Appendix A: The indicators used in this report

People with degree level qualifications	
Description	The proportion of adults (aged 16+) with qualification levels at level 4 or higher. The highest level of qualification variable was derived from responses in the 2011 Census to both the educational and vocational qualifications question, and the professional qualifications question. Level 4+ qualifications include Level 4/5: First degree, Higher degree, NVQ levels 4 and 5, HNC, HND, Qualified Teacher status, Qualified Medical Doctor, Qualified Dentist, Qualified Nurse, Midwife, Health Visitor Other qualifications/level unknown: Other qualifications (e.g. City and Guilds, RSA/OCR, BTEC/Edexcel), Other Professional Qualifications.
Methodology for producing this indicator	Data was collected from the Census table KS501EW Qualifications and Students which provides the numerator and denominator for this indicator.
Source	Census 2001/2011
Why this indicator is relevant/strengths	"(An area's).. prosperity depends on how many of its people are in work and how productive they are, which in turn rests on the skills they have and how effectively those skills are used. Skills are a foundation of decent work" [1]. People with degree qualifications is used as measure of concentration if people with high skills in the labour market. This indicator formed a key component of a number of national and international measures of *Good Growth* (see below), specifically as a measure of human capital. A key strength of the dataset is that is derived from the Census which draws from a 100% sample of the population to provide robust small area data. Data is not subject to rounding. Instead disclosure control is applied through a method of record swapping[2] which results in no data being suppressed. A further strength is that the numerator and denominator for the data are derived from the same source.

[1] OEDC International Labour Office (2010) A Skilled Workforce for Strong, Sustainable and Balanced Growth A G20 Training Strategy, page 1

[2] See www.ons.gov.uk%2ffile%3furi%3d%2fCensus%2f2011Census%2fhowourCensusworks%2fhowwetookthe2011Census%2fhowweplannedfordatadelivery%2fprotectingconfidentialitywithstatisticaldisclosurecontrol%2fstatistical-disclosure-control-for-the-2011-uk-Census_tcm77-189747.pdf/RK=0/RS=FTR.l8ScM.v9fqpH7PK71clzd88-

Time point availability	2001-2011
Issues/Caveats	Measure partly correlates with the age profile of the population, as there were fewer opportunities for secondary education among older cohorts of adults. Similarly, areas with high numbers of young adults will have people still going through the education system and may not yet have obtained level 4 qualifications. For people who obtained qualifications overseas, they were asked to tick the 'foreign qualifications' box and identify the nearest UK equivalent qualification[3]. Data is therefore likely to be slightly less accurate in areas with high numbers of people born overseas.
Examples of use in other Good Growth models	Townscape Heritage Initiative Schemes Evaluation: Ten Year Review Report, 2013 ONS Measuring National Well-being, Education and Skills 2012

People describing their health as good or very good	
Description	Proportion of residents (all ages) who have self-reported that their health is good or very good. Figures are taken from responses to the 2011 Census, based on a self assessment of their general health.
Methodology for producing this indicator	Data was collected from the Census table KS301EW General Health and Limiting Long-term illness table which provides the numerator and denominator for this indicator.
Source	Census 2001/2011
Why this indicator is relevant/strengths	The wider health and wellbeing of a community are identified as key components of inclusive growth, with the OECD's Inclusive Growth Framework incorporates health indicators as the key non-income measure of inclusive growth[4] and health identified as the second most important factor in PWC's *Good Growth* index, created from public and expert consultation. A key strength of the dataset is that is derived from the Census which draws from a 100% sample of the population to provide robust small area data. Data is not subject to rounding. Instead disclosure control is applied through a method of record swapping[5] which results in no data being suppressed.

[3] http://www.ethnicity.ac.uk/medialibrary/briefingsupdated/how-are-ethnic-inequalities-in-education-changing.pdf

[4] http://www.oecd.org/inclusive-growth/

[5] See www.ons.gov.uk%2ffile%3furi%3d%2fCensus%2f2011Census%2fhowourCensusworks%2fhowwetookthe2011Census%2fhowweplannedfordatadelivery%2fprotectingconfidentialitywithstatisticaldisclosurecontrol%2fstatistical-disclosure-control-for-the-2011-uk-Census_tcm77-189747.pdf/RK=0/RS=FTR.l8ScM.v9fqpH7PK71clzd88-

	A further strength is that the numerator and denominator for the data are derived from the same source.
Time point availability	2001-2011
Issues/Caveats	Measure partly correlates with the age profile of the population, with health likely to decline among older age groups. The measure is subjective, individuals are not subject to medical examinations to determine their level of health (as is the case with some of the administrative datasets relating to health such as Personal Independence Payment or Employment and Support Allowance).
Examples of use in other Good Growth models	OECD Better Life Index, 2015

Housing lacking central heating	
Description	Households living in accommodation that is lacking in central heating. A household's is described as 'without central heating' if it had no central heating in any of the rooms (whether used or not). Central heating includes gas, oil or solid fuel central heating, night storage heaters, warm air heating and underfloor heating.
Methodology for producing this indicator	Data was collected from the Census table KS403EW Rooms, bedrooms and central heating which provides the numerator and denominator (all households) for this indicator.
Source	Census 2001/2011
Why this indicator is relevant/strengths	This indicator formed a key component of a number of national and international measures of *Good Growth* (see below) as a measure of the additional cost of heating a property, as well as forming a key component of the Index of Multiple Deprivation Indoors Living Environment domain (capturing housing conditions). The costs of heating a home are a key component of costs of living, with approximately 2.5 million households in England (11%) estimated to be in fuel poverty (where the average costs of heating a home would put them in poverty)[6]. Costly forms of heating are a key driver of this, with households lacking central heating at increased risk of fuel poverty as the costs of heating the home through other forms of heating are considerably more expensive[7]. A key strength of the dataset is that is derived from the Census which draws from a 100% sample of the population to provide robust small

[6] Department for Business Energy and Industrial Strategy: Annual Fuel Poverty StatisticsReport, 2017 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/623108/Fuel_Poverty_Statistics_Report_2017.pdf

[7] https://www.ovoenergy.com/guides/energy-guides/heating-costs-gas-vs-oil-vs-electric-storage-heaters.html

	area data. Data is not subject to rounding. Instead disclosure control is applied through a method of record swapping[8] which results in no data being suppressed. A further strength is that the numerator and denominator for the data are derived from the same source.
Time point availability	2001-2011
Issues/Caveats	It is an imperfect measure of capturing heating costs, as some forms of central heating are more costly than others and home energy efficiency is also a key factor which impacting on the costs of heating a home.
Examples of use in other Good Growth models	UK: Without central heating', Guy Palmer, The Poverty Site, http://www.poverty.org.uk/77/index.shtml

People working 49+ hours	
Description	The proportion of people working 49 or more hours per week. The data is a self-reported Census measure of hours worked for people aged 16-74. Figures are based on the number of hours that a person in employment in the week before the Census, worked in their main job. This includes paid and unpaid overtime.
Methodology for producing this indicator	Data was collected from the Census table KS604EW - Hours worked which provides the numerator and denominator (all households) for this indicator.
Source	Census 2001/2011
Why this indicator is relevant/strengths	Ensuring a positive work life balance is an important component of "*Good Growth*" with 'Work-life balance' and time with family rated by public respondents as one of most important aspects of wellbeing in PWCs Good Growth for Cities study[9], while the UK Mental Health Foundation states that work-related stress costs the country 10.4 million working days per year[10]. A key strength of the dataset is that is derived from the Census which draws from a 100% sample of the population to provide robust small

[8] See www.ons.gov.uk%2ffile%3furi%3d%2fCensus%2f2011Census%2fhowourCensusworks%2fhowwetookthe2011Census%2fhowweplannedfordatadelivery%2fprotectingconfidentialitywithstatisticaldisclosurecontrol%2fstatistical-disclosure-control-for-the-2011-uk-Census_tcm77-189747.pdf/RK=0/RS=FTR.l8ScM.v9fqpH7PK71clzd88-

[9] https://www.pwc.co.uk/industries/government-public-sector/good-growth.html

[10] https://www.mentalhealth.org.uk/a-to-z/w/work-life-balance

	area data. Data is not subject to rounding. Instead disclosure control is applied through a method of record swapping[11] which results in no data being suppressed. A further strength is that the numerator and denominator for the data are derived from the same source.
Time point availability	2001-2011
Issues/Caveats	Because data is based on working patterns a week before the Census, it will not take into account those who have very variable working patterns, working long hours some weeks and less in other weeks.
Examples of use in other Good Growth models	Good growth: A summary report on economic wellbeing from PwC and Demos, 2011 Good Growth For Cities 2016, PWC + Demos OECD better life index, 2015

People receiving Unemployment Benefit:	
Description	People of working age receiving benefits payable to people who unemployed are receiving either Jobseekers Allowance (JSA) or Universal Credit for those who are out of work. This has replaced the number of people claiming Jobseeker's Allowance as the headline indicator of the number of people claiming benefits principally for the reason of being unemployed and is sometimes referred to as the monthly claimant count. JSA is payable to people under pensionable age who are out of work and available for, and actively seeking, work of at least 40 hours a week. Universal Credit was introduced in 2013 and is now available for all new claims from single jobseekers wherever they are in Great Britain and is slowly being rolled out to all income based JSA claimants in selected parts of the country.
Methodology for producing this indicator	12 monthly snapshot time-points have been combined and then divided by 12 to create a rolling average annual count in order to smooth out fluctuations in unemployment (these fluctuations are particularly notable in areas with seasonal unemployment such as seaside towns). A rate has been constructed by taking this count and dividing by a relevant denominator: the total population aged 16-64 for the relevant

[11] See www.ons.gov.uk%2ffile%3furi%3d%2fCensus%2f2011Census%2fhowourCensusworks%2fhowwetookthe2011Census%2fhowweplannedfordatadelivery%2fprotectingconfidentialitywithstatisticaldisclosurecontrol%2fstatistical-disclosure-control-for-the-2011-uk-Census_tcm77-189747.pdf/RK=0/RS=FTR.l8ScM.v9fqpH7PK71clzd88-

	time period from the Office for National Statistics (ONS) Mid-Year Estimates[12].
Source	Department for Work and Pensions (DWP).
Why this indicator is relevant	This indicator formed a key component of a number of national and international measures of *Good Growth* (see below) as a measure of strength of the labour market and job security. A key strength of the dataset is that is derived from a 100% administrative source which is published over a long time series with monthly updates down to LSOA level. The availability of monthly updates has enabled the construction of a smoothed annual figure (to reduce the impact of seasonal unemployment).
Time point availability	2005-2016
Issues/Caveats	Disclosure control: Disclosure control is applied in areas with fewer than 4 cases (using a probabilistic method), to avoid the disclosure of any personal information. Areas with fewer than three cases have been assigned a value of 0 or 3. This is unlikely to have a significant impact on the overall findings as we are reporting aggregate data rather than individual LSOA data. People who are eligible for benefits but not claiming them would not be included in the count, and the data does not take into account local variability of take-up. People who are subject to sanctions are also excluded from the count. There have been changes to the eligibility criteria for Unemployment Benefit claimants over the period: o Between 2005 and 2011 people aged 18-24 who had been unemployed for more than six months would have been eligible for New Deal for Young People and would have in some cases been excluded from the unemployment counts o Between 2005 and 2011 people aged 25+ who had been unemployed for more than 18 months would have been eligible for New Deal for 25+ would have in some cases been excluded from the unemployment counts o From 2011 long-term claimants were subject to the work programme. Unlike New Deal, those taking up opportunities through the Work Experience programme continue to claim JSA while on their placement and only flow off benefit once they move into a regular job. o From October 2012 a new sanctions regime was introduced for Jobseekers Allowance claimants[13]. There was an increase

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https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualsmallareapopulationestimates/mid2015

13 The new regulations introduce a regime of fixed period sanctions, which replaced the existing sanction rules from22ndOctober 2012.Under the new regime: *Higher level sanctions* (for example for leaving a job voluntarily) will lead to claimants losing all of their JSA for a fixed period of 13 weeks for a first failure,26 weeks

	in the proportion of people receiving sanctions in the first six months after they were introduced: Between November 2012 (the first full month of the new sanctions) and June 2013 there were 553,000 sanctions, this compares to 499,000 between November 2011 - June 2012[14]. o From May 2012, any lone parents whose youngest children are aged 5+ are no longer eligible for Income Support and can now receive Jobseekers Allowance. o Other factors resulting in an increase in the number of people claiming Jobseekers Allowance include changes to work capability criteria for people receiving Employment Support Allowance. If claimants are assessed as capable for work they will no longer be eligible for Employment Support Allowance, increasing the overall number of people receiving Jobseekers Allowance. o Another factor affecting the overall number of people receiving Jobseekers Allowance is the change in the state pension age. This change initially affects females with state retirement age no longer fixed at 60 but will gradually rise for both males and females. As the pensionable age increases, the potential number of people claiming Jobseekers Allowance increases. To reflect these changes, the main data suppliers have re-defined the working age population (used as a standard denominator to this indicator to now include females aged 60-64).
Examples of use in other Good Growth models	Good Growth For Cities 2011 and 2016, PWC + Demos OECD Better life Index, 2015 Inclusive Growth Monitor, JRF 2016 Townscape Heritage Initiative Schemes Evaluation: Ten Year Review Report, 2013 The Ecologist: Getting the Measure of Sustainable Economic Growth, 2017

Working age DWP Benefits: Working age client group	
Description	Working Age Client Group refers to people of working age receiving DWP benefits. Working age DWP Benefits are benefits payable to all people of

for a second failure and 156weeks for a third and subsequent failure (within a 52 week period of their last failure). Intermediate level sanctions of four weeks for a first failure, rising to 13weeks for a second or subsequent failures (within a 52 week period of their last failure) may be applied following a period of disallowance for not actively seeking employment or not being available for work. *Lower level sanctions*(for example for failing to attend an adviser interview)will lead to claimants losing all of their JSA for a fixed period of four weeks for the first failure, followed by 13 weeks for subsequent failures(within a 52 week period of their last failure)

[14] https://www.gov.uk/government/news/benefit-sanctions-ending-the-something-for-nothing-culture

	working age (16-64) who need additional financial support due to low income, worklessness, poor health, caring responsibilities, bereavement or disability. The following benefits are included: Bereavement Benefit, Carers Allowance, Disability Living Allowance, Incapacity Benefit/Severe Disablement Allowance, Income Support, Jobseekers Allowance, Pension Credit and Widows Benefit. Figure are derived from 100% sample of administrative records from the Work and Pensions Longitudinal Study (WPLS), with all clients receiving more than one benefit counted only by their primary reason for interacting with the benefits system (to avoid double counting).
Methodology for producing this indicator	The indicator is derived from a 100% sample of the Work and Pensions Longitudinal Study (WPLS) – an administrative database holding information about individual benefit claimants. Four quarterly snapshot time-points have been combined and then divided by four to create a rolling average annual count in order to smooth out fluctuations in benefit claimant rates. A rate has been constructed by taking this count and dividing by a relevant denominator: the total population aged 16-64 for the relevant time period from the Office for National Statistics (ONS) Mid-Year Estimates[15].
Source	Department for Work and Pensions (DWP).
Why this indicator is relevant	Lack of datasets to accurately measure income at small area levels means that poverty must be measured via proxies such as benefit claimant rates. These proxy measures are invariably imperfect but necessary given the lack of data on households experiencing poverty at sub-regional levels[16]. This indicator provides a broad and updatable measure of deprivation using robust administrative sources. A key strength of the dataset is that is derived from a 100% administrative source which is published over a long time series with monthly updates down to LSOA level. The indicator has a statistically significant correlation with the overall Index of Multiple Deprivation (IMD) 2015 at LSOA level. The data captures wider measures than unemployment, including groups experiencing low income, poor health and those out of work with parental or caring responsibilities. Another advantage of the indicator being based on a combination of multiple benefits is that it adjusts for changes in the eligibility criteria of individual benefits. For example, changes to Government policy can

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https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualsmallareapopulationestimates/mid2015

16 'An inclusive growth monitor for measuring the relationship between poverty and growth', Christina Beatty, Richard Crisp and Tony Gore, JRF, May 2016
https://www.jrf.org.uk/file/49152/download?token=-g_uHpcZ&filetype=full-report

	result in people migrating from one benefit to another e.g. from May 2012, any lone parents whose youngest child was aged 5+ were no longer eligible for Income Support and could now receive Jobseekers Allowance. Such a policy change would not affect the overall count here, but would if individual benefits were included. The availability of quarterly updates has enabled the construction of a smoothed annual figure (to reduce the impact of small fluctuations in claimant rate)
Time point availability	2005-2016
Issues/Caveats	Disclosure control: The National Statistics Code of Practice requires that reasonable steps should be taken to ensure that all published statistics protect confidentiality. All cells have been rounded to base 5 (using a probabilistic method), to avoid the disclosure of any personal information. All counts have been adjusted using a variant of controlled rounding to ensure that the columns sum to the total for each row. Rounding affects 'small' figures more than 'large' ones therefore extreme caution should be exercised in interpreting figures equal to or less than 10. An example of the practical implications of the probabilistic rounding is that, three times out of five, a true value of 2 would be rounded to a "0". Two times out of five a true value of 2 would be rounded to a "5". Hence, please note that any counts that are shown as zero may not be a 'real' zero. People who are eligible for benefits but not claiming them would not be included in the count, and the data does not take into account local variability of take-up. People who are subject to sanctions are also excluded from the count. It is not possible to determine from this indicator whether the claimants have dependent children, so will include childless households experiencing deprivation who may be less relevant when considering the deprivation context of children residing in the area. People being migrated off core benefits with the roll out of Universal Credit and this is not currently captured in the measure.
Examples of use in other Good Growth models	An inclusive growth monitor for measuring the relationship between poverty and growth', Christina Beatty, Richard Crisp and Tony Gore, JRF, May 2016 https://www.jrf.org.uk/file/49152/download?token=-g_uHpcZ&filetype=full-report

Average property price	
Description	Average price paid for all properties based on individual transactions data. The Land Registry collect data on all housing transactions, published by individual property, date of purchase and type of property.
Methodology for producing this indicator	The indicator is derived individual property transaction data published as open data by the Land Registry at postcode level. The postcode data is matched against the ONS Postcode Directory to identify the LSOA which the property is located in. Individual property data is then aggregated to LSOA level and assigned a year using the date field in the open data file. 12 months of property transaction data is used to create annual average property prices. Commercial property is stripped from the dataset so that only residential property is included in the average price calculation.
Source	The Land Registry
Why this indicator is relevant	This indicator formed a key component of a number of national and international measures of *Good Growth* (see below) as a measure of affordability. High housing costs create economic penalties for businesses and the local area overall, erode household spending power, and can impact negatively on wellbeing[17]. Unaffordable housing means workers face higher accommodation costs or longer commutes which impacts on wellbeing. Cities that become too expensive can displace individuals on lower incomes, which can lead to social and political unrest[18]. Data is published with no suppression at individual level enabling robust estimates of property price at small area level over a long time series.
Time point availability	2005-2016
Issues/Caveats	Only includes those properties subject to transaction, so does not reflect the value of all of the properties in the area. Figures are not adjusted for size or type of property, so areas where lots of smaller flats are being sold may have lower average values than areas where lots of larger houses are being sold. It does not include information on rented properties Does not take into account local wages
Examples of use in other Good Growth	Housing for Inclusive Cities: the economic impact of high housing costs, Global Cities Business Alliance Discussion paper | April 2016

[17] Housing for Inclusive Cities: the economic impact of high housing costs, Global Cities Business Alliance Discussion paper | April 2016
https://www.businessincities.com/wp-content/uploads/2016/04/GCBA-Housing-Economic-Impact-Study.pdf

[18] Good Growth For Cities 2016, PWC + Demos
https://www.demos.co.uk/wp-content/uploads/2016/11/Good_Growth_For_Cities_2016.pdf

models	Good Growth For Cities 2016, PWC + Demos

Overall crime rate	
Description	Number of recorded crimes - of selected crime categories - occurring per 1,000 resident population. An overall composite crime count was calculated by adding together the numbers of violent crimes, sexual offences, burglaries, robberies and vehicle crimes. Other crime types, such as criminal damage, were excluded from this overall crime count due to lack of available data for the requisite time periods. The composite crime count was then expressed as a crime rate per 1,000 resident population.
Methodology for producing this indicator	Individual crime recorded offences were derived from the police.uk open data-store which contained individual crime incidence geo-located by latitude and longitude with additional information relating to crime category and date of offence. We filtered the dataset to only include crime categories that were present across the whole time period then grouped these together to create a combined overall crime count for each calendar year. Latitude/Longitude data geocoded to LSOA level using GIS software to produce an LSOA level crime count. A rate has been constructed by taking this count and dividing by a relevant denominator: the total population for the relevant time period from the Office for National Statistics (ONS) Mid-Year Estimates[19].
Source	Police UK
Why this indicator is relevant	This indicator formed a key component of national and international measures of *Good Growth* (see below) as a measure of wider wellbeing, with studies indicating that crime has a greater impact on local wellbeing than a comparable increase in unemployment[20]. Data is published with no suppression at individual level enabling robust estimates of property price at small area level.
Time point availability	2011-2016
Issues/Caveats	Changes in recorded crime rates can be due a number of factors, including: real change (i.e. a real increase of decrease in the rate of offending); changes to how crimes are coded (see the Home Office Counting Rules for more information on this); changes to the propensity of the public to report crimes (i.e. under-reporting); and changes to policing priorities and detection strategies (e.g. prioritising burglary in

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https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/annualsmallareapopulationestimates/mid2015

20 'The Effect of Local Area Crime on the Mental Health of Residents', (2012) Christian Dustmann, Francesco Fasani..

	one year, but vehicle crime another year etc). The time series for this indicator is shorter than for other indicators in the study, with the earliest full calendar year of data, somewhat later than the baseline period of the study used for the other growth indicators. Any change in crime between 2006 and 2011 cannot be explored due to a lack of robust available data.
Examples of use in other Good Growth models	Townscape Heritage Initiative Schemes Evaluation: Ten Year Review Report, 2013