

Fuel Poverty, Energy Company Obligation (ECO) Installations and Ethnicity in England: report for the Committee on Fuel Poverty

Background

In their 2024 [annual report](#) “the Committee notes the concentration of residents from ethnic minority communities in lower income neighbourhoods comprising housing that is around 100 years old in those local authority areas with higher rates of fuel poverty. It believes research is urgently required to determine whether there is a hidden inequality that needs to be understood and addressed.”

The CFP recommended the Department investigate levels of household energy efficiency installations in areas of high populations of ethnic minorities to explore if there was equity across neighbourhoods of high fuel poverty, and that government policy and delivery was not contributing to inequality of access to energy efficiency schemes.

To understand this further, this report, and accompanying Excel spreadsheet file, uses published data to examine the delivery of the Energy Company Obligation (ECO) scheme and Census ethnicity of populations at the Lower Tier Local Authority (LTLA) and Lower layer Super Output Area (LSOA) level in areas identified as having high levels of fuel poverty.

[ECO](#) is an obligation on larger energy suppliers to provide energy efficiency and heating measures to low-income and vulnerable households living in the least energy efficient homes across Great Britain. The current iteration of the scheme, ECO4, delivers whole-house energy efficiency upgrades for those households.

Selection of Data

While a number of government schemes have delivered energy efficiency measures, ECO, which has been in place since 2013, is the largest scheme and has data available at the lowest geographic level nationally with less need for disclosure control than other schemes’ data would require.

Data sources used in this report (at both the LTLA and LSOA level):

- Energy Company Obligation (ECO) rates of unique households receiving ECO measures, January 2013 to December 2023. Unique households means that if a household has had ECO work on more than one occasion, it is only counted once. At local authority level these data are as published in the [Household Energy Efficiency \(HEE\) Statistics, headline release February 2024](#). A subset of these data, at LSOA level with disclosure control applied, were also used in the production of the DESNZ [Domestic Energy Map](#). All ECO rates in this work refer to households that have received ECO measures, rather than those that could theoretically qualify. Note, this does not include homes upgraded by the Great British Insulation Scheme, or any other government energy efficiency scheme.
- Census ethnicity data from the 2021 Census, with [ethnic groups based on Census categories](#). Household ethnicity is based on the Household Reference Person at Census 2021.
- Fuel Poverty Subregional data. <https://www.gov.uk/government/statistics/sub-regional-fuel-poverty-data-2024-2022-data>

Although ECO delivers across Great Britain, this report uses data for England only, to align with the data on fuel poverty.

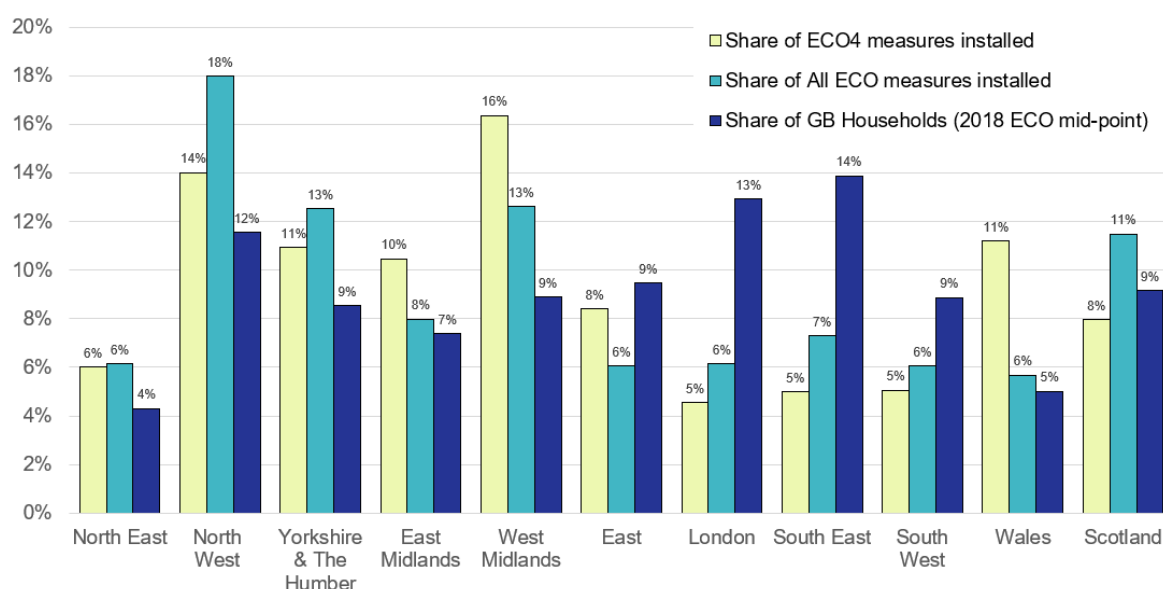
For the analysis in this report, the twenty ethnicity groups in Census 2021 have been considered at a five-classification level, and also at a two-classification level: ‘Ethnic minorities (excluding white minorities)’ also referred to in the report as ‘Other than White’ and ‘White (including white minorities)’. See Annex A for the full detail of these grouping classifications.

The data used and full set of results can be found in the accompanying spreadsheet file.

Regional Delivery Context

To the end of 2023, just under nine per cent of all households in England had an ECO measure installed. This is of all households, not just those that are currently fuel poor. While ECO has been delivered nationally since 2013, there has been variation in delivery across the regions of England. Chart 1 was published in the [HEE Statistics headline release in February 2024](#) and shows the regional share of ECO measures (from 2013 to the end of 2023) compared to that region’s share of households. Regions in the north of England have seen higher delivery of ECO measures relative to their share of households. In particular, in the North West, Yorkshire and The Humber and West Midlands regions, where the share of ECO measures installed is between four and six percentage points higher than the share of households. In the south of England the reverse is seen, particularly in London and the South East, where the share of ECO measures installed is seven percentage points lower than the share of households.

Chart 1: Regional share of ECO measures and of GB Households, up to end December 2023



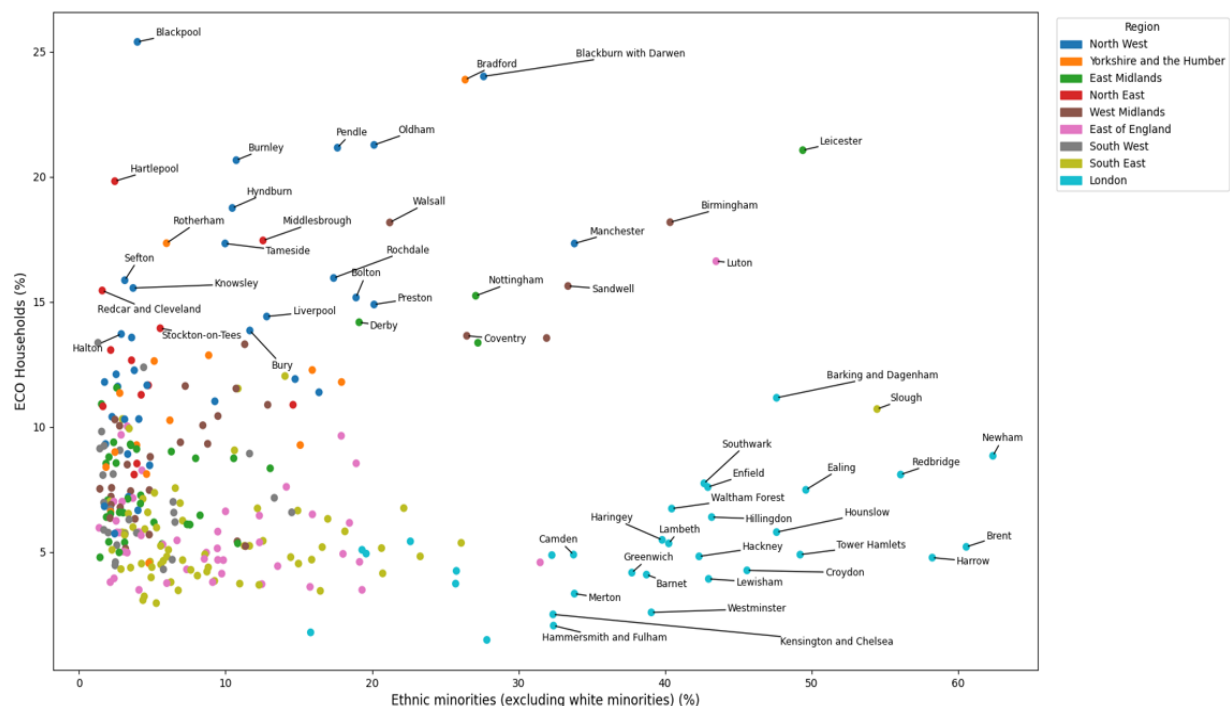
This regional overview reflects that there are multiple factors that will have influenced delivery rates of ECO within areas, such as the populations’ eligibility for the scheme, incomes, the energy efficiency and housing type of the existing housing stock in each area.

LTLA ECO Delivery and Ethnicity

At a local authority level, the analysis has looked at associations between households that have had ECO measures installed in England and ethnicity groups from Census 2021 (see *Annex A*). The five ethnicity classifications considered were: Asian, Black, Mixed, White, Other; while these classifications were also grouped into '[Other than White](#)' ([Ethnic Minorities \(excluding white minorities\)](#)) and [White \(including white minorities\)](#) to examine data for ethnic minority populations combined.

Scatterplots have been presented to display the percentage ethnicity classification of areas against the percentage of households that have received ECO measures in each LTLA and these are colour coded by English region, see Annex B and accompanying spreadsheet (*Excel Charts 1*). The plot for the classification 'Other than White' is shown in Chart 2, while the other ethnicity classification plots are shown in Annex B. The percentage ethnic groups and percentage of ECO in each LTLA is calculated by dividing the household counts of these by the overall Census 2021 population in that authority.

Chart 2: Percentage 'Other than White' (Ethnic minorities (excluding white minorities)) classification in LTLA vs Percentage of Households with ECO Measures



A clear result in Chart 2 and all of the scatterplots is the position of London authorities. As mentioned above, London has seen lower relative levels of ECO delivery but has higher proportions of ethnic minorities in numerous boroughs across all 'Other than White' ethnicity groups. There is variation in the percentage of different ethnicity groups within boroughs, but across the ethnicity groups, generally ECO delivery is below 10 per cent of households in the London boroughs, the exception being Barking and Dagenham.

The DESNZ statistics publication [Sub-regional fuel poverty data 2024 \(2022 data\)](#) shows the proportion of households that are fuel poor by region and in local authorities. Looking at the English regions, London overall has the third lowest rate of fuel poverty (after the South East and East) at 10.4 per cent. Within London, no London boroughs have a rate of fuel poverty

above 18 per cent, used as the threshold to deem high fuel poverty in the LSOA level results later in this report. However, 15 of the 33 London boroughs do have a rate of fuel poverty above 10 per cent. These boroughs are shown in Table 1, along with their 'Other than White' and ECO households' (households that have received measures) percentages. The table again illustrates the generally high levels of 'Other than White' ethnicity in these boroughs, with relatively lower levels of ECO delivery compared to the national rates.

However, while ECO delivery across the London boroughs is lower compared to other English regions, in general, areas with a higher proportion of ethnic minority households in London have a higher proportion of households upgraded by ECO (supported by a moderate correlation of 0.38, Table 2).

Table 1: London Boroughs above 10 per cent proportion of households fuel poor (%), with respective 'Other than White' ethnicity and ECO Households percentages

London borough	Proportion of households fuel poor (%)	'Other than White' ethnicity (%)	ECO Households (%)
Newham	14.8	62.4	8.8
Barking and Dagenham	13.4	47.6	11.2
Haringey	13.3	39.8	5.5
Waltham Forest	13.2	40.5	6.7
Brent	12.3	60.6	5.2
Redbridge	12.2	56.1	8.1
Enfield	11.8	42.9	7.6
Kensington and Chelsea	11.5	32.4	2.5
Croydon	11.3	45.6	4.3
Ealing	11.1	49.6	7.5
Lewisham	11.1	43.0	3.9
Hackney	10.9	42.3	4.8
Harrow	10.7	58.2	4.8
Camden	10.3	33.8	4.9
Hammersmith and Fulham	10.2	32.4	2.0

Table 2 shows the correlations for all English regions, with percentage of ECO households correlated with the percentage ethnic minorities (excluding white minorities). These correlation test results are also shown in the accompanying spreadsheet (*Excel Table 3*).

Numerous factors influence rates of ECO delivery, so we would not necessarily expect to find correlations, however we found no evidence at a regional level that delivery of ECO is disproportionately lower in areas of high ethnic minority populations, and in five out of nine regions find the opposite effect.

Several regions showed a positive correlation, whereby the higher the ethnic minority (excluding white minorities) percentage of households, so the higher number of households with ECO installations. In addition to London, these regions included North West, Yorkshire and the Humber, East Midlands and West Midlands. Four regions showed no evidence of an association between ethnic minority populations and delivery of ECO, North East, East, South

East and South West regions, though these regions also have relatively low ‘Other than White’ ethnicity percentage of households compared to other regions.

Table 2: Correlation results for LSOAs in each English region, considering the percentage of ECO households and the percentage of Ethnic minority (excluding white minority) populations within LSOAs within regions

Region	Correlation (Spearman's rho)	Correlation
North East	-0.02	None
North West	0.36	Weak/moderate
Yorkshire and The Humber	0.35	Weak/moderate
East Midlands	0.31	Weak/moderate
West Midlands	0.53	Moderate
East	0.00	None
London	0.38	Weak/moderate
South East	0.02	None
South West	-0.04	None

A correlation result above 0.6 would be considered strong

Outside of London, several authorities in the North West region (Blackpool, Blackburn with Darwen, Pendle, Oldham, Manchester, Burnley, Hyndburn, Rochdale) have seen relatively high ECO delivery, where at least 15 per cent, and in several cases over 20 per cent, of households in those authorities have had ECO measures installed. Along with Bradford, Luton and Birmingham LTLAs that have also had comparatively high ECO delivery, many of these are post-industrial areas and most have relatively high ‘Other than White’ ethnicity, see Table 3.

With the exception of Blackpool, Burnley and Hyndburn, these authorities have relatively high Asian populations, of at least 12 per cent. The comparatively high delivery of energy efficiency measures to Asian households, especially those in the industrial north of England is examined further in the research paper [Who applies for energy grants?¹](#).

Table 3: Proportion of households fuel poor (%), Selected Local Authorities

Local Authority	Proportion of households fuel poor (%)	‘Other than White’ ethnicity (%)	ECO Households (%)
Birmingham	24.0	40.3	18.2
Bradford	19.8	26.4	23.9
Blackpool	19.7	4.0	25.4
Pendle	19.6	17.6	21.2
Burnley	19.3	10.7	20.7
Hyndburn	18.4	10.5	18.8
Blackburn with Darwen	17.6	27.6	24.0

¹ Owen, A., Middlemiss, L., Brown, D., Davis, M., Hall, S., Bookbinder, R., Brisbois, M.C., Cairns, I., Hannon, M. and Mininni, G., 2023. Who applies for energy grants?. *Energy Research & Social Science*, 101, p.103123.

Manchester	16.7	33.8	17.3
Oldham	15.4	20.1	21.3
Rochdale	15.2	17.4	16.0
Luton	13.0	43.5	16.6

LSOA ECO Delivery, Ethnicity and Fuel Poverty

To examine if any potential associations exist at a smaller geography level between ethnicity, ECO delivery, and high fuel poverty rates, data were assessed at LSOA level. LSOAs comprise between 400 and 1,200 households and have a usually resident population between 1,000 and 3,000 persons, so provide a more granular picture.

While data are published at LSOA level for all three of these variables, as noted in the [Sub-regional Fuel Poverty Data 2024 \(2022 data\)](#) publication, additional caution should be giving to using the fuel poverty data at that level, due to it being based on modelling which uses the sample of around 10,900 households from the English Housing Survey and other data sources. *“Estimates of fuel poverty at Lower Super Output Area (LSOA) should be treated with caution. The estimates should only be used to look at general trends and identify areas of particularly high or low fuel poverty”.*

Due to this, areas of particularly high levels of fuel poverty are considered, by adopting a threshold of above 18 per cent of households in fuel poverty within an LSOA. This is in line with the threshold used in the subregional fuel poverty report, and whilst somewhat arbitrary, it acts as an illustrative level of high fuel poverty, rather than a definitive threshold.

At an LSOA level, ethnicity has been considered at a two-level classification only, ‘Other than White’ and ‘White’ (including white minorities)’. However, the results for the five ethnicity classifications can additionally be found in the accompanying spreadsheet (*Excel Table 2*).

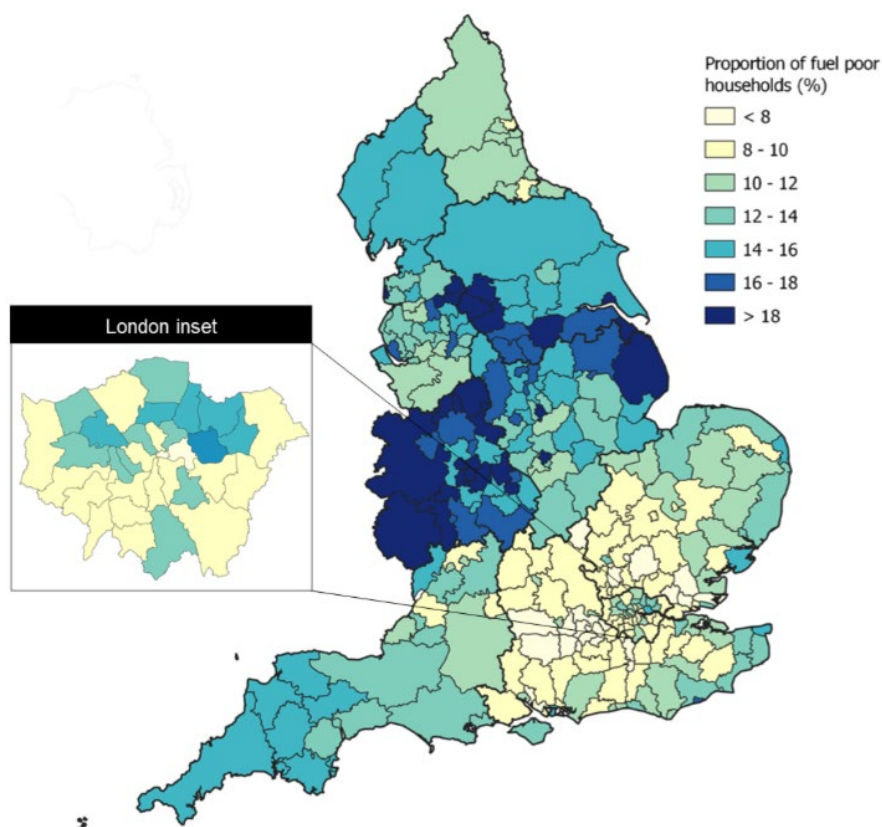
Each set of LSOAs were considered within their English region with the data and results found in the accompanying spreadsheet (*Excel Table 2 and Excel Charts 2*) and English region scatterplots also shown in Annex C. The accompanying spreadsheet additionally isolates the high level fuel poverty LSOAs in separate scatterplots to show the trend for just those above 18 per cent of households in fuel poverty areas (*Excel Charts 3*).

For most English regions, a general rising trend of increased ‘Other than White’ ethnic minorities and higher ECO household delivery can be seen in these higher fuel poor LSOAs.

In northern and midlands English regions, those LSOAs that have high ‘Other than White’ ethnic minority rates combined with higher rates of ECO delivery are also often those with high fuel poverty rates. This is particularly apparent in LSOAs in Leicester, Oldham, Blackburn with Darwen, Hyndburn, Manchester, Burnley, Rochdale, Bolton, Birmingham, Bradford, Kirklees. These LSOAs often have ‘Other than White’ rates above 80 per cent and ECO household percentages above 30 per cent all the way up to often in the 60 to 70 per cent range. Again, many of these LSOAs have high Asian ethnicity rates, often above 70 per cent.

The map in Chart 3, taken from the [Sub-regional Fuel Poverty Data 2024 \(2022 data\)](#) publication, illustrates that many of these LSOAs are in local authorities with the highest levels of Fuel Poverty.

Chart 3: Proportion of households in fuel poverty by local authority, 2022



The relative lower level of fuel poverty in local authorities in the East, South East and London regions is also shown in Chart 3. The LSOA level results are far more mixed in these areas, with LSOAs in Luton, Peterborough, Bedford, Slough and Buckinghamshire seeing comparatively high 'Other than White' ethnicity levels within their region, but varied levels of ECO delivery and fuel poverty.

In London, the majority of LSOAs are below the 18 per cent high fuel poverty threshold, though there would be fuel poor households within those LSOAs. Where there are high levels of fuel poor LSOAs, there is generally a rising trend of higher 'Other than White' ethnicity combined with higher volumes of ECO households. This same trend can also be seen in the scatterplots for several other English regions (see *Excel Charts 2*).

Chart 3 (*above*) does suggest several areas of the South West may also have somewhat high levels of fuel poor households around Devon and Cornwall. The region's relatively low levels of 'Other than White' ethnicity and ECO delivery means there is a large amount of clustering of the LSOAs in the scatterplot for the South West, but high ECO delivery can be seen in LSOAs in Plymouth and Bristol.

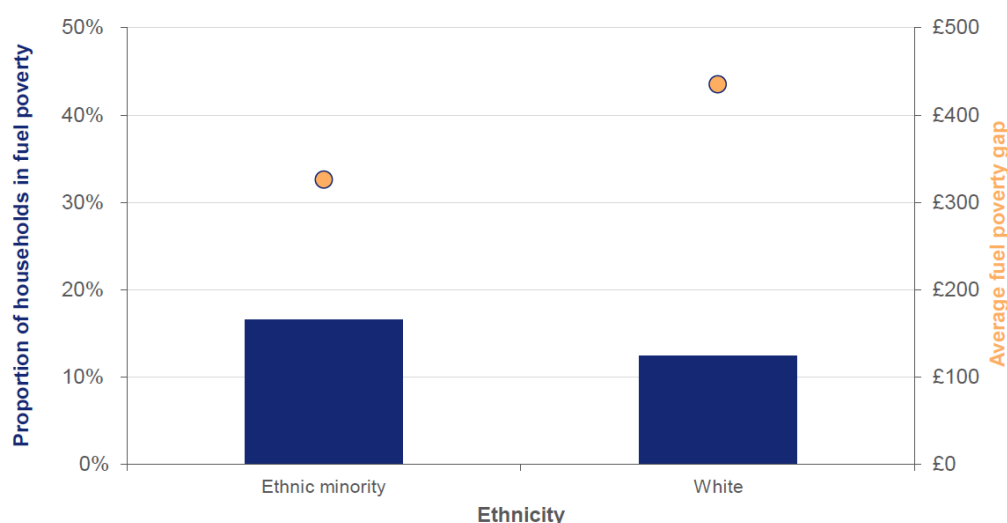
National trends in Fuel Poverty and Ethnicity

The annual [Fuel Poverty Statistics](#) provide additional information on fuel poverty and ethnicity, including the trend over time. These provide additional context to these findings.

In the English Housing Survey (the basis for the fuel poverty data) households are classified based on the ethnicity of the household reference person (HRP). Some households contain members from more than one ethnic group, which would not be reflected in this analysis.

As noted by the Committee's 2024 Annual Report, the annual fuel poverty statistics published in February 2024 show that, in 2023, households with an ethnic minority HRP had a higher proportion of households in fuel poverty at 16.6 per cent compared with 12.4 per cent for households with a white HRP. However, households with a white HRP had a higher average fuel poverty gap (the reduction of fuel costs needed for a household to not be in fuel poverty) of £435 compared with £326 for households with an ethnic minority HRP.

Chart 4: Households with an ethnic minority HRP were more likely to be in fuel poverty but have a lower average gap than households with a white HRP



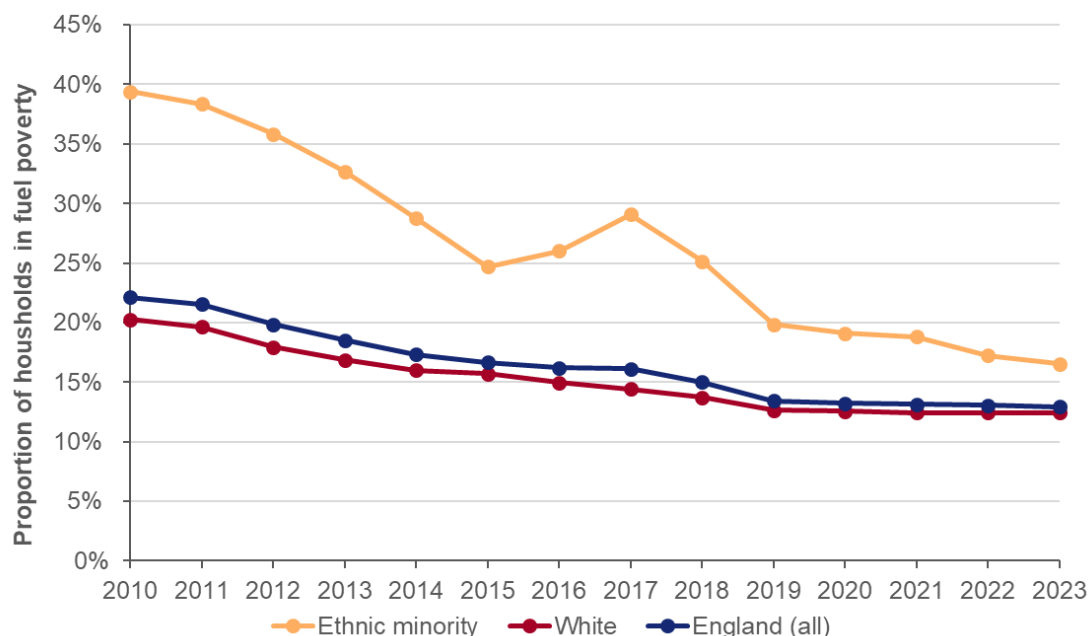
In 2023, the median income for ethnic minority households was substantially lower (median after housing costs equivalised income of £22,847) than the income for households with a white HRP (£29,605). Therefore, the Low Income, rather than Low Energy Efficiency dimension of LILEE, partly explains why ethnic minority households have a higher rate of fuel poverty.

In 2023, ethnic minority households were more likely to be living in smaller homes (median of 80m²) than white households (median of 86m²); and were also more likely to live in more energy efficiency properties (median FPEER band 70) than white households (median FPEER rating 68). This led to lower median fuel costs for ethnic minority households, which may explain the lower average fuel poverty gap. These additional statistics can be found in the [2023 fuel poverty supplementary tables Table 16](#).

The [Fuel Poverty Statistics Trends](#) Table 15 provides this breakdown over time. This shows that from 2010 to 2023 the percentage of ethnic minority households in fuel poverty decreased from 39.4% to 16.6%. In the same time period, the percentage of white households in fuel poverty decreased from 20.3% to 12.4%. In 2010 the rate of fuel poverty in ethnic minority households

was therefore nearly double that of white households, but in 2023 this gap has reduced whereby ethnic minority households were around 1.3 times more likely to be in fuel poverty.

Chart 5: The rate of Fuel Poverty in households with an ethnic minority HRP has decreased relative to the decrease in households with a white HRP since 2010



Clearly, a substantial gap remains, but the progress made in reducing this relative gap is likely due to both changing relative incomes and improvements to the energy efficiency of homes of ethnicity minority households to above FPEER band C during this time period by ECO and other schemes.

Discussion

This report has examined rates of households that have had ECO measures installed against the population shares of ethnic minorities at two geographic levels, and considered this against the fuel poverty levels within those areas. The findings should be interpreted with caution, as numerous other factors will have influenced the delivery of ECO, including the social and property composition of different areas and the scheme's design. However, this analysis lends no supporting evidence of disproportionately lower delivery of energy efficiency upgrades in areas with high fuel poverty and high ethnic minority populations.

When looking at the most local, LSOA level, we found that within several post-industrial town/cities with both high fuel poverty rates and high 'Other than White' ethnicity populations, there was also higher relative levels of ECO delivery. Overall ECO delivery has been comparatively high in the northern and midlands regions of England, and this is often in the areas with the highest 'Other than White' ethnic minority populations. This is particularly apparent in certain areas in the North West (Blackburn with Darwen, Oldham, Pendle), Yorkshire (Bradford), and the East and West Midlands (Leicester, Birmingham) with high Asian populations.

London, with its relatively low level of ECO delivery, but high levels of 'Other than White' ethnicity does present a different pattern to other English regions. Though even in London, there

is moderate evidence of areas with higher 'Other than White' households with higher rates of ECO installations. Furthermore, when looking at the areas of London with the highest rates of fuel poverty, those with a higher proportion of 'Other than White' households have higher levels of ECO delivery.

These associations do not represent causal analysis, and therefore do not establish if variation in energy efficiency measure delivery by area was due to the rates of ethnic minority populations or other related factors. There will be multiple other important factors that will have influenced delivery rates within areas, such as the populations' eligibility for the scheme, incomes, the [energy efficiency](#) and housing type of the existing housing stock in each area, and the activity of the offer in the locality. Whether these findings of higher rates of household upgrades in particular areas is due to the adoption of the scheme by certain ethnic minority groups, or represents the quality of the housing stock in the area prior to upgrades, is not clear from this analysis.

Looking at over a decade of ECO data to capture a large enough variation in installations in small areas, means it is possible that people could have moved properties during this period and therefore, the characteristics of the areas at the time of energy efficiency upgrades may be different to the recent picture from the Census which represents a snapshot in time. However, by presenting analysis in this way, even if the current populations were not the original beneficiaries of household upgrades, they would still benefit now. In addition, it is important to note that whilst ECO is the largest scheme by numbers of homes upgraded, this analysis does not consider households upgraded by other household energy efficiency schemes in recent years.

Analysis of fuel poverty statistics show that ethnic minority households continue to have a higher rate of fuel poverty compared to white households. However, the relative gap has decreased over time, and this is likely partly due to improvements in energy efficiency through schemes such as ECO.

ANNEX A

For the analysis in this report, the twenty Census 2021 ethnicity groups have been considered at a five-classification level, and also at a two-classification level: ethnic minorities (excluding white minorities) also referred to in the report as ‘Other than White’ and White (including white minorities).

Note: The Census response on ethnicity ‘Does not apply’ is not included in any of the ethnic groups but is included where Census has been used as a denominator for overall household numbers in an area.

Five-classification level:

Asian

Asian, Asian British or Asian Welsh: Bangladeshi; Asian, Asian British or Asian Welsh: Chinese; Asian, Asian British or Asian Welsh: Indian; Asian, Asian British or Asian Welsh: Pakistani; Asian, Asian British or Asian Welsh: Other Asian

Black

Black, Black British, Black Welsh, Caribbean or African: African; Black, Black British, Black Welsh, Caribbean or African: Caribbean; Black, Black British, Black Welsh, Caribbean or African: Other Black

Mixed

Mixed or Multiple ethnic groups: White and Asian; Mixed or Multiple ethnic groups: White and Black African; Mixed or Multiple ethnic groups: White and Black Caribbean; Mixed or Multiple ethnic groups: Other Mixed or Multiple ethnic groups

White

White: English, Welsh, Scottish, Northern Irish or British; White: Irish; White: Gypsy or Irish Traveller; White: Roma; White: Other White

Other

Other ethnic group: Arab; Other ethnic group: Any other ethnic group

Two-classification level:

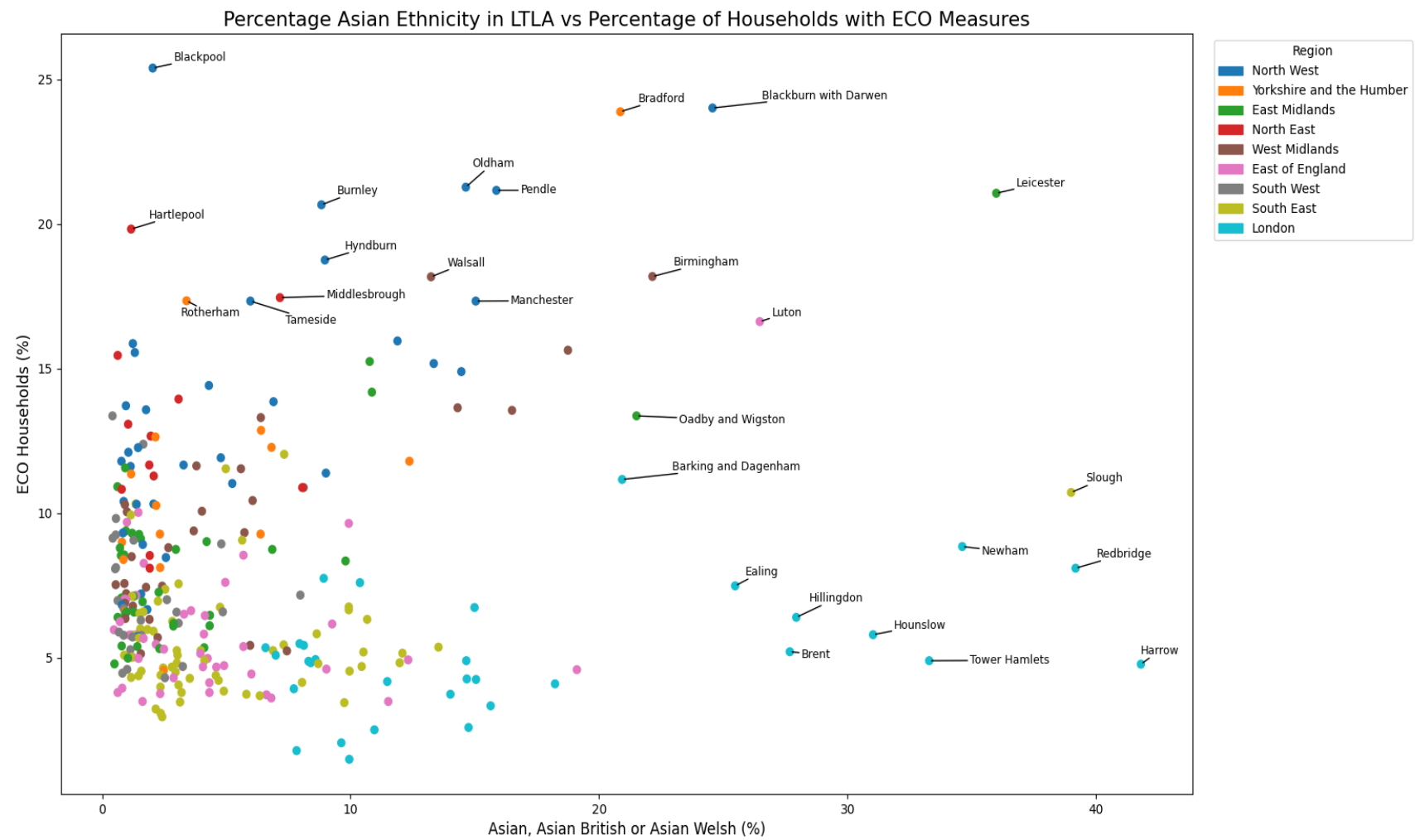
Ethnic Minorities (excluding white minorities), also referred to in the report as ‘Other than White’

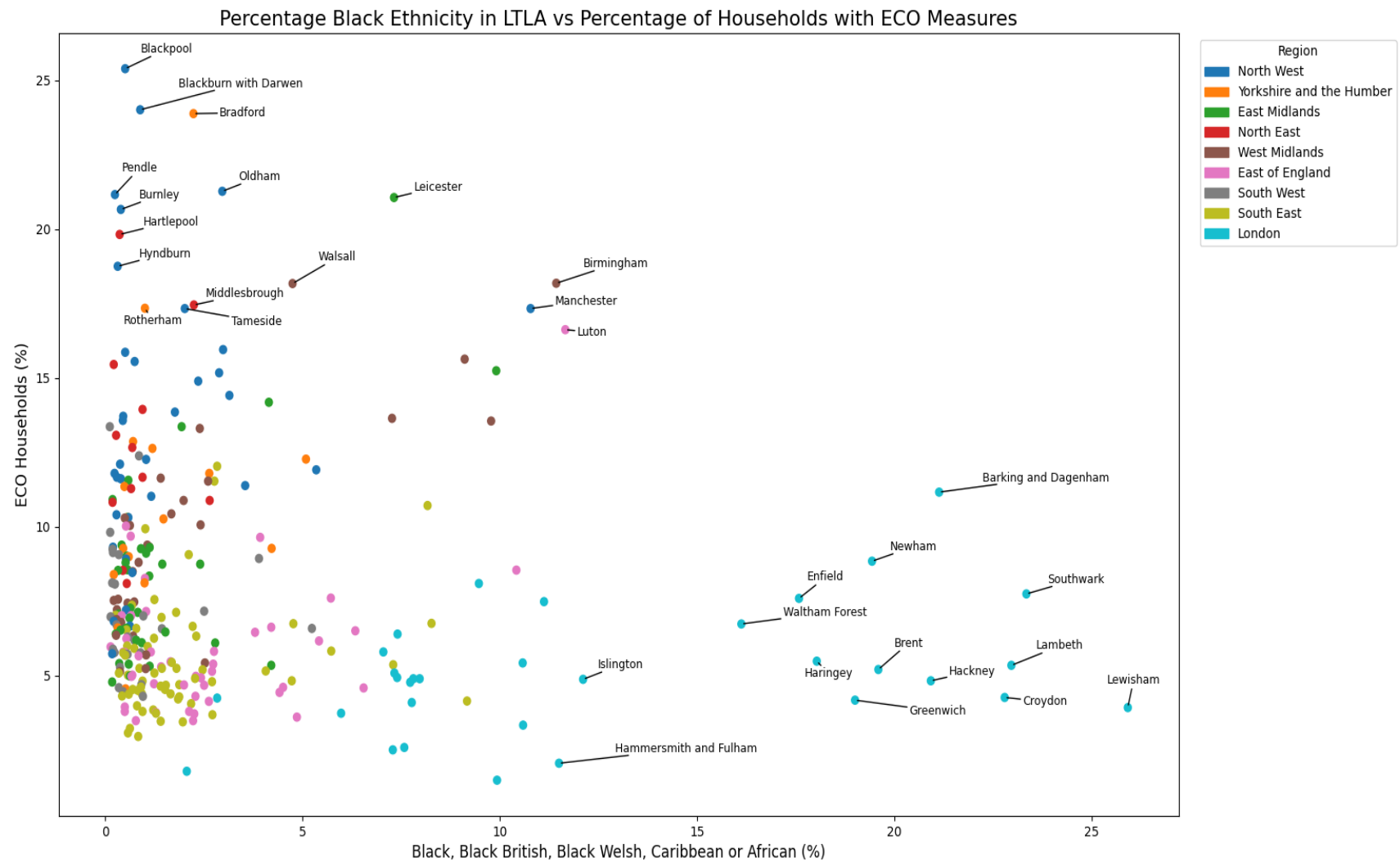
Asian, Asian British or Asian Welsh: Bangladeshi; Asian, Asian British or Asian Welsh: Chinese; Asian, Asian British or Asian Welsh: Indian; Asian, Asian British or Asian Welsh: Pakistani; Asian, Asian British or Asian Welsh: Other Asian; Black, Black British, Black Welsh, Caribbean or African: African; Black, Black British, Black Welsh, Caribbean or African: Caribbean; Black, Black British, Black Welsh, Caribbean or African: Other Black; Mixed or Multiple ethnic groups: White and Asian; Mixed or Multiple ethnic groups: White and Black African; Mixed or Multiple ethnic groups: White and Black Caribbean; Mixed or Multiple ethnic groups: Other Mixed or Multiple ethnic groups; Other ethnic group: Arab; Other ethnic group: Any other ethnic group

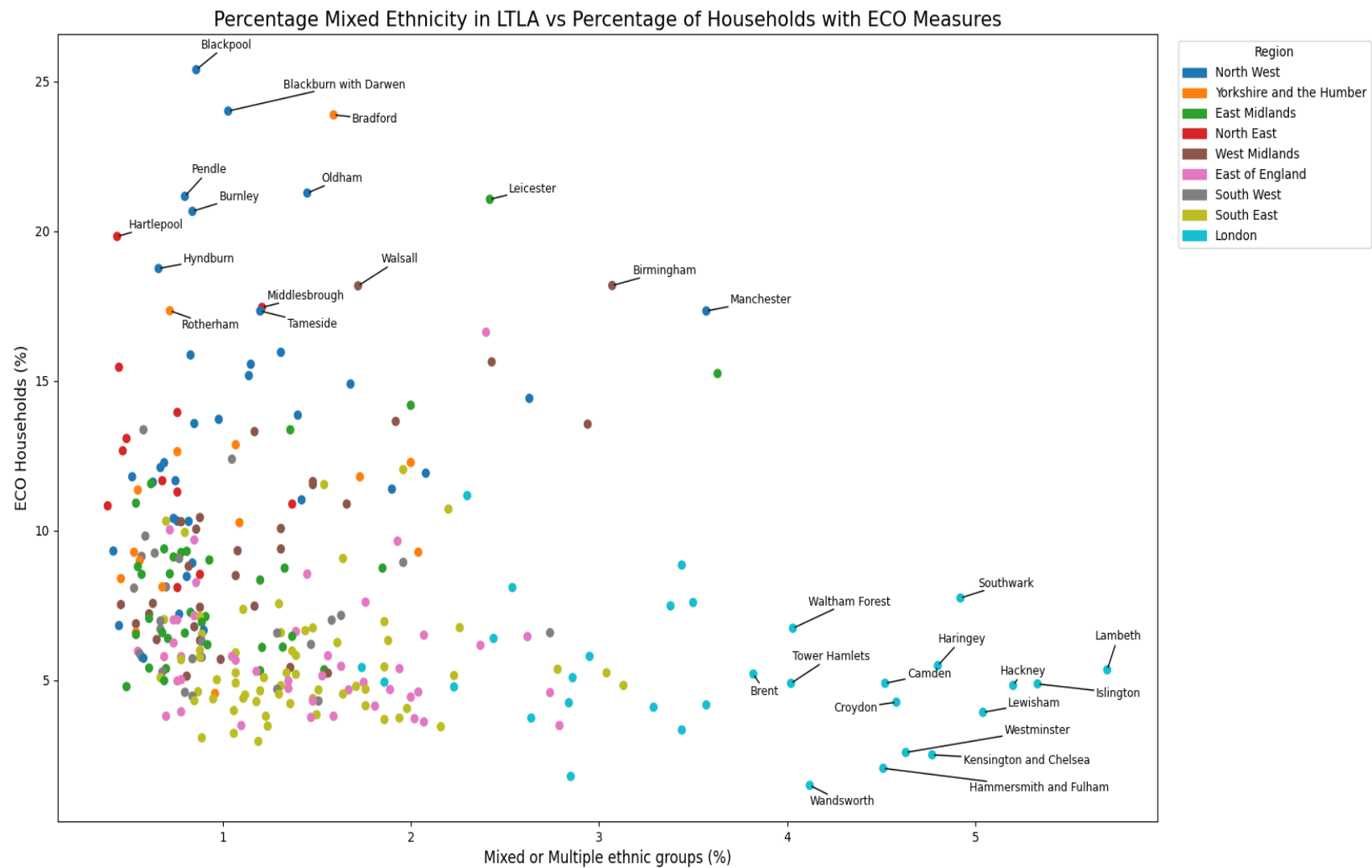
White (including white minorities)

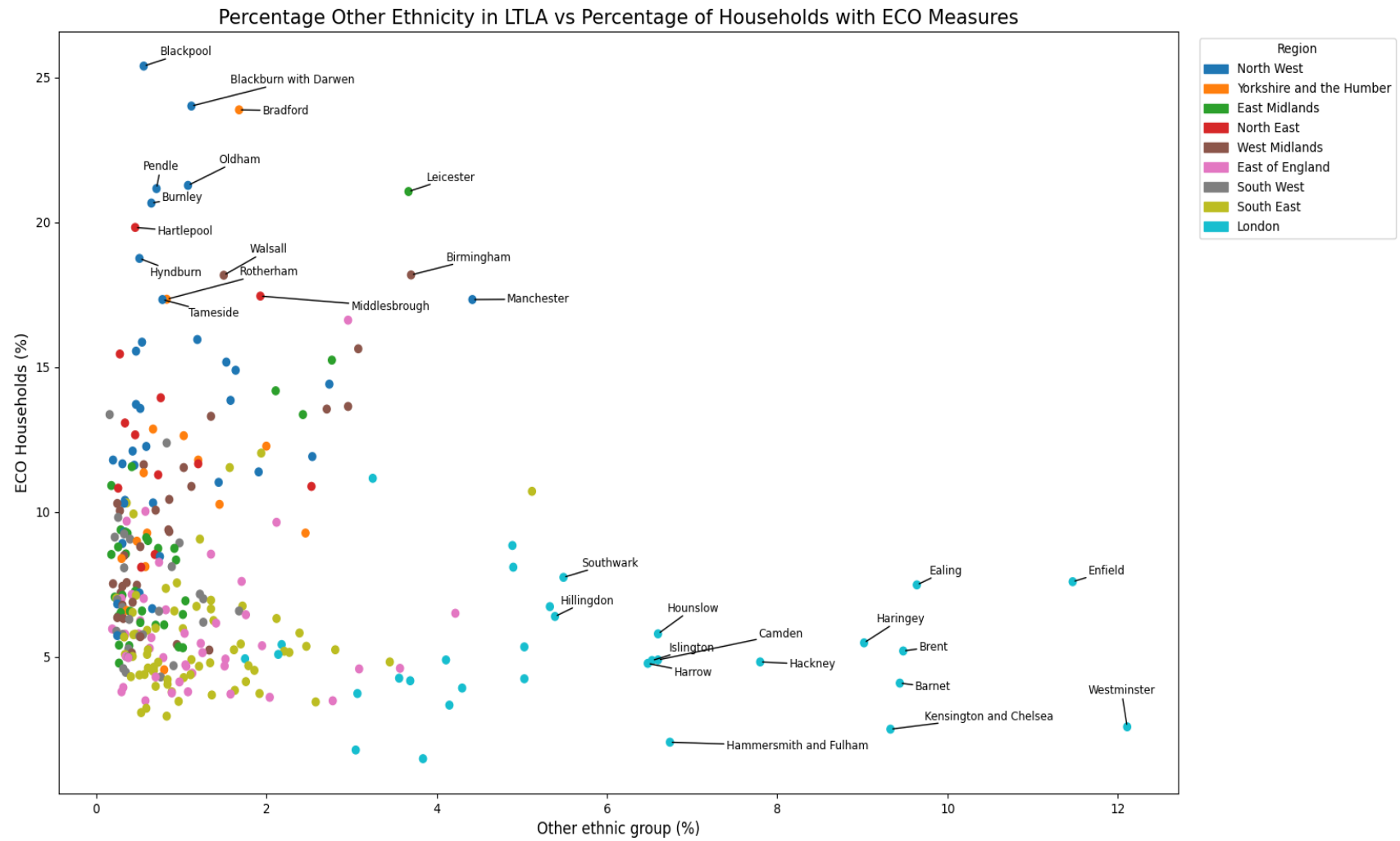
White: English, Welsh, Scottish, Northern Irish or British; White: Irish; White: Gypsy or Irish Traveller; White: Roma; White: Other White

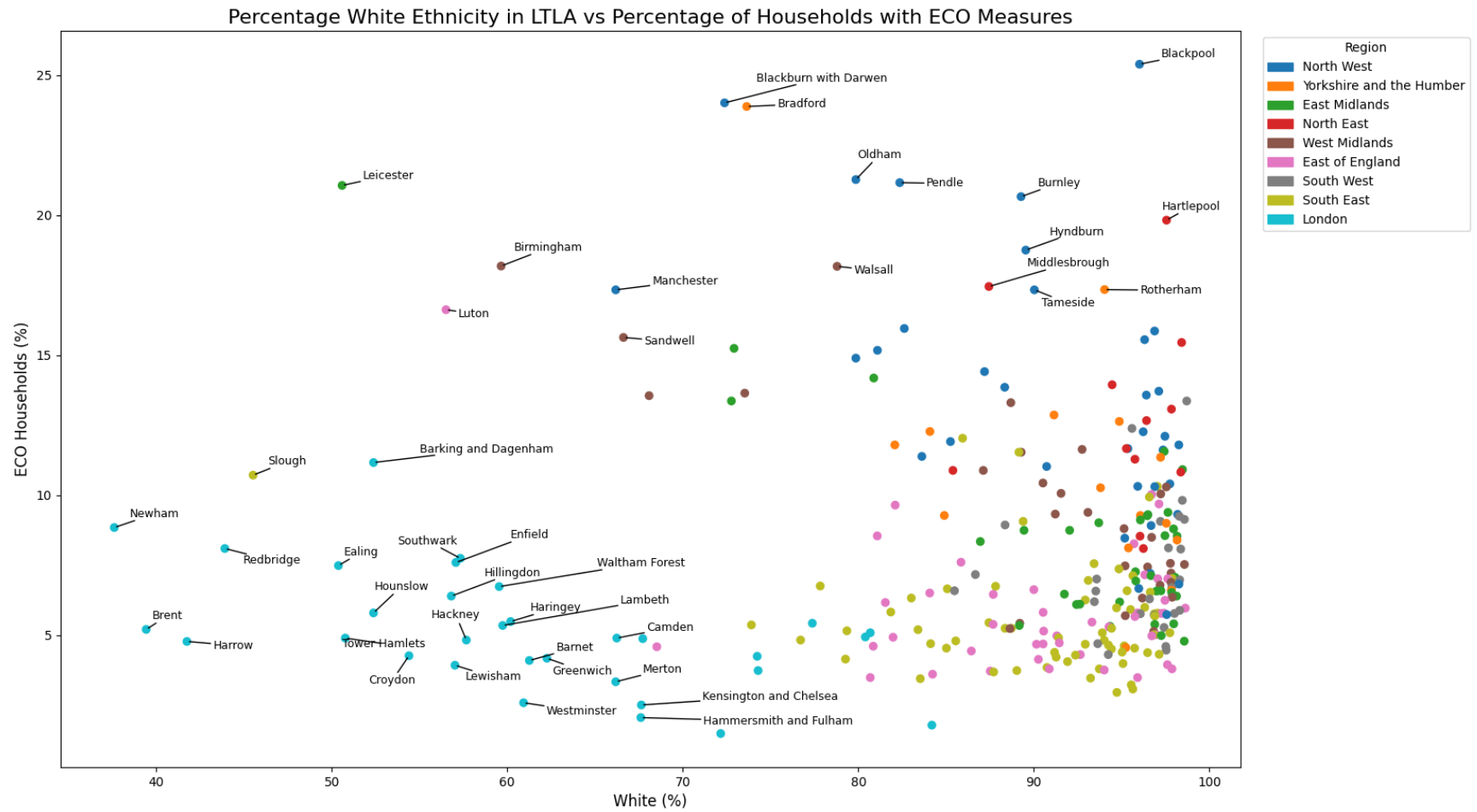
ANNEX B



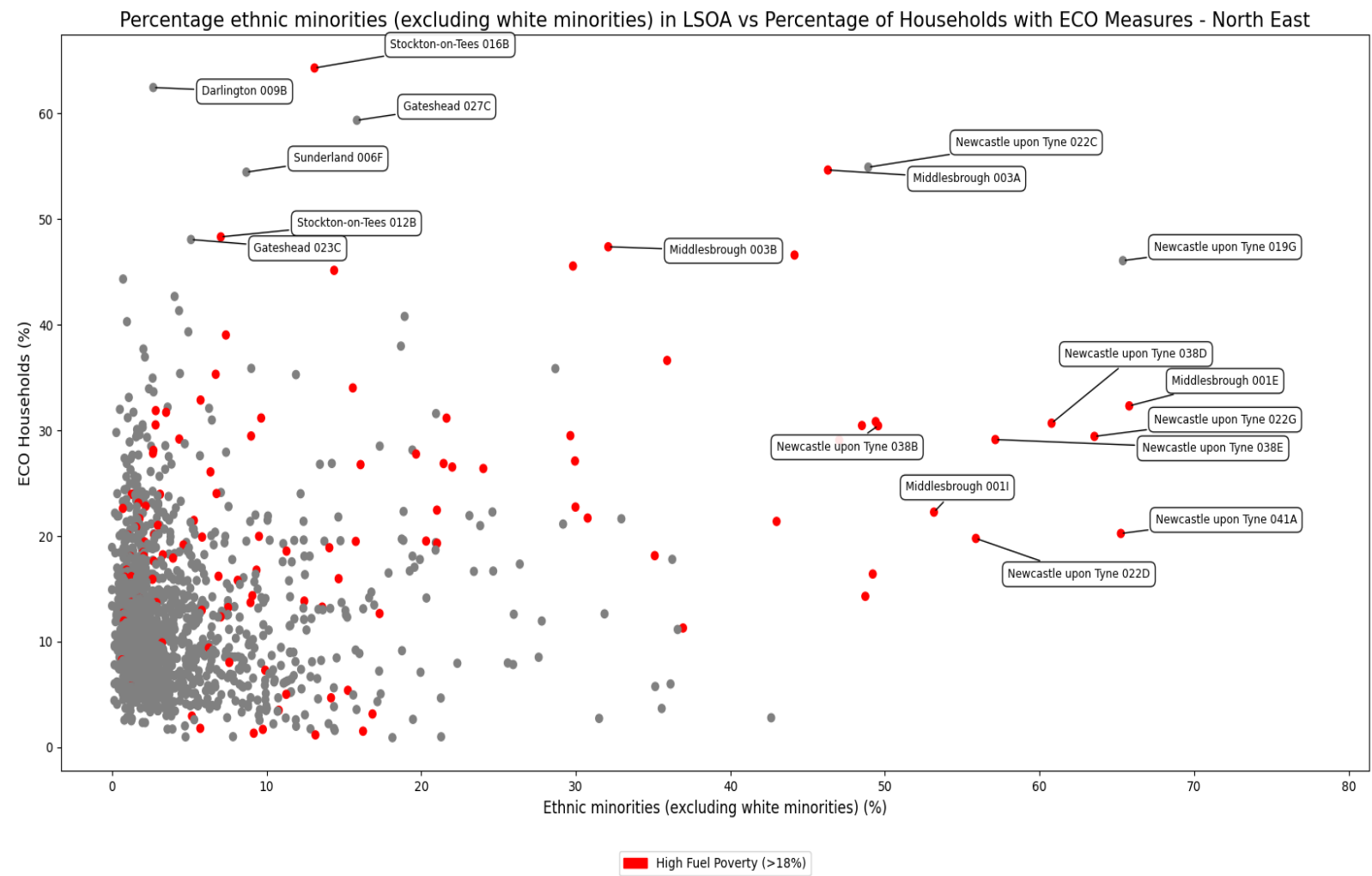


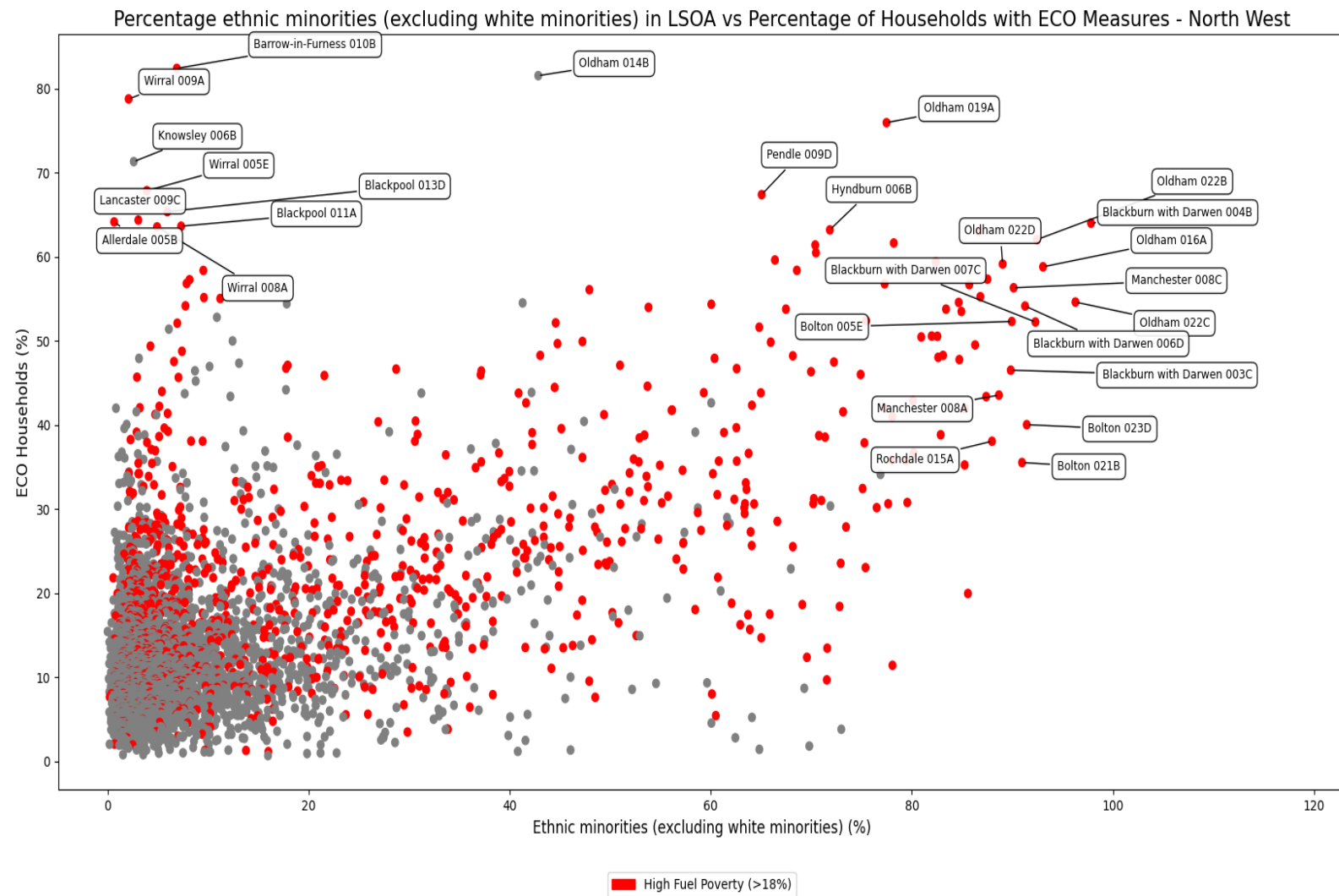






ANNEX C





Percentage ethnic minorities (excluding white minorities) in LSOA vs Percentage of Households with ECO Measures - Yorkshire and The Humber

