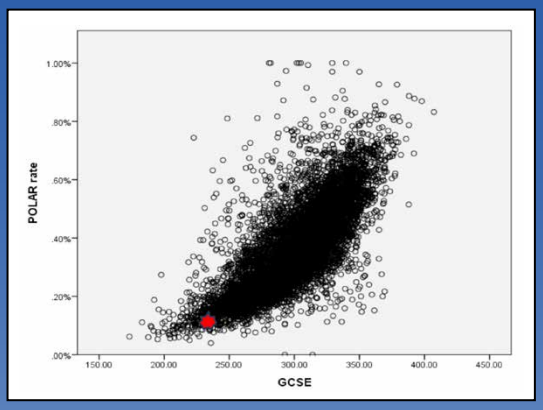
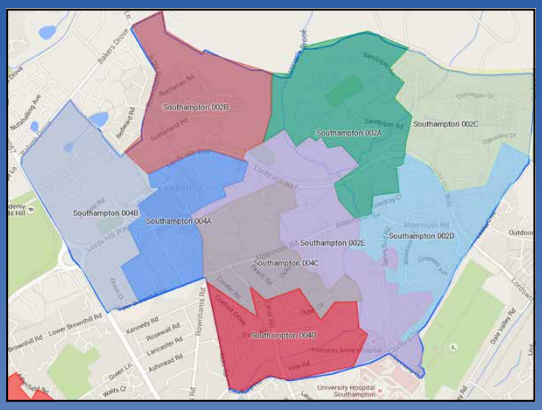
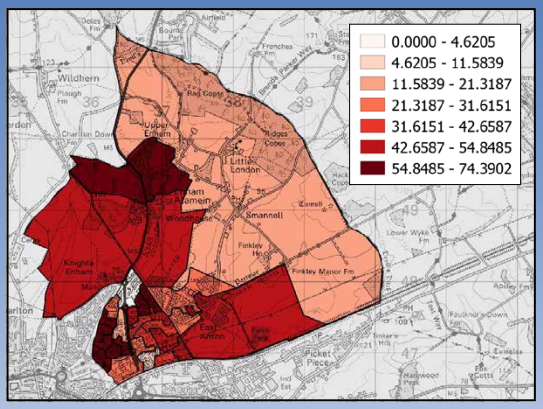
HEFCE Local Ward Data Analysis

TOOLKIT







Parameter	ONS Table	Comments
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% Born in the UK	Country of Birth (detailed), 2011 (QS203EW)	Available at ward level from ONS
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% Social Housing	Tenure - Households, 2011 (QS405EW)	Available at ward level from ONS but needs calculating: (count households all social rented / count all households)
% Adults with L4 Qualifications (or Higher)	Highest Level of Qualification, 2011 (QS501EW)	Available at ward level from ONS but needs calculating: count Level 4 Qualifications and above / all usual residents aged 16 and over

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HEFCE Local Ward Data Analysis Toolkit

Introduction

This report sought to understand which variables, beyond GCSE results and ethnicity, exercise influence on higher education participation rates in the wards studied. The influential factors identified across these wards are specific to those areas, highlighting trends particular to the local cultural context. However, the methodology of the report can be extended to any ward and any other demographic variables, allowing users around the country to test hypotheses specific to their areas.

This toolkit will explain how to use and extend the methodology and thus help local policymakers, schools, Local education partnerships and other interested parties better understand their local environment and develop tailored strategies to increase HE participation.

The methodology comprises five stages:

- Participation rates and targets
- Placing the ward in the national context
- Ward level statistics
- LSOA maps
- Data on local schools

The instructions below are illustrated with examples from Alamein ward in Hampshire.

Abbreviations

Abbreviation	Term
DCLG	Department for Communities and Local Government
GAPS	Is a measure of HE participation based only on maintained schools
HEFCE	Higher Education Funding Council
KML	Keyhole Markup Language
LSOA	Lower Super Output Area
OFSTED	Office for Standards in Education
ONS	Office for National Statistics
POLAR	Participation of Local Areas – a measure of HE participation which includes all schools
Q1	Quintile 1

Stage 1: Participation Rates and Targets

It is first necessary to find out how many children in the area of study progress to higher education in each annual cohort and to know how this compares with national participation targets.

The objective of this step is to create tables similar to these:

GAPS Participation (maintained schools)	Average Cohort Size	Actual Participation	HEFCE Expected Participation based on Ethnic Profile/GCSE
		12.7%	15.8%
Number of children per year	124	16	20
Additional children to come up to HEFCE expected participation			4

GAPS rates for young people who were aged 18 between 2006–07 and 2010–11 academic years are available on the HEFCE website (http://www.hefce.ac.uk/analysis/yp/gaps/) along with the difference between the actual rate and the HEFCE expected rate.[1] The cohort size is not available from the HEFCE web site so it is provided separately as part of this toolkit.[2] From these figures it is possible to calculate the expected participation rate, the number of children who participated to make up the actual participation rate, and the number who would have needed to participate to meet the expected participation rate.

Where c = cohort size, a = actual participation, d = difference between expected participation and actual participation then:

Expected participation = a + d

Number of children who actually participated = c x a

Number of children need to participate to meet expected rate = c x (a + d)

	POLAR Population Per Year	Projected POLAR Population in 2020*	POLAR Participation 2011	Doubling Participation	Overall Target Rate for Q1 Wards	National Average
			10.9%	21.8%	28%	32.8%
Number of children	138	126	14	27	35	41
Additional children				13	21	27

POLAR rates and cohort size (i.e. number of children of appropriate age) for 2011 are also available from the HEFCE web site.

http://www.hefce.ac.uk/analysis/yp/POLAR/POLAR3,data/

1. The names and boundaries of wards change. It may be that the HEFCE data uses a different name for the ward from the name you are using and it will be necessary to investigate alternative names.
2. Alternatively the cohort size for the POLAR measure of participation is available from the HEFCE web site and can be used as an approximation to the GAPS cohort size.

Other columns

Projected POLAR population in 2020 is calculated by obtaining ONS data for the current population for age group 15-19 and the predicted population in 2020 for the same age group and using the ratio as a multiplier of the POLAR population. Population projections are done at local authority level and so the figures for the relevant local authority must be used. They are available here:

https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/datasets/localauthoritiesinenglandtable2

The next two columns are included because the government has set a target of doubling the participation of the most disadvantaged quintile of all wards. HEFCE has interpreted this as the wards in the lowest quintile of participation. This target could be met many ways. One of them is simply to double the participation of every ward in Q1. This would be very demanding for wards who are currently near the top of Q1 – requiring them to exceed the current participation of many wards now in Q3. Another way is to work out the average participation needed among Q1 wards to meet the government target and expect every ward to meet this level (which is 28%). This would be much more demanding for wards with current very low levels of participation. In practice a realistic target will be somewhere between the two – so both are included.

Doubling participation is simply twice the current POLAR rate.

Overall target rate for Q1 wards is 28% for all wards.

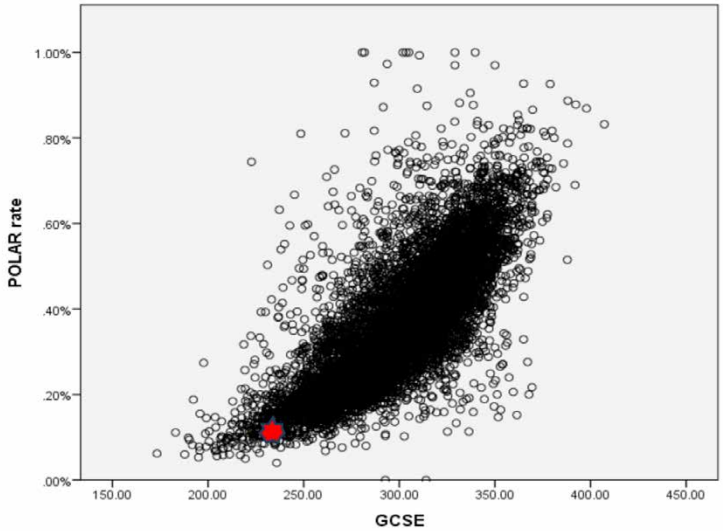
National average is 32.8% for all wards. It is simply the average participation rate in England.

Given the population sizes and participation rates the number of children needed to participate to meet the rates is obtained simply by multiplying the population size by the rate.

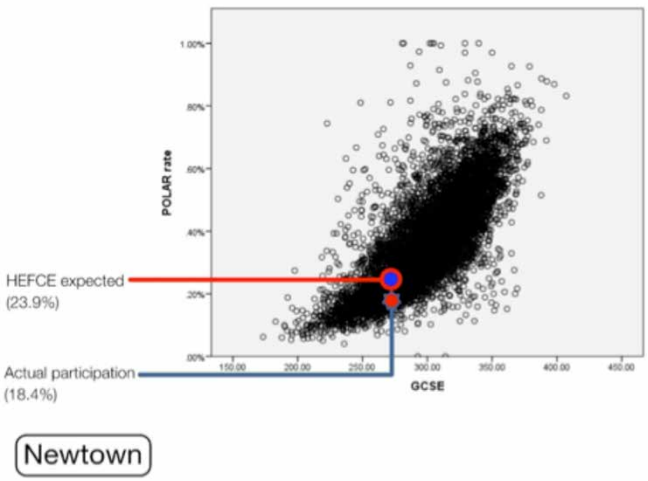
Placing the Ward in the National Context

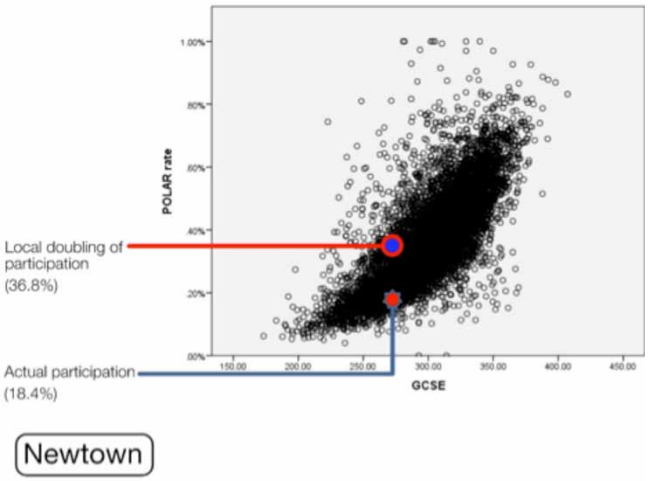
This is done through a series of scatter diagrams plotting participation rates for wards in England against parameters of interest. For example the following chart plots the 2011 POLAR participation rate in per cent against the 2011 average GCSE points score for every ward in England. Each circle corresponds to a ward. Alamein ward had a participation rate of 10.9% and an average GCSE score of 233. The red star indicates approximately where it lies on the chart.

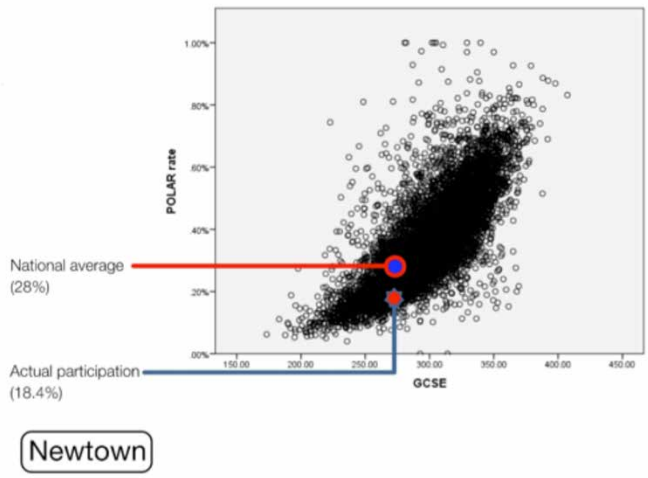
The diagram can be reused for any other ward. All that is necessary is to reposition the red star to reflect the participation rate and average GCSE score of the ward of interest. The participation rate is the POLAR participation rate from the previous section. The values for average GCSE score can be obtained from the ONS Neighbourhood Statistics web site (http://www.neighbourhood.statistics.gov.uk/dissemination/). However, the process of extracting the right statistic at ward level can be complicated and it may be easier to use local sources (e.g. local authority web sites).



To better illustrate what these might reveal, we produced a suite of scattergrams with the key targets overlaid. These both visually represent the improvement required to meet these targets and highlight how achievable the targets are at a given ward's level of GCSE attainment. We completed these for the POLAR Q1 national average target set by the government (labelled as 'national average'), the target of doubling local participation and the HEFCE expected rate of participation. Only the most basic knowledge of graphic design software is required to complete these and the process for completing each was identical. First the original scattergrams were imported into graphic design software (in our case Affinity Photo). The appropriate target for the scattergram was obtained from the data sheets. A line was then drawn across the scattergram at the appropriate level on the Y-axis. The position of the ward target was then drawn as a circle. During this process the actual participation rate was labelled for clarity. These were then exported as JPEG images.







The main report includes similar diagrams for other parameters of interest (see below). Each of these can be processed in a similar fashion. The red star can be repositioned using the participation rate and the value of the parameter for the ward in question. All parameters can be obtained from the ONS Neighbourhood statistics web site (see below) although there may be local sources that are easier to use.

Considerations for using the ONS Neighbourhood statistics web site.

- The name of the ward may not be what you expect.
- Some statistics are only available for output areas such as LSOAs. The ONS website describes how to calculate the value for the ward based on LSOA values but it can be quite complicated.
- Some statistics have to be calculated from the supplied data e.g. the ONS supplies the number of unemployed people in the ward but not the unemployment rate.

Guidance on each parameter

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Ward Level Statistics

This section takes key demographic statistics for the ward from the previous section and adds others. They are all from the 2011 Census and are relatively easily obtained for most wards from the ONS Neighbourhood Statistics Service. This service typically supplies statistics at ward, local authority and national level and they are repeated for additional context. It is possible here to select the variables considered relevant to any ward under scrutiny.

Statistics	ONS Table	Comments
Economically Active Rate	Economic Activity, 2011 (QS601EW)	Available at ward level from ONS but needs calculating: (count economically active / count all usual residents)
Unemployment Rate	Economic Activity, 2011 (QS601EW)	Available at ward level from ONS but needs calculating: (count unemployed / count all economically active)
Long-term Sick or Disabled	Economic Activity, 2011 (QS601EW)	Available at ward level from ONS but needs calculating: (count long-term sick or disabled / count all usual residents)
Employment by Occupation	Occupation, 2011 (KS608EW)	Available at ward level from ONS
Highest Level of Qualification	Highest Level of Qualification, 2011 (QS501EW)	Available at ward level from ONS but needs calculating: (count of number with qualification level / all usual residents aged 16 and over)

LSOA Map

To create a map of the LSOAs for a ward

(1) Identify which LSOAs are completely or partially inside the ward. It is possible to do this through the ONS Boundary Viewer (http://neighbourhood.statistics.gov.uk/dissemination/LeadBoundaryViewer.do) although this is quite a tricky tool to use and understand. A spreadsheet which is easier to use is included as part of this toolkit.[3]

(2) Although there are many ways of creating the map, none are simple and it may be necessary to ask for technical assistance. The maps in the reports were created by:

  (a) Obtaining KML files of the LSOAs using this dataset: https://www.google.com/fusiontables/DataSource?docid=1k7zmR1vMWz1_JG-XsT2eXKtyE4wqFByFoJYsk8A#rows:id=1

  (b) Obtaining a KML file of the ward using the MySociety MapIt service: http://mapit.mysociety.org/

  (c) Creating a map using Google Maps and adding each kml file as a layer.

LSOA Level Data

The LSOA level data on indices of deprivation is available from the DCLG website (https://www.gov.uk/government/collections/english-indices-of-deprivation). The rest is available from the ONS Neighbourhood Statistics service (http://www.neighbourhood.statistics.gov.uk/dissemination/LeadHome.do). As it is necessary to get data for many LSOAs it may be more convenient to download the spreadsheet containing all the data for all LSOAs rather than search for LSOAs individually. This can be done by first selecting "topics" on the Neighbour Statistics Home Page and then browsing for the data of interest. In some cases this results in different files for each region (South East, South West etc). Use the file for the region which contains the ward you are interested in.

Statistic	Date	Source	Table Name where available	Comment
Index of multiple deprivation quintile	2015	DCLG	File 1	
% Housing Council Tax A/B	2011	ONS	G050311_2417_GeoPolicy.xls	The file gives the number of dwellings in each band. It is necessary to add together the number in bands A and B and then divide by the total number of dwellings.
Income deprivation affecting children quintile	2015	DCLG	File 3	
% L4 qualified	2011	ONS	QS501EW	The file gives the count of the number of people at each level. It is necessary calculate: (Count of number with qualification level)/(All Usual Residents Aged 16 and Over)
Not staying on post 16 and Not entering HE by 21	2010	ONS	Indices of Deprivation 2010 Underlying Indicators: Education, Skills and Training (Although this is about an index of deprivation it is on the ONS web site.)	
Avg KS2 score (overall, boys and girls)	2014	ONS	National Curriculum Assessments at Key Stage 2 by Gender in England (Referenced by Location of Pupil Residence), 2014	
Avg GCSE points (overall, boys and girls)	2014	ONS	GCSE and Equivalent Results for Young People by Gender in England (Referenced by Location of Pupil Residence), 2013/2014	

3. This is a response to an FoI request (http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/about-ons/business-transparency/freedom-of-information/previous-foi-requests/people--population-and-community/index-of-multiple-deprivation-statistics-lsoa-codes/index.html).

LSOA Cluster Analysis

The Ordnance Survey (OS) have, for the purposes of this study, organised all the LSOAs in England in 10 clusters with similar demographics. This is based on the components of the multiple index of deprivation (excluding those relating to education) using a statistical technique called k-means. The list of all LSOAs and the clusters they belong in are provided in a spreadsheet as part of this toolkit.

This list can be used to rank any LSOA against other LSOAs in the same cluster (i.e. LSOAs with similar demographics) using any measurement of interest such as GCSE results or POLAR participation provided the data is available at the LSOA level. For example Test Valley 002D is in a cluster with 3700 LSOAs with similar demographics. If the LSOAs in the cluster are ranked according to the percentage of pupils achieving Key Stage 4 A-C from lowest to highest then Test Valley 002D is number 150 out of 3700 i.e. one of the lowest in the cluster and well into the lowest decile.

This can be done quite easily using Excel or similar spreadsheet software. Prepare a spreadsheet with a list of LSOAs along with the measurement of interest (see above). Select all the LSOAs in the cluster of interest using the data from the OS. The Excel function PERCENTRANK.INC can then be used to provide the percentile of the LSOA of interest within the cluster.

The results of need to be interpreted cautiously. Because the LSOAs in a cluster are very similar demographically the educational outcomes across the cluster tend to be very similar. A small difference in an outcome (for example one extra child obtaining Key Stage 4 A–C) can change the ranking of an LSOA within a cluster by a large amount. As a result rankings tend to vary greatly from one year to another or with small differences of interpretation (e.g. POLAR versus GAPS participation).

Local Secondary Schools

It is not easy to get data from public sources on how many pupils from a given ward go to named secondary schools. This data has been provided by HEFCE for the 2012/13 cohort rounded to the nearest five pupils and the spreadsheet is attached. This will enable the author to decide which secondary schools are worth exploring in more detail.

With the exception of the latest OFSTED result, the school comparison information is taken from the Family of Schools Database: https://educationendowmentfoundation.org.uk/attainment-gap/families-of-schools-database/

It is necessary to search for each school individually. Whereas this data is easy to access, it is necessary to count the bars on the histogram to find the number of schools in the family.

The result and date of the most recent OFSTED inspection can be found here:

http://reports.ofsted.gov.uk/

Post-16 Destination Data

There is no open data source for progression post-16. However, all the local authorities in our study were able to provide relevant data by ward. This has often been collected as part of the NEET monitoring process. Hampshire County Council provided the data below for Alamein ward

Figure [X] 16-18 year old destinations (held by Hampshire County Council's Client Caseload Information System, May 2016)

Current Activity	Year 12	Year 13	Year 14	Total
College/Sixth Form	105	67	30	202
Higher Education			9	9
Apprenticeship/Job with accredited training	1	2	9	12
Job without accredited training	2	5	18	25
Training - non employed	1	1		2
Unemployed - seeking	7	7	9	23
Unemployed - not available		1	2	3