

## Welsh Index of Multiple Deprivation: A guide to analysing indicator data<sup>1</sup>

### About the guidance

This article gives guidance on analysing the Welsh Index of Multiple Deprivation indicator data, including a guide to what indicator data has been published, how to access it, “do's and don'ts” for analysis, and links to existing analysis. Additional StatsWales data with age splits for selected indicators were also released on 1 December 2015, as well as an “Area Analysis of Child Deprivation 2014” statistical article based on the indicator data. [More information about the indicator data and accompanying analyses can be found here.](#)

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<sup>1</sup> Notes on the use of statistical articles can be found in section 11 at the end of this document.

This document is also available in Welsh.

# **1. Introduction to WIMD**

## **What is WIMD?**

The Welsh Index of Multiple Deprivation (WIMD) is the Welsh Government's official measure of relative deprivation for small areas in Wales. It is designed to identify those small areas where there are the highest concentrations of several different types of deprivation. It is a National Statistic and is produced by statisticians at the Welsh Government.

## **What is an index?**

An index is a group of separate measurements which are combined into a single number. They are designed to show changes in a complicated variable like industrial output, prices or in this case deprivation. An index then allows comparisons between different values – in the case of WIMD, the comparison is between small areas (see below).

WIMD ranks all small areas in Wales from 1 (most deprived) to 1,909 (least deprived).

## **What does WIMD measure?**

WIMD is a measure of multiple deprivation that is both an area-based measure and a measure of relative deprivation.

WIMD is currently made up of eight separate domains (or types) of deprivation. Each domain is compiled from a range of different indicators.

- a) Income
- b) Employment
- c) Health
- d) Education
- e) Access to Services
- f) Community Safety
- g) Physical Environment
- h) Housing

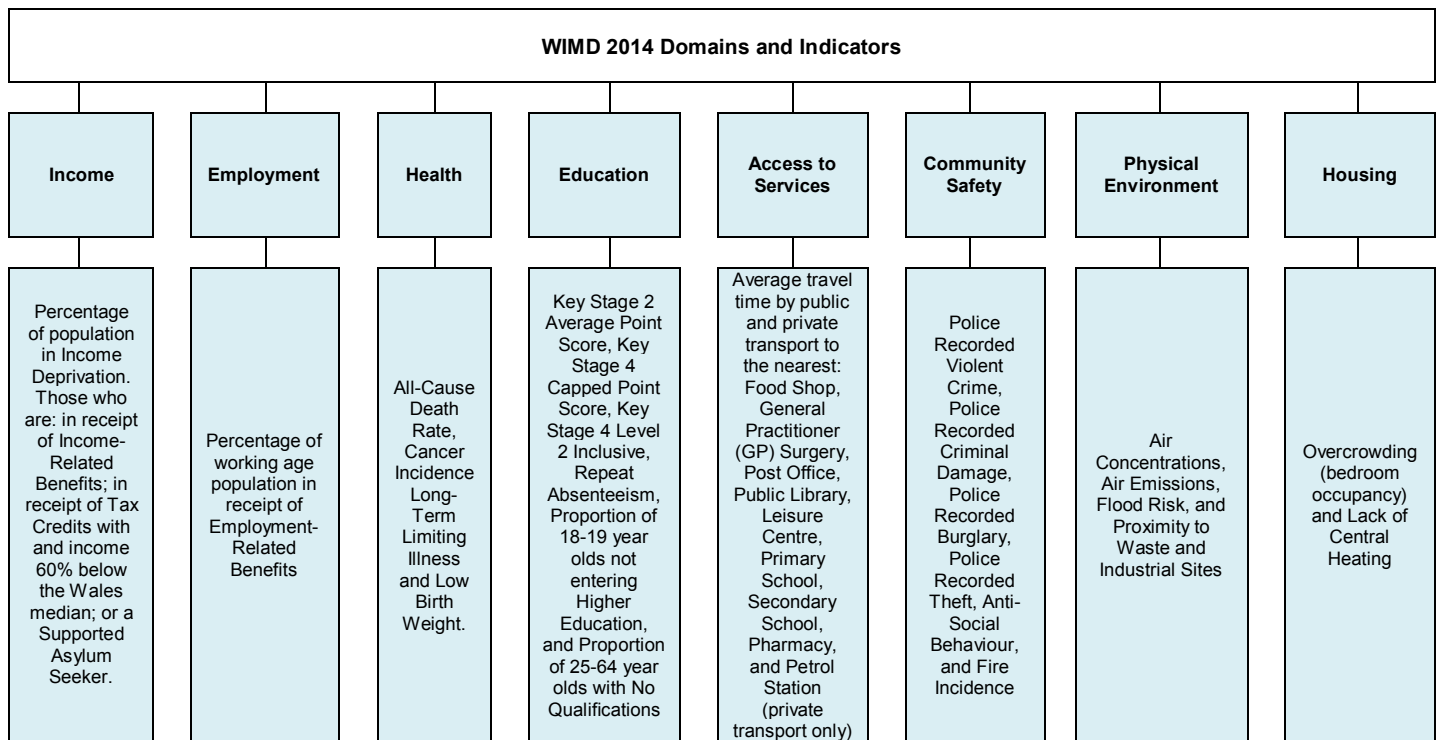
## **What is WIMD indicator data?**

The domains are built up from sets of indicators; these are measurable quantities which capture the concept of deprivation for each domain (e.g. the percentage of working age people in receipt of employment-related benefits for the employment domain; Key Stage scores in the education domain; all cause death rate in the health domain, etc.). This is the data that this document focuses on. The diagram on page 3 outlines the domains and indicators used in WIMD 2014.

Indicator data is released alongside the main WIMD index for 2008, 2011 and 2014. From 2011 selected indicator data has been updated annually, even in years when no Index is calculated. Where possible, indicator data is also published for a range of geographies, as detailed in Section 3. On 1 December 2015, indicator data was released broken down by age for the first time.

The annual Indicator datasets aim to provide new information to those interested in analysing deprivation for areas and/or age groups, allowing some analysis over time, comparisons between areas beyond a simple ranking, and the future addition of other useful indicators not included in the main Index. Analysis of the indicator data has often been expressed as a priority for users since we began to publish the detailed data.

**Figure 1: WIMD 2014 Domains and Indicators**



**Further information**

You can find more background information on WIMD at the following sources:

- [The WIMD Webpage](#)
- [WIMD - Annual indicator data](#)
- [WIMD 2014 Main Report](#)
- [WIMD 2014 Guidance on Use](#)
- [WIMD 2014 Frequently Asked Questions](#)
- [WIMD 2014 Technical Report](#)
- [WIMD 2014: A guide to analysing deprivation in rural areas](#)
- [WIMD Interactive Tool](#)

## 2. Accessing WIMD indicator data

All WIMD indicator data can be accessed at [this webpage](#).

The data is organised by the geography that it covers. For LSOA-level or age-split data, the user will also need to decide on a particular deprivation domain or indicator to view, since there is too much information to show all domains at the same time. More information on geographies can be found in Section 3.

Note that the webpage covers 2014 and later indicator data only. Indicator data from earlier years (specifically 2008, 2011, 2012 and 2013) can all be accessed via the 'Pre WIMD 2014 indicator data' tab on the left side of the page.

### Manipulating WIMD data

WIMD data is presented in what are known as StatsWales cubes. These are a way to view data dynamically, allowing the user to rearrange the data to suit their needs. We will use the 'Indicator data by Deprivation Tenthhs - All Domains' cube, to demonstrate this (see picture below).

| Area                          | long term limiting illness (indirectly age-sex standardised) (number per 100,000) | all cause death rate (indirectly age-sex standardised) (number per 100,000) | cancer incidence (indirectly age-sex standardised) (number per 100,000) | low weight single births (live births less than 2.5 kg) (percentage) | Key Stage 2 average points score (points score) | Key Stage 5 capped points score (points score) | repeat absenteeism (percentage) | Key Stage 4 level 2 inclusive (percentage) | people not entering higher education aged 16-19 (percentage) | adults aged 25-64 with no qualifications (percentage) | average public travel time to food shop (minutes) |
|-------------------------------|---|---|---|--|---|--|---------------------------------|--|--|---|---|
| Wales                         | 22,714.7  | 1,349.7   | 582.5   | 5.6  | 84  | 328  | 9.92                            | 51.77                                      | 65   | 19.36   | 19  |
| 10 per cent most deprived     | 32,828.4  | 1,423.5   | 663.3   | 7.4  | 79  | 277  | 17.69                           | 28.23                                      | 89   | 36.57   | 9   |
| 10-20 per cent most deprived  | 28,888.2  | 1,252.5   | 637.3   | 6.7  | 81  | 301  | 14.31                           | 36.49                                      | 84   | 24.48   | 9   |
| 20-30 per cent most deprived  | 26,805.4  | 1,194.2   | 615.1   | 6.3  | 82  | 308  | 12.41                           | 40.99                                      | 79   | 25.80   | 10  |
| 30-40 per cent most deprived  | 25,071.7  | 1,133.3   | 592.7   | 5.8  | 83  | 320  | 10.90                           | 47.40                                      | 74   | 21.70   | 15  |
| 40-50 per cent most deprived  | 23,882.1  | 1,048.2   | 574.8   | 5.4  | 84  | 328  | 9.76                            | 50.12                                      | 70   | 18.98   | 23  |
| 40-50 per cent least deprived | 21,324.3  | 1,026.1   | 569.3   | 5.1  | 85  | 338  | 8.46                            | 55.72                                      | 65   | 16.57   | 26  |
| 50-60 per cent least deprived | 19,826.1  | 952.0   | 558.2   | 4.7  | 85  | 343  | 7.39                            | 58.90                                      | 62   | 14.57   | 33  |
| 60-70 per cent least deprived | 18,465.1  | 938.3   | 555.8   | 4.5  | 86  | 350  | 6.18                            | 63.67                                      | 59   | 12.82   | 37  |
| 70-80                         |   |   |   |  |   |  |                                 |  |  |   |   |

When first opened the webpage presents the user with a simple table; the geography (in this case areas of deprivation) on the left, tabulated against the different indicators (or age-splits) along the top of the page. This view will likely be suitable for most users.

However, there are drop down boxes at the top left of the page for each dimension – these allow you to hide (untick) or show (tick) certain elements – for example to look at data for Wales as a whole, or remove the education domain indicators. The small buttons with plus and minus signs also allow the user to expand (+) or collapse (-) certain categories.

For older WIMD data a third dimension will be visible above the table: Year. The corresponding drop down button can be used to select any year's data. Alternatively, this box can be dragged into the table to have the data broken down by year.

[Further guidance on using StatsWales and cubes is available here.](#)

### **Downloading WIMD data**

Once happy with the chosen layout, the user can download the data with the same arrangement of rows and columns. To do this, simply choose the 'Export' button above the table. The cube will offer the options of including the table title and metadata in the download, as well as a choice of 3 formats:

- Comma separated (.csv);
- Excel 2007-2010 (.xls);
- Statistical Data and Metadata Exchange (SDMX).

The user can then carry out analysis of this data using their preferred software package.

### **Sharing WIMD data**

Once happy with the chosen layout, the user can save or share a link to the data with the same arrangement of rows and columns. To do this, simply choose the 'Link' button above the table, copy the URL provided, and paste into an email or document.

### **Open data**

Open Data, refers to the premise of data being made freely available in understandable format that can be used by anyone. Many of our StatsWales cubes are now available via an OData service which can be used to query the data to fit the users' needs. OData can be analysed using Microsoft Excel's Power Query add on, [Microsoft's Power BI](#), or other business intelligence products. Useful OData service queries can be found in StatsWales by scrolling down and using the 'Open Data' tab at the bottom of the dataset view. The following symbol, if seen next to a listed StatsWales table, indicates the availability of that dataset via OData:



[OData guidance videos.](#)

### **Additional WIMD resources**

This document only looks at analysing WIMD Indicator Data, but other WIMD information such as relative deprivation ranks is also published online as well as interactive mapping of WIMD domains. Guidance on using this data is available in the main WIMD guidance document mentioned in Section 1.

### 3. Indicator data

There is a broad range of indicator data available on StatsWales, with each indicator falling into one of the eight domains of deprivation listed earlier in the document.

#### 3.1 Geographies

All WIMD data are published at the [Lower Layer Super Output Area \(LSOA\)](#) geography and at Wales level, but many indicators are also available for additional geographies, including:

- [Communities First Areas](#)
- Deprivation Tenthths (Areas of deprivation according the main WIMD Index, as outlined for WIMD 2014 on page 8 of the [WIMD Technical Report](#))
- Local Authorities
- [Middle Layer Super Output Areas \(MSOAs\)](#)
- [Strategic Regeneration Areas](#)
- [Rural/Urban Classifications](#)
- Rural/Urban Classifications within Local Authorities
- [Built Up Areas](#) (BUA)<sup>1</sup>

Reference ('lookup') files which enable users to link different geographies (e.g. postcode to LSOA and Communities First Clusters) can be found on StatsWales:

[StatsWales website: WIMD 2014](#)

[StatsWales website: Communities First](#)

It is also possible to visualise geographies on a map using the [WIMD interactive](#) product or the [Neighbourhood Statistics](#) website.

#### 3.2 Age breakdowns

Indicator data used for WIMD 2014 were broken down by age and published on StatsWales on 1 December 2015. The age breakdown used for each indicator varied based on the usefulness of each and disclosure issues. The data were released for a range of geographies.

The indicators covered relate to the Income, Employment, Health, Education and Housing domains and come from a range of sources including the 2011 Census, survey and administrative data. A full list of the indicators, geographies and age splits available can be seen in Tables 1 and 2 in the Annex.

The scope of the data broken down by age published on 1 December does not include some aggregate geographies covered by other indicator tables, nor some other indicators which may feasibly be broken down by age (Cancer incidence, Death rate, and Low Birth Weight). We prioritised our work disaggregating the indicators to focus on data judged to be of most use to users, but welcome feedback to inform future work.

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<sup>1</sup> The definition of BUAs used to calculate the WIMD Indicator Data is the best-fit built-up area sub-divisions (BUASD) with a threshold of 2000 people.

Although detailed age splits are not available before WIMD 2014, some indicator data for children was published alongside the 2008 and 2011 WIMD Child Indices, accessible through StatsWales as described in section 2.

### 3.3 Individual indicators

The following sub-sections provide a summary of the indicators in each domain, including an indication of whether indicators published alongside WIMD 2014 are comparable with previous data. A more complete definition of all indicators can be found in the Technical Report.

In addition tables in the Annex provide further information. Table 1 outlines the indicators for each domain, the years for which they've been published and their comparability over time. Table 2 outlines the different geographies for which each indicator is available for each year. Table 3 details the reference period of the underlying data for each indicator by year of publication. Table 6 provides a log of revisions made to StatsWales WIMD indicator data, from August 2015.

Note also that LSOAs are designed to provide statistics for small areas. However with small area statistics there is an increased likelihood that individuals may be identified based on certain characteristics. As a consequence it has been necessary to suppress the values for some indicators to avoid this. Table 4 in the Annex outlines the indicators for which steps have been taken to avoid disclosure for the 2011 and 2014 editions of WIMD.

#### Income domain

The Income domain includes one indicator: the percentage of population in income deprivation. Until the 2015 update (published May 2016), this indicator was made up of three elements; income-related benefit<sup>2</sup> claimants (data from the Department for Work and Pensions), tax credit<sup>3</sup> recipients (from Her Majesty's Revenue & Customs), and supported asylum seekers<sup>4</sup> (from the Home Office). It sums claimants and dependent children for the three elements, and then divides this by the total resident population.

Following the introduction of Universal Credit (UC) in Wales on a phased basis from 2014, the 2016 income indicator now includes claimants of UC except those "working with no requirements" (that is, with individual or household earnings over the level at which [conditionality](#) applies). The numbers of UC claimants in the 2016 income deprivation data are relatively small (just under 1 per cent of the overall total)<sup>5</sup>, and rollout initially included uncomplicated cases for single adults with no dependent children. We will continue to review how we include UC claimants and their dependents for future annual updates, aiming for minimum changes until a full review ahead of the next Index year.

We did not include UC claimants in the 2015 indicator data. There were a small number of new, single unemployed UC claimants in the Shotton (North Wales) Job Centre District from May 2014, falling into the end of the reference period for 2015 indicators. Therefore decreases in the 2015 indicator data for LSOAs near Shotton may in part be explained by the omission of new UC claimants who would previously have moved onto Job-Seekers' Allowance. However the effect is estimated to be small in the scale of other changes to the welfare system.

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<sup>2</sup> Includes Income Support, Job Seekers Allowance, Income Based Employment and Support Allowance, and Pension Credit

<sup>3</sup> Includes Child Tax Credit and Working Tax Credit

<sup>4</sup> Those who were supported under Section 95

<sup>5</sup> Statistics on Universal Credit are available [online](#).



The income indicator is published for every year. There were no methodological changes in the income domain between WIMD 2011 and WIMD 2014. However, changes to the welfare system mean that eligibility thresholds and criteria for some benefits have changed. From the 2016 update, it also includes some Universal Credit claimants as outlined above. As a result indicator data are not strictly comparable over time.

## **Employment domain**

The Employment domain includes just one indicator: the percentage of working-age population in receipt of employment related benefits, from the Department for Work and Pensions. Until the 2015 update (published May 2016), this was calculated from a count of individuals (i.e. those who claim multiple benefits are only counted once) entitled to incapacity benefit (which replaced Severe Disablement Allowance), Job Seekers Allowance (JSA), and Employment and Support Allowance (ESA). This indicator is expressed as a percentage of the working age population for each LSOA.

Following the introduction of Universal Credit (UC) in Wales on a phased basis from 2014, the 2016 employment indicator now includes claimants of UC with no [employment marker](#). The numbers of UC claimants in the 2016 employment deprivation data are relatively small (just under 2 per cent of the overall total)<sup>6</sup>, and rollout initially included uncomplicated cases for single adults with no dependent children. We will continue to review how we include UC claimants for future annual updates, aiming for minimum changes until a full review ahead of the next Index year.

We did not include UC claimants in the 2015 indicator data. There were a small number of new, single unemployed UC claimants in the Shotton (North Wales) Job Centre District from May 2014, falling into the end of the reference period for 2015 indicators. Therefore decreases in the 2015 indicator data for LSOAs near Shotton may in part be explained by the omission of new UC claimants who would previously have moved onto Job-Seekers' Allowance. However the effect is estimated to be small in the scale of other changes to the welfare system.

Since WIMD 2014, New Deal participants are no longer included in this domain. This programme was replaced by the Work Programme, which requires a participant to be claiming either Job Seekers Allowance or Employment and Support Allowance. Both of these benefits are already included in the indicator. In addition to this, changes to the welfare system mean that eligibility thresholds and criteria for some benefits have changed. From the 2016 update, it also includes some Universal Credit claimants as outlined above. As a result, although the employment indicator is published for every year, data are not strictly comparable over time.

## **Health domain**

The health domain includes four indicators:

- Cancer Incidence
- Limiting Long-Term Illness
- All-Cause Death Rate
- Low Birth Weight

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<sup>6</sup> Statistics on Universal Credit are available [online](#).

### **Cancer incidence (indirectly age-sex standardised)**

This indicator uses counts of all cases of cancer including all malignancies, excluding non-melanoma skin cancer (data from Public Health Wales) and population data. This indicator is based on ten years of data, and is rolled forward every year. Indicator data are not strictly comparable over time because the technique of indirect standardisation involves using updated age-sex specific rates for Wales in calculating rates for small areas.

### **Limiting long-term illness (indirectly age-sex standardised)**

Limiting Long-Term Illness covers any long-term illness, health problem or disability that limits daily activities or work. This indicator is based on Census data, and is not comparable over time because of changes to the Census question between 2001 and 2011, and also due to the indirect standardisation applied.

### **Death rate (indirectly age-sex standardised)**

This indicator is based on 10 years of data for the all-cause death rate, from the Office for National Statistics. It is published for every year, but is not strictly comparable over time due to the use of indirect standardisation.

The indicators above are counts of unique individuals (i.e. duplicates were removed), so that the indicators can be summed and expressed as a rate per 100,000 for the LSOA. There were no methodological changes in the health domain between WIMD 2011 and WIMD 2014.

### **Low birth weight**

This indicator is the percentage of live single births (singletons) for which birth weight is less than 2.5kg, and is calculated as a 10 year average, using data from the Office for National Statistics. This indicator is published for every year and is comparable over time.

### **Education domain**

The education domain includes six indicators (calculated by the Welsh Government unless otherwise stated):

- Key Stage 2 Average Points Score
- Key Stage 4 Capped Points Score
- Key Stage 4 Level 2 Inclusive
- People Not Entering Higher Education Aged 18-19 (data from the Higher Education Funding Council for England)
- Adults Aged 25-64 With No Qualifications (Census data)
- Repeat Absenteeism

Three of the six indicators in the WIMD 2014 education domain were present in WIMD 2011:

- Key Stage 2 Average Point Score
- Proportion of people aged 18-19 not entering Higher Education
- Number of Adults aged 25-64 with No Qualifications

Of these three indicators, the age specification of adults with no qualifications indicator has changed slightly since WIMD 2011, due to the increase in state pension age for women from 59 to 64 years old. The other two indicators remain unchanged.

The Key Stage 3 Means Point Score has been removed since WIMD 2011 and the Key Stage 4 Average Wider Point Score indicator has been replaced by two Key Stage 4 indicators included in WIMD 2014. The two absenteeism indicators included in WIMD 2011 have been replaced with one Repeat Absenteeism indicator which covers both Secondary and Primary School.

There was a small improvement made to the methodology for the Repeat Absenteeism indicator for the 2016 indicator data publication. Previously (for 2015), data on Welsh pupils at English “All-Through” schools had not been included in the indicator, but from 2016 the relatively small number of pupils affected are now accounted for in the indicator.

### **Access to services domain**

The Access to Services Domain has changed its indicators for WIMD 2014. The indicators that contribute to this domain are outlined below.

- Average Private Travel Time to Food Shop (minutes)
- Average Private Travel Time to GP Surgery (minutes)
- Average Private Travel Time to Leisure Centre (minutes)
- Average Private Travel Time to Public Library (minutes)
- Average Private Travel Time to Petrol Station (minutes)
- Average Private Travel Time to Pharmacy (minutes)
- Average Private Travel Time to Post Office (minutes)
- Average Private Travel Time to Primary School (minutes)
- Average Private Travel Time to Secondary School (minutes)
- Average Public Travel Time to Food Shop (minutes)
- Average Public Travel Time to GP Surgery (minutes)
- Average Public Travel Time to Leisure Centre (minutes)
- Average Public Travel Time to Public Library (minutes)
- Average Public Travel Time to Pharmacy (minutes)
- Average Public Travel Time to Post Office (minutes)
- Average Public Travel Time to Primary School (minutes)
- Average Public Travel Time to Secondary School (minutes)

The indicators used prior to WIMD 2014 are in Table 1 of the Annex, and indicators have not been updated in between indexes. The Technical Report outlines the exact specification of each of the indicators above. For 2014 the calculations for this domain include travel times to pharmacies and petrol stations for the first time, along with those for all services using public transport. At the same time figures for NHS dentists and

transport nodes were taken out. Further to this, travel times are now measured to the nearest service point for each indicator, rather than the nearest 10 service points. Because of this the Access to Services Domain for WIMD 2014 is not comparable with that for WIMD 2011.

## **Community safety domain**

The Community Safety Domain considers deprivation with relation to living in a safe community. There are six indicators which make up the community safety domain and these are outlined below. These are sourced from Welsh Police Forces (unless otherwise stated) and include:

- Police Recorded Criminal Damage
- Police Recorded Violent Crime
- Police Recorded Anti-Social Behaviour
- Police Recorded Theft
- Police Recorded Burglary
- Fire Incidents (Welsh Government)

Since WIMD 2011, the Percentage of Youth Offenders and Percentage of Adult Offenders indicators have been replaced by the Police Recorded Anti-Social Behaviour indicator. In comparison with WIMD 2011, the Police Recorded Theft, Violent Crime, and Criminal Damage indicators have changed for WIMD 2014 with the removal of the non-resident working population from the denominator. More information can be found under the background section of the [WIMD webpages](#).

The introduction of the Police Recorded Anti-Social Behaviour indicator means that this indicator is not comparable with its WIMD 2011 counterparts (Percentage of Youth Offenders and Percentage of Adult Offenders). The five other WIMD 2014 indicators included in the Community Safety domain are comparable with WIMD 2011.

The 2016 indicators show an increase in the rate of violent crime across Wales since the last update for this indicator, in 2014. This increase can be partly explained by improvements in police recording practices, particularly in relation to violence against the person offences. This is explained further in the ONS output 'Crime in England and Wales: year ending Mar 2016', found [here](#), which states:

*"These increases need to be seen in the context of the renewed focus on the quality of crime recording by the police, in light of the inspections of forces by Her Majesty's Inspectorate of Constabulary (HMIC), the Public Administration Select Committee (PASC) inquiry into crime statistics and the UK Statistics Authority's decision to remove the National Statistics designation from police recorded crime statistics. This renewed focus is thought to have led to improved compliance with the National Crime Recording Standard (NCRS), leading to the recording of a greater proportion of crimes coming to the attention of the police."*

## **Physical environment domain**

The data, and the associated technical expertise, for this domain are provided by Natural Resources Wales (NRW). There are three subdomains that make up the Physical Environment domain: Air Quality, Flood Risk, and Proximity to Waste Disposal and Industrial Sites. The Air Quality subdomain is split into two indicators: Air Concentrations and Air Emissions. The Air Concentrations and Air Emissions indicators have

had some technical changes since WIMD 2011 (details can be seen in the Technical Report), but they are still both broadly comparable.

## **Housing domain**

The purpose of the housing domain is to measure deprivation in terms of the lack of adequate housing due to physical housing conditions, living arrangements or availability of housing. The data for this domain is supplied by the Office for National Statistics (ONS) as part of the 2011 Census. Due to the lack of appropriate data, the housing domain is measured through two indicators: the proportion of people living in overcrowded households, and the proportion of people living in households with no central heating.

The overcrowded households indicator used in WIMD 2014 is not comparable with that for WIMD 2011 because it was based on bedrooms rather than all rooms as used in the 2011 edition. The WIMD 2011 indicator also excluded all student households whereas the WIMD 2014 indicator included them.

The percentage of population living in households with no central heating indicator is comparable with WIMD 2011 although there was a slight wording change between the 2001 and 2011 Censuses. For more information on the comparability between these two censuses please see the [2011-2001 Census Questionnaire Comparability Report](#).

## 4. Population data

Many of the WIMD indicators are presented as a rate, whether percentage, per hundred or per hundred thousand. To calculate these rates a range of population bases are used as denominators. The main ones are outlined below along with information on where to find data for them.

### 2011 Census

The census is the most complete source of information about the population that is available. It is the only survey which provides a detailed picture of the entire population, and is unique because it covers everyone at the same time and asks the same core questions everywhere. This makes it easy to compare different parts of the country. However due to its' size the Census is only carried out every ten years.

The most recent census provides estimates of the characteristics of all people and households in the UK on census day, 27 March 2011. The census provides statistics from a national to a local level for these characteristics, including smaller geographies such as those used for WIMD.

Some data from the 2011 Census can be found on the [StatsWales website](#).

A wide range of information from the 2011 Census can be found on the [ONS website](#).

A more complete range of information for small areas can be obtained from the [NOMIS website](#) which enables the user to query the data for a variety of geographies and indicators.

### Mid-year population estimates

The Office for National Statistics (ONS) produces estimates of the resident population of England and Wales which give a stock count of people living in England, Wales, the regions of England, local authorities and small areas by age and sex, as at 30 June each year. For consistency, lower layer Super Output Area (LSOA) mid-year population estimates are constrained to middle layer Super Output Area (MSOA) estimates which in turn are constrained to local authority estimates.

Small area population estimates (SAPE) for mid-2001 to mid-2013 SOAs have been produced on 2011 census boundaries. Some indicator data in WIMD 2014 were based on SAPE for mid-2012. For some indicators the relevant population group was defined by age (e.g. for employment domain the 'working age' age group was used).

SAPE for all LSOAs in Wales for years from mid-2001 onwards by age group can be found on the [StatsWales website](#).

More detailed estimates, by single year of age (up to age 89, then grouped for age 90+), are available on the [ONS website](#).

### Pupil Level Annual School Census (PLASC) data

The PLASC is the annual count of pupils in all schools across Wales, including those of non-statutory school age (i.e. 5-16). It covers nursery, primary, secondary and independent schools and is based on those enrolled on the school census day in January each year.

Many of the indicators for the education domain are calculated using PLASC data for the relevant age group. PLASC data broken down by age group, gender, school, attendance type (i.e. part time or full time), local authority and constituency can be obtained from the [StatsWales website](#).

## 5. Data for other UK countries

England, Scotland and Northern Ireland also produce indices of deprivation for their respective areas. The principle approach is similar to that for WIMD however there are differences in the detailed methodology between each of the outputs. As with WIMD, data can be obtained for the indicators contained in each index. It is advisable though to read the notes, definitions and associated information for each dataset to verify comparability with data from WIMD.

### England

[The latest English indices of deprivation](#): including underlying indicators and population denominators.

### Scotland

[The latest Scottish Index of Multiple Deprivation](#): including underlying indicators and population denominators.

### Northern Ireland

The multiple deprivation measure for Northern Ireland is currently being updated. [Information from previous editions can be found here](#).

Domain scores. [This page has a 'data search' facility which can be used to find indicator data related to the various domains](#).

## **6. LSOA boundary changes**

### **Geographic unit**

The geographic areas used in the calculation of WIMD 2014 are the 1,909 Lower layer Super Output Areas (LSOAs). LSOAs were used as the geographic unit in WIMD 2005, 2008 and 2011, and were designed for the reporting of small area statistics. The other three UK nations also calculate their indexes at the LSOA geographical unit.

### **Changes between 2001 Census and 2011 Census**

The aim of the statistical geographies used for the census is that boundaries do not change significantly between censuses. Nevertheless some LSOA boundaries are revised following each Census, to take into account changes in population. WIMD 2014 is the first Welsh Index of Multiple Deprivation to use the revised boundaries, following the 2011 Census. In the 2001 Census, there were 1,896 LSOAs; 49 of these have been discontinued and 61 new LSOAs have been created.

There have been changes to LSOA boundaries where populations have:

- become too big, so an LSOA has been split into two or more areas;
- become too small, so an LSOA has been merged with an adjacent one; or
- changed in a complex way, so there has been a combination of the two cases above.

In some cases there have also been changes following the Output Geography Consultation, run by the Office for National Statistics in 2010. Where LSOAs have changed, the old code has been deleted and a new code has been assigned. To ensure ease of use, English and Welsh names have been allocated to each of the LSOA codes. Each LSOA name has been determined by the local authority to which the LSOA belongs.

In WIMD 2014, there are 1847 LSOAs with unchanged boundaries since WIMD 2011, 61 LSOAs with boundaries resulting from a merge with or split from an adjacent LSOA, and 12 LSOAs with boundaries resulting from more complex changes. A summary of LSOA boundary changes is provided in the last table in the Annex.



## 7. Dos and Don'ts

The following extract from the WIMD guidance infographic shows guidelines for analysing WIMD rank data:



However, when it comes to indicator data the guidelines are different.

### Geographical comparisons

- ✓ DO compare data between different geographies, e.g. between one Communities First area or LSOA and another.
- ✗ DON'T forget about changes in geography – e.g. some LSOAs will not be comparable over time if their boundaries have changed.
- ✗ DON'T ignore the effect the presence of particular population groups can have on different areas, e.g. students.

### Comparing over time

- ✓ DO compare indicator over time, BUT...
- ✗ DON'T ignore changes in indicator definitions.
- ✗ DON'T ignore changes in geography boundaries.
- ✗ DON'T forget to check for variations between years caused by small numbers in either the count for the indicator or the base population.

### Comparing indicators

- ✓ DO consider different indicators – e.g. the performance of a range of indicators over time or within a certain area.
- ✗ DON'T forget to check which direction is considered positive – e.g. a higher KS2 average score is a positive thing, a higher repeat absenteeism score is negative.
- ✗ DON'T forget to make sure you know what each indicator actually measures.

### Comparing against deprivation data

- ✓ DO compare data against overall WIMD deprivation data.
- ✓ DO use the deprivation tenths geography to do this if available.
- ✗ DON'T forget that the indicators themselves actually feed into this overall deprivation measure (with varying weight per domain and indicator).
- ✗ DON'T forget the reference period for the deprivation indicator data.
- ✗ DON'T compare Index ranks over time.

## Comparing between age groups

- ✓ DO compare indicator values between different age groups.
- ✗ DON'T forget that different indicators use different age splits.
- ✗ DON'T forget to check for variations between years caused by small numbers in either the count for the indicator or the base population (this may be especially relevant for narrow age bands).

## 8. Example analyses

There are some existing sources of WIMD indicator data analysis which can act as examples. These are in addition to the Case Study presented in Chapter 9 of this article.

### [Welsh Index of Multiple Deprivation 2014: A guide to analysing deprivation in rural areas - Revised](#)

This article was published alongside WIMD 2014, and looks at analysing deprivation in rural areas, taking into account settlement size. In particular, sections 8 and 9 of this report look at analysing Access to Services and Income indicator data.

### [Analysis of the Access to Services Domain in the WIMD by type of settlement \(WIMD Indicators 2014\)](#)

**This output provides analysis of WIMD data to examine areas that may have issues with access to services. It looks at both the deprivation rankings for the Access to Services domain and the travel times used in the construction of the rankings.**

### [Area Analysis of Child Deprivation \(WIMD Indicators 2014\)](#)

On 1 December 2015 a Statistical Article was published which showed how deprivation varies for children across Wales, using a range of WIMD indicator data for the relevant age groups.

## How to analyse by deprivation group

In order to summarise and analyse data representing 1,909 LSOAs, statistical methods may be used to group the data. For example, this may be done using deciles, quintiles, or WIMD deprivation groups (top 10 percent, 10 to 20 percent, 20 to 30 percent, 30 to 50 percent, bottom 50 percent of LSOAs). This approach can be used for the overall index, domain or individual indicator under consideration. In 2016, the WIMD [spreadsheet](#) of domain ranks was amended to include a lookup for WIMD 2014 deciles, quartiles and quintiles, using the overall WIMD rank.

For example, it is possible to see whether an area is in the “worst” 10 per cent of areas for the no qualifications indicator, and then to compare this to its position against another indicator such as employment deprivation.

Briefly, the typical approach is to:

- Rank LSOAs (1-1909) according to chosen indicator values, from most deprived to least deprived.
- Decide on categorisation to use and assign a category to each LSOA e.g. if using deciles the first category (top 10 percent most deprived) would normally include LSOAs ranked 1-191.

- Where ties exist (e.g. the LSOAs ranked 191 and ranked 192 have the same indicator value) then LSOAs are usually assigned to the more deprived category (so LSOA ranked 192 in our example would be included in our “top 10 percent”).

Some of the types of analysis then possible include:

- Thematic maps, using a different shade for each category.
- Cross-tabulations of LSOAs according to two different categorisations e.g. two different domains of deprivation, or an indicator at two different time periods.
- Boxplot of indicator values by category, for example plotting the spread of violent crime rates within categories of income domain deprivation.
- After matching LSOAs to local authorities (or other higher geographies), tabulating the proportion of LSOAs which are in each category.
- Present a boxplot of the spread of values for LSOAs within each local authority.

### **Analysing over time**

Section 3.3 refers to comparability of indicators over time, with further information in the Annex tables and in other supporting WIMD documentation on changes to indicator definitions.

Often, change in indicator definitions means data are not strictly comparable over time. However, although care should be taken in interpreting absolute changes in indicator values, it is still possible to analyse relative changes over time. For example, to compare relative deprivation between 2011 and 2014 users can group LSOAs into deciles according to the relevant indicator data, and look at those areas which have moved up or down deciles. So we can surmise that an area moving from the third decile (20-30 percent most deprived areas) in 2011 to the first decile (top 10 percent most deprived areas) in 2014 has worsened in terms of, say, its relative child income deprivation. However, it is important to remember not to compare individual ranks over time, as they are a relative measure.

Although detailed age splits are not available before WIMD 2014, some indicator data for children was published alongside the 2008 and 2011 WIMD Child Indices, accessible through StatsWales as described in section 2. Care should be taken comparing previously published child indicator data with data from WIMD 2014 or later. Indicator data for children for years earlier than 2014 may differ in definition from the age breakdowns provided from 2014 (e.g. 0-15 and 0-18), so users should read relevant notes in WIMD documentation if comparing over time.

## 9. Case study

Here is a case study; an example of a problem that could be solved by analysing WIMD data. Let us take the following fictional enquiry:

*“I am responsible for allocating funding to after-school clubs for primary school children in Bridgend, where we currently have 7 such clubs. I have an additional grant which can be awarded to 2 of these clubs. I would like to focus it on 2 clubs in areas where there is a low level of educational achievement amongst primary school children, as well as a high level of income deprivation. Will I be able to use the WIMD to achieve this?”*

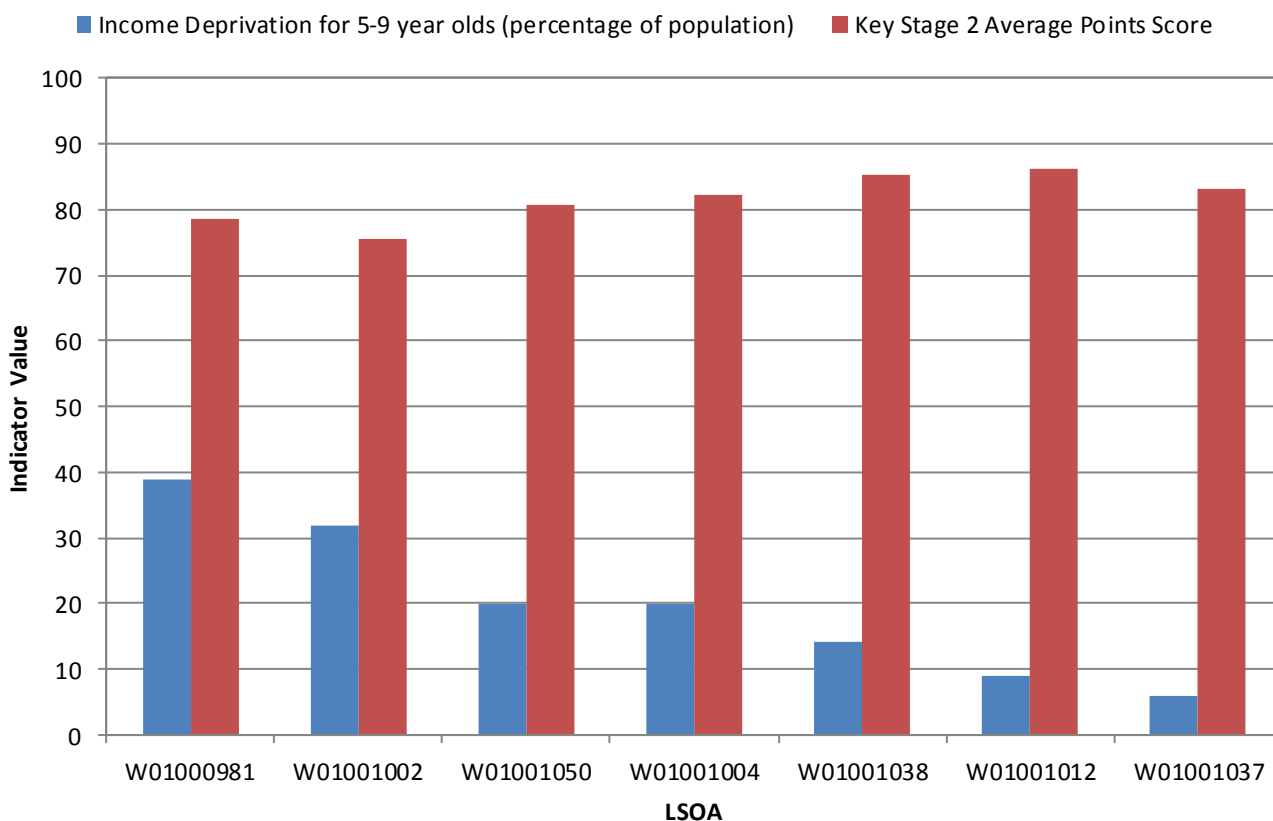
We will now talk through the steps to carry out this analysis. Assume that we have a list of the seven addresses of these clubs. We use the WIMD interactive product to look up their locations, and find out that they lie within the following LSOAs:

1. W01001012
2. W01001050
3. W01001004
4. W01001002
5. W01001038
6. W01001037
7. W01000981

After carefully considering which indicators may be relevant to this specific purpose, we can use StatsWales to download a data set which we can manipulate into the following table:

| LSOA      | Income Deprivation for                         |                                     |
|-----------|--|-------------------------------------|
|           | 5-9 year olds<br>(percentage of<br>population) | Key Stage 2 Average Points<br>Score |
| W01000981 | 39   | 78.6                                |
| W01001002 | 32   | 75.6                                |
| W01001050 | 20   | 80.7                                |
| W01001004 | 20   | 82.3                                |
| W01001038 | 14   | 85.4                                |
| W01001012 | 9  | 86.3                                |
| W01001037 | 6  | 83.1                                |

We can plot these results in a bar chart for easy analysis:



It is clear that the first two LSOAs above (W01000981 and W01001002) have both the highest levels of income deprivation and the lowest KS2 average point scores. Based on the preferences expressed, the enquirer should consider allocating the funds to the two clubs in these areas. However, it is worth taking into consideration that the analysis uses the location of the club rather than the residential address of attendees. Therefore, in this scenario, WIMD can be used as a guide, but local knowledge shouldn't be ignored.

## 10. Future plans

### Indicator data

The latest edition of WIMD was published on 27 November 2014, along with supporting indicator data. As part of our annual Indicator data updates, we updated WIMD indicator data which became available during 2015 on StatsWales in May 2016, and subsequently updated WIMD Indicators with data which became available in 2016 in December 2016 (and April 2017 for some Community Safety indicators). As in previous years, we will continue to prioritise the indicator data which is updated annually (e.g. not updating the resource intensive Access to Service indicators each year), taking into account likely usefulness and available resources for this work.

### Next edition of WIMD

In 2016 we conducted a user survey to seek feedback on when the next Index update should happen. The WIMD Timing Survey Report is now available on our [website](#). Based on the survey feedback we will work towards a full Index update in 2019. In the interim we will continue annual indicator updates for 2017 and 2018.

We welcome feedback on all WIMD products, including the range of indicator datasets made available. You can contact us at [stats.inclusion@wales.gsi.gov.uk](mailto:stats.inclusion@wales.gsi.gov.uk).

## 11. Notes on the use of statistical articles

Statistical articles generally relate to one-off analyses for which there are no updates planned, at least in the short-term, and serve to make such analyses available to a wider audience than might otherwise be the case. They are mainly used to publish analyses that are exploratory in some way, for example:

- Introducing a new experimental series of data;
- A partial analysis of an issue which provides a useful starting point for further research but that nevertheless is a useful analysis in its own right;
- Drawing attention to research undertaken by other organisations, either commissioned by the Welsh Government or otherwise, where it is useful to highlight the conclusions, or to build further upon the research;
- An analysis where the results may not be of as high quality as those in our routine statistical releases and bulletins, but where meaningful conclusions can still be drawn from the results.

Where quality is an issue, this may arise in one or more of the following ways:

- being unable to accurately specify the timeframe used (as can be the case when using an administrative source);
- the quality of the data source or data used; or
- other specified reasons.

However, the level of quality will be such that it does not significantly impact upon the conclusions. For example, the exact timeframe may not be central to the conclusions that can be drawn, or it is the order of magnitude of the results, rather than the exact results, that are of interest to the audience.

The analysis presented does not constitute a National Statistic, but may be based on National Statistics outputs and will nevertheless have been subject to careful consideration and detailed checking before publication. An assessment of the strengths and weaknesses in the analysis will be included in the article, for example comparisons with other sources, along with guidance on how the analysis might be used, and a description of the methodology applied.

Articles are subject to the release practices as defined by the release practices protocol, and so, for example, are published on a pre-announced date in the same way as other statistical outputs.

Missing value symbols used in the article follow the standards used in other statistical outputs, as outlined below.

- .. The data item is not available
- The data item is not applicable
- The data item is not exactly zero, but estimated as zero or less than half the final digit shown
- \* The data item is disclosive or not sufficiently robust for publication



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## Annex

**Table 1: List of indicators in the Welsh Index of Multiple Deprivation since 2008 edition**

| Domain     | Name (Most Recent)  | 2008 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | Age Breakdown (2014 onwards)  | Comparability Over Time                                    |
|------------|---|------|------|------|------|------|------|------|---|--|
| Income     | Income Deprivation (Percentage Of Population)                                     | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | 0-4; 5-9; 10-15; 16-18; 19-24; 25-34; 35-44; 45-54; 55-64; 65-74; Over 75. Also 0-15, 0-18, 16-64, 65+. | Broadly comparable - affected by changes to welfare system |
|            | Income-Related Benefits - Child Index   | Yes  | Yes  | No   | No   | No   | No   | No   |   |  |
| Employment | Employment Related Benefits (Percentage Of Working-Age Population)                | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | 16-18; 19-24; 25-29; 30-34; 35-39; 40-44; 45-49; 50-54; 55-59; 60-64                                    | Broadly comparable - affected by changes to welfare system |
| Health     | Cancer Incidence (Indirectly Age-Sex Standardised) (Number Per 100,000)           | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  |   | Not strictly comparable                                    |
|            | All Cause Death Rate (Indirectly Age-Sex Standardised) (Number Per 100,000)       | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  |   | Not strictly comparable                                    |
|            | Low Weight Single Births (Live Births Less Than 2.5 Kg) (Percentage)              | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  |   | Comparable   |
|            | Long Term Limiting Illness (Indirectly Age-Sex Standardised) (Number Per 100,000) | Yes  | Yes  | No   | No   | Yes  | No   | No   | 0-4, 5-9, 10-15, 16-18; 19-24 then 5 year age bands up to 85+. Also 0-15, 0-18, 16-64, 65+.             | Not comparable   |
|            | Limiting Long-Term Illness -Child Index   | Yes  | Yes  | No   | No   | No   | No   | No   |   |  |
| Education  | Primary School Absence Rate   | Yes  | Yes  | Yes  | Yes  | No   | No   | No   |   | Partly Comparable  |
|            | Secondary School Absence Rate   | Yes  | Yes  | Yes  | Yes  | No   | No   | No   |   | Partly Comparable  |
|            | Key Stage 2 Average Points Score (Points Score)                                   | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  |   | Comparable   |
|            | Key Stage 3 Mean Points Score   | Yes  | Yes  | Yes  | Yes  | No   | No   | No   |   | Partly Comparable  |
|            | Key Stage 4 Mean Points Score   | Yes  | Yes  | Yes  | Yes  | No   | No   | No   |   | Partly Comparable  |
|            | Key Stage 4 Capped Points Score (Points Score)                                    | No   | No   | No   | No   | Yes  | Yes  | Yes  |   | Not currently  |
|            | Key Stage 4 Level 2 Inclusive (Percentage)  | No   | No   | No   | No   | Yes  | Yes  | Yes  |   | Not currently  |
|            | People Not Entering Higher Education Aged 18-19 (Percentage)                      | Yes  | Yes  | Yes  | Yes  | Yes  | No   | No   |   | Comparable   |
|            | Adults Aged 25-64 With No Qualifications (Percentage)                             | Yes  | Yes  | No   | No   | Yes  | No   | No   |   | Broadly comparable   |
|            | Repeat Absenteeism (Percentage)   | No   | No   | No   | No   | Yes  | Yes  | Yes  | Primary and Secondary   | Not currently  |



**Table 1: List of indicators in the Welsh Index of Multiple Deprivation since 2008 edition (continued)**

| Domain                                    | Name (Most Recent)   | 2008 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | Age Breakdown (2014 onwards) | Comparability Over Time |
|---|--|------|------|------|------|------|------|------|------------------------------|-------------------------|
| Access to Services                        | Average Private Travel Time To Food Shop (Minutes)                               | No   | No   | No   | No   | Yes  | No   | No   |                              | Not currently           |
|   | Average Private Travel Time To GP Surgery (Minutes)                              | No   | No   | No   | No   | Yes  | No   | No   |                              | Not currently           |
|   | Average Private Travel Time To Leisure Centre (Minutes)                          | No   | No   | No   | No   | Yes  | No   | No   |                              | Not currently           |
|   | Average Private Travel Time To Public Library (Minutes)                          | No   | No   | No   | No   | Yes  | No   | No   |                              | Not currently           |
|   | Average Private Travel Time To Petrol Station (Private Transport Only) (Minutes) | No   | No   | No   | No   | Yes  | No   | No   |                              | Not currently           |
|   | Average Private Travel Time To Pharmacy (Minutes)                                | No   | No   | No   | No   | Yes  | No   | No   |                              | Not currently           |
|   | Average Private Travel Time To Post Office (Minutes)                             | No   | No   | No   | No   | Yes  | No   | No   |                              | Not currently           |
|   | Average Private Travel Time To Primary School (Minutes)                          | No   | No   | No   | No   | Yes  | No   | No   |                              | Not currently           |
|   | Average Private Travel Time To Secondary School (Minutes)                        | No   | No   | No   | No   | Yes  | No   | No   |                              | Not currently           |
|   | Average Public Travel Time To Food Shop (Minutes)                                | No   | No   | No   | No   | Yes  | No   | No   |                              | Not currently           |
|   | Average Public Travel Time To GP Surgery (Minutes)                               | No   | No   | No   | No   | Yes  | No   | No   |                              | Not currently           |
|   | Average Public Travel Time To Leisure Centre (Minutes)                           | No   | No   | No   | No   | Yes  | No   | No   |                              | Not currently           |
|   | Average Public Travel Time To Public Library (Minutes)                           | No   | No   | No   | No   | Yes  | No   | No   |                              | Not currently           |
|   | Average Public Travel Time To Pharmacy (Minutes)                                 | No   | No   | No   | No   | Yes  | No   | No   |                              | Not currently           |
|   | Average Public Travel Time To Post Office (Minutes)                              | No   | No   | No   | No   | Yes  | No   | No   |                              | Not currently           |
|   | Average Public Travel Time To Primary School (Minutes)                           | No   | No   | No   | No   | Yes  | No   | No   |                              | Not currently           |
|   | Average Public Travel Time To Secondary School (Minutes)                         | No   | No   | No   | No   | Yes  | No   | No   |                              | Not currently           |
|   | Average Travel Time To An NHS Dentist  | Yes  | Yes  | No   | No   | No   | No   | No   |                              | Partly Comparable       |
|   | Average Travel Time To A Food Shop   | Yes  | Yes  | No   | No   | No   | No   | No   |                              | Partly Comparable       |
|   | Average Travel Time To A GPs Surgery   | Yes  | Yes  | No   | No   | No   | No   | No   |                              | Partly Comparable       |
|   | Average Travel Time To A Leisure Centre  | Yes  | Yes  | No   | No   | No   | No   | No   |                              | Partly Comparable       |
|   | Average Travel Time To A Library   | Yes  | Yes  | No   | No   | No   | No   | No   |                              | Partly Comparable       |
|   | Average Travel Time To A Post Office   | Yes  | Yes  | No   | No   | No   | No   | No   |                              | Partly Comparable       |
| Average Travel Time To A Primary School   | Yes  | Yes  | No   | No   | No   | No   | No   |      | Partly Comparable            |                         |
| Average Travel Time To Public Transport   | Yes  | Yes  | No   | No   | No   | No   | No   |      | Partly Comparable            |                         |
| Average Travel Time To A Secondary School | Yes  | Yes  | No   | No   | No   | No   | No   |      | Partly Comparable            |                         |

**Table 1: List of indicators in the Welsh index of Multiple Deprivation since 2008 edition (continued)**

| Domain               | Name (Most Recent)  | 2008 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | Age Breakdown (2014 onwards)  | Comparability Over Time                              |
|----------------------|---|------|------|------|------|------|------|------|---|--|
| Community Safety     | Adult Offenders   | Yes  | Yes  | Yes  | No   | No   | No   | No   |   | Partly Comparable                                    |
|                      | Anti Social Behaviour (ASB) (Rate (Per 100))  | No   | No   | No   | No   | Yes  | No   | Yes  |   | Comparable   |
|                      | Police Recorded Burglary (Rate (Per 100))   | Yes  | Yes  | Yes  | Yes  | Yes  | No   | Yes  |   | Comparable   |
|                      | Police Recorded Criminal Damage (Rate (Per 100))                                      | Yes  | Yes  | Yes  | No   | Yes  | No   | Yes  |   | Broadly Comparable                                   |
|                      | Fire Incidences (Rate (Per 100))  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  | Yes  |   | Comparable   |
|                      | Police Recorded Theft (Rate (Per 100))  | Yes  | Yes  | Yes  | No   | Yes  | No   | Yes  |   | Broadly Comparable                                   |
|                      | Police Recorded Violent Crime (Rate (Per 100))  | Yes  | Yes  | Yes  | No   | Yes  | No   | Yes  |   | Broadly Comparable                                   |
|                      | Youth Offenders   | Yes  | Yes  | No   | No   | No   | No   | No   |   | Partly Comparable                                    |
| Physical Environment | Air Quality (up to 2013)/Air Concentration (2014 onwards) (Score (Between 0 And 100)) | Yes  | Yes  | Yes  | Yes  | Yes  | No   | No   |   | Broadly Comparable                                   |
|                      | Air Emissions (Score (Between 0 And 100))   | Yes  | Yes  | Yes  | Yes  | Yes  | No   | No   |   | Broadly Comparable                                   |
|                      | Flood Risk (Score (Between 0 And 100))  | Yes  | Yes  | No   | No   | Yes  | No   | No   |   | Comparable   |
|                      | Proximity To Waste Disposal And Industrial Sites (Score (Between 0 And 100))          | Yes  | Yes  | No   | No   | Yes  | No   | No   |   | Comparable   |
| Housing              | Population Living In Households With No Central Heating (Percentage)                  | Yes  | Yes  | No   | No   | Yes  | No   | No   | 0-4, 5-9, 10-15, 16-18; 19-24 then 5 year age bands up to 85+. Also 0-15, 0-18, 16-64, 65+. | Broadly Comparable                                   |
|                      | No Central Heating - Child Index  | Yes  | Yes  | No   | No   | No   | No   | No   |   |  |
|                      | People Living In Overcrowded Households (Bedrooms Measure) (Percentage)               | Yes  | Yes  | No   | No   | Yes  | No   | No   | 0-4, 5-9, 10-15, 16-18; 19-24 then 5 year age bands up to 85+. Also 0-15, 0-18, 16-64, 65+. | Not Comparable - changed to bedroom measure for 2014 |
|                      | Overcrowding - Child Index  | Yes  | Yes  | No   | No   | No   | No   | No   |   |  |



**Table 3: Reference periods for annual WIMD indicator data**

The below table gives a quick overview of the reference periods for each year of WIMD indicator data published. For further details see the technical reports for WIMD [2008](#), [2011](#) and [2014](#).

| Domain                               | Indicator   | 2008             | 2011            | 2012            | 2013            | 2014            | 2015            | 2016            |
|--------------------------------------|---|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Income                               | Income-related benefit claimants and their dependents   | 2006/07          | 2009/10         | 2010/11         | 2011/12         | 2012/13         | 2013/14         | 2015-16         |
|                                      | Adults and Children in families receiving Tax Credits   | Aug 2005         | Aug 2009        | Aug 2010        | Aug 2011        | Aug 2012        | Aug 2013        | Aug 2014        |
|                                      | Supported Asylum Seekers                                | Jun 2007         | Dec 2010        | Dec 2011        | Aug 2012        | Sep 2014        | Jun 2015        | Jul 2016        |
| Employment                           | Claimants of Unemployment-related benefits / JSA        | 2006/07          | 2009/10         | 2010/11         | 2011/12         | 2012/13         | 2013/14         | 2015-16         |
|                                      | Incapacity Benefit/Severe Disablement Allowance         | 2006/07          | 2009/10         | 2010/11         | 2011/12         | 2012/13         | 2013/14         | 2015-16         |
|                                      | New Deal for Young People and Intensive Activity Period | 2005             | 2009/10         | 2010/11         | 2011/12         |                 |                 |                 |
|                                      | New Deal for Lone Parents                               | 2005             | 2009/10         | 2010/11         | 2011/12         |                 |                 |                 |
|                                      | Claimants of Employment and Support Allowance           |                  | 2009/10         | 2010/11         | 2011/12         | 2012/13         | 2013/14         | 2015-16         |
| Health                               | Limiting long-term illness                              | 2001             | 2001            |                 |                 | 2011            |                 |                 |
|                                      | Standardised all-cause death rate                       | 1997-2006        | 2001-2009       | 2002-2011       | 2003-2012       | 2004-2013       | 2005-2014       | 2006-2015       |
|                                      | Standardised cancer incidence rate                      | 1996-2005        | 2000-2009       | 2001-2010       | 2002-2011       | 2003-2012       | 2004-2013       | 2005-2014       |
|                                      | Singleton low birth weights                             | 1997-2006        | 2001-2009       | 2002-2011       | 2003-2012       | 2004-2013       | 2005-2014       | 2006-2015       |
| Education                            | KS2 APS   | 2005, 2006, 2007 | 2008-10         | 2009-11         | 2010-12         | 2010/11-2012/13 | 2011/12-2013/14 | 2012/13-2014/15 |
|                                      | KS3 APS   | 2005, 2006, 2007 | 2008-10         | 2009-11         | 2010-12         |                 |                 |                 |
|                                      | KS4 APS   | 2005, 2006       | 2009-10         | 2009-11         | 2010-12         |                 |                 |                 |
|                                      | Primary school absence rates                            | 2005/06-2006/07  | 2008/09-2009/10 | 2008/09-2010/11 | 2009/10-2011/12 |                 |                 |                 |
|                                      | Secondary school absence rates                          | 2004/05-2006/07  | 2008/09-2009/10 | 2008/09-2010/11 | 2009/10-2011/12 |                 |                 |                 |
|                                      | Proportion of people not entering HE aged 18-19         | 1998-2005        | 1998-2005       |                 |                 | 2005/06-2010/11 |                 |                 |
|                                      | Percentage of adults aged 25-64 with no qualifications  | 2001             | 2001            |                 |                 | 2011            |                 |                 |
|                                      | KS4i2i  |                  |                 |                 |                 | 2010/11-2012/13 | 2011/12-2013/14 | 2012/13-2014/15 |
|                                      | KS4 CPS   |                  |                 |                 |                 | 2010/11-2012/13 | 2011/12-2013/14 | 2012/13-2014/15 |
|                                      | Repeat Absenteeism Rate                                 |                  |                 |                 |                 | 2010/11-2012/13 | 2011/12-2013/14 | 2012/13-2014/15 |
| Housing                              | Lack of central heating                                 | 2001             | 2001            |                 |                 | 2011            |                 |                 |
|                                      | Overcrowding (excluding student households)             | 2001             | 2001            |                 |                 | 2011            |                 |                 |
| Physical Environment                 | Air quality - concentrations                            | 2006             | 2008            | 2009            | 2010            | 2012            |                 |                 |
|                                      | Air emissions   | 2005             | 2008            | 2009            | 2010            | 2012            |                 |                 |
|                                      | Flood risk  | 2007             | 2009            |                 |                 | 2014            |                 |                 |
|                                      | Proximity to waste disposal and industrial sites        | 2007             | 2010            |                 |                 | 2014            |                 |                 |
| Access to Services                   | Food shop - public transport                            | 2007/08          | 2007/08         |                 |                 | 2013/14         |                 |                 |
|                                      | GP surgery - public transport                           | 2007/08          | 2007/08         |                 |                 | 2013/14         |                 |                 |
|                                      | Pharmacy - public transport                             |                  |                 |                 |                 | 2013/15         |                 |                 |
|                                      | Primary school - public transport                       | 2007/08          | 2007/08         |                 |                 | 2013/14         |                 |                 |
|                                      | Post office - public transport                          | 2007/08          | 2007/08         |                 |                 | 2013/14         |                 |                 |
|                                      | Public library - public transport                       | 2007/08          | 2007/08         |                 |                 | 2013/14         |                 |                 |
|                                      | Leisure centre - public transport                       | 2007/08          | 2007/08         |                 |                 | 2013/14         |                 |                 |
|                                      | NHS dentist - public transport                          | 2007/08          | 2007/08         |                 |                 |                 |                 |                 |
|                                      | Secondary school - public transport                     | 2007/08          | 2007/08         |                 |                 | 2013/14         |                 |                 |
|                                      | Transport nodes - public transport                      | 2007/08          | 2007/08         |                 |                 |                 |                 |                 |
|                                      | Food shop - private transport                           |                  |                 |                 |                 | 2013/14         |                 |                 |
|                                      | GP surgery - private transport                          |                  |                 |                 |                 | 2013/14         |                 |                 |
|                                      | Pharmacy - private transport                            |                  |                 |                 |                 | 2013/15         |                 |                 |
|                                      | Primary school - private transport                      |                  |                 |                 |                 | 2013/14         |                 |                 |
|                                      | Post office - private transport                         |                  |                 |                 |                 | 2013/14         |                 |                 |
| Public library - private transport   |   |                  |                 |                 | 2013/14         |                 |                 |                 |
| Leisure centre - private transport   |   |                  |                 |                 | 2013/14         |                 |                 |                 |
| Petrol station - private transport   |   |                  |                 |                 | 2013/14         |                 |                 |                 |
| Secondary school - private transport |   |                  |                 |                 | 2013/14         |                 |                 |                 |
| Community Safety                     | Percentage of Adult Offenders                           | 2005/06-2006/07  | 2008/09-2009/10 | 2009-2011       |                 |                 |                 |                 |
|                                      | Police recorded burglary                                |                  | 2008/09-2009/10 | 2009-2011       | 2010-2012       | 2012/13-2013/14 |                 | 2014/15-2015/16 |
|                                      | Police recorded criminal damage                         |                  | 2008/09-2009/10 | 2009-2011       |                 | 2012/13-2013/14 |                 | 2014/15-2015/16 |
|                                      | Police recorded theft                                   |                  | 2008/09-2009/10 | 2009-2011       |                 | 2012/13-2013/14 |                 | 2014/15-2015/16 |
|                                      | Police recorded violent crime                           |                  | 2009/10         | 2009-2011       |                 | 2012/13-2013/14 |                 | 2014/15-2015/16 |
|                                      | Percentage of youth offenders                           | 2005/06-2006/07  | 2008/09-2009/10 |                 |                 |                 |                 |                 |
|                                      | Police Force Recorded Crime                             | 2005/06-2006/07  |                 |                 |                 |                 |                 |                 |
| Fire Incidence                       | 2005-2006   | 2009/10-2010/11  | 2010/11-2011/12 | 2011/12-2012/13 | 2012/13-2013/14 | 2013/14-2014/15 | 2014/15-2015/16 |                 |
| Anti Social Behaviour                |   |                  |                 |                 | Jul12-Jun14     |                 | 2014/15-2015/16 |                 |

**Table 4: Disclosure control applied to data for WIMD 2011 and WIMD 2014**

| Domain                    | Indicator   | Disclosure Control |                                     |                 |                                     |
|---------------------------|---|--------------------|-------------------------------------|-----------------|-------------------------------------|
|                           |   | WIMD 2011          |                                     | WIMD 2014       |                                     |
|                           |   | Applied            | Method                              | Applied         | Method                              |
| <b>Income</b>             | Income deprivation composite indicator                              | By WG              |                                     | At Source (DWP) | Some suppression also applied by WG |
| <b>Employment</b>         | Proportion of working-age population on Employment related benefits | By WG              |                                     | At Source (DWP) |                                     |
| <b>Health</b>             | Cancer incidence  | By WG              | Probablistic Rounding               | By WG           | Supression                          |
|                           | Long Term Limiting Illness  | By WG              |                                     | At Source (ONS) |                                     |
|                           | Low Birth Weight  | By WG              | Probablistic Rounding               | By WG           | Supression                          |
|                           | All Cause Death Rate  | By WG              | Probablistic Rounding               | By WG           | Supression                          |
| <b>Education</b>          | Key Stage 2 Average Point Score                                     | By WG              | Rounded                             | By WG           | Supression and Rounding             |
|                           | Key Stage 4 Average Capped Point Score                              | By WG              | Rounded                             | By WG           | Supression and Rounding             |
|                           | Key Stage 4 Level 2 Inclusive                                       |                    | Not in WIMD 2011                    | By WG           | Supression and Rounding             |
|                           | Repeat Absenteeism  |                    | Combined Indicator not in WIMD 2011 | By WG           | Supression and Rounding             |
|                           | Proportion of people not entering Higher Education aged 18-19       | By WG              | Probablistic Rounding               | By WG           | Supression and Rounding             |
|                           | Number of Adults aged 25-64 with No Qualifications                  | By WG              | Probablistic Rounding               | At Source (ONS) |                                     |
| <b>Access to services</b> | Food shops  |                    |                                     | No              |                                     |
|                           | GP surgeries  |                    |                                     | No              |                                     |
|                           | Primary schools   |                    |                                     | No              |                                     |
|                           | Secondary schools   |                    |                                     | No              |                                     |
|                           | Post office   |                    |                                     | No              |                                     |
|                           | Public library  |                    |                                     | No              |                                     |
|                           | Leisure centre  |                    |                                     | No              |                                     |
|                           | Pharmacies  |                    |                                     | No              |                                     |
|                           | Petrol stations (private transport only)                            |                    |                                     | No              |                                     |

**Table 4: Disclosure control applied to data for WIMD 2011 and WIMD 2014 (continued)**

| Domain                      | Indicator  | Disclosure Control |                       |                 |                         |
|-----------------------------|--|--------------------|-----------------------|-----------------|-------------------------|
|                             |  | WIMD 2011          |                       | WIMD 2014       |                         |
| <b>Community Safety</b>     | Police recorded burglary                         | By WG              | Probablistic Rounding | By WG           | Supression and Rounding |
|                             | Police recorded criminal damage                  | By WG              | Probablistic Rounding | By WG           | Supression and Rounding |
|                             | Police recorded theft                            | By WG              | Probablistic Rounding | By WG           | Supression and Rounding |
|                             | Police recorded violent crime                    | By WG              | Probablistic Rounding | By WG           | Supression and Rounding |
|                             | Fire Incidences                                  | By WG              | Probablistic Rounding | No              | Rounding                |
|                             | Anti Social Behaviour (ASB)                      | Not in WIMD 2011   |                       | By WG           | Supression and Rounding |
|                             | Percentage of adult offenders                    | By WG              | Probablistic Rounding | No              | Probablistic Rounding   |
|                             | Percentage of youth offenders                    | By WG              | Probablistic Rounding | No              | Probablistic Rounding   |
| <b>Physical Environment</b> | Households at risk of flooding                   | No                 |                       | No              |                         |
|                             | Air Quality – Air Emissions                      | No                 |                       | No              |                         |
|                             | Air Quality – Air Concentrations                 | No                 |                       | No              |                         |
|                             | Proximity to waste disposal and industrial sites | No                 |                       | No              |                         |
| <b>Housing</b>              | Overcrowding – bedroom occupancy                 | Rounded            |                       | At Source (ONS) |                         |
|                             | Lack of Central Heating                          | Rounded            |                       | At Source (ONS) |                         |

**Table 5: LSOA changes between the 2001 Census and 2011 Census**

| <b>LSOA 2001</b> | <b>Local Authority</b> | <b>LSOA 2001 Name</b>                               | <b>LSOA 2011</b> | <b>LSOA 2011 Name</b>                | <b>Change</b> |
|------------------|------------------------|---|------------------|--------------------------------------|---------------|
| W01000045        | Gwynedd                | Aberdaron   | W01001932        | Aberdaron / Botwnnog & Tudweiliog    | M             |
| W01000046        | Gwynedd                | Aberdovey   | W01001933        | Aberdovey / Bryn-crug / Llanfihangel | M             |
| W01000055        | Gwynedd                | Botwnnog & Tudweiliog                               | W01001932        | Aberdaron / Botwnnog & Tudweiliog    | M             |
| W01000058        | Gwynedd                | Bryn-crug/Llanfihangel                              | W01001933        | Aberdovey / Bryn-crug / Llanfihangel | M             |
| W01000120        | Conwy                  | Abergele Pensarn                                    | W01001927        | Abergele Pensarn 1                   | S             |
| W01000120        | Conwy                  | Abergele Pensarn                                    | W01001928        | Abergele Pensarn 2                   | S             |
| W01000160        | Conwy                  | Llansanffraid 1                                     | W01001926        | Llansanffraid                        | M             |
| W01000161        | Conwy                  | Llansanffraid 2                                     | W01001926        | Llansanffraid                        | M             |
| W01000357        | Wrexham                | Dyffryn Ceiriog/Ceiriog Valley 1                    | W01001930        | Ceiriog Valley 3                     | M             |
| W01000358        | Wrexham                | Dyffryn Ceiriog/Ceiriog Valley 2                    | W01001930        | Ceiriog Valley 3                     | M             |
| W01000421        | Wrexham                | Smithfield  | W01001929        | Smithfield 2                         | S             |
| W01000421        | Wrexham                | Smithfield  | W01001931        | Smithfield 3                         | S             |
| W01000435        | Powys                  | Crickhowell 1                                       | W01001903        | Crickhowell                          | X             |
| W01000436        | Powys                  | Crickhowell 2                                       | W01001904        | Llangattock and Glangrwyney          | X             |
| W01000437        | Powys                  | Cwm-twrch   | W01001899        | Cwm-twrch                            | X             |
| W01000462        | Powys                  | Llangattock   | W01001904        | Llangattock and Glangrwyney          | X             |
| W01000463        | Powys                  | Llangors & Bwlch                                    | W01001905        | Llangors, Bwlch & Grwyney            | X             |
| W01000468        | Powys                  | Llanrhaeadr-ym-Mochnant                             | W01001906        | Llanrhaeadr-ym-Mochnant              | X             |
| W01000469        | Powys                  | Llanrhaeadr-ym-Mochnant/Llansilin                   | W01001907        | Llansilin                            | X             |
| W01000490        | Powys                  | St. John 1  | W01001901        | St. John 1                           | X             |
| W01000491        | Powys                  | St. John 2  | W01001902        | St. John 2                           | X             |
| W01000495        | Powys                  | Talybont-on-Usk                                     | W01001897        | Talybont-on-Usk                      | X             |
| W01000514        | Ceredigion             | Aberystwyth Gogledd/North                           | W01001934        | Penglais                             | M             |
| W01000520        | Ceredigion             | Borth 1   | W01001937        | Borth                                | M             |
| W01000521        | Ceredigion             | Borth 2   | W01001937        | Borth                                | M             |
| W01000526        | Ceredigion             | Faenor 2  | W01001934        | Penglais                             | M             |
| W01000530        | Ceredigion             | Llanbadarn Fawr - Padarn & Llanbadarn Fawr - Sulien | W01001935        | Llanbadarn Fawr South                | S             |
| W01000530        | Ceredigion             | Llanbadarn Fawr - Padarn & Llanbadarn Fawr - Sulien | W01001936        | Llanbadarn Fawr North                | S             |

**Table 5: LSOA changes between the 2001 Census and 2011 Census continued**

| <b>LSOA 2001</b> | <b>Local Authority</b> | <b>LSOA 2001 Name</b>                   | <b>LSOA 2011</b> | <b>LSOA 2011 Name</b>                  | <b>Change</b> |
|------------------|------------------------|---|------------------|--|---------------|
| W01000661        | Carmarthenshire        | Glanymor 3                              | W01001923        | Glanymor 3                             | S             |
| W01000661        | Carmarthenshire        | Glanymor 3                              | W01001924        | Glanymor 4                             | S             |
| W01000668        | Carmarthenshire        | Hengoed (Carmarthenshire) 2             | W01001925        | Hengoed 2                              | M             |
| W01000669        | Carmarthenshire        | Hengoed (Carmarthenshire) 3             | W01001925        | Hengoed 2                              | M             |
| W01000743        | Swansea                | Castle 2                                | W01001955        | Castle 2 North                         | S             |
| W01000743        | Swansea                | Castle 2                                | W01001958        | Castle 2 South                         | S             |
| W01000748        | Swansea                | Castle 7                                | W01001938        | Castle 7 East                          | S             |
| W01000748        | Swansea                | Castle 7                                | W01001957        | Castle 7 West                          | S             |
| W01000780        | Swansea                | Killay North 1                          | W01001956        | Killay 3                               | M             |
| W01000783        | Swansea                | Killay South 2                          | W01001956        | Killay 3                               | M             |
| W01000972        | Neath Port Talbot      | Ystalyfera 1                            | W01001900        | Ystalyfera 1                           | X             |
| W01000988        | Bridgend               | Bryntirion, Laleston and Merthyr Mawr 1 | W01001918        | Bryntirion Laleston and Merthyr Mawr 1 | S             |
| W01000988        | Bridgend               | Bryntirion, Laleston and Merthyr Mawr 1 | W01001919        | Bryntirion Laleston and Merthyr Mawr 4 | S             |
| W01000988        | Bridgend               | Bryntirion, Laleston and Merthyr Mawr 1 | W01001920        | Bryntirion Laleston and Merthyr Mawr 5 | S             |
| W01000988        | Bridgend               | Bryntirion, Laleston and Merthyr Mawr 1 | W01001921        | Bryntirion Laleston and Merthyr Mawr 6 | S             |
| W01001074        | The Vale of Glamorgan  | Castleland 2                            | W01001910        | Castleland 2G                          | S             |
| W01001074        | The Vale of Glamorgan  | Castleland 2                            | W01001911        | Castleland 2H                          | S             |
| W01001163        | Rhondda Cynon Taf      | Church Village 2                        | W01001915        | Church Village 2                       | S             |
| W01001163        | Rhondda Cynon Taf      | Church Village 2                        | W01001916        | Church Village 3                       | S             |
| W01001254        | Rhondda Cynon Taf      | Tonyrefail West 2                       | W01001914        | Tonyrefail West 2                      | S             |
| W01001254        | Rhondda Cynon Taf      | Tonyrefail West 2                       | W01001917        | Tonyrefail West 4                      | S             |
| W01001323        | Merthyr Tydfil         | Vaynor 1                                | W01001898        | Vaynor 1                               | X             |
| W01001544        | Monmouthshire          | Caldicot Castle 2                       | W01001908        | Dewstow                                | M             |
| W01001547        | Monmouthshire          | Croesonen                               | W01001909        | Croesonen                              | M             |
| W01001550        | Monmouthshire          | Dewstow & Green Lane 1                  | W01001908        | Dewstow                                | M             |
| W01001570        | Monmouthshire          | Mardy 1                                 | W01001909        | Croesonen                              | M             |
| W01001656        | Newport                | Marshfield 1                            | W01001912        | Marshfield 4                           | S             |
| W01001656        | Newport                | Marshfield 1                            | W01001913        | Marshfield 5                           | S             |



**Table 5: LSOA changes between the 2001 Census and 2011 Census continued**

| <b>LSOA 2001</b> | <b>Local Authority</b> | <b>LSOA 2001 Name</b> | <b>LSOA 2011</b> | <b>LSOA 2011 Name</b> | <b>Change</b> |
|------------------|------------------------|-----------------------|------------------|-----------------------|---------------|
| W01001700        | Cardiff                | Butetown 2            | W01001942        | Butetown 3            | S             |
| W01001700        | Cardiff                | Butetown 2            | W01001950        | Butetown 6            | S             |
| W01001700        | Cardiff                | Butetown 2            | W01001952        | Butetown 8            | S             |
| W01001701        | Cardiff                | Butetown 3            | W01001940        | Butetown 2            | S             |
| W01001701        | Cardiff                | Butetown 3            | W01001943        | Butetown 4            | S             |
| W01001701        | Cardiff                | Butetown 3            | W01001944        | Butetown 5            | S             |
| W01001701        | Cardiff                | Butetown 3            | W01001951        | Butetown 7            | S             |
| W01001723        | Cardiff                | Cathays 6             | W01001922        | Cathays 9             | S             |
| W01001723        | Cardiff                | Cathays 6             | W01001939        | Cathays 10            | S             |
| W01001723        | Cardiff                | Cathays 6             | W01001941        | Cathays 11            | S             |
| W01001763        | Cardiff                | Grangetown 5          | W01001945        | Grangetown 10         | S             |
| W01001763        | Cardiff                | Grangetown 5          | W01001947        | Grangetown 12         | S             |
| W01001763        | Cardiff                | Grangetown 5          | W01001946        | Grangetown 11         | S             |
| W01001801        | Cardiff                | Llanishen 11          | W01001949        | Llanishen 11          | S             |
| W01001801        | Cardiff                | Llanishen 11          | W01001953        | Llanishen 12          | S             |
| W01001845        | Cardiff                | Radyr 1               | W01001948        | Radyr & Morganstown 3 | S             |
| W01001845        | Cardiff                | Radyr 1               | W01001954        | Radyr & Morganstown 4 | S             |

M = merge, S = split, X = complex change

Further information on geographical boundary changes between the 2001 and 2011 Census can be found on the [Office for National Statistics website](#).

**Table 6: WIMD indicator data revisions log**

| <b>Date</b> | <b>Detail of revision</b>   |
|-------------|---|
| 12/08/15    | The Department for Work and Pensions discovered an error in the income indicator data they had provided for the income domain of WIMD 2014 which relates to the accidental exclusion of some data on tax credits. |
| 17/11/15    | Following revision of 2014 Income Indicator data above, further investigation revealed that similar errors affected the 2012 and 2013 Income Indicator data.  |
| 09/02/16    | The rural urban geography was re-published for pre-2014 indicator data due to an adjustment to improve the precision of the data.   |