

ACORN group, social class, and child health

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SUMMARY A Classification of Residential Neighbourhoods (ACORN) and the Registrar General's social class classification were compared on measures of health and service use based on a sample of 5500 primary school children in England. ACORN was shown to differentiate at least as well as social class on the selected outcome measures and to identify small areas with particularly high rates of morbidity. Nevertheless, questions were raised concerning both the extent to which ACORN identifies variations independent of regional variations and the consistency of ranking of ACORN groups on health measures.

Occupation has traditionally been used as an indicator of social inequality, with the most widely used occupational measure in the United Kingdom being the Registrar General's social class classification. Problems, however, arise in gaining sufficiently precise occupational information, while there are also questions concerning the applicability of an occupational classification to retired people and to women.^{1,2} These limitations are of particular concern in relation to the recording of social inequality in the routine hospital statistics in view of the low level of recording currently achieved and the high proportion of elderly people among the hospital population. As a result, attention has focused on possible alternative measures.³

A Classification of Residential Neighbourhoods (ACORN)⁴ is a composite area based measure of inequality that appears particularly attractive as a social classification, as it is directly applicable to all groups in the population and only the post code is required for classification. In addition, ACORN uses enumeration districts that each contain on average only 150 households or about 460 people as the unit of analysis. This suggests that ACORN groups are likely to be more homogeneous than measures based on larger units.

The 1971 ACORN classification was created from 40 variables that relate to six types of social indices: age structure, employment, family structure, type of housing, social status, and car ownership (appendix). Using cluster analysis 37 ACORN types were derived which consist of unranked categories that are regarded as forming distinctly different types of neighbourhoods. These 37 ACORN types have in turn been reduced to a standard system of 11

unranked ACORN groups, which may be collapsed further into six ACORN groups. ACORN groups have been shown to identify areas with different patterns of consumer behaviour and are widely used as a marketing tool. Nevertheless, the extent to which ACORN also identifies groups that differ in rates of morbidity, mortality, and service use and may thus be of value in the planning and evaluation of health services remains to be tested.

Aims

This study compares the extent to which ACORN and social class groups identify differences in rates of morbidity and service use based on data collected in the National Study of Health and Growth (NSHG).⁵ It focuses on three main questions:

- (1) How much variation in measures of health and service use is identified by ACORN groups and how does this compare with the Registrar General's social class classification?
- (2) Is the variation explained by ACORN independent of, or does it overlap with, that explained by social class?
- (3) Is there a consistent ranking of ACORN groups on selected measures of health?

Data

The NSHG is a longitudinal study based on children aged 5–11 years attending designated primary schools in selected areas in England and Scotland.⁵ The NSHG formed a valuable source of data for examining ACORN because the occupation of the child's father or male guardian was recorded, which allowed comparisons to be made with a social class

classification, and information was collected for each child on several measures of health and service use which could be used as outcome variables. The seven items used as outcome measures were: (1) attained height, (2) birth weight, (3) asthma—at least one attack during the past 12 months, (4) bronchitis—at least one attack during the past 12 months, (5) any respiratory illness, defined as children who had a positive response to at least one of six symptoms (morning cough, day and night cough, wheeze, asthma, bronchitis, and colds going to the chest), (6) a hospital stay of overnight or longer in the past 12 months, and (7) a general practice consultation during the past two weeks. Each of these items of information was obtained from a questionnaire that was usually completed by the child's mother or guardian, except for attained height which was measured by a nurse.

Sample

The first year of the NSHG was 1972, and hence the nearest in time to the census date for which ACORN codes were available. More specific questions, however, about the child's health were asked in the 1973 follow up questionnaire. It was therefore decided to use children who were followed up in 1973 as the basis of the sample.

Only children living in the 22 study areas in England were included in the study to reduce the effect of regional variations. This gave a total sample of 6467 children in the age range 5 to 11 years. Of these, 662 children were excluded from the list because neither information on the father's social class nor the child's stay in hospital were recorded on the 1973 questionnaire. ACORN codes were therefore requested for a total of 5805 addresses. A valid ACORN code was obtained for 5558 of the 5805 (95.7%) requested, with the main reason for non-classification being that the address was insufficient to assign a post code. Of the 5558 children in the sample, 4902 (88%) were assigned to one of the Registrar General's social classes based on the occupation of their father or male guardian.

The 22 NSHG study areas in the sample ranged in size from 124 to 456 children. These areas were based on the 1970 employment exchange areas and selected by stratified random sampling to include proportionately more areas of lower socioeconomic groups. Large families were also over-represented in the sample as records from the NSHG are based on the child and not the household. Another important characteristic was the relatively young age distribution of household heads who were all people with primary school children; 90% of fathers whose ages were known were in the age range 27–53.

Methods

The distribution of birth weight was positively skewed; log (birth weight) which had a reasonably symmetric distribution was therefore used as the independent variable in the analysis and converted back to an estimate of the median value in kilograms for the groups of interest. Attained height was analysed in terms of a standard deviation score (SDS) calculated as the difference between a child's own height and the mean height in 1973 of children of the same age and sex, divided by the standard deviation for the appropriate age and sex group. This method removed the effects of age and sex while standardising for the increasing variance of height in the age range 5 to 11 years. One SDS is equivalent to about 5 cm at the age of 5 years and 7 cm at the age of 11 years.⁶

The extent to which ACORN and social class groups identified variations in each of the outcome measures was examined using regression analyses, which allowed the individual performance of ACORN and social class to be examined after controlling for relevant variables, and for the separate effect of ACORN and social class to be compared, each after adjusting for the other. Height and weight were treated as continuous variables in the analyses, while the proportions of children reported to have experienced an episode of a given illness or used the specified services, categorised by ACORN group or by social class, were compared by transforming the proportions to logits $[(0.5 \text{ Log}_e p/(1-p))]$, which allowed for the analysis of binary outcome measures. The statistical significance of the variation explained was assessed by the difference in the chi-squared goodness of fit statistic with and without the grouping of interest included in the model.

Results

DISTRIBUTION OF ACORN AND SOCIAL CLASS GROUPS

The post codes of the 5484 children in the sample were allocated to one of the 11 ACORN groups A–K, and 74 children (1.3%) were allocated to an unclassified group composed of enumeration districts which either have fewer than 50 people, or consist predominately of prisons, hotels, or other institutions. The distribution of children among the 11 ACORN groups showed that two of these groups contained very small numbers of children, with only 13 children (0.2%) having addresses classified as ACORN group I and 34 (0.6%) as H. The largest group (ACORN group F) contained 1123 children (20.5%) (table 1). ACORN types 1–36 which form

Table 1 *Distribution of ACORN groups A-K in study sample and total population*

| ACORN group (1971 classification)* | NSHG sample England 1973 | | Population in England and Wales 1978 |
|--|-----------------------------|-------|---|
| | No | % | % |
| A Modern family housing for manual workers | 1123 | 20.3 | 10.8 |
| B Modern family housing higher incomes | 384 | 6.9 | 8.4 |
| C Older housing of intermediate status | 1035 | 18.6 | 10.3 |
| D Very poor quality older terraced housing | 410 | 7.3 | 9.3 |
| E Rural areas | 387 | 6.9 | 5.7 |
| F Urban local authority housing | 1206 | 21.7 | 19.8 |
| G Housing with most overcrowding | 75 | 1.3 | 0.5 |
| H Low income areas with immigrants | 34 | 0.6 | 4.5 |
| I Student and high status non-family areas | 13 | 0.2 | 3.6 |
| J Traditional high status suburbia | 578 | 10.4 | 20.0 |
| K Areas of elderly people (often resorts) | 329 | 4.3 | 5.5 |
| Unclassified (areas containing fewer than 50 people and special E Ds—for instance, hospitals, prisons, etc.) | 74 | 1.3 | 1.7 |
| All groups | 5558 | 100.0 | 100.0 |

*Description of ACORN groups is based on what appears to be their dominant profile using 1971 census data—ACORN type social class is intended to be updated at each census.

the basis of the 11 ACORN groups again showed considerable variation in size with many groups being too small for analysing health outcomes by ACORN type; no data were obtained for three types whereas the number of children assigned to other ACORN types ranged from 12 to 544.

A total of 4902 children (88%) were classified by social class. The social class distribution of these children showed the traditional pattern, with social class I forming the smallest group (4%) and social class III manual the largest (49%). The smallest and

largest social class groups were thus considerably larger than the corresponding ACORN group.

Occupational status of the head of household formed one of the six indices used in constructing ACORN. ACORN groups, however, showed a considerable spread in terms of social class with every social class group being found within most ACORN groups (table 2). Nevertheless, some broad clustering was apparent, with the percentage in social classes IV and V being lowest in ACORN group J (traditional high status suburbia) (10%) and highest in ACORN group H (low income areas with immigrants) (37%), followed by ACORN group G (housing with most overcrowding) (35%).

Analysis of the distribution of social groups between the 22 NSHG areas showed that the relatively small ACORN groups of H and I were both heavily concentrated in particular areas; all addresses classified as H were in one area and 77% of group I were in a single area. Another group with a high concentration in a particular NSHG area was ACORN group G, which is described as comprising "a very small set of areas with a distinct regional bias."⁴ Although ACORN groups G, H, and I were each heavily concentrated in particular areas, they comprised only 14%, 17%, and 3% respectively of addresses in these areas. Social class groups were distributed more widely than ACORN groups among NSHG areas; not more than 12% of any social class group was in any one area and each social class was represented in every NSHG area.

VALUES IDENTIFIED ON OUTCOME MEASURES
The range of values identified by both classifications on each of the outcome measures was quite small. Nevertheless, the system of 11 ACORN groups tended to identify more extreme values than the social class classification; the poorest health experience or highest rate of service use was

Table 2 *Percentage of children in each ACORN group by social class*

| ACORN groups | Fathers' social class | | | | | | Unclassified* | Total (= 100%) |
|--------------|-----------------------|------|-------|------|------|-----|---------------|----------------|
| | I | II | IIINM | IIIM | IV | V | | |
| A | 2.1 | 10.2 | 7.2 | 48.8 | 13.5 | 5.4 | 13.4 | 1123 |
| B | 5.7 | 24.2 | 9.1 | 42.7 | 5.5 | 2.3 | 10.4 | 384 |
| C | 2.6 | 17.7 | 6.8 | 45.5 | 14.4 | 3.1 | 10.0 | 1035 |
| D | 2.7 | 9.8 | 6.6 | 46.8 | 14.2 | 6.1 | 13.9 | 410 |
| E | 2.1 | 28.4 | 5.9 | 27.9 | 18.1 | 2.3 | 15.3 | 387 |
| F | 2.5 | 8.4 | 6.3 | 48.7 | 15.7 | 7.4 | 11.1 | 1206 |
| G | — | 4.0 | 2.7 | 45.3 | 18.7 | 9.3 | 20.0 | 75 |
| H | — | 5.9 | 2.9 | 35.3 | 29.4 | 2.9 | 23.5 | 34 |
| I | — | — | 15.4 | 30.8 | 53.9 | — | — | 13 |
| J | 11.6 | 24.7 | 13.3 | 31.3 | 8.1 | 1.0 | 9.9 | 578 |
| K | 7.1 | 18.0 | 14.6 | 36.0 | 10.5 | 1.3 | 12.6 | 239 |
| Unclassified | 5.4 | 27.0 | 9.4 | 31.1 | 16.2 | 4.0 | 8.1 | 74 |
| All groups | 3.7 | 15.3 | 7.8 | 43.3 | 13.5 | 4.4 | 11.8 | 5558 |

*No father recorded or insufficient occupational information.

identified by an ACORN group on six of the seven outcome measures, while the most favourable health experience and lowest rate of service use was identified by an ACORN group on five measures and by a social class group on two measures. ACORN groups H and I identified the extreme values on several outcome measures (table 3). One would expect a greater range of values to be identified by 11 groups than by six, with the ratio of the expected range of 11 values to the expected range of six values from a normal distribution being 1.25,⁷ indicating that a 25% greater variation in the values for the ACORN compared with the social class groups would be expected. Calculations for the two continuous variables showed that the range of mean heights identified by ACORN groups was 39% greater than that identified by social class but was only 27% greater for birth weight.

ACORN types identified more extreme values than the broader ACORN groups, with the ACORN type identifying the highest or lowest value generally forming part of a larger ACORN group with this characteristic. For example, ACORN type 24 which formed part of group G had the highest rates of bronchitis and all respiratory illness (25% and 42% respectively). In a few cases, however, the lowest value occurred in a different group—for example, the

lowest birth weight was in ACORN type 17 (3.15 kg) which comprises part of group F, whereas G had the lowest group value.

An examination of the ranking of social class groups on height, birth weight, and bronchitis showed there to be fairly consistent ranking for height and birth weight but not for bronchitis (table 4). ACORN groups generally occupied a different position on each of the three measures, although groups ranked in the upper or lower half of the distribution on one measure tended to be similarly placed on the other two measures, the main exceptions being groups H, I, and K (table 3).

VARIATION EXPLAINED IN OUTCOME MEASURES

Analyses of variance of height SDS and log (birth weight) and logistic regressions of the other outcome variables were carried out on the six social class groups and nine ACORN groups, with ACORN groups H and I being omitted because of the small numbers concerned.

ACORN group and social class both explained a statistically significant amount of variation in mean height SDS and log birth weight (table 5). The amount of variation in mean height explained by social class was rather greater than for ACORN group (1.57% compared with 0.95%). The position

Table 3 Distribution of outcome measures by ACORN groups A-K

| ACORN group | Height | | Birth weight | | Bronchitis | | Asthma | | All respiratory illness | | GP consultation | | Hospital use | |
|-------------|--------|----------|--------------|-----------|------------|-----|--------|-----|-------------------------|------|-----------------|------|--------------|-----|
| | Rank | Mean SDS | Rank | Median kg | Rank | % | Rank | % | Rank | % | Rank | % | Rank | % |
| J | 1 | 0.19 | 3 | 3.37 | 7 | 5.2 | 11 | 4.0 | 7 | 29.0 | 8 | 9.7 | 5 | 5.6 |
| B | 2 | 0.12 | 8 | 3.32 | 4 | 3.7 | 5 | 1.3 | 5 | 27.0 | 4 | 7.1 | 7 | 6.3 |
| E | 3 | 0.08 | 1 | 3.44 | 2 | 2.3 | 7 | 2.1 | 4 | 26.6 | 3 | 5.7 | 2 | 3.4 |
| K | 4 | 0.06 | 2 | 3.41 | 9 | 6.4 | 10 | 3.9 | 6 | 28.4 | 10 | 10.5 | 4 | 5.5 |
| C | 5 | 0.05 | 3 | 3.37 | 6 | 5.2 | 8 | 2.1 | 3 | 24.0 | 7 | 9.4 | 3 | 4.8 |
| D | 6 | -0.01 | 9 | 3.31 | 10 | 6.7 | 3 | 1.2 | 8 | 29.3 | 5 | 7.9 | 9 | 6.9 |
| A | 7 | -0.06 | 10 | 3.28 | 5 | 3.8 | 6 | 2.0 | 9 | 30.4 | 6 | 8.0 | 6 | 5.7 |
| F | 8 | -0.13 | 6 | 3.36 | 8 | 5.9 | 4 | 1.3 | 10 | 30.5 | 9 | 10.4 | 8 | 6.5 |
| G | 9 | -0.21 | 11 | 3.17 | 11 | 6.8 | 9 | 2.7 | 11 | 39.1 | 2 | 4.0 | 11 | 9.3 |
| I | 10 | -0.35 | 7 | 3.33 | 1 | 0.0 | 1 | 0.0 | 2 | 23.1 | 1 | 0.0 | 10 | 7.7 |
| H | 11 | -0.56 | 3 | 3.37 | 3 | 3.0 | 1 | 0.0 | 1 | 22.6 | 11 | 11.8 | 1 | 2.9 |

Table 4 Distribution of outcome measures by social class

| Social class group | Height | | Birth weight | | Bronchitis | | Asthma | | All respiratory illness | | GP consultation | | Hospital use | |
|--------------------|--------|----------|--------------|-----------|------------|-----|--------|-----|-------------------------|------|-----------------|------|--------------|-----|
| | Rank | Mean SDS | Rank | Median kg | Rank | % | Rank | % | Rank | % | Rank | % | Rank | % |
| I | 1 | 0.23 | 1 | 3.42 | 2 | 4.4 | 5 | 2.4 | 1 | 23.9 | 1 | 7.8 | 3 | 5.4 |
| II | 2 | 0.18 | 2 | 3.40 | 5 | 5.4 | 1 | 1.7 | 1 | 23.9 | 5 | 10.5 | 5 | 5.5 |
| IIINM | 3 | 0.11 | 4 | 3.34 | 3 | 4.5 | 6 | 3.5 | 3 | 25.4 | 6 | 11.2 | 2 | 4.9 |
| IIIM | 5 | -0.05 | 5 | 3.33 | 4 | 5.1 | 3 | 1.8 | 5 | 29.9 | 2 | 8.3 | 6 | 5.9 |
| IV | 4 | -0.03 | 3 | 3.37 | 1 | 4.2 | 4 | 2.1 | 4 | 29.3 | 4 | 8.7 | 3 | 5.4 |
| V | 6 | -0.31 | 6 | 3.21 | 6 | 6.7 | 1 | 1.7 | 6 | 37.5 | 2 | 8.3 | 1 | 3.7 |

Table 5 Variation in height SDS and log (birth weight) explained by ACORN group (A–G, J, K) and social class

| Outcome variable group | No of children | Variation explained by ACORN group† | F-value for difference between ACORN group‡ | Variation explained by social class | F-value for differences between social class groups‡ | Variation explained by ACORN groups allowing for social class | Variation explained by social class allowing for ACORN |
|----------------------------------|----------------|-------------------------------------|---|-------------------------------------|--|---|--|
| Height SDS | 4743 | 0.95% | 4.68*** | 1.57% | 15.08*** | 0.47% | 1.09% |
| Log ₁₀ (birth weight) | 4556 | 0.55% | 3.17** | 0.40% | 3.62** | 0.51% | 0.33% |

p<0.01; *p<0.001.

†Children for whom outcome variable and both classifications obtained.

‡Degrees of freedom in numerator for F values is 8 for ACORN group, 5 for social class, degrees of freedom in denominator is number of children less 9 and 6 respectively.

was, however, reversed for log birth weight with social class explaining a smaller amount of variation (0.47% compared with 0.55%). In each case, however, the amount of variation explained by either ACORN group or social class was quite small. Neither ACORN group nor social class showed any significant variation with a report of asthma in the past 12 months (table 6), and only ACORN showed a significant relation with a report of bronchitis in the past 12 months. When asthma and bronchitis, however, were combined with positive answers to questions about cough, wheezy chest, and colds to the chest to give an outcome measure of "all respiratory illness," both ACORN and social class showed a significant relation to the outcome variable. ACORN thus explained a significant amount of variation in five of the seven outcome measures, even though ACORN groups H and I which identified particularly high or low rates on a number of measures were excluded from the analysis, whereas social class explained a significant amount of variation on only three measures.

A comparison of the amount of variation explained when each grouping was adjusted for the other showed that the two classifications explained largely independent amounts of variation on most measures (table 5, cols 5 and 6, table 6, cols 4 and 5). The greatest overlap occurred for height SDS and

all respiratory illness. About half the variation in height ascribed to ACORN was explained by social class but only a third of the variation ascribed to social class was explained by ACORN group, while the relationship between ACORN and respiratory illness did not hold after adjustment for social class.

COMBINED ACORN GROUPS

A system of six combined ACORN groups has been created using the original 40 variables used in constructing ACORN to identify the pairing of groups which minimised the loss of variance. An advantage of having fewer groups is that this tends to increase the size of the smallest group; in the present sample this was increased from 13 to 47 children (table 7). The ACORN groups which formed the combined groups in the sixfold classification, however, were often not adjacent groups in terms of their relative ranking on selected measures of health. For example, group C had the third highest birth weight, whereas group D although paired with C ranked ninth in terms of birth weight. The six combined ACORN groups thus identified less extreme values on most of the outcomes measures compared with the 11 ACORN groups (tables 3 and 7), but there was no consistent difference in the extent to which the six ACORN groups and six social class groups identified the highest and lowest values.

Table 6 Chi-squared analyses for binary outcome variables by ACORN group (A–G, J, K) and social class (age and sex included as independent variables in each analysis)

| Outcome variable | No of children† | χ^2 for differences between ACORN groups | χ^2 for differences between social class group | χ^2 for differences between ACORN groups adjusting for social class | χ^2 for differences between social class groups adjusting for ACORN |
|------------------------------------|-----------------|---|---|--|--|
| Asthma in past 12 months | 4708 | 15.32 | 4.54 | 14.49 | 3.71 |
| Bronchitis in past 12 months | 4717 | 21.07** | 2.84 | 21.39** | 3.16 |
| All respiratory illness | 4563 | 20.68** | 24.09*** | 15.75 | 19.16** |
| GP consultations in past two weeks | 4735 | 16.83* | 7.59 | 18.20 | 8.96 |
| Hospital stay in past 12 months | 4736 | 9.75 | 2.45 | 10.83 | 2.73 |

*p<0.05; **p<0.01; ***p<0.001.

†Children for whom outcome variable and both classifications obtained.

The relative ranking of the six combined ACORN groups on health outcomes still varied considerably, however, with a different ACORN group occupying the lowest rank on height, birth weight, and bronchitis.

The variation explained by the combined six ACORN groups was similar to that explained by the nine groups. Both groupings identified a significant amount of variation on five outcome measures, with the reduction in variation associated with the combining of groups being compensated for by the inclusion of groups H and I as a combined group.

Discussion

Evidence that ACORN differentiated at least as well as social class on selected measures of child health was provided both by an examination of the highest and lowest values identified by each classification and by analyses of the amount of variation explained after controlling for age and sex. ACORN was also shown to be valuable in identifying small areas with particularly high rates of morbidity, with it being possible to move from the broad ACORN groups to the even smaller ACORN types to locate areas of high morbidity from particular conditions. Nevertheless although ACORN appears to identify groups that differ in their health experience and overcomes the problems of data collection associated with occupational measures, two questions were identified that require further study before firm conclusions may be drawn as to its value in relation to health service data.

One question concerns the extent to which ACORN groups identify variations in health outcomes that are independent of regional variations. The variation in the outcome measures explained by ACORN was largely independent of that explained by social class with the exception of the variation in all respiratory illness and birth

weight. The independent effects of social class and other measures of inequality has also been observed in comparisons of mortality rates by social class and housing tenure, with neither variable adequately explaining the mortality gradient observed in the other.⁸ This may reflect the different dimensions of inequality emphasised by social class compared with housing tenure or ACORN group which are probably both more closely associated with wealth and living conditions. The greater regional concentration of ACORN compared with social class groups may also contribute to their independent effects, for regional variations in mortality rates in England and Wales have been shown to remain even when standardised by age and social class.⁹ Area variations in infant mortality rates have also been shown to be associated not only with the socioeconomic characteristics of the area but also with other factors including the obstetric, paediatric, and community health services.¹⁰ The extent to which the variations identified by ACORN groups reflected regional variations could not be examined in the present study owing to the small size and wide geographical distribution of study areas.

A second question concerns the extent to which ACORN produces a fairly consistent ranking of health outcomes among different age groups, sexes, and regions of the country. The rather less consistent ranking of ACORN compared with social class groups on measures of health is likely to reflect the fact that ACORN groups are unranked, whereas social class groups are hierarchically ranked on the basis of occupation which is related to many different forms of inequality. Unless ACORN groups show a fairly consistent ranking on health measures among different population subgroups, this is likely to detract from its value as a general social classification, although not affecting its use in identifying individual areas with particular health problems.

Table 7 Distribution of outcome measures by the six combined ACORN groups

| Combined ACORN group | Height | | Birth weight | | Bronchitis | | Asthma | | All respiratory illness | | GP consultation | | Hospital use | |
|----------------------|--------|----------|--------------|-----------|------------|-----|--------|-----|-------------------------|------|-----------------|------|--------------|-----|
| | Rank | Mean SDS | Rank | Median kg | Rank | % | Rank | % | Rank | % | Rank | % | Rank | % |
| J+K (n=817) | 1 | 0.15 | 2 | 3.38 | 4 | 5.5 | 6 | 4.0 | 4 | 28.9 | 5 | 9.9 | 3 | 5.5 |
| E (n=387) | 2 | 0.08 | 1 | 3.44 | 2 | 2.3 | 5 | 2.1 | 3 | 26.6 | 1 | 5.7 | 1 | 3.4 |
| C+D (n=1445) | 3 | 0.03 | 3 | 3.36 | 5 | 5.6 | 4 | 1.9 | 2 | 25.5 | 4 | 9.0 | 4 | 5.3 |
| A+B (n=1507) | 4 | -0.01 | 6 | 3.29 | 3 | 3.7 | 3 | 1.8 | 5 | 29.5 | 2 | 7.7 | 5 | 5.9 |
| F+G (n=1281) | 5 | -0.13 | 5 | 3.35 | 6 | 5.9 | 2 | 1.3 | 6 | 31.0 | 6 | 10.0 | 6 | 6.7 |
| H+I (n=47) | 6 | -0.55 | 3 | 3.36 | 1 | 2.2 | 1 | 0.0 | 1 | 22.7 | 3 | 8.5 | 2 | 4.2 |

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Appendix

THE 40 VARIABLES USED TO CREATE ACORN BASED ON 1971 CENSUS DATA

| | |
|------------------------|--|
| Unemployment | — persons aged 15+ economically active but not in employment |
| Fem econ act rate | — proportion of married females economically active |
| Students | — proportion of persons students aged 15+ |
| One car households | — cars and vans per total households |
| Two car households | — households with two or more cars or vans |
| Walk to work | — % workers walking to work or travelling by no mode |
| Bus/train to work | — % workers travelling by bus or train |
| Manufacturing/mining | — % workers in manufacturing and mining |
| Agriculture | — % workers in agriculture |
| Services, dist'n, govt | — % workers in services, distribution, government and defence |
| Professional | — % households professional or managerial heads |
| Non-manual | — % households non-manual heads |
| Skilled manual | — % households skilled manual heads |
| Semiskilled | — % households semiskilled heads |
| Unskilled | — % households unskilled heads |
| Fertility | — children born per married females 16-29 |
| New Commonwealth | — % residents with 1+ parents born in New Commonwealth |
| Aged 0-4 | — % population aged 0-4 |
| Aged 5-14 | — % population aged 5-14 |
| Aged 15-24 | — % population aged 15-24 |
| Aged 25-44 | — % population aged 25-44 |
| Aged 45-64 | — % population aged 45-64 |
| Aged 65+ | — % population aged 65 and over |
| Marriage rate | — % residents aged 15+ married |
| Single non pensioner | — % households containing one adult not a pensioner |
| Household size | — persons per household |
| 5-year migrants | — % households migrating within previous 5 years |
| Dwelling size | — rooms per household |
| Owner occupier | — % households owner occupiers |
| Council tenant | — % households council tenants |
| Unfurnished | — % households unfurnished |
| Furnished | — % households furnished |
| Acute overcrowding | — % households living at over 1.5 persons per room |
| Overcrowding | — % households living at over 1 but not at over 1.5 persons per room |
| Rooms per person | — rooms per person |
| Shared dwellings | — % households in shared dwellings |
| No inside wc | — % households lacking an inside wc |
| No bath | — % households lacking a fixed bath |
| Seven rooms | — % households in 7+ rooms |
| One/two rooms | — % households in 1 or 2 rooms |

Source: Market Analysis Group, ACORN—A New Approach to Market Analysis.

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