

Welsh Housing Conditions Survey (WHCS) 2017-18: Local area Fuel Poverty estimates modelling and results summary¹

Contents

Introduction	2
Modelling summary	2
Local Authority results	2
Model inputs	5
Notes on use of statistical articles	6

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This report is also available in Welsh

¹ Notes on the use of statistical articles can be found at the end of this document.

1. Introduction

To supplement the [2018 estimates of fuel poverty levels in Wales](#), further modelling was undertaken to produce estimated fuel poverty data at local area level. This used additional data sources alongside the Welsh House Condition Survey (WHCS) 2017-18 data to model the proportion of fuel poor households at Local Authority level. This report gives a brief outline of the estimated local authority results.

Note that these results are not classed as official statistics, they are based on modelled data to provide indicative levels of fuel poverty at local authority level and should be treated with caution. They should only be used to look at general trends and identify areas of particularly high or low fuel poverty. They should not be used to identify trends over time.

2. Modelling summary

Data Sources

The local area fuel poverty model was based on national data drawn from the WHCS 2017-18 dataset. Application of the model requires specific local area data on a variety of demographic factors drawn from detailed datasets produced at dwelling level by Experian, and aggregate data from the 2011 Census.

Modelling fuel poverty

The model was created in SPSS and used multiple regression analysis on a range of demographic variables, to select those which were statistically most useful in predicting whether a particular case was fuel poor. Those selected (see section 4) formed the final model which was applied to the WHCS 2017-18 dataset at a dwelling (case) level before being aggregated to Census Output Area (COA) level using household totals from the 2011 Census. The fuel poor and household totals were then benchmarked and adjusted to reflect the 2018 national fuel poverty figures presented in the main report². Finally, the data were aggregated to LSOA and Local Authority levels

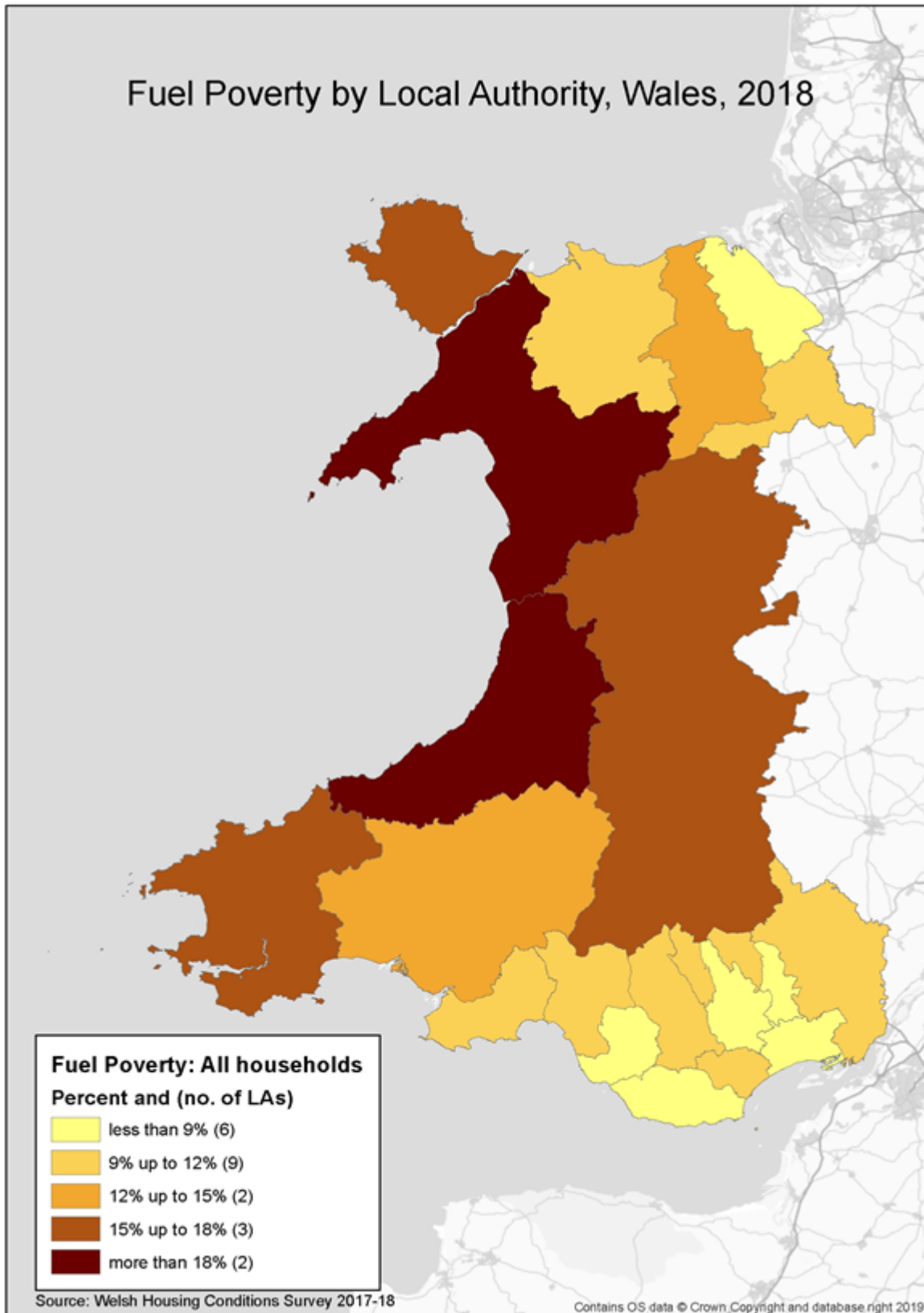
3. Local Authority results

Mapping fuel poverty

The Local Authority level results have been displayed in Figure 1, with each Local Authority coloured to reflect the average level of fuel poverty in that area. Lighter colours indicate lower overall fuel poverty proportions and darker colours show higher proportions. The values in brackets give the number of Local Authorities in each category.

² [Fuel poverty estimates for Wales, 2018](#)

Map 1: Proportion of households in fuel poverty (10% definition), Wales, 2018



Local authority results

We can see that the highest estimated proportions of fuel poverty can be found in local authorities in central and western areas of the country, particularly in Gwynedd (23% of households in fuel poverty) and Ceredigion (21%). The lowest levels were predominantly found in southern areas, with local authorities such as the Vale of Glamorgan, Torfaen and Bridgend below 9% of households estimated to be in fuel poverty, compared with the national average of 12%.

A closer examination of the modelling shows a wide range of estimated fuel poor at LSOA level. For example, the average level of fuel poverty in Conwy is close to the national average, but proportions of fuel poverty in its constituent LSOAs range from very low to very high values. It should be stressed that these sub-regional modelled figures should only be used to look at general trends and identify areas of particularly high or low fuel poverty. They should not be used to identify trends over time.

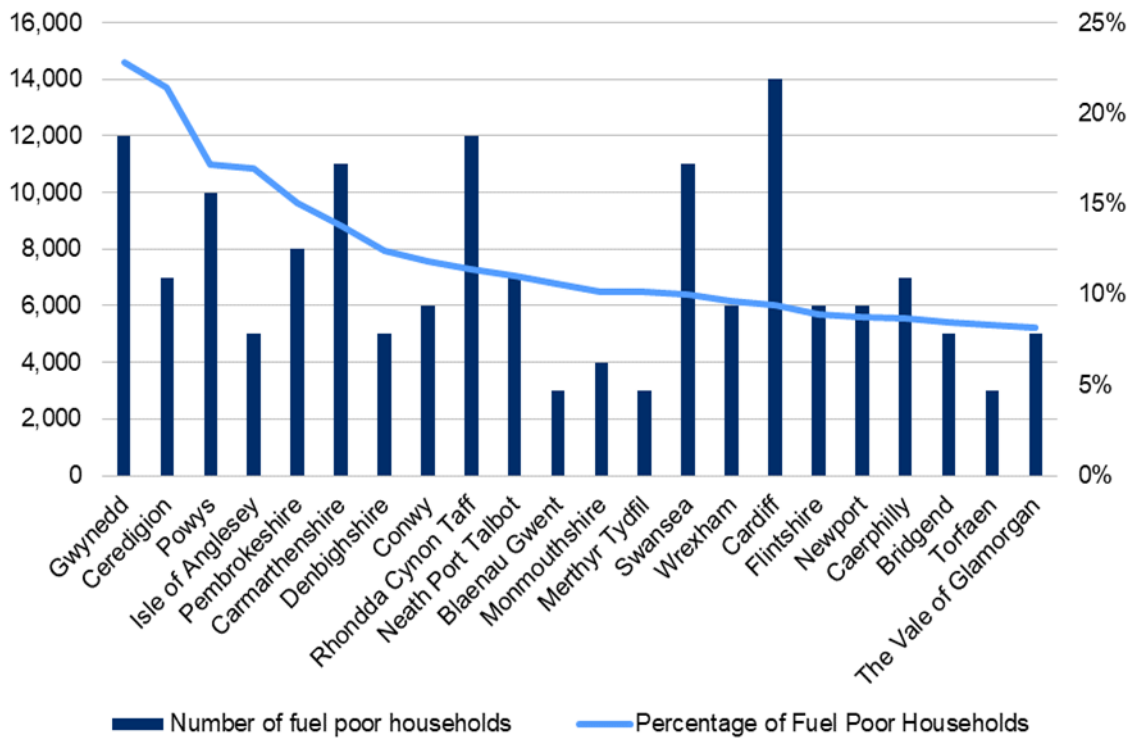
Table 1: Households in Fuel Poverty, by local authority, Wales, 2018

	All households ^a	Households in fuel poverty ^a	Percentage of households in fuel poverty
Isle of Anglesey	31,000	5,000	17%
Gwynedd	54,000	12,000	23%
Conwy	53,000	6,000	12%
Denbighshire	42,000	5,000	12%
Flintshire	66,000	6,000	9%
Wrexham	59,000	6,000	10%
Ceredigion	33,000	7,000	21%
Pembrokeshire	55,000	8,000	15%
Carmarthenshire	81,000	11,000	14%
Swansea	107,000	11,000	10%
Neath Port Talbot	62,000	7,000	11%
Bridgend	60,000	5,000	8%
The Vale of Glamorgan	55,000	5,000	8%
Cardiff	147,000	14,000	9%
Rhondda Cynon Taff	103,000	12,000	11%
Caerphilly	77,000	7,000	9%
Blaenau Gwent	31,000	3,000	11%
Torfaen	40,000	3,000	8%
Monmouthshire	39,000	4,000	10%
Newport	63,000	6,000	9%
Powys	60,000	10,000	17%
Merthyr Tydfil	25,000	3,000	10%

Source: Modelled estimates based on the Welsh Housing Conditions Survey 2017-18

^a Rounded to the nearest thousand.

Chart 2: Households in fuel poverty by local authority, Wales, 2018



Source: Modelled estimates based on the Welsh Housing Conditions Survey 2017-18

4. Model inputs

Final Input variables

The key input variables³ to the local area fuel poverty model were:

- Household type, categorised into:
 - couples with no dependent children;
 - couples with dependent children;
 - lone parents;
 - single person households; and
 - other multi-person households.
- Dwelling age, categorised into:
 - homes built pre-1919;
 - homes built between 1919 and 1944;
 - homes built between 1945 and 1980; and
 - homes built post-1980.

³ The variables were drawn from the 2017 Experian Marketing Services UK Household Database and the 2011 Census aggregate data.

- Dominant Mosaic Public Sector group for each postcode. This is classified into 15 categories based on socio-economic, geographic and financial demographic information, alongside property characteristics. [More information on these groups can be found here.](#)
- Proportion of non-centrally heated homes, per COA.
- Proportion of households comprising neither families nor single people, per COA.
- Proportion of households without academic or vocational qualifications, per COA.

5. 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
- 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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