



Detailed Examples of the Calculations

Technical Annexe to the
consultation paper on the
Methodology for an
Index of Multiple Deprivation

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Technical Annexe to the Methodology Paper: Detailed examples of the calculations

General

This Annexe provides a worked example of how the various Domain indices have been calculated. It contains real data on six wards taken randomly from the data set. Two are from rural districts, two from metropolitan/London boroughs and two are from Unitary Authorities. We have had to anonymise the wards because the final terms of release of data underpinning the new Index has yet to be negotiated with the DETR and, in some cases, data suppliers.

The following table gives basic demographic information about the wards and is used as you will see in the calculations. We would ask you NOT under any circumstances to try to 'reverse engineer' the identity of either the districts or the wards for the reasons we have given.

Ward	Ward population W	Total children under 16 in Ward X	Total Population 16 - 59 Y	District Population Z
TAXX	6438	1471	3120	90525
TBXX	5622	992	3223	105940
TCXX	13642	2349	7341	287745
TDXX	13550	2604	8147	205647
TEXX	2358	301	1540	101420
TFXX	11186	2375	5892	261763

Income Domain Index

This Domain Index is calculated from the following indicators:

- Adults in Income Support households (A)
- Children in Income Support households (B)
- Adults in Income Based Job Seekers Allowance households (C)
- Children in Income Based Job Seekers Allowance households (D)
- Adults in Family Credit households (E)
- Children in Family Credit households (F)
- Adults in Disability Working Allowance households (G)
- Children in Disability Working Allowance households (H)
- Non-earning, non-IS pensioner and disabled Council Tax Benefit recipients for 1998 apportioned to wards (I and J)

The components of this Index are contained in Appendix A. The values of these indicators for the specimen wards are given in columns A - J of that appendix. The Income Domain Index is simply the proportion of a ward's population living in families reliant on means tested benefits. We therefore sum the adults and children living in the families receiving the (non overlapping) categories of means tested benefits to calculate the total people living in families reliant on means tested benefits (K).

The **Income Index (N)** is $(K/\text{Ward Population } W)*100$ ¹

A separate **Child Poverty Index (M)** is also presented. First the number of children under 16 living in means tested benefit households (L) is calculated as the sum of B, D, F and H. This is then presented as a **proportion of all children under 16 in the ward - that is $(L/X)*100$.**

All the wards in England are then ranked on the basis of the Income Domain Index (O) and the least deprived accorded the lowest rank. Thus the most deprived ward in England is accorded a rank value of 8414, the least deprived a value of 1. The exponential of the rank is then calculated according to the formula contained in Appendix 2 of the main report. This exponential rank ranges from 0 (least deprived) to 100 (most deprived). Appendix A gives the rank (O) and exponential of the rank (P) for the specimen wards.

¹ Because of the nature of the 100% Scan Income Support data available for the Index, data on 'partners' necessary to compute the total Adults in Income Support families had to be imputed using data from the QSE. Moreover the DSS undertook some similar work on the JSA(IB) data. This means that the number of adults in each of these data sets (and the total) are subject to rounding adjustments.

Employment Domain Index

For this Domain Index, the constituent indicators are:

- Unemployment claimant counts average of May 1998, August 1998, November 1998 and February 1999 (A)
- People out of work but in TEC delivered government supported training (B+C)
- People aged 18-24 on New Deal options (D)
- Incapacity Benefit recipients aged 16-59 (E)
- Severe Disablement Allowance aged 16-59 (F)

The values for the component indicators for this domain are contained in Appendix B. The total of those unemployed or on schemes aged 16-59 (G) is calculated by summing columns A to D. The total of those aged 16-59 who are unable to work through sickness/incapacity (H) is derived by summing those claimants aged 16-59 of Incapacity Benefit (E) and Severe Disablement Allowance (F).

The denominator (J) is derived by summing the economically active population for the ward (I) and the two 'non economically active' components of the numerator (E+F).

The Employment Index (K) is the proportion of those in a ward who are economically active or incapacitated who are either unemployed or incapacitated: $((G+H)/J)*100^2$.

Appendix B gives the rank (L) of the Employment Domain Index and the exponential of that rank (M) and is calculated in the same way as has been described for the Income Domain.

² There are rounding errors because, for example, the average claimant count over the four quarters is not always a whole number.

Health and Disability Domain Index

The following indicators comprise this domain:

- Comparative Mortality Ratios for men and women at ages under 65. District level figures for 1997 and 1998 applied to constituent wards (A and B)
- People receiving Attendance Allowance or Disability Living Allowance in 1998 as a proportion of all people (C)
- Proportion of people of working age (16-59) receiving Incapacity Benefit or Severe Disablement Allowance for 1998 and 1999 respectively (F)
- Age and sex standardised ratio of limiting long-term illness (G)
- Proportion of births of low birth weight (<2,500g) for 1993-97 (E)

Appendix C shows the component indicators of the health deprivation and disability domain. Columns A and B are the Comparative Mortality Ratios for male and females respectively. These are the district level figures calculated using death data for 1997 and 1998. The values have then been given to the constituent wards in the district.

Column C gives the number of recipients of Disability Living Allowance (DLA) and Attendance Allowance (AA). The proportion for the ward (D) is given by $(C/W)*100$. The standard error of this proportion is shown in brackets and is used in the shrinkage estimation calculation. Column E contains the district proportion for these variables with the standard deviation in brackets while column F gives the 'shrunk' proportion.

The number of claimants of Severe Disability Allowance (SDA) and Incapacity Benefit (IB) aged 16-59 are contained in column G while column H is the proportion of the relevant age group and is given by $(G/Y)*100$. The standard errors are shown in brackets. The district proportions and the standard deviation are contained in column I and the 'shrunk' proportion for this indicator is in column J.

Columns K and L contain the age and sex standardised Limiting Long Term Illness from the 1991 Census³ for wards and districts with respectively the standard error and standard deviation shown in brackets. The 'shrunk' rate is shown in column M.

The proportion of low birthweight births for the four years 1993-1997 (column P) is given by dividing the number of low birthweight births (column N) by the number of all births for 1993-97 (column O). Low birthweight births are those where the recorded birth weight was less than 2,500g. The district proportion and standard deviation (column Q) allow the calculation of the 'shrunk' proportion (column R).

Using Factor Analysis to combine the indicators into a domain score.

The factor analysis used six variables. A single factor emerged that explained about 60% of the variance. The loadings on that factor are shown in the table below. Most of the variables in the model have a strong loading.

³ Pulled through to 1998 wards

Factor Loadings for Health Deprivation

Variable	Factor
Comparative Mortality Ratio for men	0.670
Comparative Mortality Ratio for women	0.640
Proportion DLA/AA	0.900
Proportion low birthweight births	0.435
Age and sex std. Limiting Long Term Illness	0.879
Proportion IB/SDA	0.972

Extraction Method: Maximum Likelihood.

The Domain Index (S) is generated from this Factor Analysis solution and is ranked as described in the income domain section. The rank is contained in column T and the exponential of the rank in column U.

Education Skills and Training Domain Index

This is based on items from the following data sets:

- Children aged over 16 who are not in full-time education for 1999 (Table A1)
- Proportions of 17+ population who have not successfully applied for HE for 1997 and 1998 (Table A2)
- Working age adults with no qualifications (3 years aggregated LFS data at district level, modelled to ward level) for 1995-1998 (Table A3)
- KS2 primary school performance data for 1998 (Table A4))
- Primary school children with English as a second language for 1998 (Table A5)
- Absenteeism at primary level (all absences, not just unauthorised) for 1998 (Table A6)

Ward Based Information

Staying on In Full time Education: Child Benefit data for 1999 was used to produce a current indicator for the numbers of children remaining in full time non advanced education (where pupils are still eligible for Child Benefit). 17-19 year olds were used as the target group⁴, and 12-15 year olds were used as the population benchmark. The final figure used was the *negative* (proportions *not* staying on).

Successful Applicants to Higher Education: Those aged 20 or over were excluded, as were those applying from an institutional rather than a home address. Approximately three-quarters of all successful applicants were aged under 20 years. Again we have no direct measure of the population at risk (e.g. direct measure of the 18 and 19 year olds in a ward), so we have used the Child Benefit data on younger age groups as a benchmark. This variable was also turned into a negative value (proportions *not* successfully applying to HE).

Adults with no qualifications: three years of Labour Force Survey Data (1995/6, 1996/7, 1997/8) with local authority district codes was extracted and combined to produce district level scores. The age group 25-59 (both male and female) was used to reduce the impact of students and retired people. Predictive models were then used, employing variables available in the LFS that could be matched to the 1991 census. Four variables (Social Class [RG2], Economic inactivity, unemployment, and occupation [plant and machine operatives]) produced the best prediction (R=0.84) for adults with no qualifications. This was then applied to the relevant 1991 census data at ward level, and the results converted to 1998 ward boundaries. Finally the ward estimates for each district were adjusted to comply with the LFS derived district totals. A similar exercise was undertaken on adults with high qualifications where five variables produced a good predictor of adults with NVQ level 4 qualification or above (R=0.93). This estimate could then be compared with the 1991 census estimates of adults with similar high level (degree, diploma or above) qualifications. The correlation between these two pieces of data was 0.88.

⁴ 16 year olds had to be left out as they potentially straddled the compulsory school leaving period

School Based Information

A GIS programme was used to allocate school level information to ward level. This had to be run twice for each LEA to allocate:-

- 1) Key Stage 2 data where only schools containing 11 year olds were used in the allocation (infant and junior, junior only and middle schools), and
- 2) The other primary school data where all primary schools and middle schools were included. Middle school data was proportionately deflated to take into account the proportion of years that were of primary rather than secondary age.

Primary school data rather than secondary school data was used because of the difficulty of modelling with any accuracy secondary school catchment areas. The GIS programme took into account the exact location of the school, the type of area (urban or rural), the age range of the school, the type of school (denominational, GM, middle etc) and schools in the immediate vicinity (exploring each quadrant for neighbouring schools). The model used distance parameters drawn from real data on pupils' distance to school, drawn from a number of LEA areas and schools, and realistically allowed a substantial degree of overlap where pupils might go to more than one school. Comparing the modelled result for areas where we had actual pupil postcoded data suggested that this produced a reasonable level of fit. The limitation of the GIS procedures is that there is no way of differentially allocating performance from within a school to its putative catchment area.

Key Stage 2 data: individual pupil key stage 2 data was used. This data set contained pupils in independent schools as well as those in special schools or units. Finally it was decided to drop these pupils, as we had no way of knowing where they might be resident. While special schools represent about 1% of the pupil population, independent schools will represent about 5-6% of 11 year olds. They in fact made up 3% of all pupils with KS2 results (independent schools are not required to take KS2), but more than 10% of pupils in a few LEAs. It is likely that in some wards within these LEAs very significant proportions of pupils aged 11 will be in independent schools. In so far as these pupils may have better scores the results using maintained schools only may thus *understate* the true scores for these areas. Data from the different subject scores in the KS2 results was combined to indicate the proportion of results that were below level 4 and the proportion above level 4, with the total results as the denominator (level 4 is the target level for KS2 pupils). This provided an indicator of low performance and the absence of high performance.

English as an additional language: this information was extracted for all maintained primary schools from the 1998 school census, and from middle schools for the same period. Middle school data was deflated in line with the proportions of the age group in the primary stage. The denominator was the total number of full or part time pupils in the school at the same period.

Absenteeism: this data was based on the count of sessions missed in the 1998 Absence survey of maintained primary schools in England in 1998. Unauthorised sessions missed were combined with authorised sessions missed to give a combined total. The

denominator was the total number of possible sessions from the same data set. This was based on all primary schools, and for middle schools the values were reduced *pro rata* for both the proportion of non primary age groups in the school and the likelihood that secondary rates of absenteeism would be higher than primary (by deflating using the national ratio of primary to secondary absenteeism from national DfEE data).

Shrinking the Values

All values were ‘shrunk’ in line with the general formula used in the project. The following table gives some indication of the level of change that shrinkage introduced for each variable. Overall it should be stressed that the amount of change is relatively small. Extreme cases of movement include wards with virtually no children taking KS2, a problem in sparsely populated areas where there might be middle schools some distance away, or areas with very high HE acceptances (possibly institutions that had not been filtered out) or the reverse (rural areas with very small populations).

Table 1: Relationship Between Unshrunk and Shrunk Education Data

Variable (shrunk-unshrunk)	N of Wards	Mean of Absolute Change	Std. Deviation
Not Stay	8414.00	1.27	1.65
Not Univ	8413.00	1.83	2.17
Adult No Qual	8414.00	0.22	0.26
KS2Low	8406.00	1.40	1.70
KS2NotHi	8406.00	1.25	1.49
E2L	8413.00	0.22	0.23
Absence	8411.00	0.01	0.01

Using Factor Analysis to Combine the Indicators into a Domain Score

Factor analysis was the method selected to combine the indicators into a domain score. The variables represented different types of information on different age groups in the ward population.

The factor analysis used seven variables. A single factor emerged that explained about 50% of the variance. The loadings on that factor are covered in Table 3. Most of the variables in the model have a strong loading. English as an Additional Language is the exception. The pattern of loading suggests an underlying measure related to poor educational performance and qualifications.

Factor Loadings for Education Deprivation

Variable	Factor
not staying rate	0.664
rate not university	0.750
rate of no adult quals	0.714
rate low KS2	0.892
rate not high KS2	0.858
rate E2L	0.209
rate of absenteeism	0.607

Extraction Method: Maximum Likelihood.

The Domain Index is generated from this Factor Analysis solution and is ranked as described in the income domain section. The rank and exponential of the rank can be found in Appendix.

Housing Domain Index

The indicators within this Domain Index are:

- Homeless households in temporary accommodation for 1997-98 (A)
- Household overcrowding (F)
- Poor private sector housing (K)

The values for the component indicators for this domain are contained in Appendix E.

Column A gives the % homeless households in temporary accommodation from the Local Authority HIP1 returns to the DETR for 1997 and 1998.

Columns B to F relate to 'overcrowded households'. This derives from the 1991 Census, having been converted to 1998 ward geographies. The raw proportion (column D with its standard error in brackets) is derived from the number of overcrowded households (B) over the relevant denominator (C). Column E gives the District rate with the standard deviation in brackets. This enables calculation of the 'shrunk' proportion (column F)

As we have indicated in the main report, the Buildings Research Establishment and the DETR have helped us model poor private sector housing to ward level from the English House Condition Survey. This involved using a commercial product RESIDATA and the process is described in the main report. Column G contains the modelled number of private sector dwellings in the ward in poor condition and Column H is the number of private dwellings in the ward. The process undertaken is explained in *Report for Formal Consultation: Stage 1: Domains and Indicators*. Column I is the rate for the ward of private houses in poor condition with the standard error given in brackets. The District mean (and standard deviation) is contained in column J and the 'shrunk' value in column K.

Using Factor Analysis to combine the indicators into a domain score.

The factor analysis used three variables. A single factor emerged that explained 42% of the variance. The loadings on that factor are shown in the table below.

Factor Loadings for Housing Deprivation

Variable	Factor
Homeless Households	0.515
Overcrowded households	0.876
Private Houses in poor condition	0.478

Extraction Method: Maximum Likelihood.

The Domain Index (L) is generated from this Factor Analysis solution and is ranked as described in the income domain section. The rank (M) and exponential of the rank (N) can be found in Appendix E.

Geographical Access to Services Domain

The indicators within this Domain Index are:

- Access to a large food shop (F)
- Access to a doctor's surgery (J)
- Access to a post office (N)
- Access to a primary school (R)

The values for the component indicators for this domain are contained in Appendix F. Access to post offices, GP surgeries and large food shops was measured for recipients of Income Support, Income Based Job Seeker's Allowance, Family Credit and Disability Working Allowance (see column A). Access to primary schools was measured for all 5-8 year olds (B).

We calculated the shortest distance to each service for each claimant (or child). The total distance travelled by the claimants (or children) in each ward to the nearest service of each type was calculated in metres (C, G, K and O) by adding the individual distances travelled. The average distance travelled to each service was calculated by dividing the total distance by the number of people (D, H, L and P). The standard errors are provided in brackets.

These figures were shrunk to the district mean (E, I, M and Q, and the standard deviations are provided in brackets). In the case of the fifth ward, the 'unshrunk' average distance to post offices (L) is 1203.57 metres. The average distance to post offices for the district is 423.02 metres (M). Once shrunk, the average distance for that ward (N) becomes 1159.97 metres. The ward's score has been slightly 'pulled down' towards the much smaller district average. The other wards' scores are virtually unaffected by the shrinking procedure.

The average distances at ward level to the following services, having been shrunk, range between the following:

	Minimum average distance (metres)	Maximum average distance (metres)	Mean distance (metres)
Access to a large food shop	108.85	20424.41	1839.1207
Access to a doctor's surgery	129.54	12973.99	1506.5685
Access to a post office	114.95	5326.77	625.1878
Access to a primary school	35.83	5063.55	697.6621

The domain index score (S) was calculated by adding F, J, N and R, and dividing by four.

All the wards in England were then ranked on the basis of the Access Domain Index and the least deprived accorded the lowest rank (T). Thus the most deprived ward in

England was accorded a rank value of 8,414 and the least deprived a value of 1. The exponential of the rank (U) was then calculated according to the formula contained in Appendix 2 of the main report. This exponential rank ranges from 0 (least deprived) to 100 (most deprived). Appendix F gives the rank and exponential of the rank for the specimen wards.

Combining the Domain Indices to obtain the Index of Multiple Deprivation

The final index is constructed by combining the weighted exponential of the ranks (detailed in the Appendices hereto).

Ward	Exponential Rank of Income Domain Index A	Exponential Rank of Employment Domain Index B	Exponential Rank of Health Domain Index C	Exponential Rank of Education Domain Index D	Exponential Rank of Housing Domain Index E	Exponential Rank of Access Domain Index F	Index of Multiple Deprivation Score G
TAX X	57.35	59.51	53.59	34.65	29.59	15.06	46.92
TBXX	6.36	7.37	4.37	.24	1.68	19.90	6.28
TCXX	15.35	29.54	30.66	3.30	.87	13.16	17.72
TDX X	.97	3.23	2.29	.14	.33	17.95	3.24
TEXX	4.60	9.14	11.24	.40	7.95	43.05	10.28
TFXX	61.10	57.03	48.09	75.55	25.36	2.09	50.82

The Index of Multiple Deprivation (G)

$$= (.25*A)+(.25*B)+(.15*C)+(.15*D)+(.10*E)+(.10*F)$$

Appendix A: The Income Domain Index

Ward	Adults in IS families A	Children in IS families B	Adults in JSA(IB) families C	Children in JSA(IB) Families D	Adults in FC families E	Children in FC families F	Adults in DWA families G	Children in DWA families H	Modelled CTB Pens I	Modelled CTB Disabled People J	Total people living in families reliant on means tested benefits K= $\Sigma(A:J)$	Total children under 16 in fams reliant on means tested benefits L =B+D+F+H	Child Poverty Index (L/X)*100 M	Income Domain Index (K/W)*100 N
TAXX	804	375	245	111	267	335	3	4	318	34	2495	773	52.55	38.76
TBXX	214	93	38	3	67	90	1	1	65	9	581	168	16.94	10.34
TCXX	655	211	205	26	133	177	10	8	628	56	2109	378	16.09	15.46
TDXX	285	52	70	9	41	59	1	0	281	18	817	103	3.96	6.03
TEXX	73	19	20	4	23	31	0	0	42	5	217	52	17.28	9.19
TFXX	1443	882	556	148	443	562	7	3	393	80	4517	1500	63.16	40.38

Ward	Income Rank O	Exp. of Income Rank P
TAXX	7820	57.35
TBXX	2060	6.36
TCXX	4151	15.35
TDXX	353	.97
TEXX	1545	4.60

TFXX	7926	61.10
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Appendix B: The Employment Domain Index

Ward	Claimant Count (average May98, Aug 98, Nov 98, Feb 99) A	TEC delivered training (youth) B	TEC delivered training (adult) C	Non employment New Deal D	Incapacity benefit claimants under 60 E	SDA claimants under 60 F	Total unemployed or on schemes G (A+B+C+D)	Total incapacitated through sickness H (E+F)	Economically Active Population I	Economically Active plus those incapacitated J (I+E+F)	Employment Index (((G+H)/J)*100 K
TAXX	222	14	15	8	273	49	259	322	2272	2594	22.39
TBXX	57	3	0	2	68	23	62	91	2554	2645	5.78
TCXX	218	22	11	8	460	63	259	523	5731	6254	12.51
TDXX	96	0	4	3	141	34	103	175	6320	6495	4.28
TEXX	29	4	0	1	44	5	33	49	1261	1310	6.28
TFXX	483	39	14	24	429	97	560	526	4501	5027	21.61

Ward	Employment Rank L	Exp. of Employment Rank M
TAXX	7883	59.51
TBXX	2337	7.37
TCXX	6164	29.54
TDXX	1118	3.23
TEXX	2796	9.14

TFXX	7810	57.03
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Appendix C: The Health and Disability Domain Index

Comparative Mortality Ratios

Ward	Male CMR A	Female CMR B
TAXX	108.91	93.58
TBXX	70.52	74.15
TCXX	109.75	108.87
TDXX	86.05	81.65
TEXX	106.73	103.43
TFXX	134.23	126.53

Attendance Allowance and Disability Living Allowance Recipients

WARD	No. AA/DLA C	% AA/DLA (S.E.) D	% District AA/DLA (S.D.) E	'Shrunk' % AA/DLA F
TAXX	597.00	9.27 (0.36)	6.96 (1.56)	9.22
TBXX	206.00	3.66 (0.25)	4.18 (1.28)	3.69
TCXX	870.00	6.38 (0.21)	8.24 (2.43)	6.40
TDXX	400.00	2.95 (0.15)	5.03 (1.58)	2.99
TEXX	93.00	3.94 (0.40)	6.29 (1.70)	4.18
TFXX	861.00	7.70 (0.25)	6.79 (1.66)	7.68

Incapacity and Severe Disablement Benefit Recipients aged 16-59

WARD	No. IB/SDA G	% IB/SDA (S.E.) H	% District IB/SDA (S.D.) I	'Shrunk' % IB/SDA J
TAXX	322.00	10.32 (0.54)	7.42 (2.15)	10.25
TBXX	91.00	2.82 (0.29)	3.32 (1.04)	2.87
TCXX	523.00	7.12 (0.30)	9.61 (4.12)	7.15
TDXX	175.00	2.15 (0.16)	4.57 (2.57)	2.18
TEXX	49.00	3.18 (0.45)	7.25 (2.76)	3.48
TFXX	526.00	8.93 (0.37)	7.96 (2.87)	8.92

Aged standardised long term illness

WARD	Age std. LLTI (S.E.) K	District Age std. LLTI (S.D.) L	'Shrunk' Age std. LLTI M
TAXX	126.29 (3.13)	107.71 (15.23)	125.53
TBXX	75.78 (2.66)	85.25 (14.95)	76.07
TCXX	86.12 (1.92)	111.52 (24.10)	86.28
TDXX	70.60 (1.87)	88.26 (22.37)	70.72
TEXX	81.36 (4.61)	111.93 (24.98)	82.37
TFXX	124.39 (2.30)	121.79 (17.56)	124.35

Low birthweight

WARD	No. Low bwt. Births N	All Births O	Proportion of low bwt. Births (S.E.) P	District proportion of low bwt Births (S.D.) Q	Shrunk Proportion of low bwt. Births R
TAXX	38	441	8.62 (1.34)	6.58 (2.02)	8.38
TBXX	15	250	6.00 (1.50)	6.42 (1.99)	6.27
TCXX	44	667	6.60 (0.96)	7.42 (1.39)	6.92
TDXX	41	651	6.30 (0.95)	7.37 (1.22)	6.77
TEXX	7	85	8.24 (2.98)	7.05 (2.41)	8.14
TFXX	63	741	8.50 (1.03)	8.39 (1.57)	8.52

WARD	Health Domain Index Score S	Health Rank T	Exponential of Health Rank U
TAXX	1.47504	7676	53.07
TBXX	-0.82998	1483	4.40
TCXX	0.43845	6239	30.28
TDXX	-0.99297	790	2.24
TEXX	-0.46781	3274	11.15
TFXX	1.22348	7448	47.60

Appendix D: Education, Skills and Training Domain Index

Table A1: Child Benefit Based ‘Not Staying On’ Rate

WARD	Total Child Benefit 17-19yr olds	Total Child Benefit 13-15yr olds	% staying on	% not staying on (S.E.)	District Not Stay Rate (S.D.)	Shrunk % not staying on
TAXX	86	268	32.09	67.91 (2.85)	58.66 (7.12)	66.38
TBXX	129	204	63.24	36.76 (3.38)	49.57 (12.81)	37.59
TCXX	240	510	47.06	52.94 (2.21)	59.51 (9.91)	53.22
TDXX	273	484	56.40	43.60 (2.25)	60.90 (14.82)	43.89
TEXX	32	58	55.17	44.83 (6.53)	67.29 (14.37)	48.16
TFXX	105	433	24.25	75.75 (2.06)	76.45 (5.76)	75.78

Table A2: UCAS and Child Benefit Based Rates of Entry to Higher Education

WARD	Total under 20 admitted	Total 12-15	% not at Univ (S.E.)	Shrunk % not at Univ	District % not at Univ (S.D.)
TAXX	39	355	89.01 (1.66)	88.34	86.05 (5.97)
TBXX	77	286	73.08 (2.62)	73.73	77.63 (9.34)
TCXX	183	666	72.52 (1.73)	73.40	82.61 (9.38)
TDXX	226	655	65.50 (1.86)	66.56	81.37 (12.02)
TEXX	22	77	71.43 (5.15)	77.25	86.96 (11.93)
TFXX	28	571	95.10 (0.90)	94.70	93.93 (4.62)

Table A3: LFS Data (Modelled to Wards from Districts)

WARD	% adults 25-59 with no qualifications (S.E.)	District rate of no qualification (S.D.)	Shrunk % adults 25-59 with no qualifications	% adults 25-59 with high qualifications	District Rate for High Qualification
TAXX	24.20 (0.85)	24.05 (3.80)	24.21	12.77	15.94
TBXX	11.96 (0.63)	15.71 (2.97)	12.08	40.23	29.92
TCXX	15.90 (0.43)	23.69 (6.77)	15.94	25.00	16.75
TDXX	11.46 (0.41)	19.12 (8.92)	11.50	40.76	21.59
TEXX	12.79 (1.02)	24.45 (5.96)	13.18	34.55	17.14
TFXX	30.51 (0.68)	31.82 (5.56)	30.53	6.56	10.43

Table A4: KS2 Data (Source: DFEE individual pupil KS2 data)

WARD	Average KS2 grade	% KS2 low grade (S.E.)	District % KS2 low grade (S.D.)	Shrunk KS2 low grade	% KS2 not high grade (S.E.)	Shrunk % KS2 not high grade
TAXX	3.76	35.10 (3.14)	33.74 (11.48)	35.09	87.62 (2.17)	87.26
TBXX	4.27	11.58 (2.40)	21.31 (6.61)	13.50	61.33 (3.66)	62.63
TCXX	4.04	19.05 (1.66)	24.65 (7.62)	19.44	76.02 (1.80)	76.16
TDXX	4.25	9.89 (1.17)	23.80 (12.69)	10.25	64.83 (1.88)	64.99
TEXX	4.28	12.31 (3.49)	27.84 (10.41)	15.32	59.43 (5.22)	61.41
TFXX	3.60	47.88 (2.34)	37.94 (7.82)	47.15	90.42 (1.38)	90.07

Table A5: English as an Additional Language

WARD	Total Pupils	Total with E2L	% E2L (S.E.)	District % E2L (S.D.)	Shrunk % E2L
TAXX	582.22	2.86	0.49 (0.29)	0.22 (0.20)	0.36
TBXX	360.01	1.07	0.30 (0.29)	2.40 (2.25)	0.73
TCXX	1468.61	1.73	0.12 (0.09)	0.33 (0.38)	0.19
TDXX	1840.71	14.07	0.76 (0.20)	1.19 (1.03)	0.81
TEXX	229.61	0.71	0.31 (0.37)	0.95 (1.22)	0.68
TFXX	1361.11	0.19	0.01 (0.03)	1.03 (1.71)	0.13

Table A6: Primary School Absentee Rate (Total Sessions Missed over Total Sessions)

WARD	Total missed sessions	Total sessions	% Absent (S.E.)	District % Absent (S.D.)	Shrunk % Absent
TAXX	9995.94	149133.54	6.70 (0.06)	6.02 (0.90)	6.70
TBXX	4102.20	86612.70	4.74 (0.07)	4.16 (0.52)	4.73
TCXX	16916.95	365620.93	4.63 (0.03)	6.11 (1.21)	4.63
TDXX	21559.86	475564.85	4.53 (0.03)	6.25 (1.44)	4.53
TEXX	2817.95	63442.32	4.44 (0.08)	6.44 (1.39)	4.45
TFXX	24498.84	316682.10	7.74 (0.05)	8.05 (1.95)	7.74

Table A7: Results of Factor Analysis Using Seven Variables at Ward Level

WARD	Education Domain Index Score	Education Rank	Exponential of Education Rank
TAXX	0.81	6635	34.65
TBXX	-2.10	87	0.24
TCXX	-1.07	1138	3.30
TDXX	-2.26	50	0.14
TEXX	-1.89	148	0.40
TFXX	1.86	8205	75.55

Appendix E: The Housing Domain Index

Homeless Households in temporary accommodation for 1997-98

WARD D	% Homeless households A
TAXX	.11
TBXX	.08
TCXX	.01
TDXX	.09
TEXX	.03
TFXX	.00

Overcrowded Households

WARD	Overcrowded Households (from 1991 Census) B	Households (1991 Census) C	% Overcrowded (S.E.) D	District mean of overcrowded Households (S.D.) E	% 'Shrunk' Overcrowded F
TAXX	48	2523	1.90 (.27)	1.75 (.78)	1.91
TBXX	13	2055	.63 (.17)	.82 (.53)	.67
TCXX	32	5231	.61 (.11)	1.26 (.68)	.66
TDXX	18	4471	.40 (.09)	1.47 (1.38)	.45
TEXX	6	832	.72 (.29)	1.54 (1.11)	.84
TFXX	100	4673	2.14 (.21)	2.24 (.98)	2.15

Private houses in poor condition

WARD	Houses in poor condition G	Total private houses H	% Private Houses in poor condition (S.E.) I	District Mean of Houses in poor condition (S.D.) J	% Private Houses in poor condition Shrunk Value K
TAXX	323	2180	14.81 (.76)	13.96 (2.62)	14.78
TBXX	185	2001	9.26 (.65)	10.43 (3.07)	9.33
TCXX	467	5408	8.64 (.38)	14.43 (4.45)	8.72
TDXX	412	4787	8.60 (.41)	9.28 (1.58)	8.66
TEXX	112	751	14.97 (1.30)	14.85 (5.22)	14.95
TFXX	178	2072	8.60 (.62)	15.53 (4.96)	8.78

WAR D	Housing Domain Index Score L	Housing Rank M	Exponential of housing Rank N
TAXX	.10159	6170.00	29.59
TBXX	-.68870	602.00	1.68
TCXX	-.74889	318.00	.87
TDXX	-.81574	121.00	.33
TEXX	-.45567	2490.00	7.95
TFXX	-.01754	5694.00	25.36

Appendix F: The Geographical Access to Services Domain Index

Denominators and access to a large food shop

Ward	Number of means tested benefit claimants A	Number of 5-8 year olds (Child Benefit data) B	Actual distance to a large food shop (metres) C	Average distance to a large food shop (metres) and S.E. D (C/A)	District average distance to a large food shop (metres) and S.D. E	Shrunk average distance to a large food shop (metres) F
TAXX	1056	391	981790.02	929.73 (17.21)	2333.43 (3781.94)	929.75
TBXX	293	247	220082.47	751.13 (25.51)	1067.56 (1511.58)	751.22
TCXX	941	584	572700.80	608.61 (12.89)	648.01 (351.75)	608.66
TDXX	384	692	298304.45	776.83 (29.48)	713.33 (242.61)	775.91
TEXX	110	78	373426.14	3394.78 (165.89)	698.06 (1169.61)	3341.60
TFXX	2019	579	737488.78	365.27 (4.05)	418.55 (105.91)	365.35

Access to a doctor's surgery

Ward	Actual distance to a doctor's surgery (metres) G	Average distance to a doctor's surgery (metres) and S.E. H (G/A)	District average distance to a doctor's surgery (metres) and S.D. I	Shrunk average distance to a doctor's surgery (metres) J
TAXX	709954.88	672.31 (16.60)	1619.44 (1780.97)	672.39
TBXX	221573.78	756.22 (23.79)	1027.37 (1512.89)	756.29
TCXX	813293.99	864.29 (15.37)	558.66 (246.84)	863.11
TDXX	358607.27	933.87 (26.86)	615.16 (478.13)	932.87
TEXX	362965.44	3299.69 (101.85)	825.79 (844.90)	3264.25
TFXX	923718.71	457.51 (4.70)	538.97 (180.87)	457.57

Access to a post office

Ward	Actual distance to a post office (metres) K	Average distance to a post office (metres) and S.E. L (K/A)	District average distance to a post office (metres) and S.D. M	Shrunk average distance to a post office (metres) N
TAXX	665495.43	630.20 (15.42)	561.71 (246.65)	629.94
TBXX	250474.70	854.86 (26.71)	589.11 (375.13)	853.52
TCXX	366301.13	389.27 (6.97)	440.08 (178.84)	389.34
TDXX	210108.72	547.16 (22.36)	533.65 (117.02)	546.68
TEXX	132392.28	1203.57 (74.06)	423.02 (304.49)	1159.97
TFXX	785823.79	389.21 (4.46)	446.84 (66.17)	389.48

Access to a primary school

Ward	Actual distance to a primary school (metres) O	Average distance to a primary school (metres) and S.E. P (O/B)	District average distance to a primary school (metres) and S.D. Q	Shrunk average distance to a primary school (metres) R
TAXX	155588.26	397.92 (11.47)	678.51 (298.95)	398.34
TBXX	197292.45	798.75 (31.71)	667.97 (352.82)	797.71
TCXX	346907.62	594.02 (13.03)	421.91 (125.99)	592.20
TDXX	451840.97	652.95 (17.71)	487.76 (187.81)	651.49
TEXX	148325.60	1901.61 (112.68)	445.59 (365.08)	1774.98
TFXX	190351.62	328.76 (6.76)	351.16 (53.89)	329.11

Final scores

Ward	Access Domain Index score S	Access domain index rank T	Exponential score of the access domain score U
TAXX	657.60	4095	15.06
TBXX	789.69	4936	19.90
TCXX	613.33	3715	13.16
TDXX	726.74	4619	17.95
TEXX	2385.20	7213	43.05
TFXX	385.38	740	2.09