

Understanding the communities of the schools with the greatest proportion of long-term disadvantaged students and what the policy response should be

Introduction

In our recent second report into long-term disadvantage in secondary schools, we committed to looking in more detail at the location of the schools we identified¹. The paper presents that analysis but also goes further by looking at more data about the communities these schools are in. Given the eligibility criteria for Free School Meals then we know that there will be increased levels of unemployment and/or low paid work, but through using the Index of Multiple Deprivation (IMD) we get a richer picture of other challenges such as health and crime, all which impact on children's wellbeing and therefore on their schooling.

Clearly, the type of analysis we are conducting here bears some resemblance to the rationale behind Opportunity Areas. The Department for Education (DfE) made it clear at the inception of the Opportunity Areas programme in 2016 that they aimed to increase social mobility through focusing national and local resources. When identifying these Opportunity Areas, the DfE used "a range of indicators" contained within the Social Mobility Index and the Achieving Excellence Areas Index; these indicators focus primarily on education-based factors with some additional employment criteria. Our analysis corrects for how the department implemented the policy intent at the time with no further opportunity areas created after those Rt Hon Justine Greening oversaw as Secretary of State. We then apply a measure of geographic density of schools with a high proportion of pupils from a long-term disadvantaged background to help determine at what level intervention might be justified.

Executive Summary

We cannot pretend that schools are wholly responsible for the children they teach – and in reality educational outcomes and their wider wellbeing is dependent on a wide range of factors. Educators are when impactful a significant influence – but in recovering from this pandemic and beyond we must look at the places they come from, and what is going on there that we can change for the better beyond the school gates.

The concentration of schools with high proportions of long term disadvantaged children in specific local authorities in the North, including cities like Liverpool and authorities such as South Tyneside, will require a wider focus than can be taken to place based challenges where they are more concentrated. The learning from Opportunity Areas is that scale needs

¹ These were identified by having at least X% of their cohort in the long-term disadvantage high impact group

to be tailored to the challenge, the focus broader than education and where they are available that the Metro Mayors, not government, must take the lead.

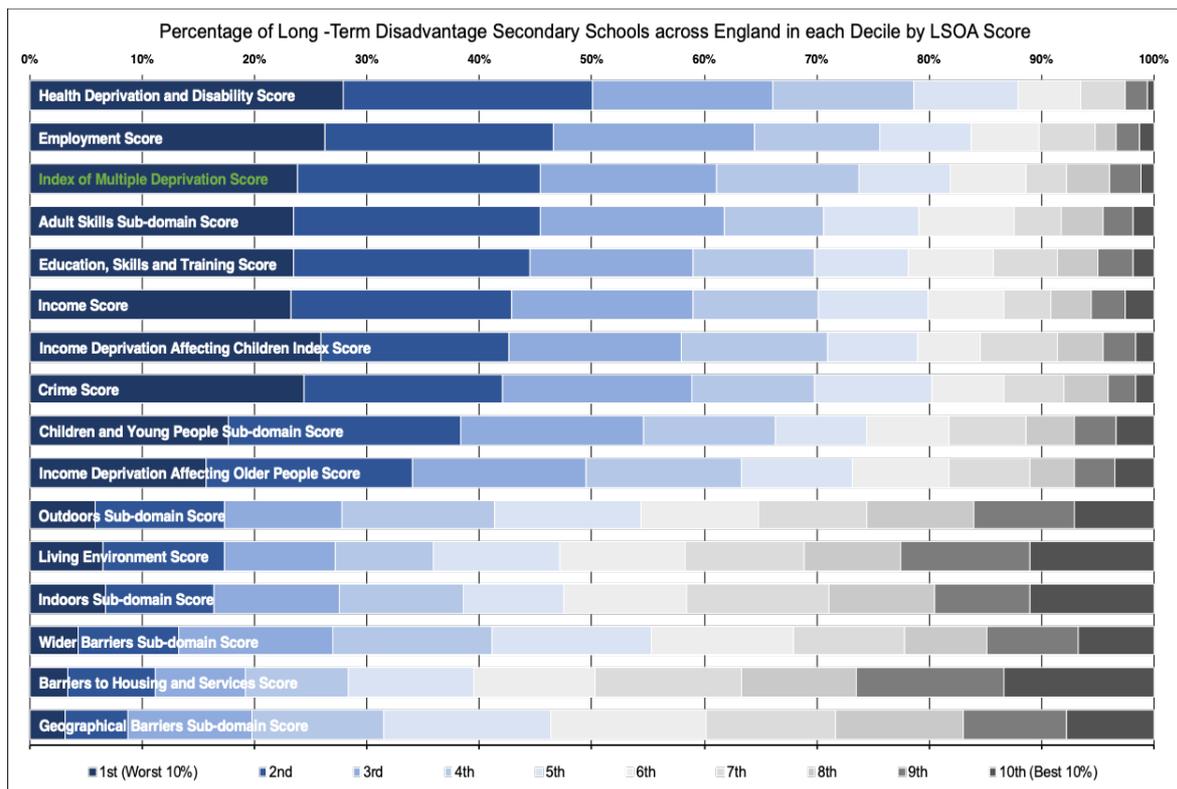
Analysis

Figure 1 takes the ranking of each long-term disadvantaged school's LSOA² for each domain/sub-domain of the IMD and assigns to a decile accounting for all England LSOAs. It is clear to see that when considering all 537 schools across England, the two largest contributors to a low IMD score are the Health Deprivation and Disability and Employment criteria, with c. 50% of the schools located in LSOAs ranked in the bottom 20% of areas. After that, adult skills and income deprivation rankings, arguably integrally dependant on one another (better qualifications are likely to lead to a better salary), display large contributions to a low IMD score. By identifying which criteria play a significant role in determining whether a school has a large proportion of long-term disadvantaged pupils, further measures can be put in to address these disparities at the root cause.

It goes without saying that from the data that Figure 1 is based on, it would be a mistake to attempt to improve communities and livelihoods by merely targeting the educational outcomes within them. This is perhaps where the opportunity areas fall short by being the sole responsibility of the Department for Education rather than being a cross-government programme, which may be addressed by Kevan Collins recovery brief being located at the centre of government. An allocation of resources at an education level, e.g. extra tutoring etc even if it has worked in schools of differing circumstances through Randomised Control Trials, is unlikely to prove as successful in improving overall outcomes if other factors such as health, crime and employment opportunities have been left unaddressed. Whilst education, skills and training do play an important role in determining levels of social mobility and deprivation, it is not effective to apply a one size fits all approach and only target education without considering the other socio-economic factors at play, specific to the area.

Figure 1: Proportions of schools in each decile for ranked Index of Multiple Deprivation Domain scores for each Lower Super Output Area

² Lower-layer Super Output Areas have an average population of 1500 or 650 households.



The IMD data also highlights regional disparities, as shown in Figures 2 and 3, demonstrating that each disadvantaged community should be approached differently when it comes to addressing the impacts of deprivation on life chances. For example, Figure 2 shows that a major feature of the schools located in communities in the North West is the low Health and Disability score with c. 70% of the schools sitting in the bottom 20% of LSOAs. The proportion of the working-age population involuntarily excluded from the labour market also appears to play a significant role in determining long-term disadvantage in the North West. Hence an appropriate measure to improve outcomes for children in young people in these communities would be to improve health scores through reducing premature deaths and acting to increase the number of employment opportunities available to these communities. This is why the Northern Powerhouse is so critical, because to disconnect one driver from productivity from the others makes the challenges harder to address at root cause. In comparison, Figure 3 shows the South East identifies both child and adult educational disadvantage as a large contributor to the area's deprivation. In this case, the Opportunity Area approach of targeting educational outcomes may be the most suitable when tackling disadvantage. These regional differences further strengthen the argument that the current Opportunity Areas targeting educational outcomes is not a one size fits all approach but must be adapted to suit the area of interest, tackling the most prevalent factors as appropriate.

Figure 2: Proportion of schools in the North West in each decile for ranked Index of Multiple Deprivation Domain scores for each LSOA

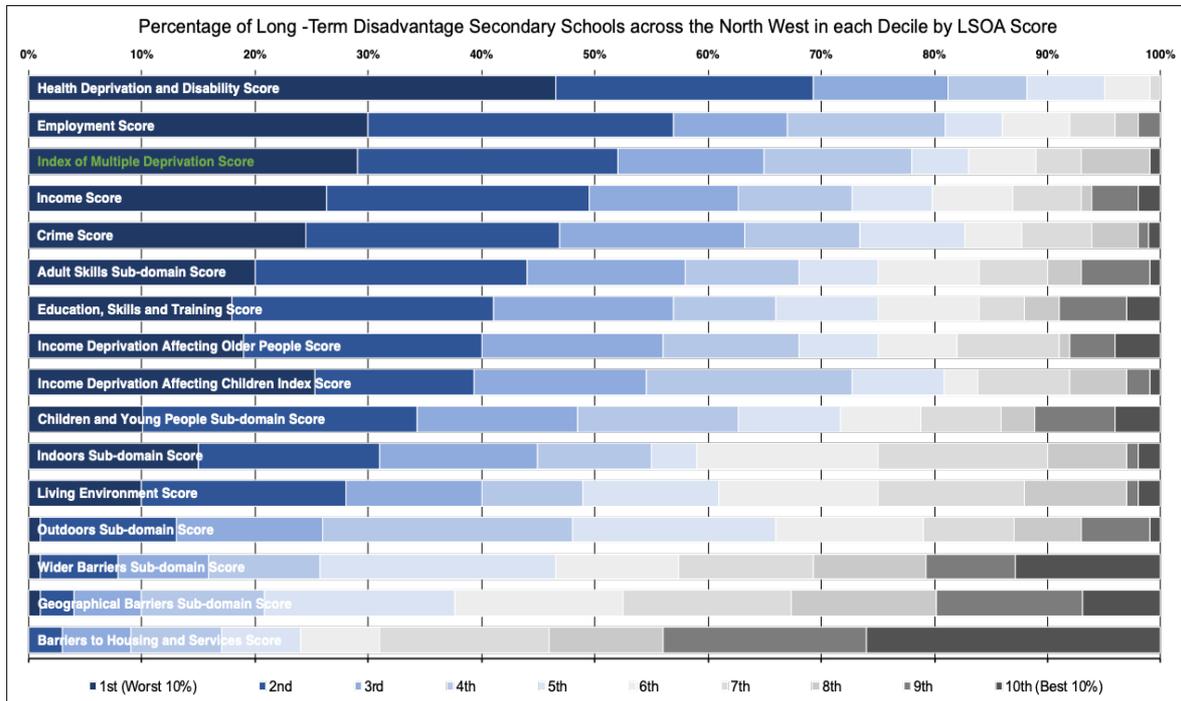
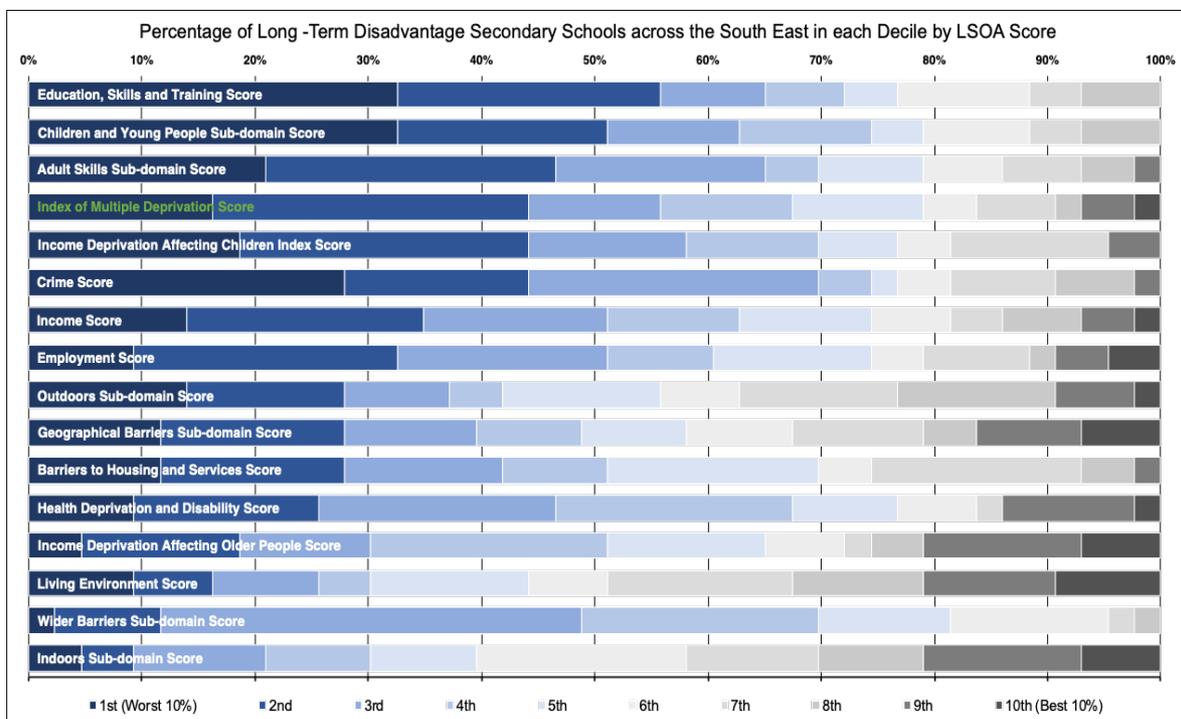


Figure 3: Proportion of schools in the South East in each decile for ranked Index of Multiple Deprivation Domain scores for each LSOA



Geographic Distribution

The Opportunity Areas Selection Methodology acknowledges that defining opportunity areas by Upper Tier Local Authority level may not fully capture the full range of performance within the area. Local Authority Districts (LADs) have been used to strike a balance between missing areas that may benefit from support and dealing with schools on an individual basis. However, the report on long-term disadvantage in secondary schools in England highlights the inconsistencies in determining the geographical concentrations of these schools. That is to say, there is no standardised approach in defining where the opportunity areas should be focused. Whilst the 537 schools can be broken down into a resolution as fine as Lower-layer Super Output Areas, the current approach suggests that any aid provided to these schools is rolled from a Local Authority District level. In reality, with the variation of Local Authority sizes and socio-economic factors unique to each region, the spread of schools within each Local Authority ranges from evenly distributed over the area to hyper-localised. In an attempt to quantify the level at which funding should be distributed from, without manually working through co-ordinates on a map, an index/ranking has been derived; at one end there is the need to provide funding across the LA, at the other sits the recommendation to localise the funding.

The derived index value for each Lower Tier Local Authority (LTLA), shown in Tables 1 and 2, gives some indication as to at which level funding should be applied. It is worth mentioning that they are perhaps best used as comparative values on a scale rather than black and white definite quantities.

Firstly, those LTLAs with only one or two schools have an index score of 0. It could be argued that any additional funding should be directed directly to the schools with outside agencies brought in to work on interventions beyond the school gates. A process that one would hope could be done relatively easily and with little administrative burden.

Secondly, the scale suggests that the lowest values have funds allocated at a level lower than Local Authority Districts such as wards. LADs such as East Lindsey and Tendring, shown in Figures 11 and 12 (Appendix B) respectively, cover larger areas however the schools are isolated and sparsely placed therefore making more sense to target these individual areas.

Finally, LADs with high index values at the other end should have funding applied at a Local Authority District level. Areas such as Liverpool, the highest value, and South Tyneside, the twelfth highest value, shown in Figures 13 and 14 (Appendix B) respectively, cover smaller areas yet have a higher number of schools spread out more evenly across the region,

validating the decision to apply funding over the broader area. A full list of all authorities is provided in Appendix B.

Whilst this method is not the definitive way to decide at what level funding is applied, it does some way to test and demonstrate the hypothesis that there is no universal method to determining funding allocation as it is a variable of geographic factors and human judgement. The index does, however bring to light that metropolitan areas particularly in the North where population density and deprivation are higher, are more likely to require funding applied across the LAD. On the other hand, larger, more rural LADs require funding directed at a lower level, addressing isolated clusters and specific needs.

Table 1: Lower Tier Local Authorities with the highest geographic index score (minimum of 3 schools in the area)

Lower Tier Local Authority	Number of Schools	Index
Liverpool	17	1.046
North East Lincolnshire	4	0.674
Solihull	3	0.672
Halton	8	0.593
Middlesbrough	5	0.581

Table 2: Lower Tier Local Authorities with the lowest geographic index score (minimum of 3 schools in the area)

Lower Tier Local Authority	Number of schools	Index
Cornwall and Isles of Scilly	3	0.001
East Lindsey	4	0.004
Cheshire East	3	0.010
Cheshire West and Chester	4	0.010
North Lincolnshire	3	0.018

Recommendations

The analysis presented above has clearly shown that lower educational attainment is just one challenge being faced by many of the communities in which the schools we identified

are located. This supports our view that Opportunity Areas (or what the current ones evolve into as place based policy becomes an England wide approach) should not just be the policy remit of DfE. Though many OAs have no doubt worked beyond just the schools system, giving the policy greater priority across government will focus attention on it and, one would assume, improve cross-departmental working.

However, we believe we can go further than this. In areas where Metro Mayoral combined authorities have and are created, they should be devolved the funding to target the specific geographies we have identified and given appropriate funding to allow them to draw together education, health and other welfare services as appropriate. Though our focus has been on increasing educational attainment, it is clear that this cannot be achieved without addressing the other challenges we have identified.

There also needs to be significant new funding as this type of intervention sits squarely in the government's levelling up agenda, mirroring the Northern Powerhouse education fund created previously by the Treasury and under focused on by the Department for Education who had responsibility for spending it. However, responsibility and accountability must be devolved down to the most practical level and to come with the power to direct services which would usually be the responsibility of Department for Work and Pensions, Department of Health and Social Care and Ministry of Housing, Communities and Local Government.

Finally, there should be greater promotion of delivery models such as that demonstrated by South Yorkshire Futures where the best expertise, in that case from academia, is drawn on to help improve standards. The approach being developed by Right to Succeed in Birkenhead and to be discussed at Northern Powerhouse Partnership's education summit also shows a way forward for place based investment.

Appendix A - The Index of Multiple Deprivation

(taken from <https://www.gov.uk/government/statistics/english-indices-of-deprivation-2019>)

Using the Index of Multiple Deprivation (IMD) data from the Ministry of Housing, Communities and Local Government, each of the 32,844 Lower-layer Super Output Areas have been ranked and placed into deciles for a number of criteria. The seven domains of deprivation, two supplementary Indices and the six sub-domains on which the IMD is calculated are as follows:

- The **Income Deprivation** Domain measures the proportion of the population experiencing deprivation relating to low income. The definition of low income used includes both those people that are out-of-work, and those that are in work but who have low earnings (and who satisfy the respective means tests).
- The **Employment Deprivation** Domain measures the proportion of the working-age population in an area involuntarily excluded from the labour market. This includes people who would like to work but are unable to do so due to unemployment, sickness or disability, or caring responsibilities.
- The **Education, Skills and Training Deprivation** Domain measures the lack of attainment and skills in the local population. The indicators fall into two sub-domains, designed to reflect the 'flow' and 'stock' of educational disadvantage within an area respectively:
 - **Children and Young People Sub-domain** measures the attainment of qualifications and associated measures ('flow')
 - **Adult Skills Sub-domain** measures the lack of qualifications in the resident working-age adult population ('stock').
- The **Health Deprivation and Disability** Domain measures the risk of premature death and the impairment of quality of life through poor physical or mental health. The domain measures morbidity, disability and premature mortality but not aspects of behaviour or environment that may be predictive of future health deprivation.
- The **Crime** Domain measures the risk of personal and material victimisation at local level.
- The **Barriers to Housing and Services** Domain measures the physical and financial accessibility of housing and local services. The indicators fall into two sub-domains:

- **Geographical Barriers Sub-domain**, which relates to the physical proximity of local services.
 - **Wider Barriers Sub-domain** which includes issues relating to access to housing such as affordability.
- The **Living Environment Deprivation** Domain measures the quality of the local environment. The indicators fall into two sub-domains:
 - **Indoors Sub-domain** measures the quality of housing.
 - **Outdoors Sub-domain** contains measures of air quality and road traffic accidents.
- The **Income Deprivation Affecting Children Index (IDACI)** measures the proportion of all children aged 0 to 15 living in income deprived families. It is a subset of the Income Deprivation Domain which measures the proportion of the population in an area experiencing deprivation relating to low income. The definition of low income used includes both those people that are out-of-work, and those that are in work but who have low earnings (and who satisfy the respective means tests).
 - The **Income Deprivation Affecting Older People Index (IDAOPI)** measures the proportion of all those aged 60 or over who experience income deprivation. It is a subset of the Income Deprivation Domain which measures the proportion of the population in an area experiencing deprivation relating to low income. The definition of low income used includes both those people that are out-of-work, and those that are in work but who have low earnings (and who satisfy the respective means tests).

The domains were combined using the following weights to produce the overall Index of Multiple Deprivation:

- Income Deprivation (22.5%)
- Employment Deprivation (22.5%)
- Education, Skills and Training Deprivation (13.5%)
- Health Deprivation and Disability (13.5%)
- Crime (9.3%)
- Barriers to Housing and Services (9.3%)
- Living Environment Deprivation (9.3%)

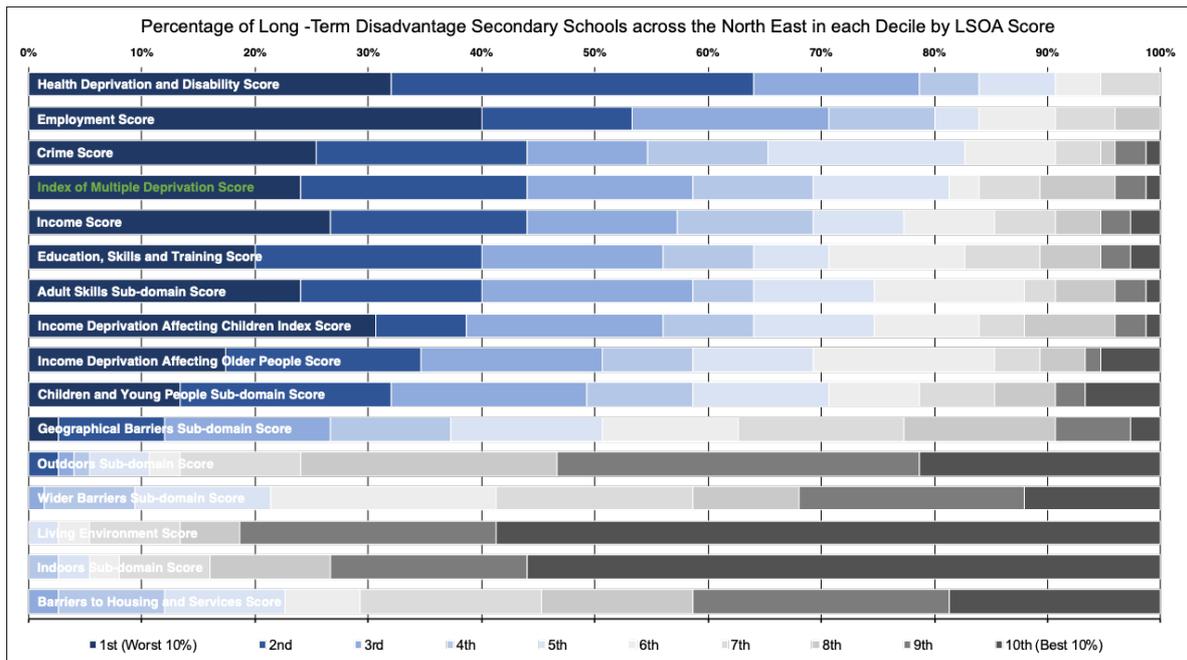


Figure 4: Chart showing proportions of schools in the North East in each decile for ranked Index of Multiple Deprivation Domain scores for each LSOA.

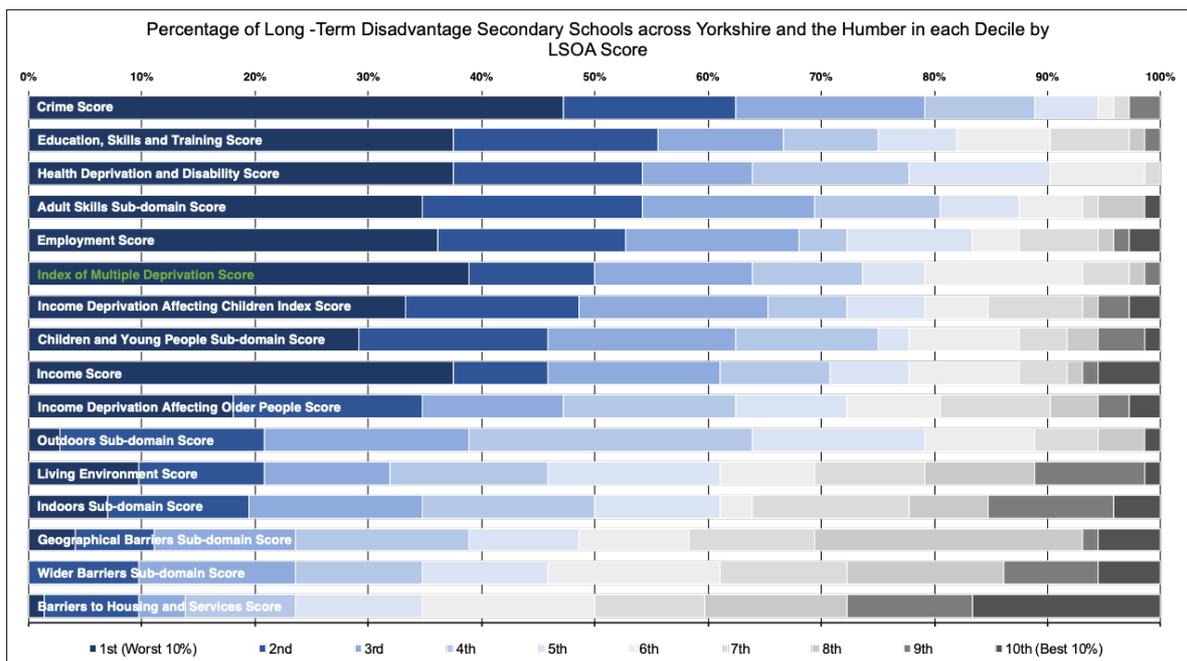


Figure 5: Chart showing proportions of schools in Yorkshire and the Humber in each decile for ranked Index of Multiple Deprivation Domain scores for each LSOA.

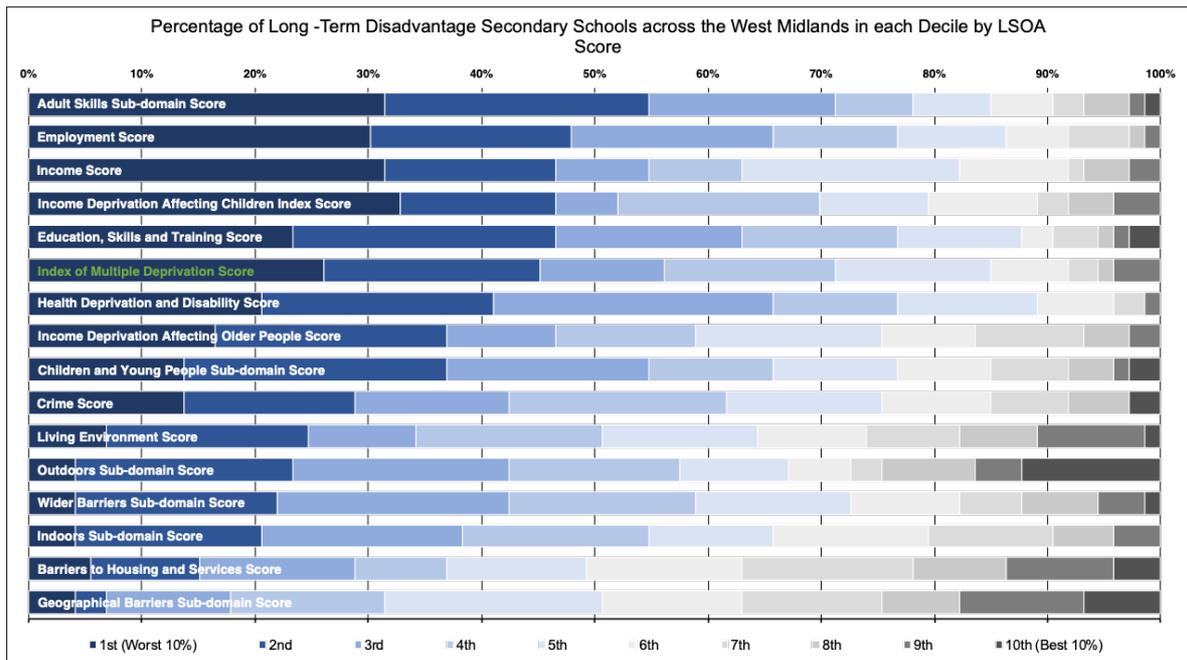


Figure 6: Chart showing proportions of schools in the West Midlands in each decile for ranked Index of Multiple Deprivation Domain scores for each LSOA.

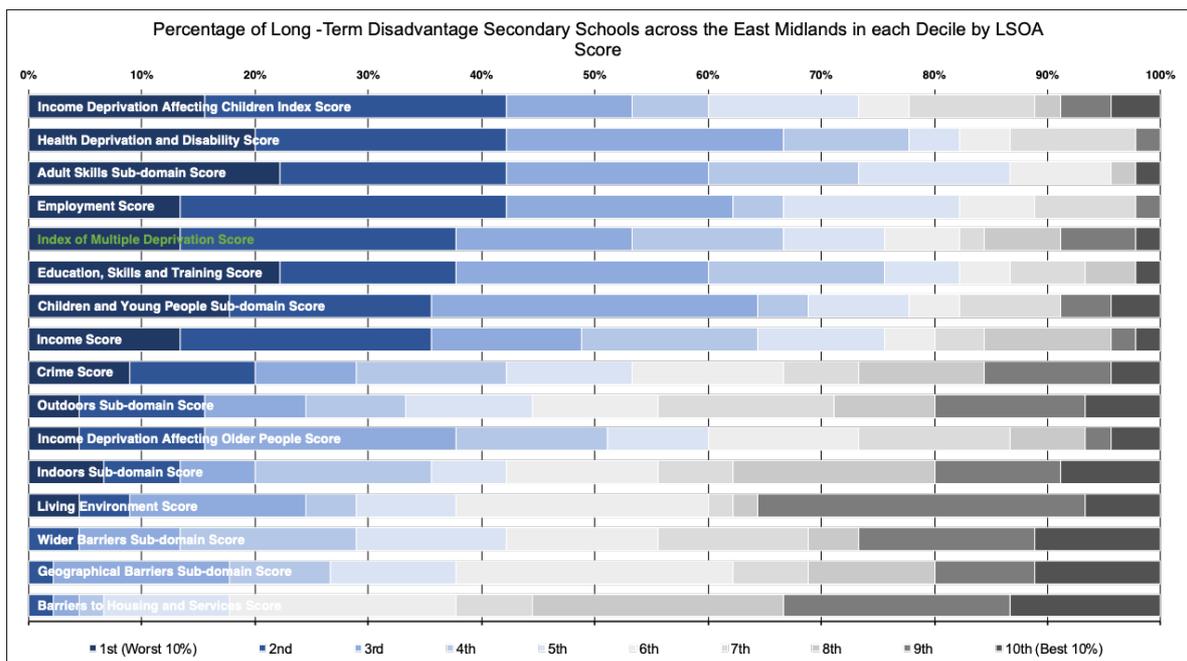


Figure 7: Chart showing proportions of schools in the East Midlands in each decile for ranked Index of Multiple Deprivation Domain scores for each LSOA.

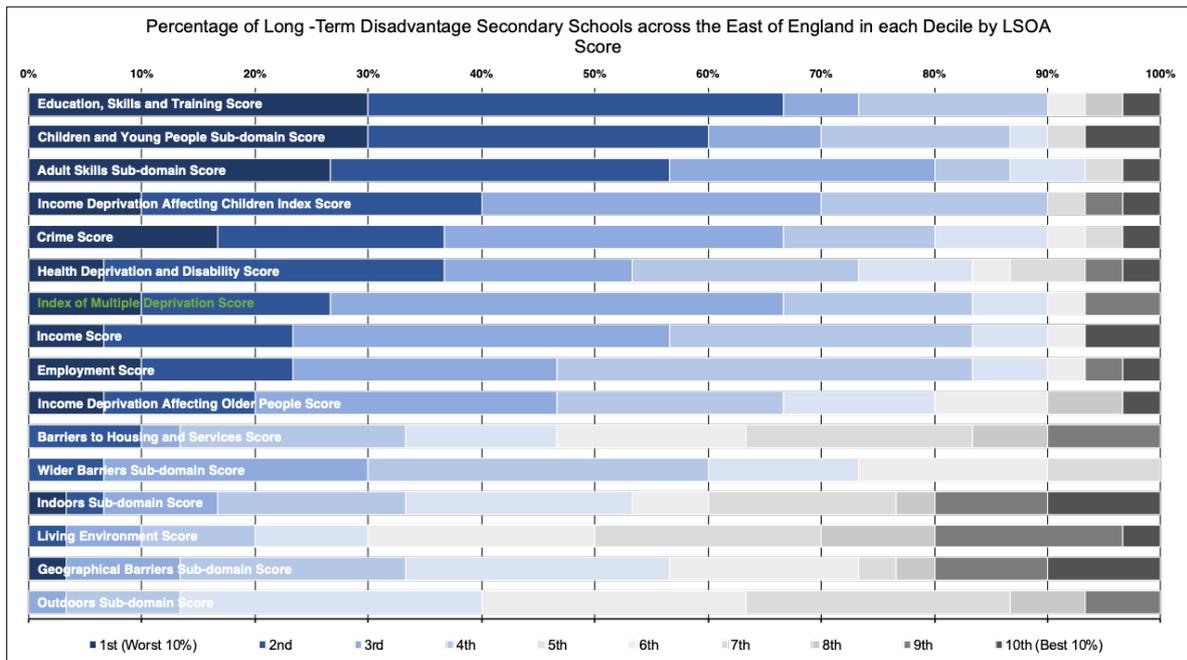


Figure 8: Chart showing proportions of schools in the East of England in each decile for ranked Index of Multiple Deprivation Domain scores for each LSOA.

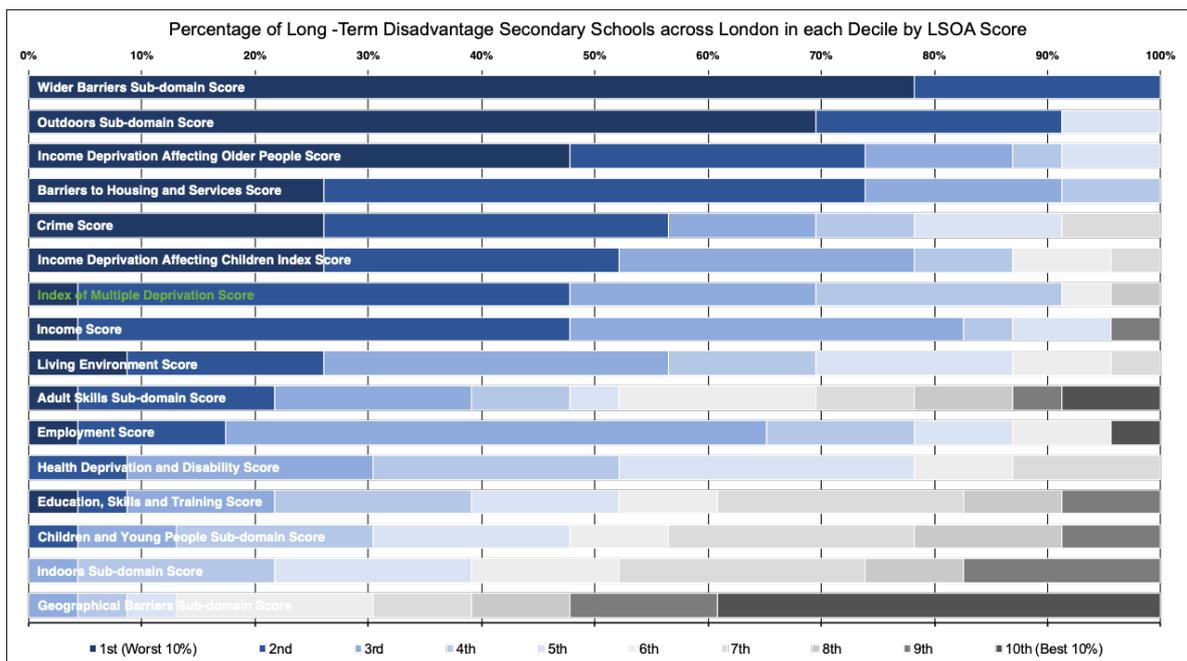


Figure 9: Chart showing proportions of schools in the London in each decile for ranked Index of Multiple Deprivation Domain scores for each LSOA.

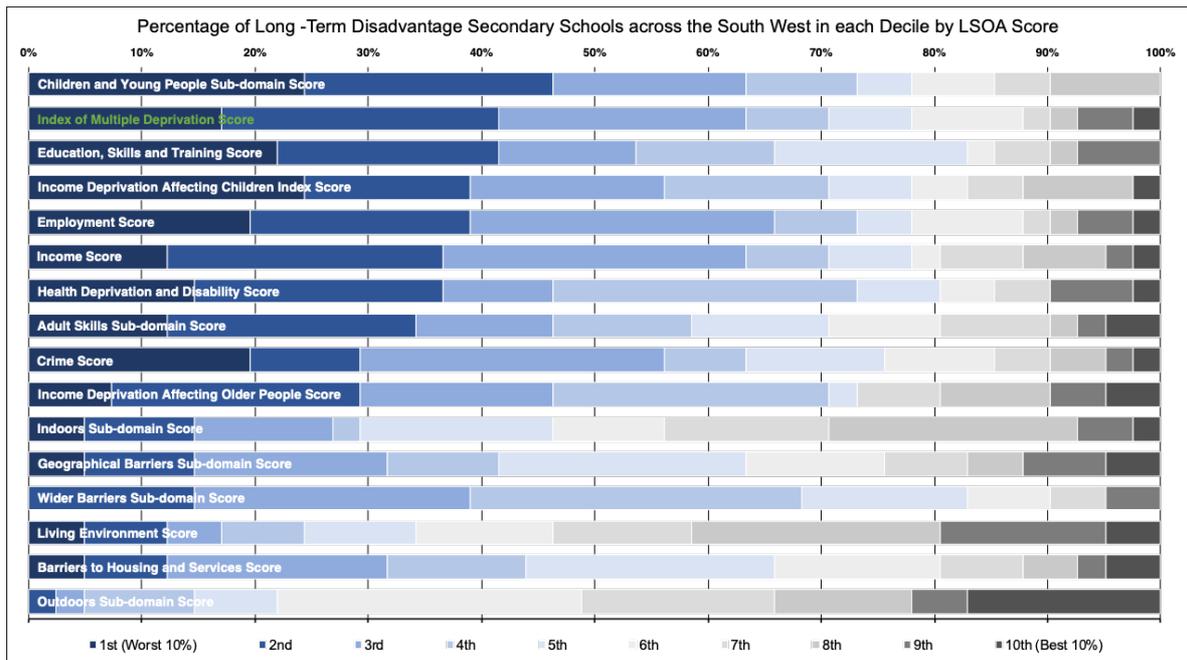


Figure 10: Chart showing proportions of schools in the South West in each decile for ranked Index of Multiple Deprivation Domain scores for each LSOA.

Appendix B – Geographic Concentration

Local Authority	Count of Schools, n	Max. Distance, x_{max}	Min. Distance, x_{min}	Mean Distance, \bar{x}	StdDev Distance, σ	Index, i
Broxtowe	1	-	-	-	-	-
Cambridge	1	-	-	-	-	-
Canterbury	1	-	-	-	-	-
Carlisle	1	-	-	-	-	-
Central Bedfordshire	1	-	-	-	-	-
Chelmsford	1	-	-	-	-	-
Cherwell	1	-	-	-	-	-
Colchester	1	-	-	-	-	-
Copeland	1	-	-	-	-	-
Croydon	1	-	-	-	-	-
Dorset	1	-	-	-	-	-
Exeter	1	-	-	-	-	-
Fenland	1	-	-	-	-	-
Gedling	1	-	-	-	-	-
Gosport	1	-	-	-	-	-
Havering	1	-	-	-	-	-
Hyndburn	1	-	-	-	-	-
Lewes	1	-	-	-	-	-
Lincoln	1	-	-	-	-	-
Maidstone	1	-	-	-	-	-
Malvern Hills	1	-	-	-	-	-
Merton	1	-	-	-	-	-
Milton Keynes	1	-	-	-	-	-
North East Derbyshire	1	-	-	-	-	-
North West Leicestershire	1	-	-	-	-	-
Northampton	1	-	-	-	-	-
Nuneaton and Bedworth	1	-	-	-	-	-
Oxford	1	-	-	-	-	-
Peterborough	1	-	-	-	-	-
Reading	1	-	-	-	-	-
Redditch	1	-	-	-	-	-
Rother	1	-	-	-	-	-
Sevenoaks	1	-	-	-	-	-
Shropshire	1	-	-	-	-	-
Somerset West and Taunton	1	-	-	-	-	-

South Hams	1	-	-	-	-	-
South Ribble	1	-	-	-	-	-
Southend-on-Sea	1	-	-	-	-	-
Spelthorne	1	-	-	-	-	-
Tonbridge and Malling	1	-	-	-	-	-
Wandsworth	1	-	-	-	-	-
Warwick	1	-	-	-	-	-
West Lancashire	1	-	-	-	-	-
West Lindsey	1	-	-	-	-	-
Worcester	1	-	-	-	-	-
Wyre	1	-	-	-	-	-
Allerdale	2	9.5	9.5	9.5	0.0	-
Barrow-in-Furness	2	3.4	3.4	3.4	0.0	-
Basildon	2	5.2	5.2	5.2	0.0	-
Bassetlaw	2	15.0	15.0	15.0	0.0	-
Bath and North East Somerset	2	5.0	5.0	5.0	0.0	-
Brighton and Hove	2	4.7	4.7	4.7	0.0	-
Burnley	2	2.9	2.9	2.9	0.0	-
Bury	2	6.5	6.5	6.5	0.0	-
Calderdale	2	6.3	6.3	6.3	0.0	-
Cannock Chase	2	5.0	5.0	5.0	0.0	-
Cheltenham	2	3.1	3.1	3.1	0.0	-
Dacorum	2	2.5	2.5	2.5	0.0	-
East Riding of Yorkshire	2	42.2	42.2	42.2	0.0	-
East Suffolk	2	2.8	2.8	2.8	0.0	-
Eastbourne	2	1.7	1.7	1.7	0.0	-
Erewash	2	7.8	7.8	7.8	0.0	-
Folkestone and Hythe	2	19.4	19.4	19.4	0.0	-
Gloucester	2	3.2	3.2	3.2	0.0	-
Great Yarmouth	2	6.0	6.0	6.0	0.0	-
Greenwich	2	2.0	2.0	2.0	0.0	-
Hackney and City of London	2	1.6	1.6	1.6	0.0	-
Havant	2	2.3	2.3	2.3	0.0	-
Hillingdon	2	2.2	2.2	2.2	0.0	-
Ipswich	2	2.9	2.9	2.9	0.0	-
King's Lynn and West Norfolk	2	8.1	8.1	8.1	0.0	-
Lambeth	2	2.2	2.2	2.2	0.0	-
Lewisham	2	6.3	6.3	6.3	0.0	-

Mansfield	2	7.1	7.1	7.1	0.0	-
Newark and Sherwood	2	20.5	20.5	20.5	0.0	-
North Somerset	2	1.3	1.3	1.3	0.0	-
Oldham	2	5.3	5.3	5.3	0.0	-
Rossendale	2	4.4	4.4	4.4	0.0	-
Scarborough	2	5.5	5.5	5.5	0.0	-
Stafford	2	1.5	1.5	1.5	0.0	-
Swale	2	9.8	9.8	9.8	0.0	-
Swindon	2	3.4	3.4	3.4	0.0	-
Thanet	2	4.5	4.5	4.5	0.0	-
Tower Hamlets	2	1.7	1.7	1.7	0.0	-
Trafford	2	8.1	8.1	8.1	0.0	-
Cornwall and Isles of Scilly	3	68.8	10.5	46.1	27.9	0.001
East Lindsey	4	43.4	15.5	29.9	9.7	0.004
Cheshire East	3	27.9	2.3	18.6	12.7	0.010
Cheshire West and Chester	4	30.7	7.6	21.4	10.0	0.010
North Lincolnshire	3	19.7	3.3	13.6	8.1	0.018
Tendring	3	16.7	1.4	11.5	7.8	0.028
Wakefield	4	14.6	5.4	10.4	3.4	0.031
Northumberland	6	29.1	1.9	11.4	8.2	0.039
Dover	3	12.2	2.7	8.2	4.4	0.041
Stockport	3	5.3	4.1	4.7	0.5	0.046
Ashfield	3	10.4	3.0	6.9	3.3	0.051
Redcar and Cleveland	4	14.5	1.1	8.8	4.8	0.053
Thurrock	4	12.6	1.8	8.3	3.5	0.054
Amber Valley	3	8.2	4.0	5.9	1.9	0.055
Newcastle-under-Lyme	3	9.1	3.9	6.1	2.4	0.055
Bolsover	3	8.1	3.7	5.8	1.9	0.059
Bournemouth, Christchurch and Poole	5	17.7	1.5	8.1	5.0	0.063
Doncaster	7	20.6	2.6	9.6	4.3	0.066
Hastings	3	6.3	3.4	4.6	1.3	0.084
Barnsley	5	11.5	2.9	6.9	2.6	0.090
Bradford	3	6.5	2.9	5.0	1.7	0.090
Wigan	5	13.2	1.6	7.0	3.7	0.097
Knowsley	6	14.1	1.5	7.2	3.6	0.117
Leicester	3	6.1	2.5	4.1	1.7	0.124
Tameside	4	7.9	2.9	5.0	1.9	0.126
Torbay	3	6.7	1.4	4.8	2.6	0.139

Stoke-on-Trent	6	12.4	2.0	6.7	3.2	0.144
Coventry	4	7.8	2.2	5.1	2.2	0.144
Rotherham	4	5.7	3.0	3.9	0.9	0.147
Hartlepool	3	5.9	1.8	4.1	1.9	0.148
County Durham	15	29.6	1.2	16.7	7.7	0.150
Newcastle upon Tyne	6	12.7	1.3	6.5	3.5	0.153
Kirklees	7	14.0	1.4	7.2	3.5	0.154
Rochdale	3	5.2	2.0	4.1	1.6	0.167
Derby	3	6.5	0.8	4.4	2.8	0.171
Blackburn with Darwen	3	5.2	2.1	3.5	1.4	0.173
Chesterfield	4	5.9	2.5	4.2	1.3	0.185
Norwich	4	5.6	1.9	3.8	1.2	0.202
St. Helens	5	8.3	1.8	4.7	2.1	0.203
Walsall	7	12.4	1.4	5.7	2.9	0.207
Southampton	5	9.1	0.8	6.2	3.4	0.208
Sheffield	6	10.6	0.9	6.0	3.2	0.223
Lancaster	4	6.3	1.2	4.0	1.8	0.228
Gateshead	4	6.5	0.8	4.1	1.9	0.229
Darlington	3	4.5	1.7	3.5	1.4	0.231
Nottingham	7	11.1	1.4	5.9	2.7	0.234
Islington	3	3.7	1.8	2.8	0.8	0.259
Warrington	3	3.5	1.8	2.9	0.8	0.272
Blackpool	5	7.6	1.3	4.2	2.1	0.282
Telford and Wrekin	5	7.6	1.4	3.9	2.1	0.299
Sandwell	7	10.5	1.2	5.3	2.9	0.304
Salford	8	12.2	0.7	5.9	3.3	0.310
Bristol, City of	9	11.9	1.6	6.9	3.1	0.328
North Tyneside	6	7.9	1.3	4.2	2.0	0.354
Southwark	4	4.8	1.6	2.9	1.2	0.358
Dudley	5	6.0	1.3	3.8	1.6	0.363
Stockton-on-Tees	5	6.5	0.2	3.7	1.8	0.368
Portsmouth	5	6.5	1.1	3.7	1.9	0.386
Wolverhampton	6	7.9	0.7	4.0	2.2	0.396
Birmingham	17	23.1	0.4	10.6	6.2	0.402
Bolton	5	6.0	0.8	3.3	1.5	0.405
Manchester	13	17.7	0.7	9.0	5.3	0.406
Kingston upon Hull, City of	9	10.5	1.3	5.2	2.3	0.419
Medway	3	2.2	1.6	1.8	0.3	0.422
South Tyneside	6	6.8	1.4	3.8	1.7	0.442

Leeds	14	15.5	0.6	6.8	3.3	0.502
Sefton	6	6.8	0.9	3.4	1.7	0.505
Preston	3	3.3	0.8	2.3	1.2	0.520
Plymouth	6	5.6	1.5	3.3	1.2	0.536
Sunderland	12	12.6	1.3	6.1	2.9	0.546
Wirral	8	8.6	0.6	4.2	2.2	0.570
Middlesbrough	5	4.7	1.0	3.0	1.2	0.581
Halton	8	8.3	0.4	4.5	2.2	0.593
Solihull	3	2.7	1.0	1.8	0.7	0.672
North East Lincolnshire	4	3.5	1.1	2.3	0.9	0.674
Liverpool	17	13.0	0.5	5.2	2.5	1.046

Index Formula:

$$i = \frac{n}{\pi \times \left(\frac{x_{max}}{2}\right)^2} \times \frac{n \times \sigma}{\bar{x}}$$

$$\frac{n}{\pi \times \left(\frac{x_{max}}{2}\right)^2}$$

By taking the greatest distance between any two schools in a Local Authority, that gives a diameter to a circle within which all other schools sit. Utilise πr^2 to determine the area. The number of schools per area can be assigned to the density, although uneven distribution is not taken into account.

$$\frac{n \times \sigma}{\bar{x}}$$

Transforming the standard deviation, which deals with outliers, by the number of schools to account for a greater number of points increasing the chances of an even spread. The mean accounts for the average spread of the schools.

The report on long term disadvantage in secondary schools in England highlights the inconsistencies in determining the geographical concentrations of these schools. That is to say, there is no one size fits all approach in defining where the opportunity areas should be focused. Whilst the 537 schools can be broken down into a resolution as fine as Lower Super Output Areas, the current approach suggests that any aid provided to these schools is rolled from a Local Authority level. In reality, with the variation of Local Authority sizes and socio-economic factors unique to each region, the spread of schools within each Local Authority ranges from evenly distributed over the area to hyper-localised. In an attempt to quantify the level at which funding should be distributed from, without manually working through co-ordinates on a map, an index/ranking has been derived; at one end there is the need to provide funding across the LA, at the other sits the recommendation to localise the funding.

Common sense would suggest that metropolitan authorities across the UK are likely to have a more even spread of schools across them in comparison to a large rural area such as Cumbria where long-term disadvantage exists in localised regions of a small selection of settlements. With this in mind, it would make far more sense when dealing with the latter, to provide funding directly to these isolated clusters on the basis that physical distance and differences in socio-economic circumstances mean addressing the issue as a Local Authority is unpractical. The report reminds us that it is often more beneficial leaving it up to those who know these clusters best to administer funding as they see fit, avoiding centralisation of policy to the Local Authority.

As explained above, in the absence of spatial proximity algorithms and mapping software an index has been calculated. Using the Northings and Eastings of each school, the distance between them for each Local Authority can be determined. Following this, spatial characteristics for Local Authorities can be assigned and analysed as follows –

- **Number of schools in the local authority** – a measure of the extent of long-term disadvantage. As a raw number it does not convey the spread of these schools nor the size of the LA. However, if there are only one or two schools in the region then it is not unreasonable to assume that any funding should be focused at a finer resolution on these specific areas, regardless of the density.
- **Maximum and Minimum distances between schools** – Useful for calculating the range and comparing with the number of schools. A large range suggests a higher spread across the region with some nucleated areas of schools where as a small range might portray even spacing between the schools, this could be either wide spread or hyper-localised.
- **Mean Distance between schools** – goes some way to describe the density of the schools. A lower mean distance between would suggest schools are close to one another with a greater mean average showing the schools as more spread out. This doesn't account for "outliers" in LA's that have a large number of schools and cover a large geographical area; a group of close, local schools may be skewed by a couple of schools at the other end of the LA.
- **Standard Deviation of Distance between Schools** – this describes the variation of the distance between schools from the mean distance. A high SD suggests that the schools are spread out unevenly, yet a low SD does not mean they are concentrated in one area. The SD will also remain low if all schools in the LA are roughly equi-distance apart.

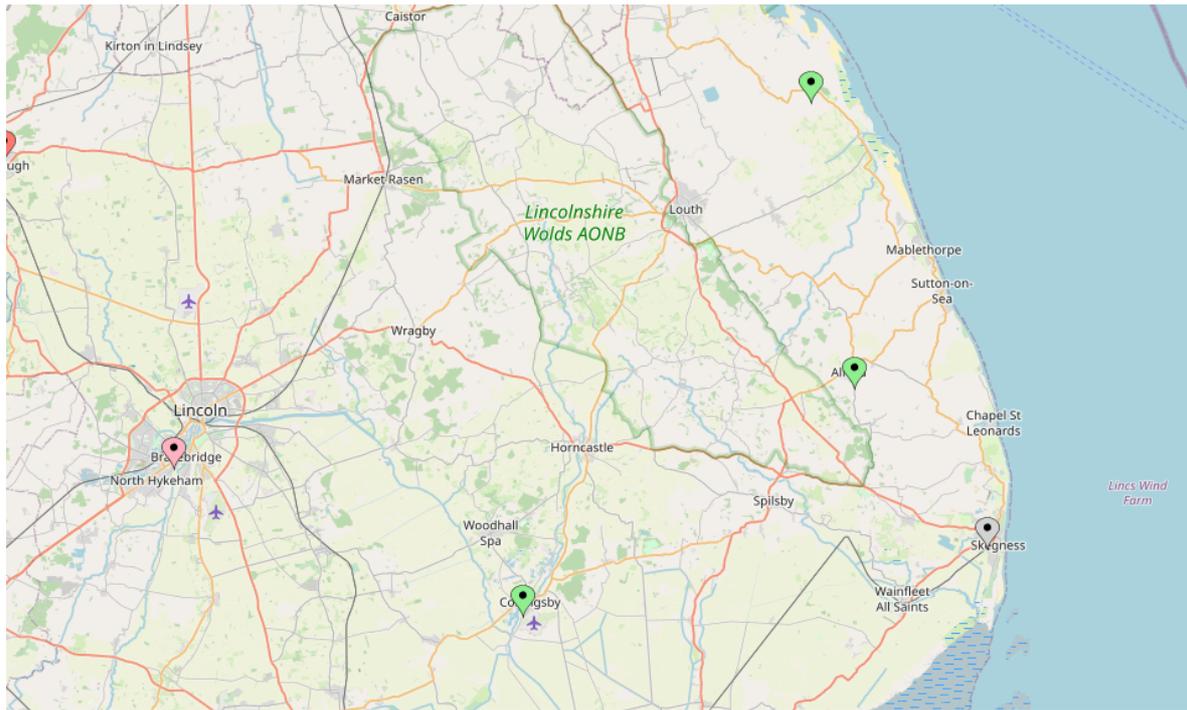


Figure 11: Long-term disadvantage secondary schools in East Lindsey (green markers).

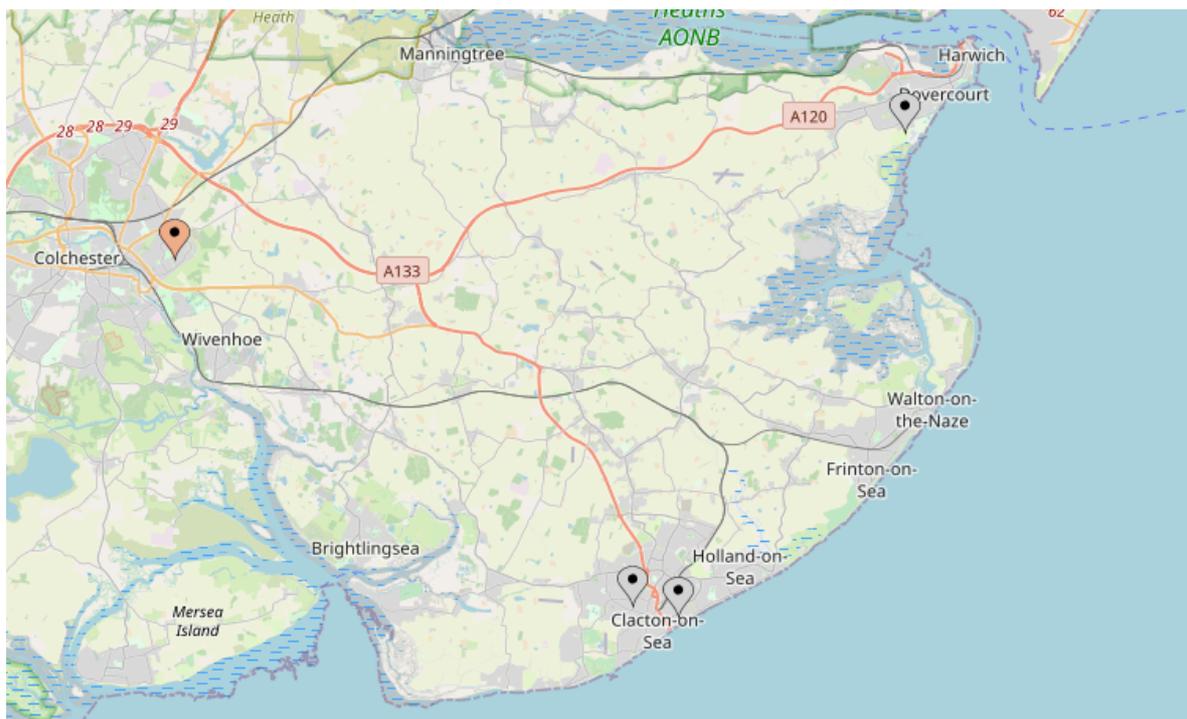


Figure 12: Long-term disadvantage secondary schools in Tendring (grey markers).

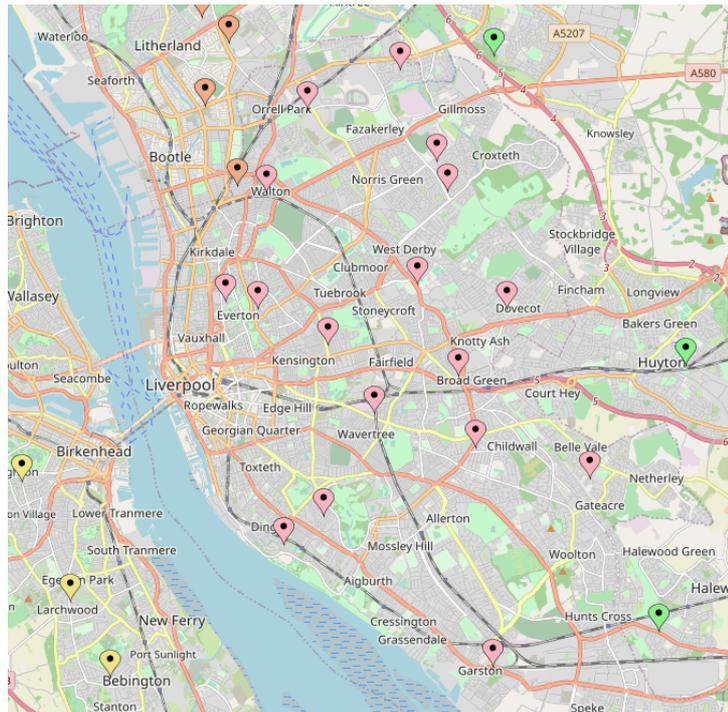


Figure 13: Long-term disadvantage secondary schools in Liverpool (pink markers).

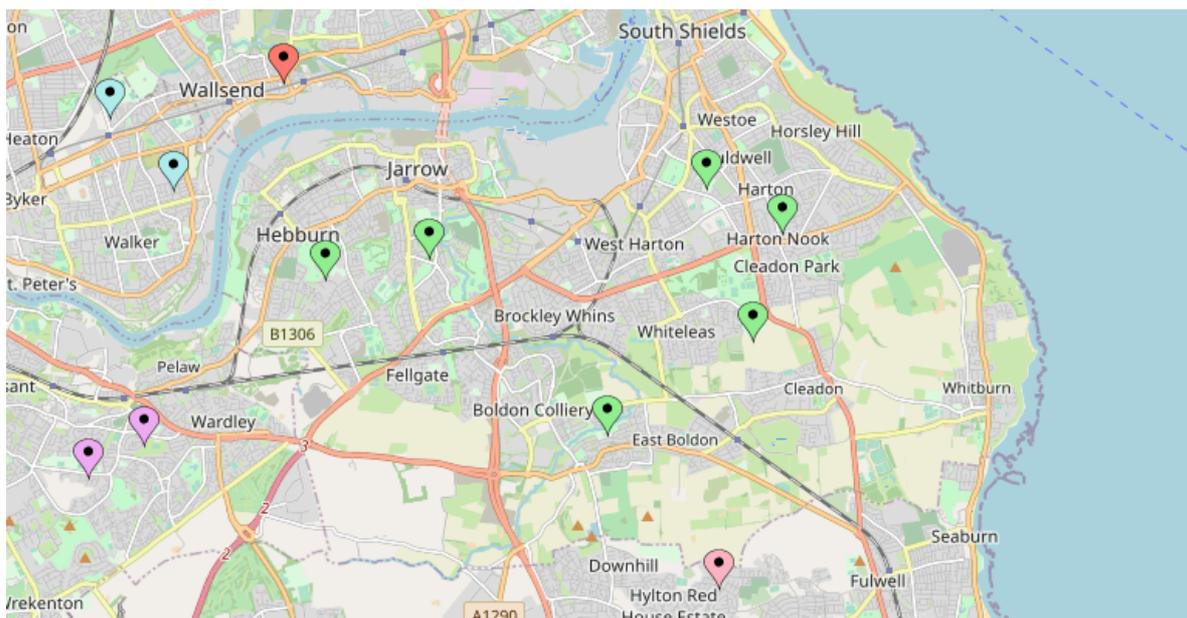


Figure 14: Long-term disadvantage secondary schools in South Tyneside (green markers).