

APPENDIX B : CORRELATION ANALYSIS

The objective of the study is to measure the level of social need throughout Nottinghamshire. If households are experiencing more than one aspect of social need then it might be expected that areas with high scores on one indicator will also have high scores on others. Similarly, those with medium and low scores on an indicator will also be expected to score medium and low on the other indicators. To assess whether this is the case or not, a 'correlation analysis' was carried out on all the indicators. This exercise produces a figure, known as a correlation coefficient, which is a measure of how similar the high and low scores are for any two indicators across all 380 zones.

A correlation coefficient of +1 represents a perfect correlation between two indicators: zones scoring high on one will score high on the other. Conversely a correlation coefficient of -1 represents an inverse relationship, where a zone scoring high on one indicator will score low on the other. A correlation coefficient of 0 represents a random correlation where the score on one indicator bears no relation to the score on the other.

Table B.1 shows the correlation coefficients for the 22 indicators used in the Study. Most indicators have strong positive correlations with many other indicators. Thirteen of the indicators have correlation coefficients above 0.5 with more than half of the other indicators. This is the level at which the relationship between two indices is regarded as becoming statistically valid. 'Households with no car', and 'lone parent households', have the joint highest number of correlations of 0.5 and above (19).

The strongest correlation in the study is between 'adults without qualifications at Level 2 or above', and 'people in routine occupations', with a coefficient of 0.940. 'Adults without qualifications at Level 2 or above' is also strongly correlated with 'lone parent households' and 'people in semi-routine occupations', with a coefficient of 0.918. These three indicators are in the 'Lack of skills' theme.

There are also high correlations between the indicators in the 'Low income' theme. 'Lone parent households' and 'children receiving free school meals' have a correlation coefficient of 0.916. 'Households with no car' and 'lone parent households', have a coefficient of 0.909.

'Households lacking central heating', and 'babies with a low birthweight' have no correlation coefficients above 0.5. The same is true of 'pupils obtaining no GCSEs', although the coefficients are generally nearer to 0.5.

Even quite a low correlation coefficient can show that there is a statistically significant relationship between two indicators (i.e. that if the score on one indicator is higher then the score on the other is also likely to be higher), albeit not such a strong relationship as with higher coefficients. For the number of zones in the Study, any correlation of 0.132 or above indicates that there is a 99% probability that there is a relationship between two indicators. Only on a few occasions are the indicators in the Study not correlated to this level.

Chapter 4 gives further details of the level of correlation for each indicator, and notes which indicators are most strongly correlated.

Table B.1

Correlations between social need indicators

Indicator	Indicator name	A	B	C	D	E	F	G	H	I
A	Households with no car		0.909	0.685	0.885	0.847	0.524	0.658	0.470	0.589
B	Lone parent households	0.909		0.639	0.916	0.845	0.541	0.634	0.406	0.583
C	People dependent upon those in employment	0.685	0.639		0.706	0.723	0.449	0.554	0.089	0.775
D	Children receiving free school meals	0.885	0.916	0.706		0.891	0.543	0.728	0.340	0.611
E	Adults unemployed	0.847	0.845	0.723	0.891		0.545	0.633	0.267	0.626
F	16 to 19 year olds unemployed	0.524	0.541	0.449	0.543	0.545		0.354	0.191	0.414
G	Households that are overcrowded	0.658	0.634	0.554	0.728	0.633	0.354		0.306	0.338
H	Households lacking central heating	0.470	0.406	0.089	0.340	0.267	0.191	0.306		0.073
I	People of working age with a limiting long term illness or disability	0.589	0.583	0.775	0.611	0.626	0.414	0.338	0.073	
J	Babies with a low birthweight	0.276	0.287	0.273	0.315	0.303	0.228	0.236	0.139	0.263
K	Standardised Death Rate for people aged under 75	0.728	0.711	0.569	0.744	0.728	0.390	0.481	0.316	0.595
L	People aged 75 and over receiving care	0.593	0.514	0.395	0.520	0.475	0.317	0.347	0.265	0.364
M	Child protection enquiries	0.574	0.582	0.488	0.639	0.609	0.393	0.429	0.142	0.472
N	Recordable offences committed by young people	0.675	0.681	0.418	0.686	0.635	0.442	0.398	0.337	0.423
O	Domestic burglaries per 1000 household spaces	0.653	0.652	0.319	0.677	0.660	0.336	0.484	0.335	0.260
P	16 & 17 year olds not in full-time education	0.562	0.585	0.461	0.561	0.549	0.365	0.369	0.243	0.577
Q	Pupils obtaining no GCSEs	0.389	0.405	0.353	0.442	0.385	0.265	0.347	0.164	0.309
R	Pupils not obtaining 5+ GCSEs at A* to C grades	0.615	0.662	0.528	0.661	0.620	0.400	0.444	0.264	0.636
S	Pupils not obtaining Level 4+ in Key Stage 2 English & Maths	0.694	0.706	0.578	0.728	0.668	0.392	0.535	0.326	0.616
T	Adults without qualifications at Level 2 or above	0.557	0.576	0.689	0.575	0.564	0.372	0.418	0.131	0.830
U	People in routine occupations	0.695	0.681	0.747	0.690	0.696	0.443	0.511	0.216	0.837
V	People in semi-routine occupations	0.639	0.648	0.685	0.621	0.591	0.411	0.489	0.228	0.773

Indicator	J	K	L	M	N	O	P	Q	R	S	T	U	V
A	0.276	0.728	0.593	0.574	0.675	0.653	0.562	0.389	0.615	0.694	0.557	0.695	0.639
B	0.287	0.711	0.514	0.582	0.681	0.652	0.585	0.405	0.662	0.706	0.576	0.681	0.648
C	0.273	0.569	0.395	0.488	0.418	0.319	0.461	0.353	0.528	0.578	0.689	0.747	0.685
D	0.315	0.744	0.520	0.639	0.686	0.677	0.561	0.442	0.661	0.728	0.575	0.690	0.621
E	0.303	0.728	0.475	0.609	0.635	0.660	0.549	0.385	0.620	0.668	0.564	0.696	0.591
F	0.228	0.390	0.317	0.393	0.442	0.336	0.365	0.265	0.400	0.392	0.372	0.443	0.411
G	0.236	0.481	0.347	0.429	0.398	0.484	0.369	0.347	0.444	0.535	0.418	0.511	0.489
H	0.139	0.316	0.265	0.142	0.337	0.335	0.243	0.164	0.264	0.326	0.131	0.216	0.228
I	0.263	0.595	0.364	0.472	0.423	0.260	0.577	0.309	0.636	0.616	0.830	0.837	0.773
J		0.279	0.173	0.252	0.187	0.265	0.147	0.166	0.235	0.247	0.246	0.271	0.248
K	0.279		0.453	0.534	0.583	0.585	0.514	0.356	0.586	0.590	0.533	0.628	0.530
L	0.173	0.453		0.329	0.380	0.371	0.241	0.164	0.333	0.358	0.280	0.354	0.341
M	0.252	0.534	0.329		0.471	0.441	0.431	0.303	0.468	0.506	0.445	0.513	0.461
N	0.187	0.583	0.380	0.471		0.563	0.458	0.253	0.443	0.516	0.346	0.449	0.399
O	0.265	0.585	0.371	0.441	0.563		0.325	0.322	0.355	0.476	0.215	0.362	0.245
P	0.147	0.514	0.241	0.431	0.458	0.325		0.261	0.610	0.589	0.663	0.674	0.663
Q	0.166	0.356	0.164	0.303	0.253	0.322	0.261		0.459	0.338	0.335	0.384	0.399
R	0.235	0.586	0.333	0.468	0.443	0.355	0.610	0.459		0.647	0.727	0.733	0.714
S	0.247	0.590	0.358	0.506	0.516	0.476	0.589	0.338	0.647		0.654	0.716	0.656
T	0.246	0.533	0.280	0.445	0.346	0.215	0.663	0.335	0.727	0.654		0.940	0.918
U	0.271	0.628	0.354	0.513	0.449	0.362	0.674	0.384	0.733	0.716	0.940		0.887
V	0.248	0.530	0.341	0.461	0.399	0.245	0.663	0.399	0.714	0.656	0.918	0.887	

