic breakdown but probably underestimates the diversity, given the regional/linguistic diversity of the Indian and African categories, and the failure of the census question to tap the complexity of the refugee influx of the last five years, with Somalis, Angolans, Zaireans, Sri Lankans, Kurds and Eastern Europeans all growing in numbers (Bloch 1994)

It is worth noting that Newham has for over a century been a centre for immigration and settlement, from other parts of the UK and from overseas. From an early date this included significant numbers of black people (Widdowson 1986). The 1881 census listed 2% of the population of West Ham County Borough as foreign born. By 1911 the joint figure for the two County Boroughs of West Ham and East Ham was 1.2%. This had only risen to 2.3% by 1951. A decade later the figure had doubled to around 4% (9,213 people) and by 1971 was at 12%. Precise comparison of census statistics at different dates is difficult because of boundary and question changes, and the limitations of documentation available at Newham's local studies library.

With industrialisation and urbanisation population grew rapidly until just before the 1939–45 war (Sainsbury 1986). Post war housing policy and the movement out to the suburbs meant a rapid decline in the population, more than halving in the half century to 1981, and through a combination of natural increase and Docklands development stabilising or even increasing by 1991. But at the same time as overall numbers declined the number and proportion of overseas born residents increased especially for those born in South Asia, the Caribbean and Africa in the period since 1960.

### a) Ethnicity and age; Newham 1991

Figure 2 gives a clear indication that the population of Newham as a whole has high proportions of young adults and consequently of young families. Even more striking is the small numbers of elders to be found in the black and (especially) the South Asian communities.

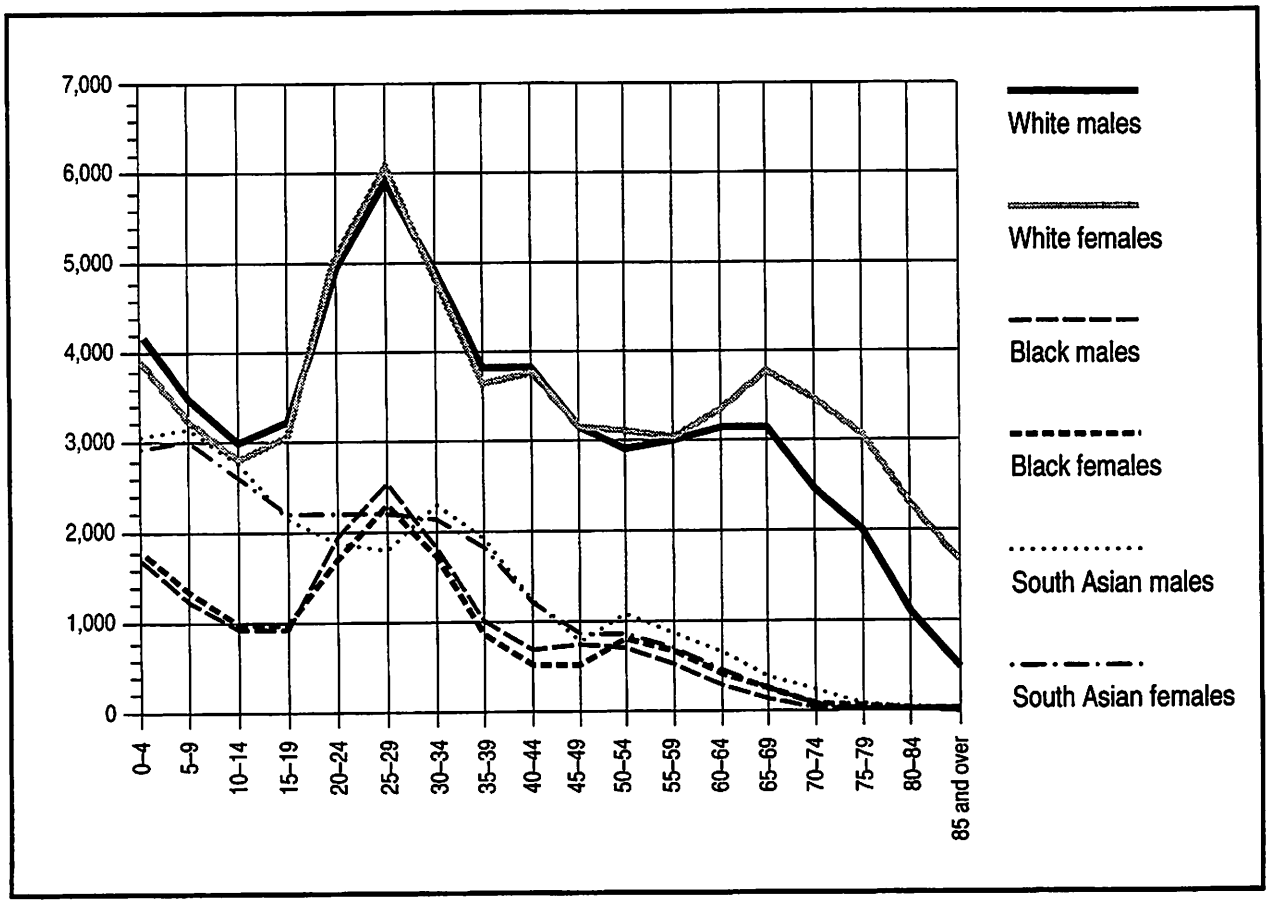


*Figure 2 Age sex profile by ethnicity. LB Newham 1991 Census. (census ethnicity categories grouped into three).*

Table 1 Housing tenure by ethnicity (Households) (London Borough of Newham 1991 Census)

| *Tenure* | *White* | *Black* | *Asian* | *Chinese/Other* | *Total* |
|---|---|---|---|---|---|
| Owner occupied | 46.67 | 43.79 | 72.15 | 63.81 | 50.45 |
| Private rented | 12.10 | 13.78 | 8.42 | 15.80 | 11.97 |
| Housing Association | 6.62 | 8.70 | 3.21 | 6.63 | 6.44 |
| Local authority | 34.61 | 33.73 | 16.22 | 13.76 | 31.14 |
| Totals (N) | 53,958 | 11,128 | 10,897 | 3,045 | 79,328 |
| No Car | 55.57 | 63.28 | 39.94 | 48.24 | 54.21 |

| | *Newham* | | *Great Britain* |
|---|---|---|---|
| owner occupation rates: | 77% | Indians | 82% |
| | 66% | Pakistanis | 77% |
| | 60% | Chinese | 62% |
| | 54% | Black Caribbeans | 48% |
| | 52% | Bangladeshis | 45% |
| | 46% | Whites | 67% |
| | 27% | Black Africans | 28% |
| | 50% | All ethnic categories | 66% |

**b) Housing tenure by ethnicity**

Table 1 shows clearly that Asian headed households are far more likely to be found in owner occupied housing than are black or white headed households. However, it should not be assumed, given the small size, low value, poor amenities and overcrowding which is found in much of the owner occupied sector in Newham, that owner occupation correlates with affluence. Detailed breakdowns by ethnicity show that Indian headed households are most likely to be in owner occupation with Bangladeshis and Black Caribbeans only slightly more likely than whites to be in owner occupation, with Black Africans being most likely of all to be in rented housing. These patterns of tenure by and large follow national trends with the exception of the higher than average proportion of whites in the rented sectors in Newham.

The additional information about households not having access to a car also suggest a greater degree of affluence among the South Asians in Newham in comparison with the other ethnic groups, although one needs to be cautious about this household level data when household sizes (and, in consequence, joint income) are significantly higher among Asians.

**c) Unemployment by ethnicity**

According to the 1991 census 19.3% of economically active people (22.1% of men, 15.1% of women) in Newham were unemployed. Table 2 gives the breakdown by ethnic group.

The figures seem to match national trends such as those reported in the analysis of the Labour Force Survey (Jones 1993) with Chinese and Indian groups doing no worse than Whites but Africans, Pakistanis and Bangladeshis finding it particularly difficult to obtain employment. Further analysis of the census and more recent employment statistics in the Newham Poverty profile (Griffiths / LBN 1994) show the higher levels of female economic activity among women in the black communities and low levels of such job market participation among Bangladeshi and Pakistani women. The profile also highlights the recent rise in unemployment (by 44% between April 1991 and November 1993) the discrepancy between the census count of unemployment and official

Table 2 Unemployment by ethnicity (London Borough of Newham 1991 Census).

| | *% of economically active classed as unemployed* | |
|---|---|---|
| | *Male* | *Female* |
| White | 18.6 | 10.9 |
| Black Caribbean | 22.4 | 14.0 |
| Black African | 42.7 | 35.5 |
| Black Other | 25.8 | 19.8 |
| Indian | 18.5 | 19.5 |
| Pakistani | 35.0 | 36.9 |
| Bangladeshi | 41.3 | 48.5 |
| Chinese | 13.9 | 10.0 |
| Other Asian | 27.8 | 17.5 |
| Other | 26.8 | 22.4 |

Department of Employment counts (3,900 persons less in April 1991 than in the census), and the particularly high rates of youth unemployment in African, Bangladeshi, Pakistani groups and for Caribbean males. There is also a body of evidence to suggest that the unemployment situation in Newham (and the rest of Inner London) has substantially worsened in the last decade in both absolute and relative terms. An analysis by Green (1994) shows that the most significant change since 1981 is that on the unemployment rate indicator. Newham has moved up the league to fifth place from outside the top 60 in 1981. Newham in 1991, together with Hackney and Tower Hamlets fares extremely badly on unemployment with over 80% of wards in the worst 10% nationally, when none were in this group in 1981.

**d) Social class by ethnicity**

Table 3 shows the percentage of each ethnic group assigned to the 6 categories of social class by occupation, based on the 10% data from the 1991 census. Again the relative high position of Indian and Chinese groups contrasts with the small number of professionals in the Caribbean, Bangladeshi and Irish born groups, with Black Africans, Bangladeshis and Irish born having above average numbers assigned to partly skilled and unskilled occupational classes.

Table 3 Newham 1991 Census 10% sample data.

| | | *Class by ethnicity* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *All* | *Caribbean Black* | | *Other Black* | | *Pakistani* | | *Chinese* | | *Other* | | |
| I Professional | 3.2 | 2.7 | 1.8 | 3.5 | 2.2 | 5.4 | 3.9 | 2.1 | 8.6 | 5.0 | 6.0 | 2.6 |
| II Managerial technical | 22.3 | 23.2 | 23.3 | 22.2 | 23.6 | 20.3 | 17.7 | 13.4 | 17.1 | 19.1 | 20.5 | 24.1 |
| III(N) Skilled Non Manual | 25.9 | 26.2 | 26.2 | 17.4 | 38.2 | 25.1 | 22.7 | 15.5 | 27.1 | 30.9 | 30.1 | 19.5 |
| III(M) Skilled manual | 21.7 | 23.0 | 21.1 | 16.5 | 18.0 | 19.0 | 26.6 | 21.6 | 21.4 | 11.8 | 21.7 | 26.2 |
| IV partly Skilled | 18.3 | 15.6 | 18.7 | 23.9 | 13.5 | 25.7 | 21.2 | 38.1 | 18.6 | 26.0 | 18.1 | 14.9 |
| V Unskilled | 7.0 | 8.0 | 7.3 | 12.2 | 4.5 | 2.5 | 3.9 | 1.0 | 2.9 | 6.9 | 2.4 | 12.3 |
| | | *White* | | *African Black* | | *Indian* | | *Bangladeshi* | | *Asian other* | | *Born Ireland* |

# 3 Factorial ecology of Newham

### a) Input variables

There are 460 enumeration districts (EDs) in Newham (eight of them with no residential property recorded) generally consisting of no more than a couple of hundred households in two or three streets or blocks. The 36 variables included in this study are important demographic ones such as age groups, ethnicity, and migrants (residents with a different address 12 months previously). The key housing variables such as tenure and amenities are also included, together with a range of broadly economic ones such as unemployment rates, car availability and the proportion of single parent households. Many of these variables have long been recognised as indicators of poverty and deprivation, and appear in combined indices of deprivation such as the DoE formula for local government finance and the indices of material and social deprivation in the recent Census Atlas of England (DoE 1994; Forrest & Gordon 1993; Centre for Urban Policy Studies 1993; Simpson 1993). They also broadly correspond to the range of indicators used in factorial ecology studies of Brisbane, Auckland, and Melbourne cited in Timms (1971). The analytical approach adopted here is in the terms used by Timms "blind" rather than "hypothesis testing"; that is it is empirical and inductive, rather than using the Shevky & Bell (1955) model testing approach to social area analysis. However, the choice of variables for factor and cluster analysis in the present study is far from random, and reflects implicit (though not formal) hypotheses about the relationship of demographic structure, ethnicity and poverty.

Table 4 lists the 36 variables extracted from the 1991 census file together with the mean and standard deviation across 452 EDs in Newham. It is necessary to point out that the mean figure quoted is not a true arithmetic average for the whole population of Newham (but the sum of ED percentages divided by the total number of EDs) and may therefore differ from other published census figures. The standard deviation (S.D.) is a measure of the range of differences between EDs. In broad terms we can be 95% certain that two thirds of the EDs will have readings falling within a range of +1 or -1 S.D. of the mean.

### b) Interpretation of factors

The seven factors extracted by the first stage of Principal Components Analysis together account for some 77% of the variance encountered in the whole data set, with the first four factors being most important in accounting for about two thirds of the total variance (see Table 5). The rotated factor matrix enables us to see which variables are highly correlated with each other. Reading down the columns for any factor it is those variables with a high score (marked with two asterisks for values over .50, a single asterisk for those between .40 and .50 and a ? for values of .20 to .39 ) that are highly weighted on this factor and therefore group together as measuring something which exhibits a common pattern across the EDs. (A high minus figure simply means the correlation is a negative one; as the other variables in this factor increase their values the value of this variable decreases).

It is not surprising in this matrix that certain groups of variables come out as highly correlated (e.g. % of Indians and % of South Asians). What is more interesting and pleasing from the point of view of simplicity and elegance is that the factor solution is orthogonal; i.e. very few variables show high weighting on more than one factor.

***Factor 1*** appears to be based mainly on ethnicity and distinguishes EDs with a high % of Asian residents. This is highly correlated with overcrowding and high proportions of children. There are also some positive weightings on variables such as male and female unemployment rates and owner occupied and furnished private rented tenure and negative weighting with female economic activity levels. It can be interpreted as representing the ***concentration of Asians*** in an enumeration district.

***Factor 2*** is weighted heavily on the proportion of pensioner households in an ED and the correlated variables of long term limiting illness and low rates of economic activity. There are also heavy weightings on variables involving Housing tenure (Council rather than Owner occupied) and low levels of car availability. EDs scoring high on this factor seem likely to have high proportions of poor

Table 4 Census indicators used in the analysis

| *Mean* | *Std Dev* | *Label* |
|---|---|---|
| 12.97 | 4.17 | % residents with long term limiting illness |
| 8.86 | 2.44 | % residents aged under 5 |
| 14.06 | 6.36 | % residents of pension age |
| 10.70 | 5.14 | % residents who had moved address in last year |
| 58.04 | 21.48 | % white residents |
| 7.28 | 3.82 | % black Caribbean residents |
| 5.62 | 3.26 | % black African residents |
| 14.50 | 6.51 | % all categories "black" residents |
| 12.74 | 12.57 | % Indian residents |
| 5.79 | 5.80 | % Pakistani residents |
| 3.75 | 4.63 | % Bangladeshi residents |
| 22.28 | 19.59 | % All South Asian residents |
| 6.61 | 4.89 | % lone parent households |
| 4.65 | 3.55 | % of all residents who are aged 0–16 and living in lone parent households |
| 72.87 | 7.25 | % males aged 16+ who are economically active |
| 22.44 | 7.26 | % males aged 16+ who are unemployed * |
| 46.66 | 8.68 | % females aged 16+ who are economically active |
| 15.67 | 6.53 | % females aged 16 + unemployed * |
| 13.10 | 8.36 | % homes owned outright |
| 6.75 | 5.25 | % homes private rented furnished |
| 5.75 | 6.47 | % homes unfurnished private rented |
| 13.77 | 9.23 | % all private rented homes |
| 6.41 | 10.15 | % rented from housing association |
| 28.80 | 26.35 | % Council rented |
| 35.21 | 26.77 | % social renting (i.e. Council or Housing Association) |
| 53.19 | 11.95 | % households without access to car |
| 95.00 | 4.43 | % households with own bath & WC |
| 76.16 | 12.38 | % households with central heating & own bath & WC |
| 51.03 | 22.37 | % households owner occupied (outright & buying) |
| 3.76 | 3.61 | % residents described as "other Asian" |
| 60.25 | 7.68 | % females aged 16+ in full time employment |
| 7.66 | 2.44 | % residents aged 5–9 |
| 7.53 | 2.55 | % residents aged 10–15 |
| 26.48 | 5.81 | % residents aged under 18 |
| 7.95 | 4.72 | % households overcrowded (more than 1 person per room) |
| 27.92 | 9.64 | % pensioner households |

Number of cases = 452

nb * this figure (the % of all adults unemployed) is calculated on a different basis to both the headline figure of those claiming benefit published by the Department of Employment, and the usual percentage given from the census which is based on the ratio of unemployed people to the number of economically active people aged 16 to pension age.

pensioners living in Council property. It can be taken to represent levels of ***economic activity linked with age***

***Factor 3*** is weighted heavily on variables associated with housing tenure (social housing rather than owner occupation) the proportion of children, and the presence of single parent households. There are also some positive weightings for male unemployment, low car ownership, proportion of white residents (and the low numbers of Asians), and presence of full

Table 5 Factor solution

*Principal-Components Analysis Extracted seven factors with eigen values > 1*

| *Factor* | *Eigenvalue* | *% of Variance* | *Cumulative %* |
|---|---|---|---|
| 1 | 10.31111 | 28.6 | 28.6 |
| 2 | 5.88159 | 16.3 | 45.0 |
| 3 | 4.08516 | 11.3 | 56.3 |
| 4 | 3.26978 | 9.1 | 65.4 |
| 5 | 1.57354 | 4.4 | 69.8 |
| 6 | 1.45102 | 4.0 | 73.8 |
| 7 | 1.12049 | 3.1 | 76.9 |

*Rotated Factor Matrix: Varimax Criterion*

| *Factor* | *1* | *2* | *3* | *4* | *5* | *6* | *7* |
|---|---|---|---|---|---|---|---|
| Whites | -0.77** | 0.13 | 0.39? | -0.18 | -0.25? | -0.26? | -0.11 |
| Caribbean | 0.09 | 0.05 | 0.09 | 0.00 | 0.87** | -0.11 | 0.06 |
| Africans | -0.11 | -0.17 | 0.13 | -0.03 | 0.70** | 0.36? | 0.12 |
| Blacks (all) | 0.00 | -0.06 | 0.16 | -0.04 | 0.95** | 0.11 | 0.10 |
| Indians | 0.74** | -0.06 | -0.43* | 0.14 | -0.05 | 0.22? | 0.04 |
| Pakistanis | 0.66** | -0.08 | -0.31? | 0.19 | -0.11 | 0.22? | 0.06 |
| Bangladeshis | 0.67** | -0.03 | -0.17 | 0.23? | 0.25? | -0.04 | -0.07 |
| South Asians | 0.83** | -0.07 | -0.41* | 0.20? | -0.01 | 0.20 | 0.02 |
| Other Asian | 0.08 | -0.24? | -0.39? | 0.01 | -0.20 | 0.27? | 0.28? |
| Lone parent hh | -0.08 | 0.04 | 0.85** | -0.27? | 0.18 | 0.12 | 0.02 |
| LP children | -0.09 | 0.10 | 0.85** | -0.28? | 0.16 | 0.10 | 0.04 |
| Males active | -0.01 | -0.84** | -0.02 | 0.07 | -0.04 | -0.15 | -0.11 |
| Males unempl. | 0.28? | 0.34? | 0.29? | -0.08 | 0.28? | 0.47* | 0.18 |
| Female active | -0.36? | -0.76** | -0.24? | 0.06 | 0.08 | -0.19 | 0.05 |
| Female unempl. | 0.32 ? | 0.17 | 0.09 | 0.00 | 0.19 | 0.76 * | 0.06 |
| Female full time | -0.15 | -0.31? | -0.19 | 0.06 | 0.01 | -0.58** | 0.19 |
| Owned outright | 0.18 | -0.14 | -0.62** | 0.26? | -0.12 | -0.14 | -0.42* |
| Furn. rented | 0.32? | -0.29? | -0.42* | 0.46* | 0.11 | 0.25? | 0.18 |
| Unfurn. rented | -0.05 | 0.01 | 0.01 | 0.90** | -0.11 | -0.10- | 0.05 |
| All private rented | 0.13 | -0.14 | -0.22? | 0.90** | -0.01 | 0.08 | 0.10 |
| Housing Assoc. | -0.04 | 0.04 | 0.06 | 0.02 | 0.11 | -0.16 | 0.81** |
| Council rented | -0.21? | 0.46* | 0.59 * | -0.48* | 0.13 | 0.21 | -0.07 |
| Social housing | -0.22? | 0.47* | 0.61** | -0.47* | 0.17 | 0.15 | 0.24? |
| Owner occupier | 0.21? | -0.51** | -0.64** | 0.19 | -0.20 | -0.21? | -0.32? |
| Under 5s | 0.17 | -0.45* | 0.51** | 0.04 | -0.03 | 0.27? | -0.17 |
| Age 5 to 9 | 0.75** | -0.15 | 0.36? | -0.14 | -0.08 | 0.03 | -0.10 |
| Age 10 to 15 | 0.79** | 0.04 | 0.13 | -0.07 | -0.08 | -0.16 | -0.10 |
| Age under 18 | 0.82** | -0.22? | 0.43* | -0.09 | -0.09 | 0.04 | -0.17 |
| Pensioners | -0.42* | 0.81** | 0.00 | -0.03 | -0.15 | -0.05 | -0.20 |
| Pensioner hh | -0.20 | 0.86** | -0.03 | -0.02 | -0.20 | -0.04 | -0.25? |
| Overcrowded | 0.82** | -0.10 | -0.19 | 0.13 | 0.03 | 0.22 | 0.05 |
| LT illness | -0.22? | 0.83** | 0.14 | -0.14 | -0.01 | 0.07 | -0.09 |
| Migrants | -0.05 | -0.33? | 0.00 | 0.15 | 0.15 | 0.18 | 0.62** |
| No car | -0.05 | 0.66** | 0.34? | -0.05 | 0.34? | 0.34? | 0.22? |
| Bath & WC | -0.12 | 0.05 | 0.38? | -0.52** | -0.16 | -0.07 | -0.16 |
| Full amenities | -0.13 | 0.07 | 0.36? | -0.82** | 0.01 | 0.09 | 0.05 |

household amenities. EDs with a high score are likely to be council estates with lots of young families, many of whom will be lone parent households. It seems to correspond well with the notion of ***younger council estates***.

***Factor 4*** also relates to housing tenure but this time to proportions of private rented (and to a lesser extent owner occupied) housing. There is a clear correlation between this and variables indicating lack of amenities such as unshared bath/ WC and central heating, and some noticeable weighting on variables indicating the presence of Asian residents. This factor will be reffered to as ***private rented areas*** although this should not be taken as suggesting a predominance of this type of tenure.

***Factor 5*** appears to be an ethnic factor indicating EDs where Black (Caribbean and African) people are concentrated. There is some correlation with low levels of car availability, and male unemployment. Housing tenure does not seem to play any great part in this factor. It will be labelled ***Black areas***

***Factor 6*** groups variables relating to unemployment and EDs with high scores are likely to have high unemployment rates (especially female and among Africans) and low rates of full time employed women. Somewhat tentatively this factor will be reffered to as ***unemployent / female / African***

***Factor 7*** is largely about migration (measured by counting residents who had changed address in the 12 months before census night) with some correlation with housing tenure especially Housing Association property. The factor seems to be picking up the recent expansion in this form of tenure; almost all new built /recently settled estates for rent are in this sector. The factor will be named ***new Housing Association areas***.

The factor analysis is illuminating but only shows which census indicators are likely to be found together when an intra-borough analysis of Enumeration districts is undertaken. It tells us nothing about the characteristics of individual geographical areas (EDs), (although using factor scores might be one way of reducing the size of the data matrix to more manageable dimensions), and gives us no information by which to group similar EDs together. In order to do this, and to move on to summarising and mapping the urban ecology of the borough, it is necessary to turn to cluster analysis.

# 4 Cluster analysis

### a) Method

A quick cluster analysis specifying 10 clusters of EDs with similar patterns on the 36 initial variables produced the grouping given below (Table 6). The ten cluster solution captured the important characteristics of the data set in an intuitively satisfying way, when examined in the light of detailed local knowledge. More details on the method used are given in Appendix 1.

Table 6 Number of EDs in each cluster.

| *Cluster* | *EDs* |
|---|---|
| 1 | 3 |
| 2 | 2 |
| 3 | 110 |
| 4 | 2 |
| 5 | 28 |
| 6 | 4 |
| 7 | 54 |
| 8 | 22 |
| 9 | 74 |
| 10 | 153 |
| Missing (EDs without residents) | 8 |
| Total | 452 |

However, the grouping together of about a third of all EDs as Cluster 10, when there was some indication of important variation on values for key variables such as ethnicty and housing tenure, within this cluster, gave some cause for concern. Therefore, this subset was analysed separately using QUICK CLUSTER in order to produce 4 sub-clusters, which seemed to have distinct patterns of their own.

### b) Characteristics of the clusters

The 10 clusters and 4 sub-clusters were located geographically and characterised graphically by their average factor scores. This could be described as giving a "DNA profile" for each cluster. Finally the clusters were mapped in a collaborative piece of work with the LBN Poverty profile project using a GIS system operated by the public Health Department of East London Health Authority.

Table 7 summarises the factor scores for each cluster while Figure 3 portrays this information for the clusters containing substantial numbers of EDs

### c) The small clusters

The clusters with the smallest number of EDs are presented first and grouped together on Figure 4 since they are the least typical areas of Newham, with extreme values on at least some of the 36 initial variables, and on factors 7 and 4 which relate to housing association and private rented tenure.

*Cluster 1*
Is a small cluster of three EDs which share the following characteristics ; high levels of recent in migration; very high levels of Housing Association stock with good amenities, and above average proportions of children. The three EDs are FD03 (Priory Park area of Castle Ward), FF06 (Bingley Road area of Custom House) and FM20 (Shrewsbury Road area of Manor Park)

*Cluster 2*
This cluster only contains two EDs. FP02 (Clays Lane area of Newtown Ward) and FX09 (Victoria Street area of Stratford Ward).

It has low numbers of pensioners, above average numbers of black and East Asian residents, high proportions of Housing Association stock with full amenities and recent mobility, low car availability, high levels of full time female employment and low proportions of children. This is all quite consistent with the known fact that housing in these EDs is specifically designed for young single people.

*Cluster 4*
This contains only two EDs FP01 (Clays Lane area of Newtown) and FC03 (Manor Road West Ham). The characteristics are high recent mobility, high proportions of black and East Asian residents (at least 30%), low levels of male economic activity, but high unemployment, high proportions of housing association stock but with a low level of unshared bath/WC, few cars available, and low proportions of children and pensioners. Again local knowledge suggests this is not surprising given the

Table 7 Mean factor scores for clusters

| | *Factor 1* | *Factor 2* | *Factor 3* | *Factor 4* | *Factor 5* | *Factor 6* | *Factor 7* |
|---|---|---|---|---|---|---|---|
| Cluster 1 | 1.00 | 0.66 | 0.87 | -0.15 | -0.43 | -2.10 | 3.54 |
| Cluster 2 | -1.10 | -0.99 | -0.51 | -1.25 | 0.90 | -0.64 | 5.81 |
| Cluster 3 | -0.59 | 1.05 | 0.14 | -0.45 | -0.24 | -0.15 | -0.10 |
| Cluster 4 | -1.53 | 0.22 | -1.60 | -0.25 | 2.92 | 1.32 | 6.81 |
| Cluster 5 | -0.58 | -0.03 | 1.19 | -0.80 | 1.19 | 1.28 | -0.42 |
| Cluster 6 | -1.81 | 0.60 | 2.32 | 6.01 | -1.41 | -0.50 | -0.05 |
| Cluster 7 | -0.18 | -0.15 | -0.16 | 0.92 | 0.93 | 0.00 | 0.33 |
| Cluster 8 | 0.88 | -0.26 | 2.40 | -0.73 | -0.16 | -0.29 | 0.09 |
| Cluster 9 | -0.82 | -1.17 | -0.22 | -0.15 | -0.32 | -0.68 | -0.27 |
| Cluster 10 | 0.93 | -0.12 | -0.55 | 0.19 | -0.20 | 0.29 | -0.08 |

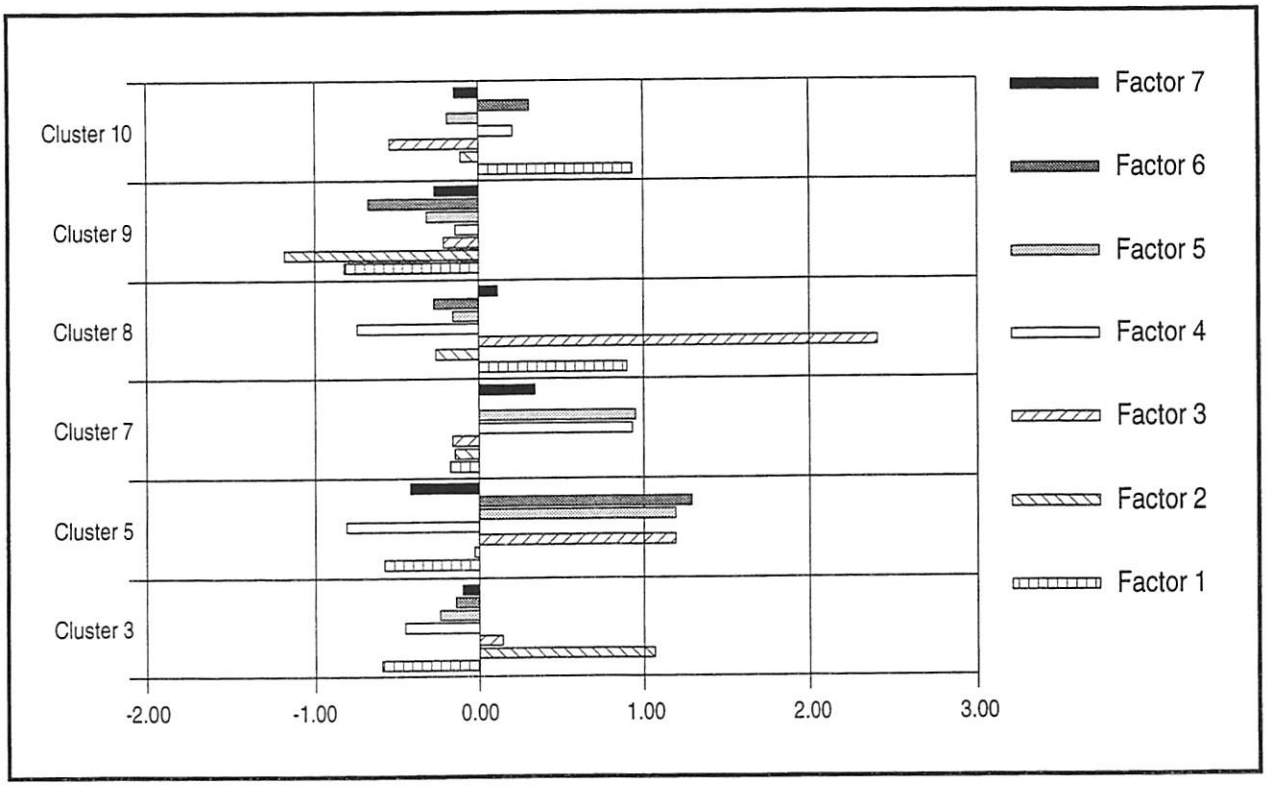


*Figure 3 Factor scores for the major clusters.*

proportion of "student" type accommodation in these neighbourhoods, distinguished from cluster 2 housing by sharing of bathrooms and/or WCs.

***Cluster 6***

Consists of four enumeration districts located in a single area of Hudsons ward and known locally as the "Scruttons Estate" (FJ14, FJ19, FJ20, FJ21). The main characteristics are high levels of pensioners (21%), generally white, very high levels of unfurnished rented property (around 60%) with low levels of amenities (especially lacking central heating) few children and little overcrowding. This cluster could well be one of the most deprived areas in Newham in terms of housing conditions, especially for older people.

**d) The major clusters**

In the text and maps below the characteristics and locations of the clusters are summarised. More detailed statistics for each are presented in Appendix 2.

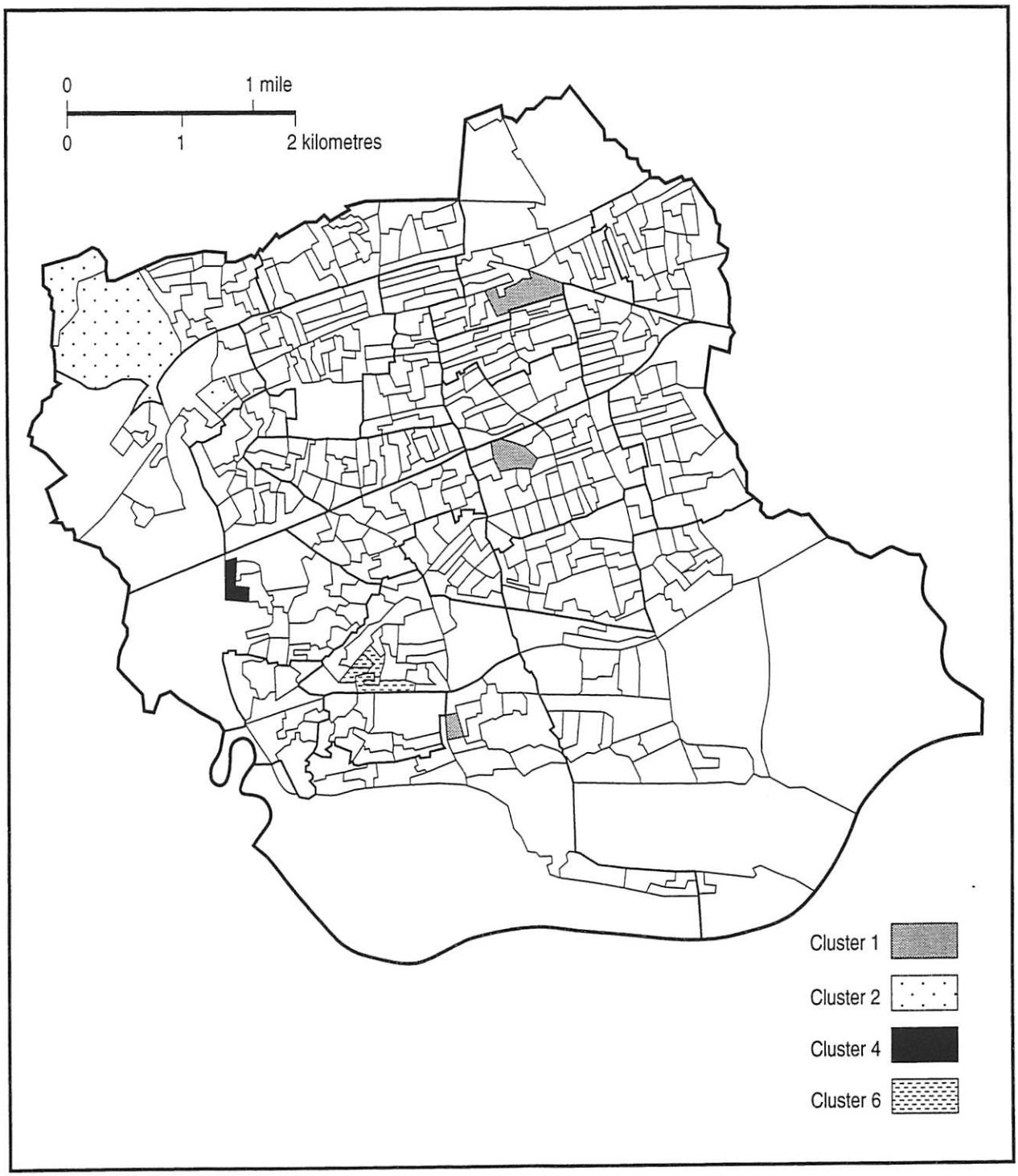


*Figure 4 Location of the four small clusters.*

*Cluster 3*

EDs in this cluster mostly are found within older more settled Council estates. It would seem likely that there are significant numbers of pensioners struggling to get by on low incomes in this cluster of EDs. Figure 5 shows there is a concentration of these EDs in the South West of the borough and in the South East and North East Corner of the borough. This map in particular gives a somewhat distorted visual impression in that several of the shaded EDs are large, thinly populated areas with tracts of open space or vacant land. However the map does match local knowledge in that most of the shaded EDs are traditional "white" post war Council estates. For the DoE index of local conditions the average score of EDs in this cluster is 7.2 indicating a severe level of deprivation. (the worst 7% of EDs in England score approx. 6.5 or greater).

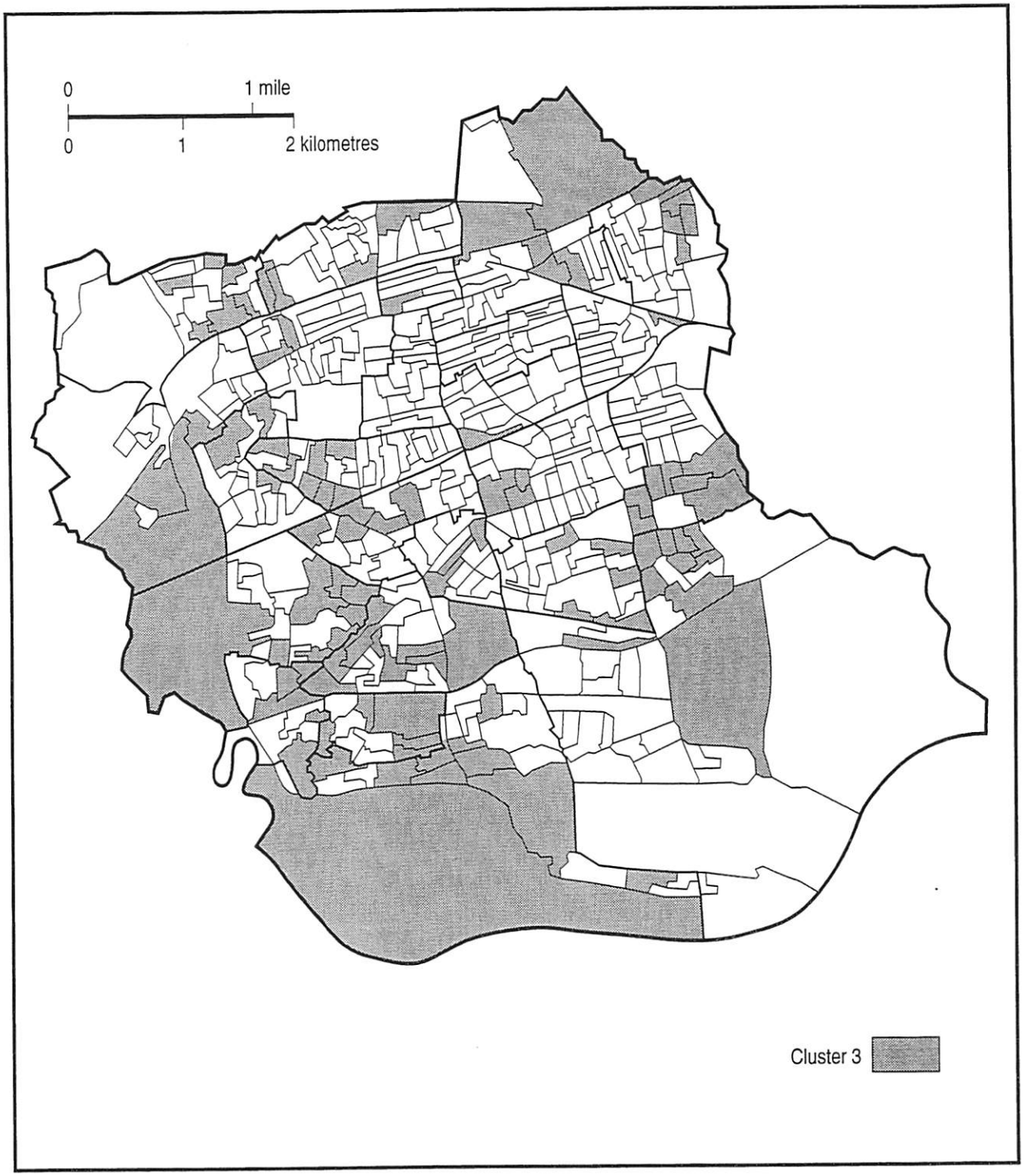


*Figure 5 Location of cluster 3.*

***Cluster 5***

Consists of 28 EDs which are largely "younger" Council estates. They are likely to have:
slightly higher than average proportions of white residents;
higher than average proportions of under fives;
higher than average proportions of black residents;
higher than average proportions of single parent households;
higher than average male unemployment;
low levels of car availability.

The EDs making up cluster 5 are shown on Figure 6. For the most part they correspond to certain council estates on the Western side of the borough in Stratford, West Ham and Canning Town, plus a couple of EDs in North Woolwich and Little Ilford. From local knowledge it would appear that most of these estates have a high proportion of high and medium rise post war flats rather than houses with gardens. Child / family poverty and deprivation seems concentrated in this cluster, with a disproportionate effect on black (African &

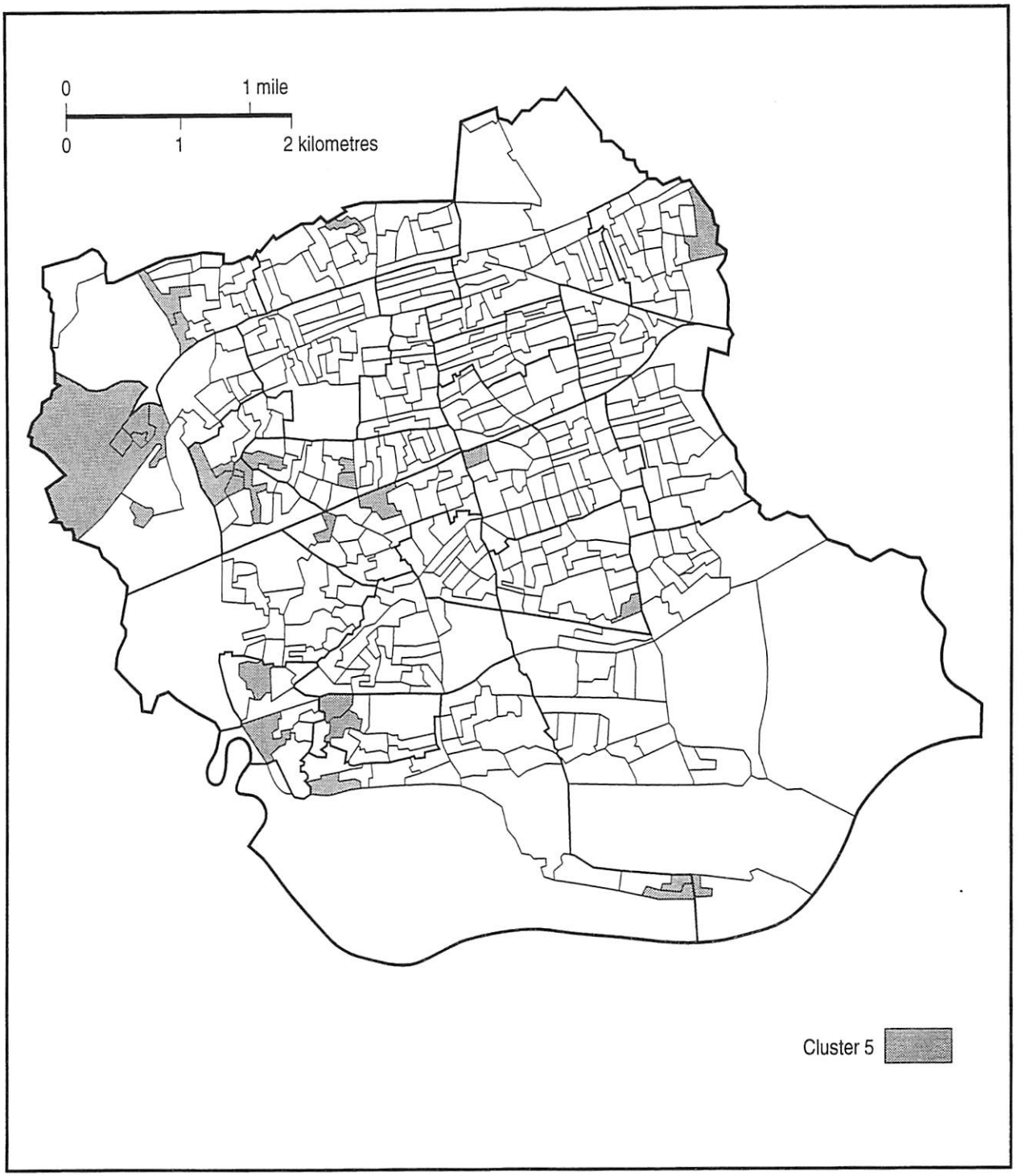


*Figure 6 Location of cluster 5.*

Caribbean) people. The average score for these EDs on the DoE Index of Local conditions is 9.3 indicating extremely severe deprivation, and the highest average score for all the major clusters in our analysis.

***Cluster 8***

Comprising 22 EDs, could best be described as areas which are mostly family type council property (but with some other tenures mixed in), predominantly white, with older children (many of whom are in single parent households, and higher than average unemployment. The EDs which make up cluster 8 (shown on Figure 7) are almost all situated in the south of the borough, with a concentration in the South West Corner (the Canning Town neighbourhood with its wards of Beckton, Ordnance and Canning Town & Grange) with others in South ward, including two interesting EDs in the new Docklands estates of Beckton). As in cluster 5 deprivation issues, would seem to centre on family poverty, but in this case


*Figure 7 Location of cluster 8.*

mainly among white residents, with on average older children. The score on the DoE Index in this cluster averages 8.1 indicating very severe deprivation.

*Cluster 7*

Consists of 54 EDs, scores heavily on factors 4 & 5 and is typified by fairly mixed patterns of housing and ethnicity. The variables which stand out are:

higher than average proportions of black residents;
higher than average levels of private rented housing especially furnished;
lower than average levels of amenities.

The EDs forming cluster 7 are shown on Figure 8. They are clearly concentrated in the North Central part of the borough along the Romford Road between Stratford and Manor park, with a few other EDs forming contiguous areas in Plaistow and near Upton Park Station. The main concentration of this type of ED is in Park and

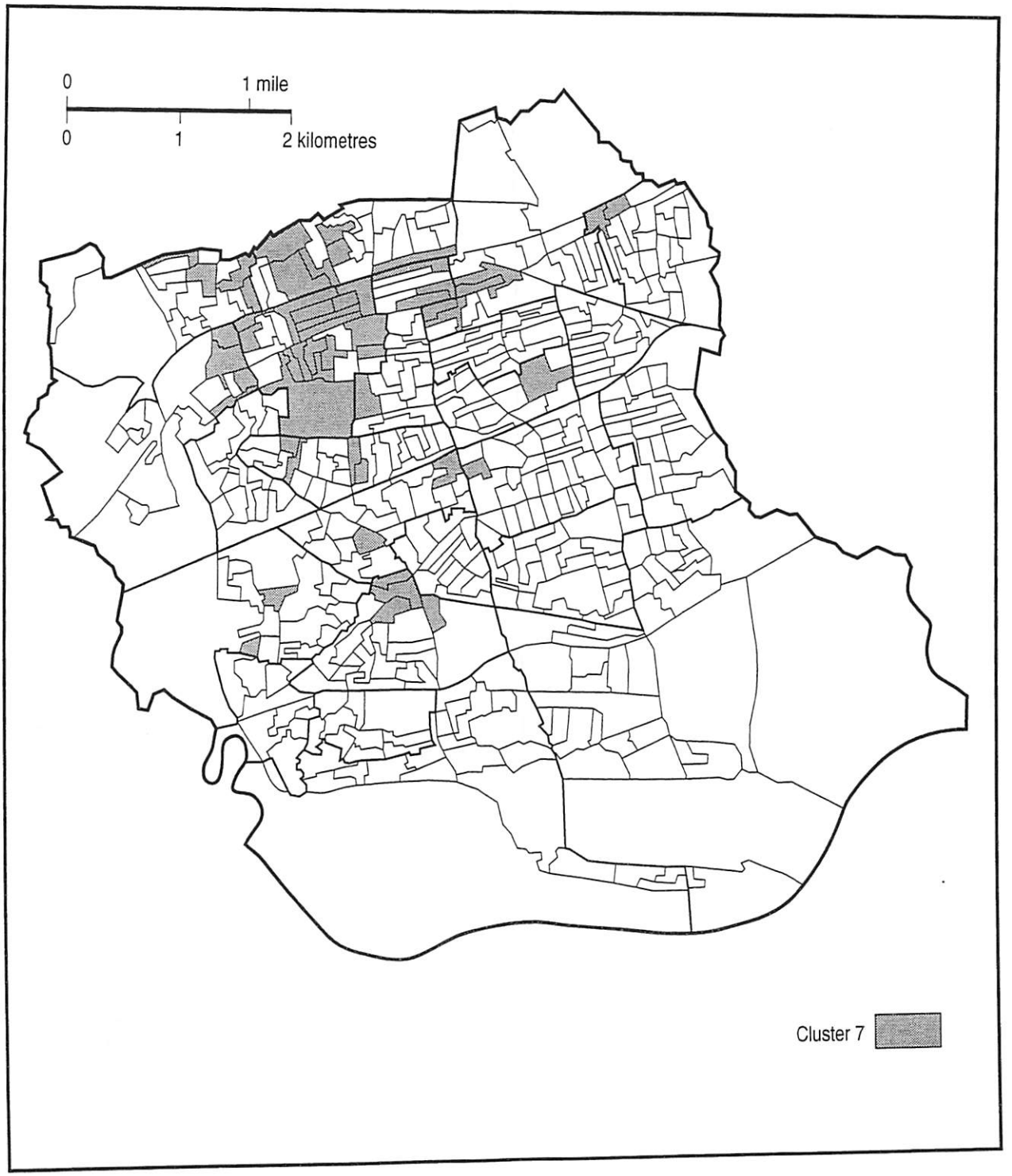


*Figure 8 Location of cluster 7.*

Forest Gate Wards. Deprivation issues are likely to centre around private tenants, many of them black, in unsatisfactory housing. The score on the DoE Index in this cluster averages 8.2 indicating very severe deprivation.

***Cluster 9***

Groups together those 74 EDs in Newham which appear to be (relatively) prosperous and predominantly white. There are high rates of owner occupation and female full time employment and low scores on most of the variables which could indicate deprivation or poverty. Many households are likely to have double incomes and no dependent children. These EDs also have high car availability and low male unemployment compared with borough averages.

EDs in Cluster 9 are shown on Figure 9. The largest block is found in the South East part of the borough in Greatfield, Bemersyde and South wards (the only wards in Newham who have elected non-

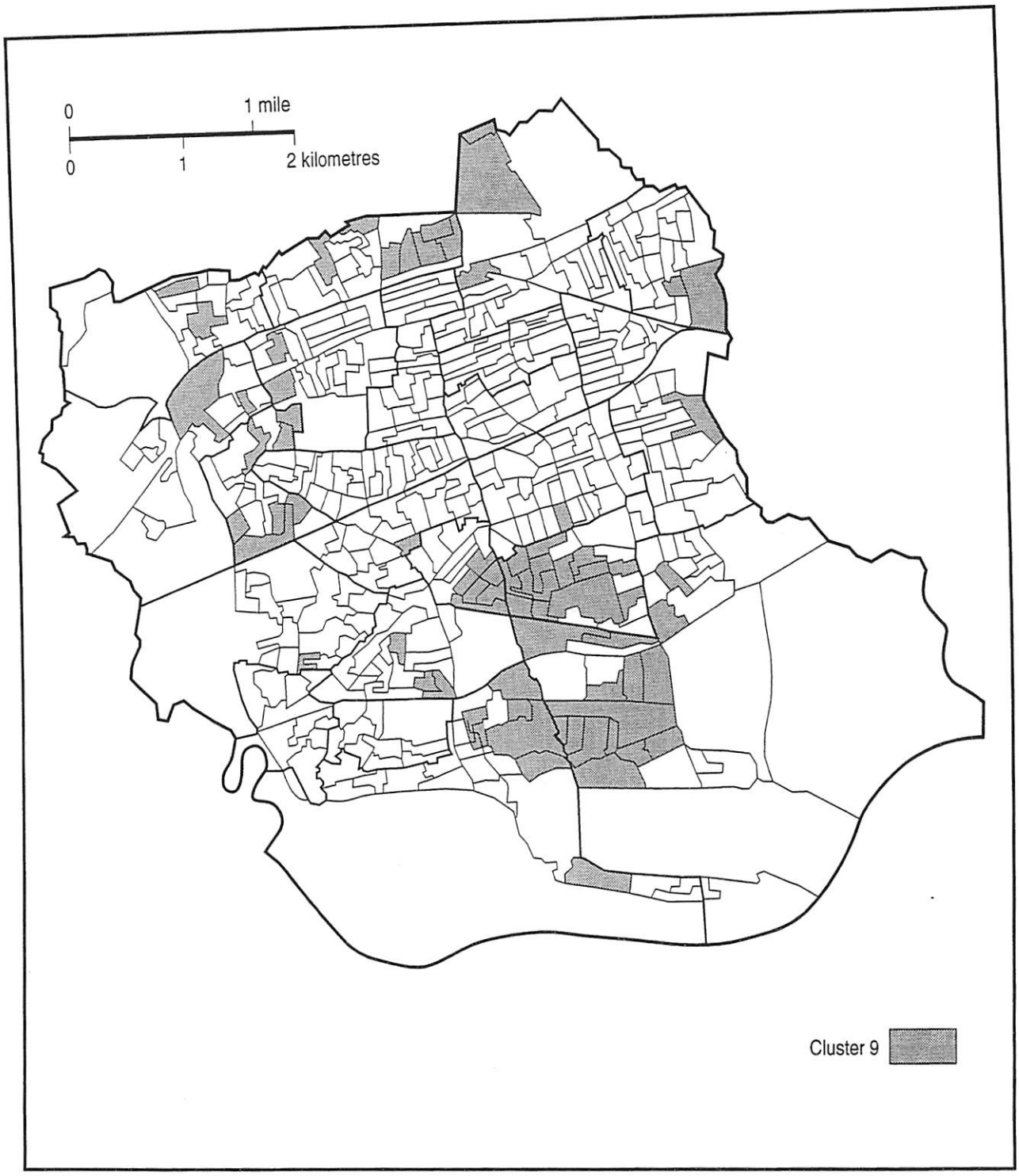


*Figure 9 Location of cluster 9.*

Labour party Councillors in recent years). There are two distinct areas divided by the A13. South East Ham is a neighbourhood of mainly early-20th century good quality suburban terraced housing while across the road in Beckton is the Docklands development area built in the 1980s. Other significant areas in this cluster are in the North East corner of the borough facing onto the open space of Wanstead Flats (part of this area has recently (1994) been transferred out of Newham to Redbridge), and more surprisingly a number of areas in Stratford, including the town centre and EDs adjoining West Ham Park. The average score for EDs in this cluster on the DoE index of local conditions is only 2.7, the lowest score for any of our main clusters in Newham, yet still marking higher than average deprivation on the national scale; (the mean for all EDs is 0). While it is tempting to think of the EDs in this cluster as affluent, they do not appear particularly so when contrasted with national statistics, and, given the problems of negative equity and growing

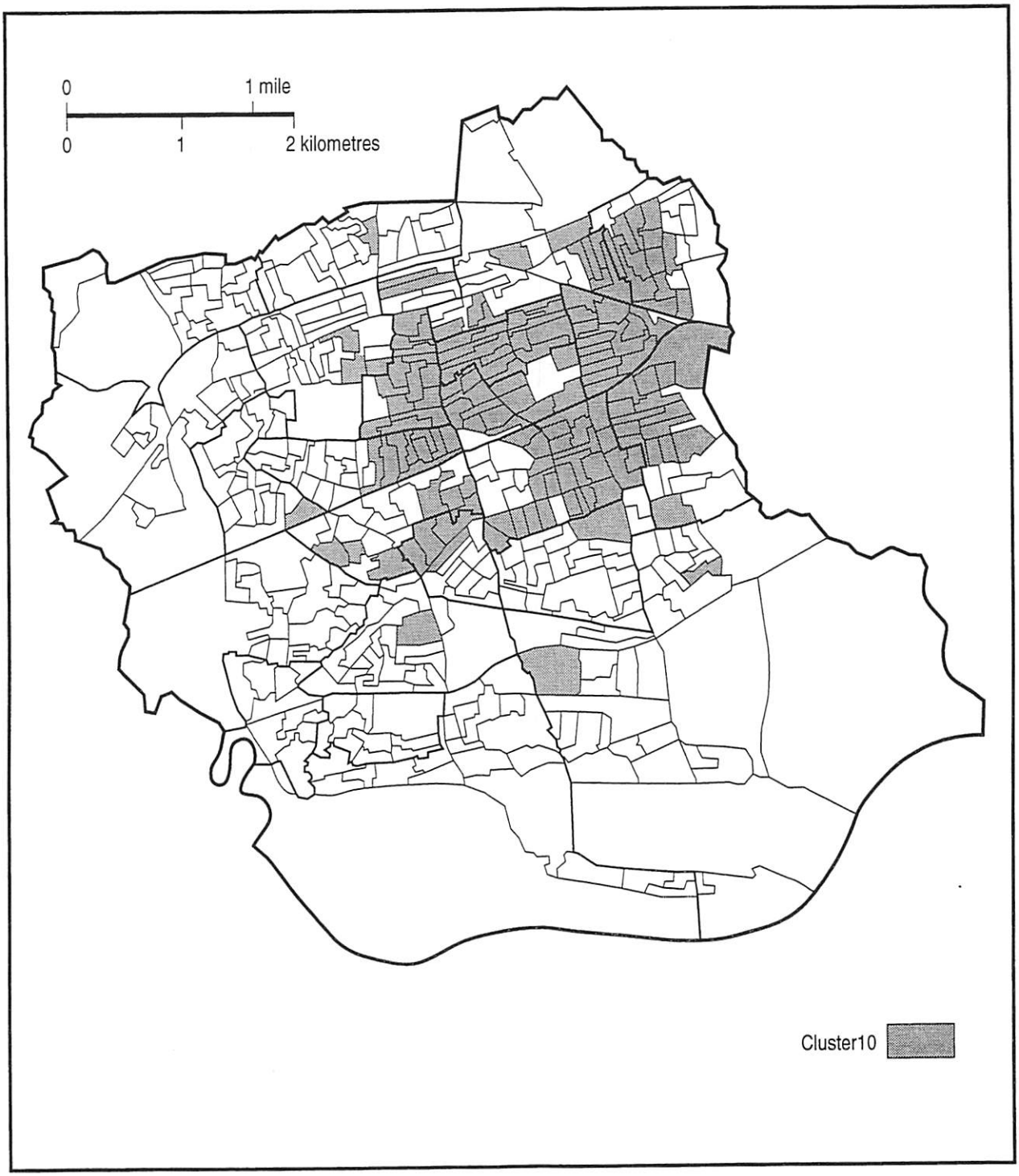


*Figure 10 Location of cluster 10.*

unemployment which have emerged since 1991, residents are no longer immune from poverty and deprivation.

***Cluster 10***

Comprises 153 EDs as shown on Figure 10 and includes a large swathe of multi-ethnic central Newham. Housing is mainly owner occupied with some private rented stock. Ethnic minorities, particularly South Asians, make up the majority of the population. Correlated with this is the high proportion of children and young people and high levels of overcrowding. The scores on the DoE's index of local conditions for this group of EDs averaged 7.1 suggesting only average deprivation in Newham terms but severe deprivation against the national yardstick.

Because such a large number of EDs were included in this cluster a second level cluster analysis was carried out using the same 36 Z score variables to see if there were important patterns of difference

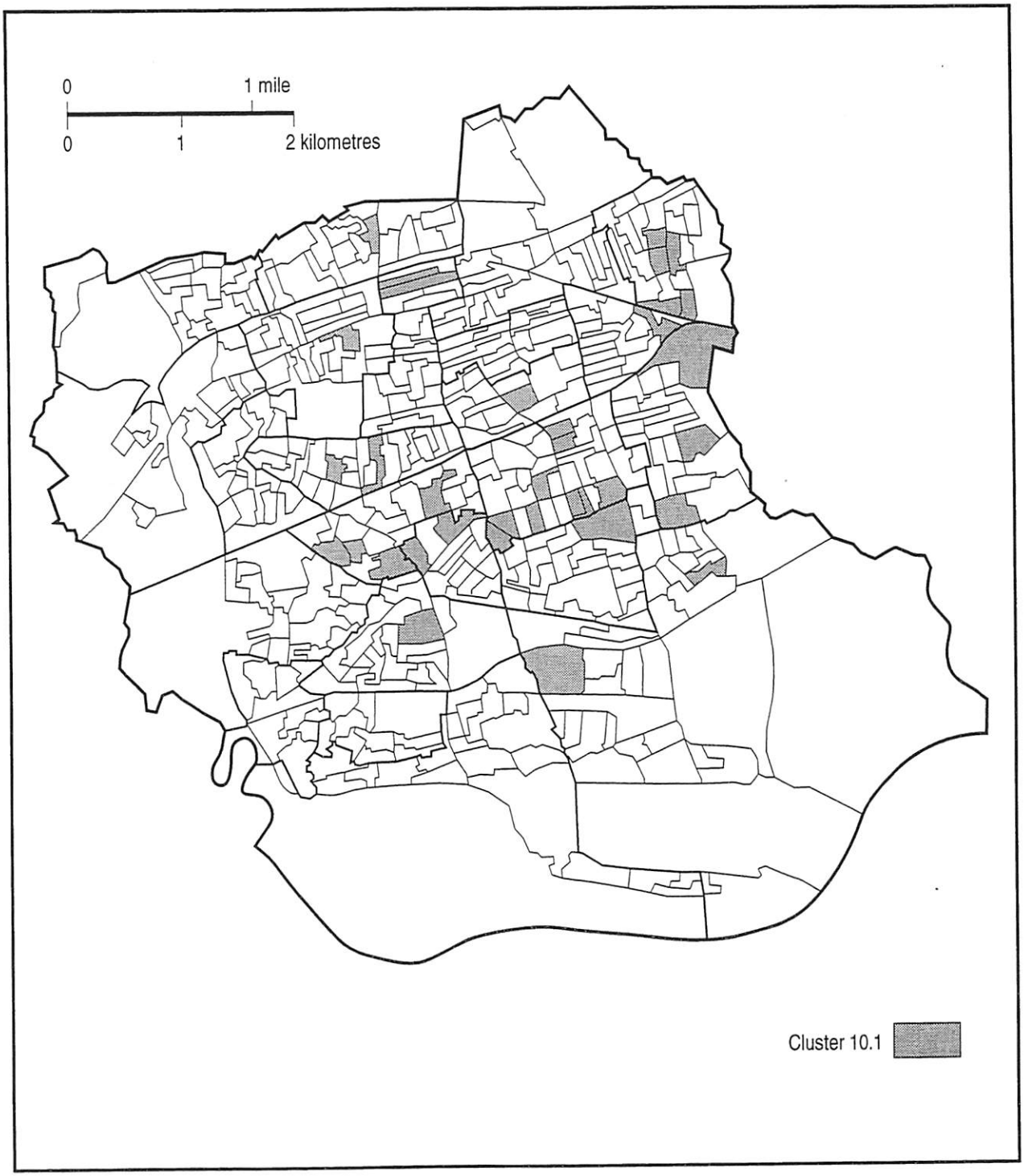


*Figure 11* *Location of sub-cluster 10.1.*

within the cluster. As a result, the EDs in Cluster 10 were broken down into 4 sub-clusters. The most striking differences between the sub-clusters are associated with the proportion of Asian residents, from the (small) sub-cluster 10.3 with below Newham average numbers, through 10.1 and 10.2 to 10.4 with its average of over 50% Asian residents. The sub-clusters are briefly described in this order.

*Sub-cluster 10.3:* Four of the six EDs in this sub-cluster are in Plaistow / E13 and one in Little Ilford, which makes them somewhat peripheral to the geographical centre of cluster 10 (and therefore no map is given). In terms of housing and social composition the sub-cluster does not intuitively seem to belong with the rest of cluster 10.

*Sub-cluster 10.1:* is probably the least interesting in terms of its lack of deviation from the borough average. They are probably the most "mixed" EDs in Newham. The housing stock in these EDs (from

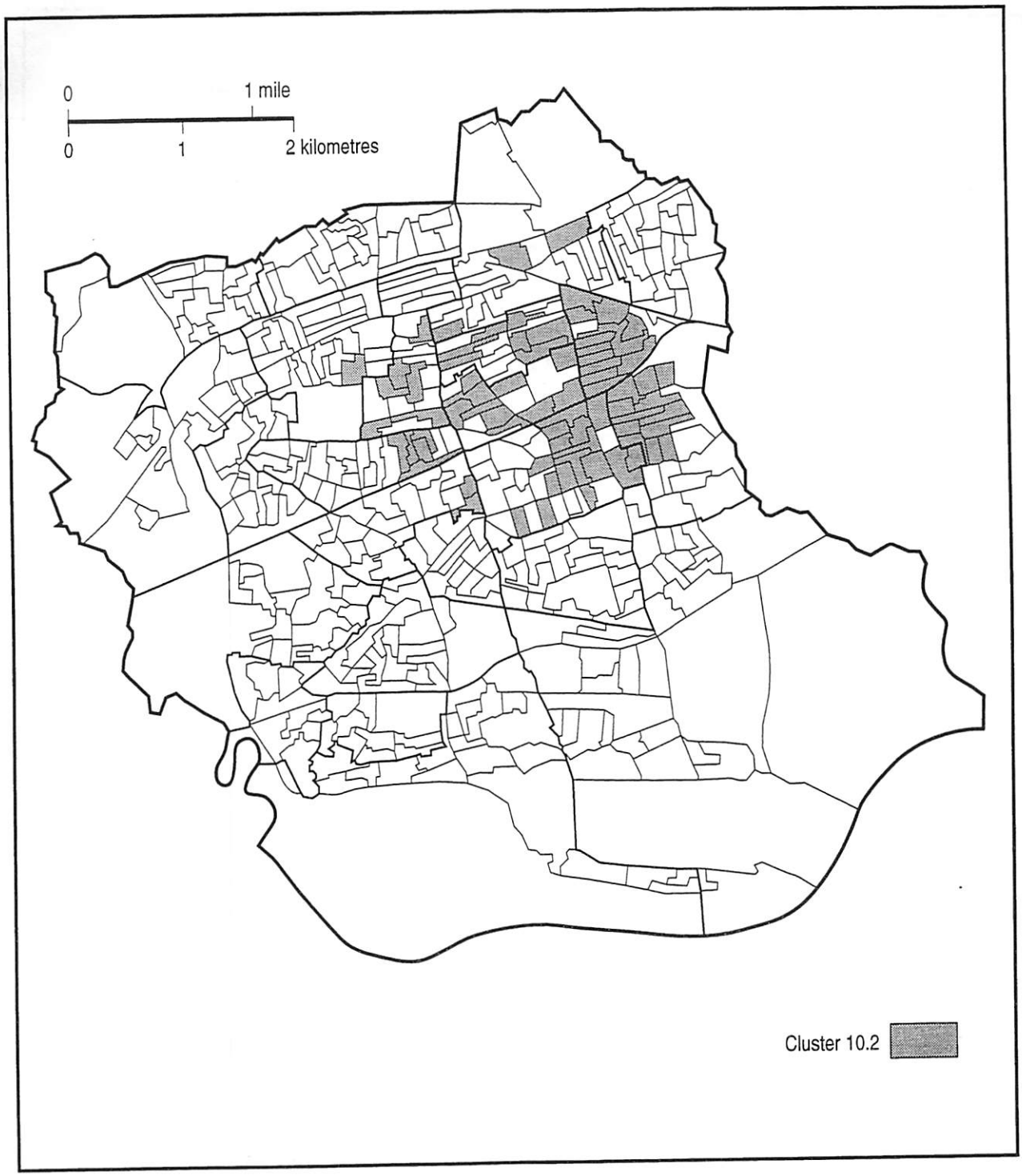


*Figure 12 Location of sub-cluster 10.2.*

local knowledge) is likely to be pre 1914 Terraces, intermixed with small sections of post 1945 Council stock, much of it built to fill up minor bomb sites. Geographically the sub-cluster seems to form a ring around the heart of the Central Newham / South Asian belt which emerges as sub-clusters 10.2 & 10.4. (see Figure 11)

*Sub-cluster 10.2:* These EDs are concentrated in a small number of wards in central Newham, with a focal point on High Street North / East Ham station (see Figure 12). Typical housing stock in this area is pre-1914 three bedroom terraces.

*Sub-cluster 10.4:* Distinguishing features of this sub-cluster (shown on Figure 13) are;
the very high proportion of South Asian residents;
among them are larger than average numbers of Bangladeshis;
high unemployment both (male and female);
private renting higher than in other parts of cluster 10.

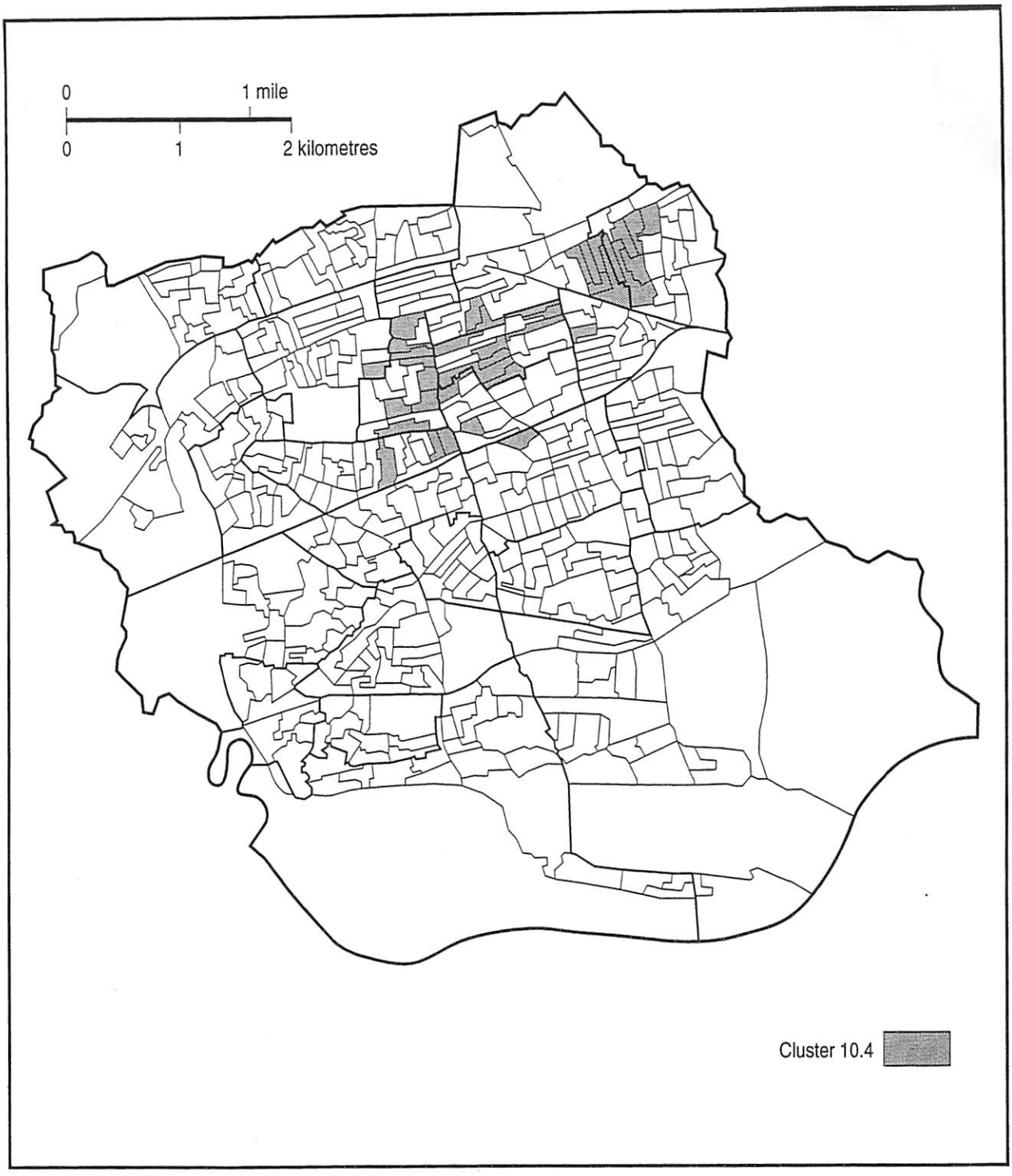


*Figure 13 Location of sub-cluster 10.4.*

The EDs in this cluster are almost all situated in the streets known as the Avenues in Manor Park or in South Forest Gate in EDs close to Green Street. The housing stock is typical Central Newham pre 1914 terraces. The main distinguishing feature of these neighbourhoods is the high concentration of South Asian residents, and (in the case of Green Street) of specialist retail and community facilities). It is within this sub-cluster that the highest concentrations of poverty and deprivation within predominantly Asian central Newham are likely to be found. Indeed the scores on the DoE Index of Local conditions (at an average 7.38) are higher than elsewhere in cluster 10, but the difference is not statistically significant.

# 5 Residential segregation indices

**a) Method**

An alternative approach to the analysis of the distribution of ethnic and other groups is the use of Indices of Dissimilarity (Peach 1975). An Index of Dissimilarity (ID) is calculated by comparing the percentage distributions of each group, by summing the differences between the two groups in each sub area; the ID is one half the sum of these differences (ignoring their signs) and is often expressed as a percentage. It ranges from 0% representing no segregation to 100% representing complete segregation and describes the percentage of one group which would have to move if there was to be no segregation between them. The ID can be calculated at different areal levels though it is to be anticipated that it will increase in value as the size of the areas involved decrease.

For comparison purposes it may be worth noting that at the ward level in Newham age segregation is indicated by an ID of 7.76% between pensioners and under 5's, and that housing tenure segregation is represented by the following ID values.

Tenure IDs at ward level

Owner occupation / social housing ID = 28.20
social housing / private rented ID = 30.75
owner occupation / private renting ID = 12.72

**b) Segregation in Newham 1991**

IDs have been calculated for Newham for many of the pairings of 7 of the census ethnic categories at the ward level and for the three grouped categories of White, Black and (South) Asian at the ED level (see Table 8). Because of small cell numbers and randomisation of cell numbers at ED level by OPCS to preserve personal anonnymity it is not worthwhile to work out IDs for the finer ethnic categories at ED level.

These figures show that there is a significant degree of ethnic residential segregation in Newham although it falls far short of the 80% plus figures reported at census tract level for "Negro ghettos" in U.S. cities (Kantrowitz 1975). In Newham,

Table 8 Indices of dissimilarity for ethnic groups in Newham.

*IDs At ward level*

| | *White* | *Black* | *Asian* | *Indian* | *Pakistani* | *Bangla.* | *Caribbean* | *African* |
|---|---|---|---|---|---|---|---|---|
| White | * | 20.18 | 44.93 | 47.09 | 40.14 | 46.67 | 23.94 | 16.35 |
| Black | | * | 33.74 | 36.97 | 30.99 | 33.38 | 4.56 | 5.99 |
| Asian | | | * | 5.47 | 11.18 | 16.45 | 32.64 | 34.63 |
| Indian | | | | * | 14.44 | 19.90 | 35.88 | 35.32 |
| Pakistani | | | | | * | 22.72 | 30.52 | 31.67 |
| Bangladeshi | | | | | | * | 32.00 | 34.36 |
| Caribbean | | | | | | | * | 10.39 |
| African | | | | | | | | * |

*ED level indices of dissimilarity for main ethnic categories*

| | *Black* | *South Asians* |
|---|---|---|
| White | 25.50 | 53.30 |
| Black | * | 40.81 |
| South Asians | | * |

Asians (and in particular Indians and Bangladeshis are more segregated from whites than are Caribbean blacks, and (especially) African blacks. Segregation between Blacks and Asians falls in the intermediate range while segregation rates between ethnic categories within the Black and South Asian groupings is lowest of all.

**c) Brief historical comparison**

As the 1991 census was the first in Britain to include an "ethnic question" it is almost impossible to compare current statistics with earlier ones. A precise comparison of census figures for 1981 and 1991 is not easy, since both the basis for enumerating resident population and for categorising people as "ethnic minority" has changed. However, the information in Table 9 suggests that overall the proportion of white residents in Newham has decreased and that the ethnic minority groups have spread into wards were they were previously thin on the ground. There is little evidence to suggest major changes in the distribution patterns of ethnic minority residents in Newham and an ED map based on the 1981 census which appeared in a LBN planning department document in the mid 1980s (LBN

Table 9 Population of ethnic minoroties by ward: changes 1981–1991.

| *Ward Name* | *Total Residents 1981* | *% Ethnic Minority 1981 ** | *Rank 1981* | *Residents 1991* | *% Ethnic Minority 1991 *** | *Rank 1991* | *Popn Change %* | *Ethnic Minority %* |
|---|---|---|---|---|---|---|---|---|
| Upton | 10,457 | 55.5 | 1 | 10,209 | 67.4 | 2 | -2.4 | 18.4 |
| Kensington | 8,161 | 55.0 | 2 | 7,902 | 66.2 | 3 | -3.2 | 16.7 |
| Monega | 7,595 | 50.6 | 3 | 8,060 | 68.4 | 1 | 6.1 | 43.5 |
| St. Stephens | 7,230 | 43.9 | 4 | 7,412 | 63.1 | 4 | 2.5 | 47.3 |
| Central | 7,456 | 39.8 | 5 | 7,699 | 50.7 | 5 | 3.3 | 31.7 |
| Plashet | 11,610 | 36.1 | 6 | 10,805 | 47.0 | 7 | -6.9 | 21.0 |
| Park | 9,695 | 35.6 | 7 | 9,563 | 45.4 | 8 | -1.4 | 25.6 |
| Manor Park | 10,582 | 35.2 | 8 | 11,289 | 50.7 | 6 | 6.7 | 53.8 |
| Forest Gate | 10,423 | 28.4 | 9 | 9,448 | 36.5 | 12 | -9.4 | 16.6 |
| Castle | 7,716 | 27.3 | 10 | 7,397 | 39.7 | 10 | -4.1 | 39.6 |
| Little Ilford | 10,756 | 24.7 | 11 | 10,399 | 43.8 | 9 | -3.3 | 71.6 |
| Newtown | 5,599 | 24.3 | 12 | 6,529 | 32.6 | 14 | 16.6 | 56.7 |
| Wall End | 10,858 | 24.0 | 13 | 11,216 | 39.2 | 11 | 3.3 | 68.9 |
| Plaistow | 9,070 | 23.9 | 14 | 8,536 | 35.2 | 13 | -5.9 | 38.7 |
| Stratford | 6,364 | 20.4 | 15 | 6,230 | 30.4 | 15 | -2.1 | 46.4 |
| West Ham | 8,043 | 17.9 | 16 | 7,673 | 27.9 | 16 | -4.6 | 48.6 |
| Bemersyde | 6,090 | 14.7 | 17 | 5,933 | 23.5 | 17 | -2.6 | 56.0 |
| Ordnance | 5,586 | 14.0 | 18 | 5,293 | 20.7 | 18 | -5.2 | 39.9 |
| Canning Town & Grange | 8,009 | 13.9 | 19 | 7,839 | 19.4 | 19 | -2.1 | 36.9 |
| C.H. & Silvertown | 11,060 | 11.3 | 20 | 12,017 | 15.3 | 23 | 8.7 | 47.2 |
| Hudsons | 9,451 | 10.9 | 21 | 9,204 | 17.8 | 21 | -2.6 | 59.7 |
| Greatfield | 10,803 | 9.3 | 22 | 10,522 | 17.3 | 22 | -2.6 | 82.4 |
| Beckton (covers Canning Town) | 7,683 | 9.0 | 23 | 5,485 | 14.0 | 24 | -28.6 | 10.6 |
| South | 8,831 | 7.5 | 24 | 15,476 | 18.2 | 20 | 75.2 | 322.7 |
| TOTAL London Borough of Newham | 209,128 | 26.6 | | 212,136 | 37.1 | | 1.4 | 41.5 |

* persons living in households headed by a person born in the New Commonwealth or Pakistan
** residents categorised in one of the "Black" or "South Asian" ethnic groups

undated but probably 1986) shows the greatest concentration of people in households headed by a person born in the New Commonwealth or Pakistan (NCWP) to be in the EDs off Green Street and High Street North and remarkably similar to our mapping of sub-cluster 10.4.

Particular care should be taken over the columns in Table 9 listing overall population change and ethnic minority change but, when looked at in conjunction with the ranking of wards by proportion of ethnic minority residents, it is safe to say that the greatest change has been the growth of population in South Ward (Beckton / Docklands) and a disproportionate increase in ethnic minority numbers has occurred there. The perception of this change as unwanted and unjust in the eyes of many local white residents in the South of the borough, goes some way to explaining the growth of a racist dimension in local politics. Apart from this special case the correlation of ward ranks over time is obviously very high.

Using these figures to calculate indices of dissimilarity between white and "ethnic minority" residents proves inconclusive. In 1981 the ID between those in NCWP households and the whole population was 22.5% while in 1991 the corresponding ID between "Black and South Asian" residents and the whole population was 19.5%. This slight change could be an artefact of the different basis of calculation or of the overall increase of ethnic minority population, as much as of dispersion of ethnic minorities across the borough. In any case it masks the important differences in residential segregation patterns (found in 1991 but impossible to determine from these data a decade earlier) between ethnic minorities, particularly between Black African and Caribbean people, on the one hand, and South Asians on the other.

# 6 Discussion

The results of the factor analysis and cluster analysis outlined above are obviously important for their policy implications both for Newham Council, other statutory bodies and for the voluntary sector in the borough. However, before discussing the policy implications the findings are compared with theoretical models drawn from urban geography and sociology, and in particular with the zone and sector models of the Chicago School and the Theory of Housing Class proposed by Rex and Moore. We shall also use the findings to shed light on some of the emerging conflicts in local politics, which have recently, though not for the first time, taken on an alarming racial dimension.

### a) Ethnicity, poverty, geography

The analysis of the 1991 census data for Newham has shown very clearly that ethnicity and deprivation are not completely independent in terms of their spatial distribution, although the relationship is a complex one. However, the findings allow us to draw some conclusions about the nature of poverty and how it affects different ethnic communities, at least in this locality.

The overwhelming force of the data is of course that the whole borough of Newham faces severe levels of deprivation, with the possible exception of the EDs falling into Cluster 9. Our mapping of the borough has confirmed some of the local received wisdom about the South West of the borough being an area of post war Council estates, still predominantly white, with deprivation focussed on pensioners, single parents and unemployment. In contrast the Centre and North East of the borough emerges as a focal area for the South Asian communities who live in owner occupied or private rented terraces, have a high proportion of children, and suffer from overcrowding and high levels of unemployment.

However, the fine grain detail of the analysis shows a much more complex picture, of an urban community in which many different types of people and neighbourhood co-exist. It must also be remembered that the analyses employed only measure differences from the average at the spatial scale of the ED. It is possible to be misled in thinking, for example, that in a cluster 10 ED where the key deprivation issue may be the overcrowding and lack of amenities which mainly affect Asian households, that there are no elderly white people living in poverty, or that there are no unemployed African lone parent families in Council flats. The ultimate check is to return to the raw statistics for each ED.

A further danger in the ecological approach is that of stereotyping whole communities on the basis of relatively small statistical deviations from the average. It would be all too easy to give the impression that most or all Asians live in overcrowded homes (because of their propensity for large families!), or that all or most Black families are headed by lone parents living on Council estates and claiming Income support. It should not be necessary to point out the political dangers of using dubious statistics in a way which will enable racist myths to be constructed. It would be best for policy purposes if the census data could be used as a relatively objective measure of local needs. However, awareness of the possible ways in which census findings are interpreted and "felt" in the locality will help us in understanding the lines on which ethnic competition and conflict is likely to be structured in struggles over the allocation of increasingly scarce resources, in a borough where violent racism has long been a feature (Newham Monitoring Project 1991; Cooper & Qureshi 1993) and where the resurgence of fascism in the form of the British National Party is a serious threat.

### b) Models of urban ecology

*i) Zones & sectors a la Chicago*

More interesting at the theoretical level are the possible explanations of residential differentiation and urban ecology for this part of East London. Classic Chicago School Theory (Burgess 1925) would present a model of concentric zones based on the City of London as the Central Business district of the metropolis. Parts of Tower Hamlets would clearly fall within the transitional or "twilight" zone of rooming houses and cheap low standard rental property for first generation immigrants, whose owners would be waiting to cash in on rising land values as the business district expands. The recent history of Docklands developments on the Isle of Dogs fits well with this model. The century which has elapsed since

the urbanisation of the East End has seen several examples of the invasion – succession phenomenon as one ethnic group after another has moved in, then out. In local mythology this is symbolised by the Huguenot Chapel in Brick Lane, which became a synagogue and is now a Bangladeshi mosque. Newham would largely fit into Burgess's zone III of "working men's (people's?) homes", and "second immigrant settlement" with the possibility that the more affluent parts of East Ham might just be included in Zone IV the middle class residential zone.

However, the adaptation of the concentric zone model to include sectors and to cope with natural barriers has also a part to play. East London has long been recognised as the poorest sector of the metropolis. Riverside industry and the docks which developed in the second half of the 19th Century were located to the East of London (Sainsbury 1986) not only because of access to the rivers Thames and Lee, but also because of prevailing Westerly winds which were likely to take smelly and noxious fumes away from the City. Alongside the docks and industry cheap housing for manual labourers was built from 1850 onwards, in Custom House, Canning Town, and West Ham, and it was in these localities that the first black communities in Newham were established. Further north as radial rail and road corridors developed through the area, rather better quality homes for commuting clerical workers came to cover much of East Ham, Upton Park and Forest Gate. This early sectoral development pattern continues to account for many of the ecological and cultural features of Newham to this day. However several important twentieth century changes have taken place. Post-war reconstruction and slum clearance, with a massive public sector building programme in the 1950–1975 period has produced the large Council estates on the South and West of the borough. The fall in population and out-migration of more affluent and skilled workers predominantly to Essex (the outermost zones of the sector) has left room for the "invasion / succession" of ethnic minorities. There is some anecdotal evidence at least that as Bangladeshis have moved out from Whitechapel to Manor Park since the mid 1980s, more affluent Indians are now moving out of Newham towards Ilford, Seven Kings and Romford.

*ii) Restructuring of the economy*

In recent years theoretical understanding of local communities has made much of the notion of economic restructuring (Cooke 1989). Obviously such an approach has relevance to our understanding of recent changes in East London. The crucial explanatory factor in the persistence and growth in poverty in Newham has been the steady erosion of the commercial and industrial base of the area. The closure of the The Royal Docks, Beckton Gas Works, power stations, and numerous factories in the borough has meant a loss of thousands of local jobs. Poor transport links, especially in the South of the borough, have meant that commuting times to Central London from many parts of Newham remain in the region of 45–60 minutes (comparable with places as far out as St. Albans) while non-radial rush hour journeys by car or public transport can take much longer still. When travel costs are added, the idea of working outside Newham or the neighbouring East London boroughs becomes even less attractive for local residents.

The restructuring of the British and the London economy coupled with traditions of low educational expectations and achievement in Newham has meant that the available work force is lacking skills to compete in the better paid sections of the job market, while the growth in part time and casual employment in the service industries has produced a low wage economy where there are few incentives for people (and particularly for working class men) to "get on their bikes" rather than remain on welfare benefits. The money poured into infra structure and commercial developments in Docklands in recent years has been shown to have minimal "trickle down effects" into the local economy, especially in terms of local jobs (Docklands Consultative Committee 1992, Robson et al 1994). A further barrier encountered by members of ethnic minorities attempting to enter the job market is that of direct and indirect racial discrimination in recruitment practices.

With the economy struggling to emerge from recession and fascism on the rise across Europe, the prospects for a peaceful and prosperous future for Newham do not seem encouraging. Even a massive investment of resources into the area, which is not impossible given the plans for Docklands, the East Thames Corridor (DoE 1993), the Lea Valley, and the High Speed Channel Tunnel link (L.B.N. 1993)), is unlikely to make much impact in the short term. Nor is there much evidence at the national level of a political will, or of an upturn in the economy which would solve the problems. For over a century East London and its people have been on the underside of British society, and the area has been home for the

marginalised people who are not wanted in more prosperous districts. There is a clear need to move beyond empirical and ecological presentations of poverty and ethnicity in Newham. Ideologically such analyses tend to support the status quo by appealing to environmental determinism, and end in despair that nothing can be changed by the struggles of, or by reforms designed to benefit, local people. Theoretical approaches, including Marxist ones (Castells 1977) and others based on progressive values which put people before profits may have much to offer, but must be left to those with more time and understanding than the present author.

*iii) Factorial ecology*

The factor analysis and cluster analysis of the ED level census data for Newham has highlighted, as have many factorial ecology studies of other cities (see Peach 1975, Timms 1971) the importance of ethnicity, social rank, and family status in shaping local communities. However, the case of Newham does not fit easily into such a simple general theory for a number of reasons. Social rank or status as an explanatory factor has a relatively weak role to play in an analysis centred within the borough. With the exception of the EDs assigned to Cluster 9 almost the whole of the borough is at a similar low economic level, and it would be invidious to argue about which neighbourhoods are most deprived (Griffiths LBN 1994).

In terms of family status the census figures have shown that all ethnic groups in Newham have large proportions of young children. Together this gives Newham one of the highest crude birthrate / fertility ratios of all the areas of England (N.H.A. 1991). Much of this is attributable to the age profile of the population with its high proportion of 20–35 year olds, although for some groups larger than average family size may play a part. Of particular interest is the white community, for although it alone does contain substantial numbers of elderly people, the number of small children is also high. Migration statistics from the census (Smith 1994) show that there has been much movement into Newham from other parts of London, and that much of this is of young people in the age groups likely to start a family. Housing costs, which are relatively low for the London region must play some part here, while the availability of new starter homes in the Docklands area may also be of significance. Environmental factors, lack of community facilities and services and the low achievement in education in Newham make the borough far from ideal for child rearing for many people (57% of Newham Households would like to move home within the next 12 months and only 35% of these wanted to move within the borough according to a recent Housing Needs Survey (London Research Centre (L.R.C.) 1993). However, lack of money and lack of alternative choices are helping to make the borough into one of the youngest communities in the country.

Within the borough, family status clearly plays some part in the distribution of households to match particular sorts of dwelling, for example, large numbers of older people now live in small units in sheltered housing complexes. However,it seems likely that there is a fair degree of mismatch between dwelling size and household size. Within the Council sector the clusters identified as older or younger estates are most probably the result of the historical development of the Council's allocations policy. Better quality estates settled in before the 1970's may well still have many of the original tenants who are now middle aged to elderly. Less desirable estates with a more rapid turnover may well have become the places where those with few other options (e.g. lone parents, priority homeless families) are forced to live. The shortage of housing, growing poverty and changes in council policy since the mid 1980s, such as the introduction of ethnic monitoring and the promotion of equal opportunities by minimising the points scored for long term local residence, may have done much to bring down the average age in some estates.

*iv) Housing class*

Explanations incorporating the historical dimensions of housing policy and process are also necessary if we are to do justice to the Newham data. Rex's theory of housing class developed in Birmingham in the 1960s (Rex & Moore 1967; Rex 1968) clearly has some value for understanding what is happening in Newham in the 1990's, although it would need substantial further research on local housing policy to apply it adequately. Recent changes in housing policy under the influence of market ideology and the growth of homelessness make the scenario outlined by housing geographers (such as Niner & Watson 1978) and their predictions about "the types of household likely to enter the major tenures" seem rather outdated. An analysis based on housing class in Newham would need to recognise the following groups as being in significantly different

relationships to the local housing market.

1a) older / traditional owner occupiers who may own outright, but may not have the income to modernise or maintain their property

1b) Younger first time buyers of a) cheap terraced homes or flats b) Beckton type starter homes in many cases suffering from problems of negative equity and or reduced income through unemployment.

1c) Ex Council tenants who have exercised the right to buy

1d) South Asian and other ethnic minority home owners / buyers of old terraced homes (many with overcrowded households) whose option to a Council tenancy was more or less closed until the mid 1980s.

2a) Council tenants of many years standing and their families becoming adults. A proportion now as pensioners or because of unemployment will be on housing benefit.

2b) Recent Council tenants (and nominees to Housing Association tenancies) who will in recent years have been at least on the edge of homelessness, and almost certainly on Housing Benefit before being offered a tenancy. This group together with 3c below could be labelled the "new housing underclass". Households accepted by Newham council as homeless peaked at 11.5 per 1000 in the second quarter of 1992 (with only Lambeth of all the other English authorities reaching double figures at that point) (Policy Studies Institute 1994).

3a) Traditional tenants of private unfurnished homes, mostly elderly and white in homes with poor amenities.

3b) Multiple occupation furnished tenants (students, working singles, some recent refugees and migrants).

3c) Private sector tenants on housing benefit placed there on lease arrangements by local authorities as priority homeless (in preference to Bed and Breakfast hotels), plus some non-priority homeless who have managed to make their own arrangements as tenants in this sector. Many from ethnic minority and refugee groups.

4a) Residents in institutional settings (hostels, OAP homes).

4b) Squatters, licensed residents, informal lodgers, people of no fixed abode.

5) Small landlords, from owner occupiers with one lodger to those who have invested in several properties and are charging high rents from Housing Benefit tenants.

In the statistical analysis presented in this paper ethnicity was the most powerful feature of residential settlement patterns. The range of ethnic groups and their association with different forms of housing type and tenure makes the mapping process rather complex. In general terms there is support for the notion that households of particular ethnic backgrounds are likely to fit into different "housing classes" depending on the housing options which are open to them, and/or their cultural preferences if a choice is really available. Almost no-one living in Newham is likely to belong to the highest housing classes on the national ladder, those who can afford to become owner occupiers of comfortable detached (or semi-detached) houses with substantial gardens. In any case there are very few such homes to be found in the borough, and people with that amount of money would almost certainly choose to live elsewhere.

White residents are most likely to fit into one of three housing classes. If they are poor or jobless the most likely option is a tenancy in Council or Housing association property (2b), although new tenancies are almost impossible to obtain unless the household has been accepted as homeless. Many others (2a) will have lived in Council property most of their lives and their parents before them. More affluent whites are likely to be in owner occupation, in terraced streets or new Docklands estates (1b). This type of tenure is likely to be the only realistic option, given the financial incentives of mortgage tax relief, the shortage of affordable rented homes, and the cultural values of the "Thatcher years". They may have more choice as to location and find themselves in Newham either because of their roots / family and community ties, because of the cost of properties, the convenience of the location for their work or even because of a positive choice to live in a cosmopolitan urban area. The minority of whites living in the private rented sector are likely to be of two main types, elderly people who have spent most of their life in the area who are tenants in the

residual unfurnished accommodation offered by landlords (3a), or young people (typically singles) who are likely to be only short term residents of the area (3b).

South Asian residents of Newham are strongly concentrated in owner occupied turn-of-the-century properties in the North and East of the borough. Most live in three bedroomed terraced homes, with a relatively high proportion of them in large households with a degree of overcrowding (1d). It is arguable whether owner occupation is a matter of deliberate choice or the only option open given the closure of housing lists to newcomers during the 1960s and 1970s when most of these families arrived. The experience of racial harassment on many Council estates has also lessened the desirability of the public rented sector for South Asian households. More recent arrivals in Newham including Bangladeshis are somewhat more likely to be in social housing (2b or 3c). The original development of the South Asian settlement in Newham came about as a result of the availability of cheap property, close to centres of employment and built up through chain migration. The continuation of the pattern in the 1990's may be helped by the development of a range of facilities catering for South Asians, and a growing sense of community ties, security and loyalty. A small minority of Asian entrepreneurs have invested in property and belong to the landlord class (5), but there is no firm evidence as yet that the horror stories about bad landlords (of which there are many) have a particular ethnic dimension. In view of Rex & Moores's (1967) findings in Sparkbrook a quarter of a century ago this is a field where further research would be fascinating and valuable in the context of local tenants struggles.

Black Caribbean households are more likely than average to be owner occupiers (Classes 1a or 1d) and have clustered to some extent in the Forest Gate and Stratford part of the borough. This suggests that for those who have managed to stay in employment, choices consistent with mainstream British values on housing tenure have been exercised, compounded perhaps by early exclusion from Council tenancies. However, those who could not afford to, or chose not to buy have been housed in substantial numbers by Newham Council over the last twenty years, and are to be found in many different parts of the borough (2a). There is some evidence that poorer households among them (e.g. lone parent families) have been pushed into less desirable accommodation (2b) (L.R.C. 1993)

African households are far more likely to be in rented accommodation than in owner occupation, and are well dispersed across all parts of the borough. Although the African category covers a wide number of sub groups and nationalities, unemployment is extremely high and a large proportion of this population are relatively recent arrivals, some at least coming as refugees with little or no money to their name. As a result options have often been constrained to renting either privately or through the Council, and in either case to paying the rent by means of housing benefit (2b or 3c). Newham Council now allocates tenancies according to housing need alone, which means that African refugee families with children stand a better chance than early generations of immigrants did in the 1960s.

### c) Conflicts in local communities

The model of housing class while it should not be pressed too far, does give some useful insights about local politics. Rex was interested in conflicts that arose when different housing classes (found to be correlated with ethnic groups) were in competition at the local level over the scarce resource of housing. Alongside the real conflicts of interest, racist myths, ethnic stereotypes and biased perceptions of social policy provide the ideological material for urban unrest and the breeding ground for fascism. The dimensions of potential conflict in Newham are manifold but include the following:

- chronic poverty, unemployment and lack of community resources;
- investment in Docklands which has failed to improve the lives of local people;
- housing shortage and poor quality housing stock;
- a growing and young population (popularly but falsely believed in the white community to be the result of "fast breeding" among ethnic minorities);
- unparalleled ethnic diversity and growing assertion of ethnic identities and ethnic community rather than neighbourhood loyalties;
- territoriality between the "white south" and "Asian North" of the borough;
- perceptions of injustice (Black people know

there is racism, white people think that all the houses go to ethnic minorities);

- the visible influx of refugees (however small the numbers may in fact be);

- poor political presentation of equal opportunities policies and the assault on them by the right wing popular media.

A more practical challenge for sociology in the area is to explain not so much the roots of urban unrest (Solomos & Benyon 1987) but why over so many years the borough of Newham has not seen either an uprising, a riot or pitched battles between communities. It says something about the human capacity for hope, and the people of Newham in particular, that in a recent community survey, (Smith unpublished) 76% of people said they liked living in their neighbourhood, and that other pieces of research for Newham Council, both qualitative (Stratford Development Partnership 1992) and quantitative (BRMB 1993) have found that local people have many positive things to say about the area and a high level of satisfaction with local services. And, despite the statistical evidence, many local people adamantly refuse to accept or use the discourse of "poverty" and "deprivation" in describing their personal or community circumstances.

# 7 Policy application

As a researcher employed in a voluntary sector community development team and as a long term resident and community activist in Newham it is obvious that the findings of this study are of more than academic interest to the author. It is important that the census data should be used to promote action that is in accordance with my personal value stances about social justice, anti-racism, the alleviation of poverty, democratic accountability and the empowerment of local people. Those of us who work in urban areas and are committed at so many levels in the struggle against poverty see the census data as some of the most potent ammunition we have in the battle to make comfortable Britain listen to the cry of the poor, change policies, or give money, time, advocacy and votes for the cause. While the deeply rooted structures of urban geography, international capitalism and institutional racism make it impossible to transform Newham into an earthly paradise overnight, it is to be hoped that the data and analysis presented here can be of use in the following ways.

**a) Newham needs**

By documenting the widespread extent, distribution and nature of deprivation in Newham the case for investment of massive resources in the area is strengthened. The information here should be of use both for lobbying central government, as in the "Newham Needs" campaign and the annual arguments between Council and government of the Standard Spending Assessment, or in the Health Authority's setting of resources. In particular the analysis in this paper could be of use in critiquing the single index approach to central government resource allocation, and pleading the special local circumstances of compound need in Newham. The findings will also be of use in lobbying for economic regeneration, for example in SRB bids or in the campaign for the location of an International Channel Tunnel Terminal at Stratford. However, the dangers of "top down" intervention which raises land values without improving the lot of the local people must be constantly borne in mind, and strenuous efforts must be made to ensure that genuine partnerships with local communities are formed at the outset.

**b) Local targeting of resources**

By mapping the different patterns of distribution of deprivation and its relation to ethnicity across the borough more rational targeting of resources and interventions in the community become possible. This is of releveance not only to statutory funding bodies but also to charitable trusts ranging from the Church Urban Fund to the National Lottery, and to private sector investors informed by the "Business in the Community" philosophy. A danger in the idea of targeting also needs to be pointed out; that "targeting" may mean no more than "rationing" of scarce resources in a zero sum game so that one neighbourhood's gain of a project may mean another neighbourhood's loss. In a borough like Newham where deprivation is intense and widespread both the local authority and community groups need to be constantly alert to this.

However, specific dangers arise in geographical targeting of projects, particularly in a fragmented urban society where neighbourhood and residence do not closely correspond with people's personal networks and sense of community belonging. It is also clear from this research that census data, and in particular summary indices and league tables should be used with great caution by funders, and project developers as they seek to tackle deprivation and poverty. The following advice is offered to policy makers and funders.

- Overall indices of deprivation may be useful for making comparisons at the large scale and broad brush level. For example, comparing unemployment rates in Liverpool and Guildford is not a meaningless exercise, and might justifiably be reflected in the allocation of Central Funds.

- At the more local level general comparisons and rankings are less useful. Census statistics in terms of raw numbers of people in particular categories of deprivation are more useful. It is better to know that there are 1000 unemployed people who could be served by a particular project and to develop a strategy for reaching them with a relevant service, than that the overall unemployment rate in 1991 for a ward was 26% making it the 25th worst ward in London.

- Census data at the local level should be investigated in detail rather than in terms of generalised indices in order to match interventions with specific local needs of the sub-groups of the population who suffer most from poverty. Such investigation is best done as background research by the people involved in setting up the project rather than as the handing down of a print out of a single (or ten) indices engraved in stone from a mountaintop covered in cloud! Indeed participatory research as the best examples of community profiles illustrate can be an effective educational and empowering process, and the springboard for community development.

- Funders and project developers should think mainly in terms of catchment areas rather than neighbourhoods, ward or parish boundaries, let alone the purely statistical constructs of cluster analysis. While the neighbourhood may be the effective catchment area for family welfare projects, ethnic minority projects or specialist training may draw people from much further afield.

- Census data should be supplemented with whatever other data are available to fill out and update statistics. Councils keep information on lettings, repairs and housing benefits, the Benefits Agency on income support claimants, public health departments on illness and its treatment. Statistical information about industrial and commercial activity in an area is also relevant, even if it involves everyone except local residents. Much of this is already in the public domain, and much more can be extracted by the determined seeker.

- Qualitative data should be seen as equally important in applications for funding and evaluation of projects. Views of people in the community, group members and leaders, potential project users, other local professional are vital in understanding the nature of local needs and the impact of local projects. They can easily be collected, by techniques such as focus group discussions and in-depth interviews. Impressionistic or preferably more objectively collected information about the environment, about existing or (more likely lacking) social provision, leisure facilities, voluntary sector projects, community groups and networks is also needed for a fully rounded picture. It is encouraging to hear that many Charitable Trusts are keen to receive this type of information and that it plays a major part in project evaluation (Farnell et al 1994).

**c) Anti racism & social justice**

The mapping and historical development of ethnic segregation in Newham and its correlation with deprivation indices and housing class highlight in a new way the racial dimensions of political and social conflicts which are never far from the surface. The ideological battles over such issues as political correctness suggest that the anti racist stand for equal opportunties pioneered in London local government is far from secure. There is also a growing recognition that some of the simplistic and extreme forms of anti-racism rhetoric have proved ineffective and even counter-productive. It is to be hoped that a greater understanding of the relationship between ethnicity and deprivation will help political leaders in Newham respond in creative ways, which tackle the injustices of racism faced by ethnic minority communities, the injustices of poverty and deprivation which affect the majority of Newham residents, and the grievances felt by working class whites about employment and housing. Social Justice has a universal appeal and application although specific groups experience injustice in different forms. It would be wonderful if all local people could unite in a common collective struggle for a fair deal for the borough's people. Sadly, it is more likely that groups will be played off against each other, and that enterprising individuals will continue to aspire to, and achieve upward and outward mobility.

**d) Community development & local action**

Perhaps the most realistic hope for the application of these research findings is that they will be taken up by local community groups and voluntary sector organisations and used effectively for community development purposes. Such information can become empowering, for example, when used by a local project in support of a funding application, by a church or community centre in order to make its programme of work more appropriate and effective, or by a campaigning group of refugees in order to outdo the authorities on the basis of statistics and "facts". It is to the hundreds of such groups in the borough that this research is dedicated and it is in making research such as this more accessible and relevant to their needs that the priorities of the author and his colleagues will now lie.

# Appendix 1 Details of methodology

The analysis presented here relied on some complex and powerful statistical techniques available through the SPSS PC software package. The steps taken can be summarised as follows.

1) ED data for Newham for the relevant range of census variables was extracted over the academic computing network from the census files held at Manchester University.

2) These data were downloaded onto a PC where it was manipulated using a spreadsheet package to create a data file where all the information was stored as % of the residents / households or other relevant population total of each ED. This data file was then imported into SPSS.

3) A Factor Analysis (Principle Components Analysis with varimax rotation) of the % data for EDs was carried out to discover which of the census variables were highly correlated together. Using this Method the 36 variables were grouped into 7 key factors, and each ED was given a standardised score for each factor.

4) A cluster analysis (using standardized Z scores for each of the 36 census variables) was carried out, in order to group together clusters of EDs which showed similar patterns in their census statistics. It should be noted that this analysis is based upon deviations from the borough average for each variable rather than the absolute numbers or percentages. Ideally a full hierarchical cluster analysis would have been carried out but the limitations on the available hardware and software made this impossible. It was decided therefore to use SPSS PC for a Quick Cluster Analysis of the data set. A small number of Quick Cluster Analyses were undertaken exploring arbitrarily selected numbers of clusters in the range of 3–15. In the end the analysis chosen for presentation is a 10 cluster solution which seems to summarise the data in a way which is both simple to appreciate and highly plausible in the light of detailed local knowledge.

   However, since one of the clusters (Cluster 10) still contained a high proportion of the EDs it was subjected to a further cluster analysis breaking it down into four sub-clusters.

5) Finally the factor scores for the EDs in each of the ten clusters and four sub-clusters were averaged and plotted to show how typical EDs in each cluster were above or below the borough average on the 7 factors and how they scored on the original values of some key variables which contributed to the factors. The output graphs could be described as giving a visual "DNA profile" of the typical ED within each of the 14 categories. Assigning all the EDs in the borough to a unique cluster also allows us to map their geographical distribution and give a visual summary of the urban ecology of the borough.

6) In addition indices of dissimilarity for ethnic groups have been calculated at the ward and ED level in order to present some measure of residential segregation. This was carried out using a spreadsheet programme to apply the formula to raw census data extracted from Table 6 (Ethnic Groups) of the Small Area Statistics at the ED and Ward Levels.

An Index of Dissimilarity (ID) is calculated by

i) calculating the percentage distributions across the areas under consideration of the total population of each group;

ii) by calculating for each area the differences between the percentage figures for the two groups;

iii) the ID is one half the sum of these differences (ignoring their signs) and is often expressed as a percentage.

7) At a late stage in the research data became available which allowed a direct comparison to be made between our findings and the DoE's index of local conditions calculated at the ED level. These comparisons are made in the statistical descriptions of the major clusters given below.

The basis of the calculation of this index is explained in Appendix 3

# Appendix 2 Detailed statistics for the major clusters

### Cluster 3

Figure A2.1 shows even more transparently than the summary graph of factor scores the characteristics of Cluster 3 (comprising 110 EDs), the key ones of which are noted below;

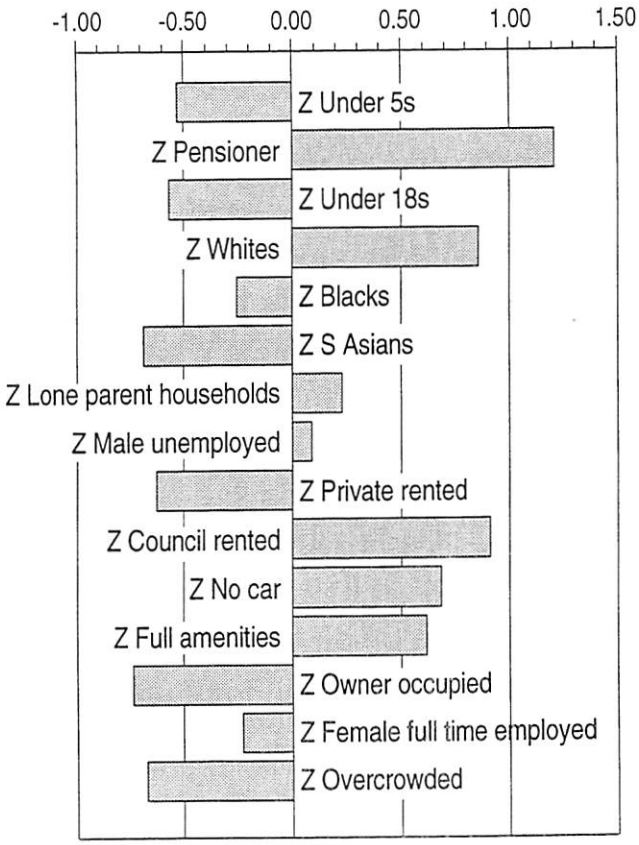


*Figure A2.1 Z scores for cluster 3.*

- high proportion of pensioner residents (who are predominantly white) (mean 22% and median 20% ranging from 14% to 42% with 90% of the EDs in the range 14% to 36%; S.D = 6.1 , compared with borough average for EDs of 14%);

- high proportion of Council rented housing (mean & median 52%, ranging from 3% to 90% with 80% of the EDs in range 26% to 78%; S.D. = 20.4, compared with borough average of 29%);

  an above average proportion of households with no car available (mean & median 61% ranging from 37% to 82% with 90% of EDs in the range 45% to 74%; S.D. = 9.2 , compared with borough average of 53%);

- high proportions of white residents (mean 76%, median 77% ranging from 52% to 96% with 90% of EDs in range 60% to 91%; S.D. = 10.15, compared with borough average of 58%);

The DoE's index of local conditions gives an average score of 7.22 with an S.D. of 2.28 to the EDs in this cluster compared with the borough average of 6.74.

### Cluster 5

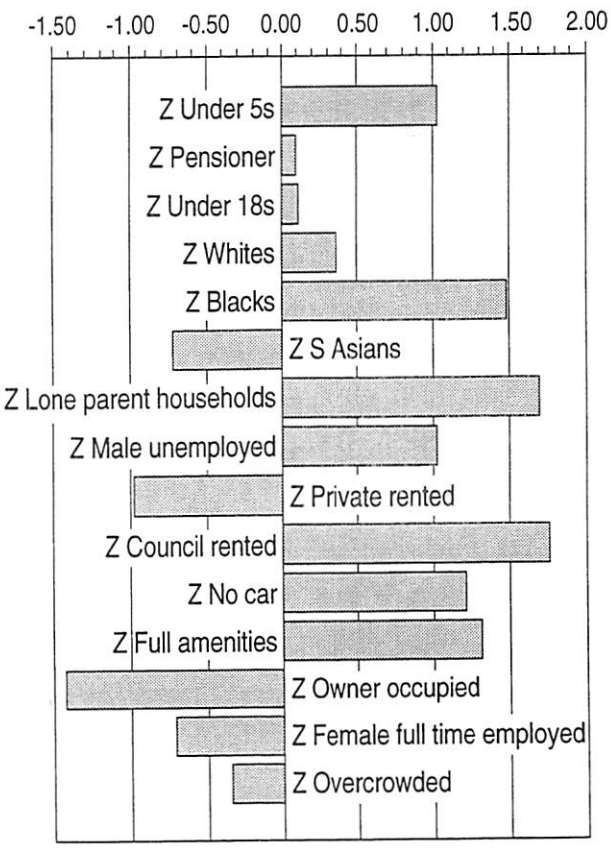


*Figure A2.2 Z scores for cluster 5.*

Cluster 5 consists of 28 EDs in largely "younger" Council estates. As shown in Figure A2.2. EDs in Cluster 5 are likely to have ;

slightly higher than average proportions of white residents (mean 65%, median 67%, ranging from 48% to 89% with 80% of EDs in range 50% to 78%; S.D. = 10.4, compared with borough average of 58%);

- higher than average proportions of under fives (mean 11.4%, median 11.0% ranging from 6.8 to 20.5 with 80% of the EDs in range 7.4% to 20.5%; S.D. = 3.16; compared with borough average of 8.9%);

- higher than average proportions of black residents (mean 24.2, median 24.1 ranging from 10.3% to 39% with 90% of the EDs in the range 14.6% to 39.3%; S.D. = 6.97, compared with borough average of 14.5%);

- higher than average proportions of single parent households (mean 14.7%, median 14.2% ranging from 7.2% to 25.1% with 90% of EDs in the range 7.3% to 24.5%; S.D. = 4.3, compared with borough average of 6.6%);

- higher than average male unemployment (mean 29.7%, median 29.6%, ranging from 18.2 to 41.1% with 90% of EDs in range 24% to 41.1%; S.D. = 5.4 , compared with borough average of 22.4%);

- low levels of car availability (mean 67.35%, median 67.1% ranging from 54% to 77.3% with 90% of EDs in range 60.7% to 77.3%; S.D. = 5.45, compared with borough average of 53%);

The DoE's index of local conditions gives an average score of 9.33 with an S.D. of 1.18 to the EDs in this cluster compared with the borough average of 6.74.

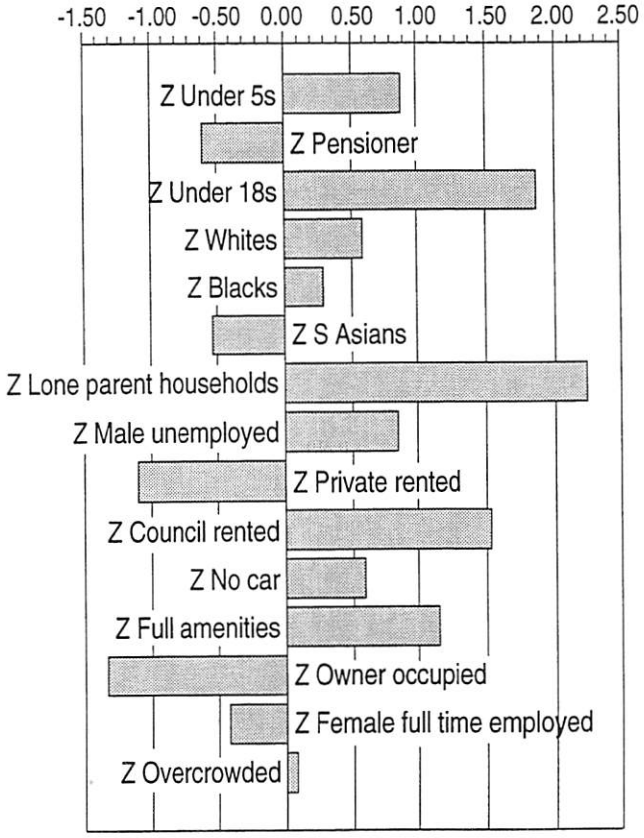


*Figure A2.3 Z scores for cluster 8.*

## Cluster 8

Cluster 8 (comprising 22 EDs) could best be described as areas which are mostly family type council property (but with some other tenures mixed in), predominantly white, with children (many of whom are in single parent households), and higher than average unemployment. The outstanding statistics are:

- higher than average proportion of single parent households (mean 17.5%, median 18.1% ranging from 3.5% to 30.1% with 90% of the EDs in the range 8.8% to 30.1%; S.D. = 6.44, compared with borough average of 6.6%);

- higher than average proportions of Council property (mean 70%; median 70.6% ranging from 26.8% to 90.2% with 90% of EDs in the range 47.4% to 90.2%; S.D. = 13.92, compared with borough average of 28.8%);

- higher than average number of under 18 year olds (mean 37.4%; median 36.1% ranging from 28.7% to 49.7%; S.D. = 5.94, compared with borough average of 26.5%);

- generally a higher than average proportion of white residents (mean 69.9%; median 76.2% ranging from 37.2% to 85.3% with 75% of the EDs in the range 59% to 85.3%; S.D. = 14.34, compared with borough average of 58%) and correspondingly lower proportion of Asians (average for this cluster 10.8% compared with borough average of 22.3%);

- the DoE's index of local conditions gives an average score of 8.06 with an S.D. of 2.16 to the EDs in this cluster compared with the borough average of 6.74.

### Cluster 7

This cluster of 54 EDs (which scores heavily on factors 4 & 5) is typified by fairly mixed patterns of housing and ethnicity. The variables which stand out are:

- higher than average proportions of black residents (mean 19.74%; median 18.6% ranging from 8.9% to 35.1% with 90% of EDs in the range 13.6% to 35.1%; S.D. = 5.38, compared with borough average of 14.5%);
- higher than average levels of private rented housing (mean 22.52%, median 22.4% ranging from 6.9% to 43.7% with 90% of EDs in range 13.4% to 43.7%; S.D. = 7.6, compared with borough average of 13.8%) (N.B. the mean rate of furnished private rented homes at 12.5% was nearly double the borough average of 6.7%);
- lower than average levels of amenities (mean 66.48%, median 65.7% of households had full amenities (separate bath, own inside WC and central heating), ranging from 54.8% to 83.9% with 90% of the EDs in the range below 78%; S.D. = 7.07, compared with borough average of 76.1%);
- the DoE's index of local conditions gives an average score of 8.21 with an S.D. of 2.03 to the EDs in this cluster compared with the borough average of 6.74.

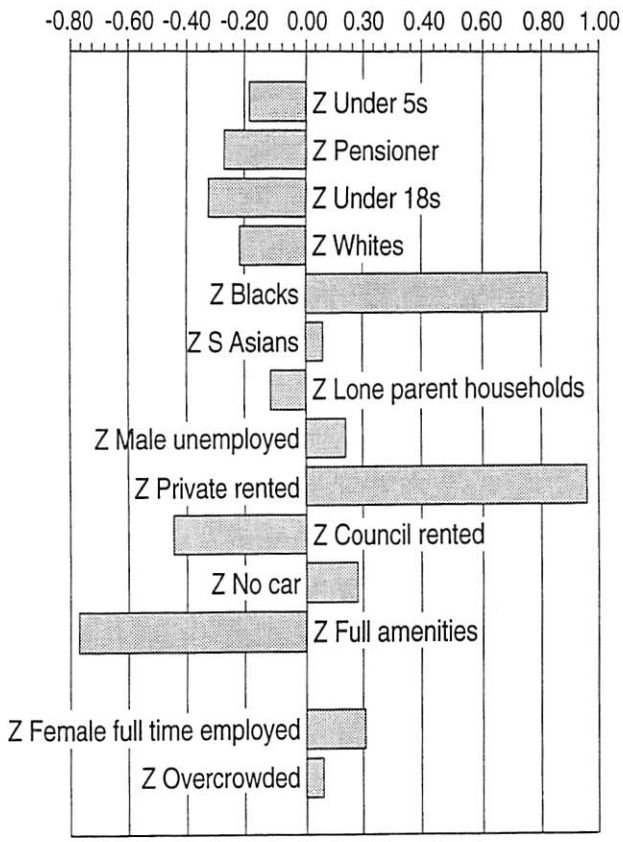


*Figure A2.4 Z scores for cluster 7.*

### Cluster 9

Cluster 9 groups together those 74 EDs in Newham which appear to be (relatively) prosperous. There are high rates of owner occupation and female full time employment and low scores on most of the variables which could indicate deprivation or poverty. Many households are likely to have double incomes and no dependent children. These EDs typically have as shown in Figure A2.5:

- higher than average rates of owner occupation (mean 71.2%; median 73.3% ranging from 32.6% to 94.5% with 90% of EDs in the range 49.2% to 94.5%; S.D. = 14.22, compared with borough average of 51%);
- high car availability (mean only 37.9% have no car; median 39.6% ranging from 15.1% to 59.0% with 90% of EDs in the range below 52.0%; S.D. = 10.83, compared with borough average of 53.2%);

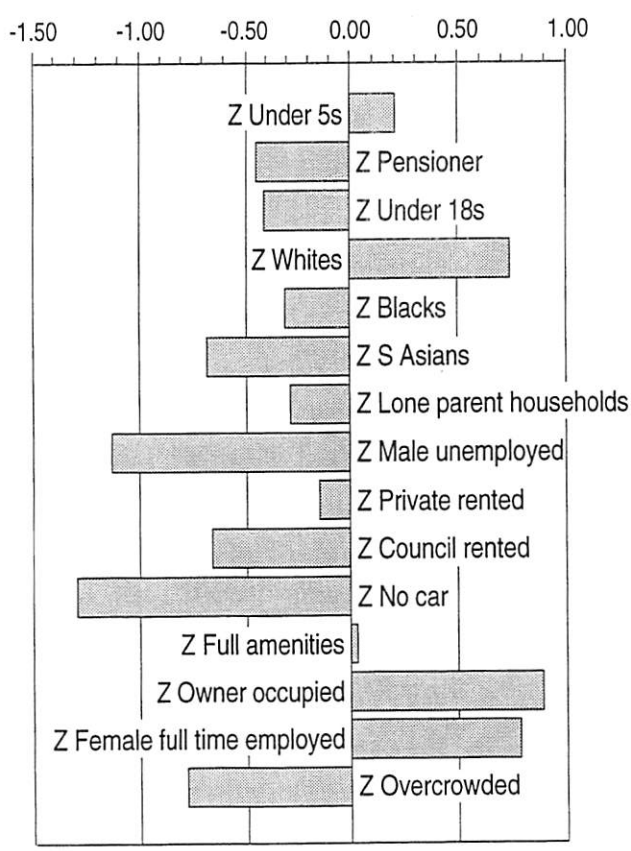


*Figure A2.5 Z scores for cluster 9.*

- low male unemployment (mean 14.1% ; median 13.9% ranging from 3.5% to 26.7% with 90% of EDs in the range below 20.4%; S.D. = 5.03, compared with borough average of 22.5%);

- high rates of female full time employment (mean 66.4%; median 65.4% ranging from 52.7% to 87.9% with 75% of EDs in the range above 61.7%; S.D. = 7.28, compared with borough average of 60.25%);

- high proportions of white residents (mean 74.1%; median 75.6% ranging from 45.4% to 90.9% with 90% of the EDs in the range 58.8% to 90.9%; S.D. = 10.25, compared with borough average of 58.9%);

- the DoE's index of local conditions gives an average score of 2.66 with an S.D. of 2.98 to the EDs in this cluster compared with the borough average of 6.74.

## Cluster 10

The basic findings for cluster 10 are summarised in Figure A2.6

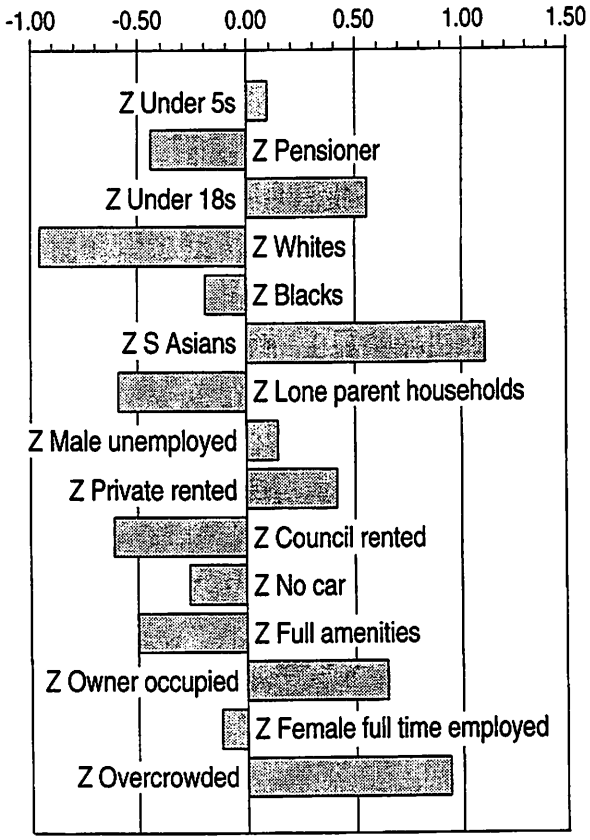


*Figure A2.6 Z scores for cluster 10.*

Because such a large number of EDs were included in this cluster a second level cluster analysis was carried out using the same 36 Z score variables to see if there were important patterns of difference within the cluster. A QUICK CLUSTER analysis using 4 sub-clusters is presented below.

The EDs in Cluster 10 were broken down into the following sub-clusters.

| | | |
|---|---|---|
| Sub-cluster | 10.1 | 34 EDs |
| | 10.2 | 75 |
| | 10.3 | 6 |
| | 10.4 | 38 |

The important significant differences in factor scores ($p < .01$ tested by one-way analysis of variance) are listed below.

Figure A2.7 shows the sub-cluster differences in terms of average factor scores.

Sub-clusters 10.2 & 10.4 score particularly high on Factor 1 relating to the proportion of Asian residents and associated variables of high numbers of children and overcrowding.

- Factor three (Younger Council Estates) has distinctly low scores in sub-clusters 10.2 & 10.3.

- Factor four (Private Rented areas) scores high in 10.2, 10.3 and especially 10.4.

- Factor 5 (relating to Black residents) scores low in 10.2 and high in 10.4.

The DoE's index of local conditions gives an average score of 7.12 with an S.D. of 1.68 to the EDs in cluster 10 compared with the borough average of 6.74. There were only tiny variations on this index between the sub-clusters (except that the small sub-cluster 10.3 appeared less deprived with an average score of 5.02).

A more transparent picture is given by the following descriptions.

### Sub-cluster 10.1

Sub-cluster 10.1 is probably the least interesting in terms of its lack of deviation from the borough average. EDs in this cluster on average (mean of ED % figures) had:

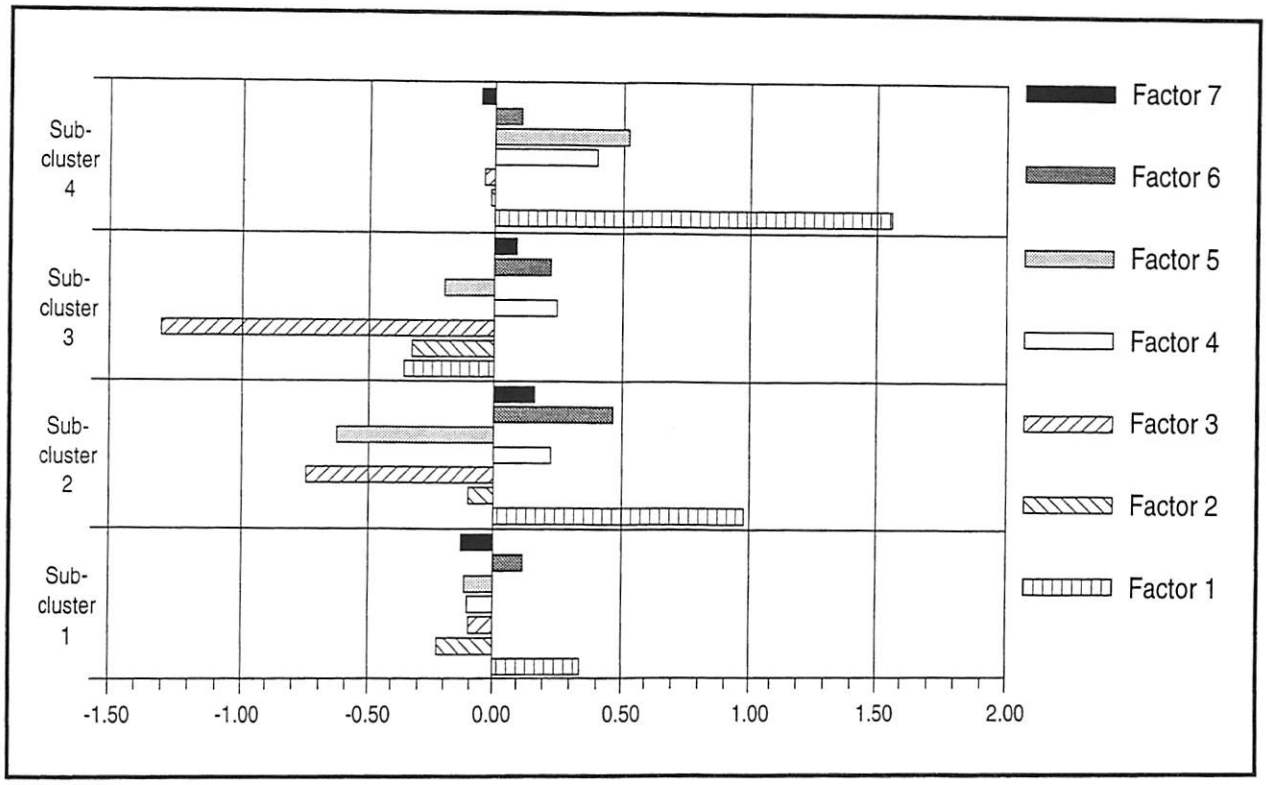


*Figure A2.7 Factor scores for sub-clusters.*

- 52% white residents (ranging from 36.6% to 75.7%; S.D. = 11.62, compared with a borough average of 58%);
- 27% South Asian Residents (ranging from 9.5% to 47.7%; S.D. = 10.45), compared with a borough average of 23%);
- 58% Owner occupied Households (ranging from 33.6% to 77.1%; S.D = 11.03), compared with a borough average of 51%);
- 23% Council rented households (ranging from 3.9% to 57.6%; S.D. = 13.17), compared with a borough average of 29%);

**Sub-cluster 10.2**

The outstanding features of this cluster are:

- nearly half the residents are South Asians (mean 49% ranging from 26.5% to 71.7%; S.D. = 11.58 compared with borough average of 22%) and the white population averages 32%;
- housing is predominantly owner occupied (average 67% ranging from 46.2% to 82.1.%; S.D. = 8.86 compared with a borough average of 50%);
- private renting is higher than average (mean 18.8% (ranging from 8.2% to 34.9%; S.D. = 5.48);
- overcrowding at a mean of 13.% is on average much higher than the borough figure of 7.9%.

**Sub-cluster 10.3**

The distinctive features of this small cluster of 6 EDs in comparison with the other sub-clusters of cluster 10 appear to be:

- relatively low proportion of South Asian residents. (mean 21% ranging from 3.8% to 38%; S.D. 12.34) and correlated with this low levels of under fives (7%) and under 18s (23%);
- very low levels of Council rented property (mean 6% ranging from 3% to 8.5%; S.D. = 1.87) with corresponding high levels of owner occupation (73%) and private rented stock (18%);.
- higher than average proportion of residents of East Asian Origin (Chinese / Philipinos);

**Sub-cluster 10.4**

The main features of sub-cluster 10.4 are:

- the majority of residents are South Asian (mean 53% ranging from 28% to 66%; S.D. = 9.15, compared with a borough average of 23%. The proportion of white residents averages a low 26%. Among the South Asians are large numbers of Bangladeshis (mean 14%); who are not found to the same extent elsewhere (borough mean 3.8%). Correlated high proportions of under 5's (average 9.6%) and under 18s (32.5%) and overcrowding (mean 15%) are also found;

- private rented property is also more common than average (19%) ranging from 7.6% to 31.6%; S.D. = 6.20, compared with 13.8% for Newham as a whole);

- unemployment (both male and female) appears to be somewhat higher than average (mean male unemployment = 25.4% ranging from 12.8% to 41.7%; S.D. = 6.62, compared with borough mean of 22.4%; mean female unemployment at 21% is higher than the borough mean of 15.7%).

# Appendix 3 The DOE index of local conditions 1991

The index of deprivation used before 1991 was more popularly known as the "Z scores". Based on data from the 1981 census, wards, and enumeration districts could be scored and ranked on a single scale of need. The scale was constructed by bringing together data for six indicators of deprivation (OAPs living alone, unemployment (which was given double weighting), residents in households where the head was born in New Commonwealth or Pakistan, single parent families, overcrowding of households, households lacking basic amenities (own use of inside WC or bathroom). The raw data was standardised by the Z score method. The six values were then combined in a single index. The method was criticised for being based on a rather narrow range of somewhat arbitrary indicators, on grounds of statistical technique and especially by people from the black communities as betraying an assumption that the presence of black residents in itself marks a location as a problem area. The 1991 census has brought a new level of sophistication to the old debates about local poverty. The DoE commissioned much research by academics in Newcastle and Manchester in order to come up with a indices of deprivation that are more valid and fair in setting the level of grants and special urban programmes for local authorities. The main features of the revised approach incorporated on the Index of Local Conditions are:

1) to produce the index at three spatial scales of district, ward and enumeration district, using extra information drawn from outside the census for the larger areas. There are 6 indicators at the ED scale, 7 at the ward scale and 13 at the district / local authority level. The six used at ED scale measure unemployment, children in low earning households, overcrowded households, households lacking basic amenities, households with no car, and children in unsuitable accomodation.

2) The Z scores used in the 1981 index are replaced by a more robust statistical method of standarisation known as Chi square. This relies more on the actual numbers of people in particular groups than on the proportion expressed as a percentage, thus being less vulnerable to unreliability where low numbers of a group, or non-response introduces unacceptable statistical error.

For the government it is clear that resources will not be allocated simplistically; for example work is in progress on separate indexes of housing need, health, police resources, economic conditions, social need, and general needs. The sophistication should be commended, if only as a job creation strategy for statisticians, though questions remain as to how transparent the findings will be and about the political will to tackle areas of deprivation.

# Appendix 4 A word of caution about census data

Undercounting appears to be a greater problem in the 1991 census than ever before and it is estimated that well over a million people were not enumerated (Simpson & Dorling 1994). The best explanation offered so far is that a large number of people consciously avoided the census officers, fearing that their details would be transferred to the Poll tax register. In particular the population of men aged 20–35 fell way below the numbers predicted by population estimates and for such people in the black communities greatest of all. The category of "the disappeared" does not carry all its Latin American meanings but does include large numbers of the alienated and disenfranchised, who stand a much greater than average chance of being unemployed, homeless and poor.

On top of the evasion factor it is clear that undercounting was most severe in Urban Priority Areas, especially the Inner London boroughs with their high mobility, ethnic diversity, and difficult to enter housing stock (tell that to the local burglars!). Many of the census tables are drawn up on the basis of revised estimates, seeking to correct for undercounting. However it is important to stress that they are estimates rather than true counts, and like all estimates are less likely to be close to the true figure as the overall population is broken down into smaller sub groups. For the worst cases some urban enumeration districts are based on a total response rate of not much more than 50% of households. There is no way in such cases of trusting even the total population figure, let alone the count for the number of black women between 20 and 60 who were in full time employment. Most risky of all are the estimates at small area level for social class and educational questions, which are based on the analysis of a 10% random sample of responses.

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