

Indicator Calculations

Local Conditions

- **NO2 - *New indicator***
 - We downloaded NO2 values for England, provided for 1x1km grid squares.
 - We obtained 2011 population estimates for each grid square.
 - We then multiplied the average population of a grid square by the NO2 value for that grid square.
 - For each local authority, we took the sum of these population x pollution values to get a pollution total.
 - We then calculate the average pollution per person by dividing the pollution total by the population total.

- **Percentage using public transport - *Change in calculation***
 - % of those who commute to work via public transport. Denominator - For each LA, we calculate the number of commuters by subtracting the number of people that work from home and number of people not in employment from the total number of people. Numerator - Sum of those who commute by bus, train or underground, metro, light rail, or tram.

- **Percentage using active transport - *Change in calculation***
 - % of those who commute to work via active transport. For each LA, we calculate the number of commuters by subtracting the number of people that work from home and number of people not in employment from the total number of people. Numerator - Sum of those who commute by bicycle or on foot.

- **Journey times to key services - *Replacement indicator***
 - We combine average walking times to the following services: schools, GPs, and food stores by taking the average of walking times to primary schools and secondary schools (giving each type of school a weight of 0.5), and averaging this with walking times to the GPs and food stores.

- **Homelessness rate - *Change in calculation***
 - For each local authority, we subtract the number of decisions classed as 'eligible, but not homeless' from the total decisions to obtain the number in priority need, non-priority need and intentionally homeless. We then calculate the number per 1000 households.
 - For some local authorities, the number of eligible but not homeless is suppressed, and the next largest category.
 - In these cases, if the total decisions was equal to the sum of the available values, we simply used the total decisions as the missing values must be equal to zero.

- If the total decisions was not equal to the sum of the available values, subtracted the available values from the total decisions, and if this number was small we assumed that half of this number were eligible but not homeless and the other half were in the missing homeless category. For example, for Burnley, of the 125 total decisions, 41 were priority need, and 77 were not in priority, leaving 7 cases that were either intentionally homeless, or eligible but not homeless. We assumed that half of them (e.g. 3.5) were not homeless, meaning that the total number of homeless included in the TPI was 121.5 (125 - 3.5).
 - If the difference between the total decisions and the available values was larger than 10, we looked at figures for 2016-17 to see if we could identify a pattern. For example, for Darlington, out of 50 cases, 21 were in priority, and 17 were intentionally homeless, leaving 12 that were either homeless not in priority, or not homeless. In 2016-17 data, and saw that in that year, there 5 not in priority need and 14 not homeless. This suggests that the not in priority figure had fallen below 5, not the 'not homeless' figure. So we estimated the not in priority figure for Darlington as 4, not homeless as 8. This process was followed for 9 local authorities.
 - For some local authorities (e.g. Newark & Sherwood), the values had also been suppressed in 2016-17, or were too similar to be able to identify which category had fallen below 5. In those cases, we split the unidentifiable cases equally across the two missing categories.
 - For 27 local authorities, more than two values were suppressed (e.g. Ribble Valley), meaning that cases had to be split between three or even four categories. However, we calculated the maximum theoretically possible error; the median value for this was 6, meaning our estimates are at worst wrong by about 6 cases.
- **Adult education - Same method as last year**
 - We use secure access data from the Labour Force Survey to create this indicator.
 - For each local authority, we calculate the percentage of adults who have taken part in non-job related education or training in the last four weeks.
 - **Good jobs - Same method as last year**
 - We use secure access data from the Labour Force Survey to create this indicator.
 - For each local authority population, we calculate the percentage of people who are on permanent job contracts or on temporary contracts and not seeking permanent employment, who earn more than the current Living Wage (set by the Living Wage Foundation), work less than 49 hours a week, and are not unwillingly working part-time.
 - **Unwillingly out of work - Same method as last year, renamed from Unemployment rate**
 - We subtract the number employed from number economically active to get the number of people who are 'economically active and unemployed'.
 - For the numerator, we add together 'economically inactive and want job' and 'economically active and unemployed'.
 - For the denominator, we add together 'economically active' and economically inactive and want job'.
 - For some districts, the 'economically inactive but want a job' value is suppressed. We estimate these values by creating a linear regression model using the data for available districts.

- Participation in heritage - *New indicator*

- We combine the following indicators from the RSA heritage index:

% of local authority population visiting heritage site at least 3 times in last 12 months
% of local authority population visiting museum or gallery at least once in last 12 months
% of local authority population visiting industrial heritage site in last 12 months
% of local authority population visiting historic park or garden in last 12 months

- We standardised the raw values by transforming them to z-scores, then we take the average of the four z-scores.

- Percentage with low income

- We first calculate 70% of the UK median income as a threshold.
- For each local authority we estimate a logarithmic best-fit line for the relationship between the income and the percentile.
- We then use the best fit line to estimate what percentile the threshold lies in.

- Social Fragmentation Index - *Change in calculation*

- The Social Fragmentation Index was developed by Professor Peter Congdon in 1996 to study the predictors of suicide. We calculated it at the local level using the following percentages drawn from census data:
 - percentage of 1-person household
 - percentage of people renting privately
 - percentage of people who have moved to their current address within the last year
 - percentage of people who are not living as a couple rate
- Last year we used 2017 population estimates. We have corrected this this year, using 2011 (census year) population estimates.
- Each percentage is transformed into a z-score using the mean and standard deviations from the formula originally used by Professor Congdon, which is based on the 1991 census, in effect benchmarking our index against levels of social fragmentation in 1991.

Sustainability

- Renewable electricity generation - *New indicator*

- Starting from the total generation in MWh, we calculate the per capita value (KWh per person) for each local authority by multiplying the total generation by 1000 and dividing by the population. We then take the log of the per capita value.

- Land use change - *New indicator*

- We use data obtained from Planning Statistics which required the signing of an End User License Agreement.
- We calculate the net loss of non-developed land as a proportion of total green non-developed land, and multiply this by 100.

Equality

- Income Inequality - *Same method as last year*
 - We calculate the ratio of the 80th percentile of weekly earnings to the 20th percentile of weekly earnings. For local authorities where the 80th percentile is not available, we use the available percentiles to estimate the 80th percentile using an exponential function.
- Social mobility enabled by the education system - *New indicator*
 - We use data from the Government's Social Mobility Index. We combine 10 indicators that form the index:

% of children eligible for FSM achieving a 'good level of development' at the end of Early Years Foundation Stage

% of children eligible for FSM attending a primary school rated 'outstanding' or 'good' by Ofsted

% of children eligible for FSM attending a secondary school rated 'outstanding' or 'good' by Ofsted

% of children eligible for FSM achieving at least the expected level in reading, writing and maths at the end of Key Stage 2

Average attainment 8 score per pupil for children eligible for FSM

% of young people eligible for FSM that are not in education, employment or training (positive destination) after completing KS4

Average points score per entry for young people eligible for FSM at age 15 taking A-level or equivalent qualifications

% of young people eligible for FSM at age 15 achieving 2 or more A-levels or equivalent qualifications by the age of 19

% of young people eligible for FSM at age 15 entering higher education at a selective university (most selective third by UCAS tariff scores) by the age of 19

% of 19 year olds in 2016 qualified to level 3 by home Local Authority District (LAD) at academic age 15 (for those eligible for Free School Meals and in the state sector in England at academic age 15)

- Nine of the indicators are given as z-scores. We transform the 10th indicator, % of 19 year olds in 2016 qualified to level 3 by home Local Authority District (LAD) at academic age 15, into a z-score.
- Then we take the average of the 10 z-scores.

