



Fuel Poverty in Barnet



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Abstract

Fuel poverty remains a significant issue in Barnet. As of 2024, about 9.4% of households in the borough were experiencing fuel poverty, a slight increase from the year before [1]. Since rates vary considerably across Barnet, it is important to explore the areas most affected, and the variables influencing fuel poverty.

This exploratory analysis used Lower-layer Super Output Area (LSOA) data and GIS techniques to examine how fuel poverty is distributed across Barnet, comparing its relationship with socioeconomic, housing, and energy efficiency variables.

It was found that fuel poverty is concentrated in specific neighbourhoods, with some LSOAs experiencing fuel poverty rates of over 16%. The LSOAs in Burnt Oak, West Hendon, and Cricklewood were identified as containing some of the highest concentrations.

Among the variables examined, overall deprivation showed the strongest relationship with fuel poverty, followed by income deprivation. The barriers to housing and the energy efficiency variables displayed weaker relationships. This suggests that while housing conditions contribute to fuel poverty, broader socioeconomic factors appear to have a greater influence on where fuel poverty occurs across Barnet. The results also detail that fuel poverty should be viewed as the result of multiple factors rather than a single underlying cause.

This is an exploratory exercise to demonstrate how GIS and spatial analysis can be used to investigate local issues in Barnet. Localised patterns were revealed in the visualisations, which are hidden by borough-wide averages. Future analysis could build on this work by incorporating demographic variables, visualising change over time, identifying statistically significant hotspots, and more. This next step could help support targeted investments and encourage decision-making to help reduce fuel poverty in Barnet.

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Introduction

This is an exploratory overview of fuel poverty across Barnet, focusing on variation between neighbourhoods and the underlying contributors.

Using LSOA polygons from 2021, select variables were compared to local fuel poverty data in Barnet [2]. These relationships were examined through spatial mapping and correlation analysis to identify patterns in the data, and to better understand how economic conditions, housing factors, and energy efficiency may contribute to fuel poverty in Barnet.

What is fuel poverty?

Fuel poverty in England is measured using the Low Income Low Energy Efficiency (LILEE) indicator [3]. Under this definition, a household is considered fuel poor if both of the following conditions are met:

1. The household income is below the poverty line after accounting for housing and energy costs.
2. The household is in a property with low energy efficiency (rated D-G under the Fuel Poverty Energy Efficient Rating, or FPEER) [3].

National and Regional Trends

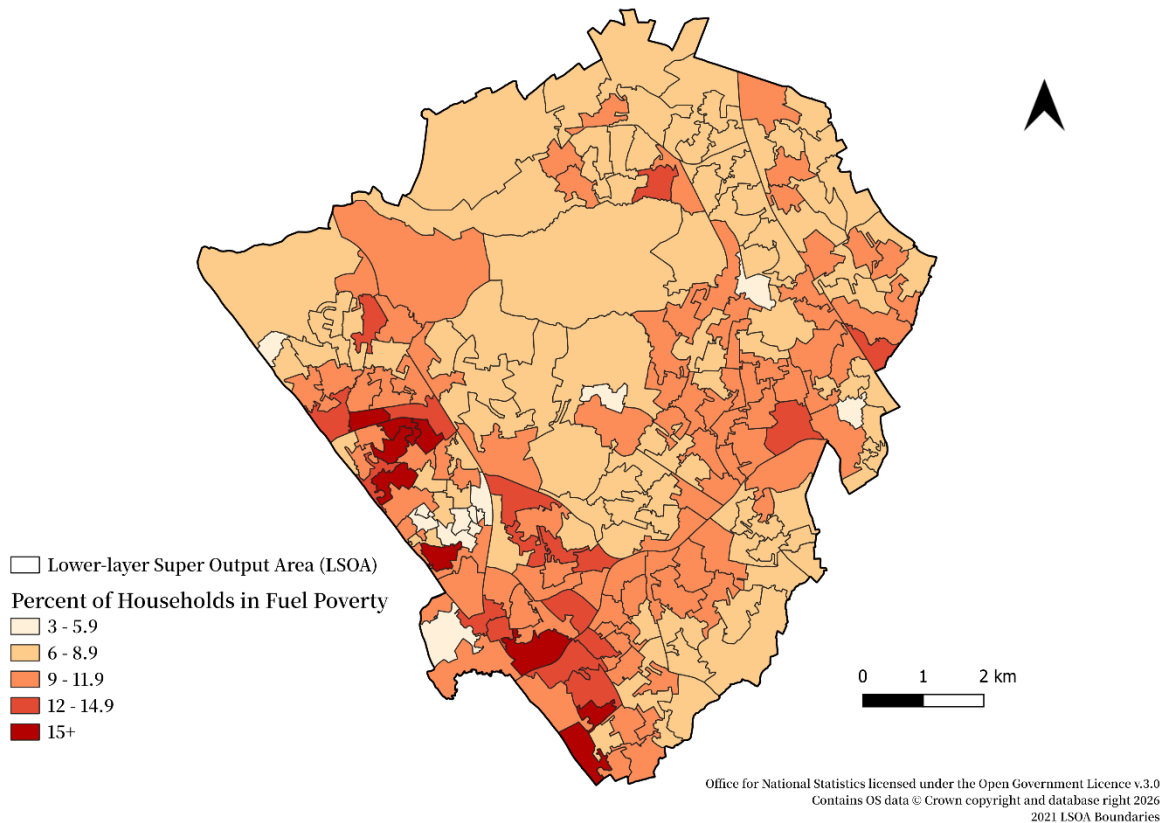
Recent statistics show that fuel poverty has declined from 2021-2023 across England, London, and Barnet, even after spikes in inflation and energy prices. However, in 2024, there was a slight increase in both London and Barnet [4]. This may reflect the continued pressure on energy and housing costs or even delayed effects from the war in Ukraine.

As of 2024, 9.4% of households in Barnet were experiencing fuel poverty [1]. While this is lower than the England and London average, it still represents a substantial number of households. This data is shown in Table 1, below. The 2026 sub-regional fuel poverty report uses 2024 data, which is currently the most recent data available for local authorities. The most recent national and London-wide data is from 2025.

Table 1: Percentage of households experiencing fuel poverty (2021 – 2025) [4].

	2021	2022	2023	2024	2025
England	13.1	13.1	11.4	9.9	9.4
London	11.9	10.4	9.3	9.6	10.3
Barnet	11.5	9.9	9.3	9.4	n/a

Figure 1: Percentage of households in Barnet experiencing fuel poverty by LSOA [1, 2].



Fuel poverty across Barnet is not evenly distributed. Figure 1 shows the distribution of households experiencing fuel poverty across Barnet's LSOAs, which range from about 3% - 16%. Higher concentrations appear in localised pockets, especially towards the southeast of the borough. Some of these pockets include Burnt Oak, West Hendon, and Cricklewood, all of which are all along the A5.

Drivers of Fuel Poverty

To better understand what may be influencing fuel poverty, several variables were compared against fuel poverty rates in Barnet:

1. Deprivation (IMD)
2. Income Deprivation
3. Barriers to housing and services
4. Energy Efficiency (EPC)

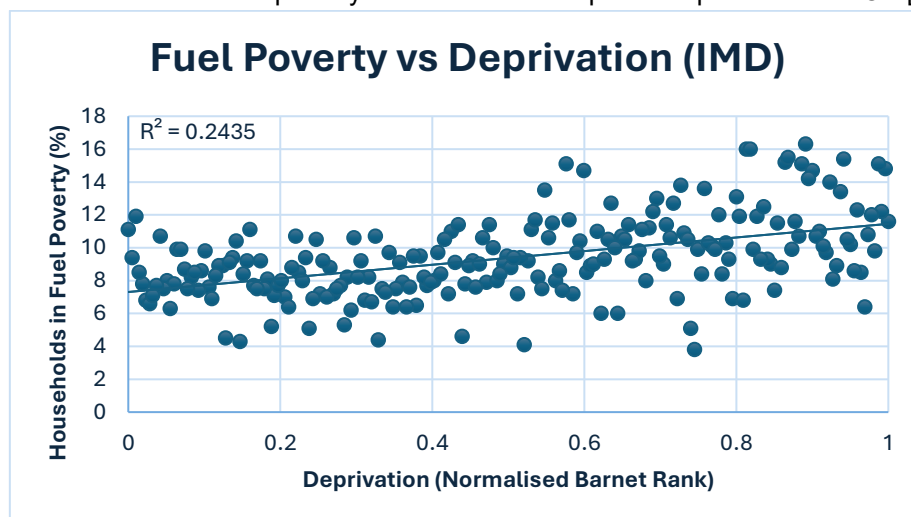
The deprivation, income, and barriers to housing datasets were normalised, converting each LSOA's ranking across England into a value between 0 and 1. This represents its position within the borough and allows for a more focused analysis. Therefore, values close to 1 indicate LSOAs which are more affected (more deprived or lower income), while values closer to 0 indicate LSOAs which are less affected.

This method preserves the data ranking of LSOAs when comparing to fuel poverty. The ranked, non-normalised scatterplots can be viewed in the Appendix.

1. Deprivation

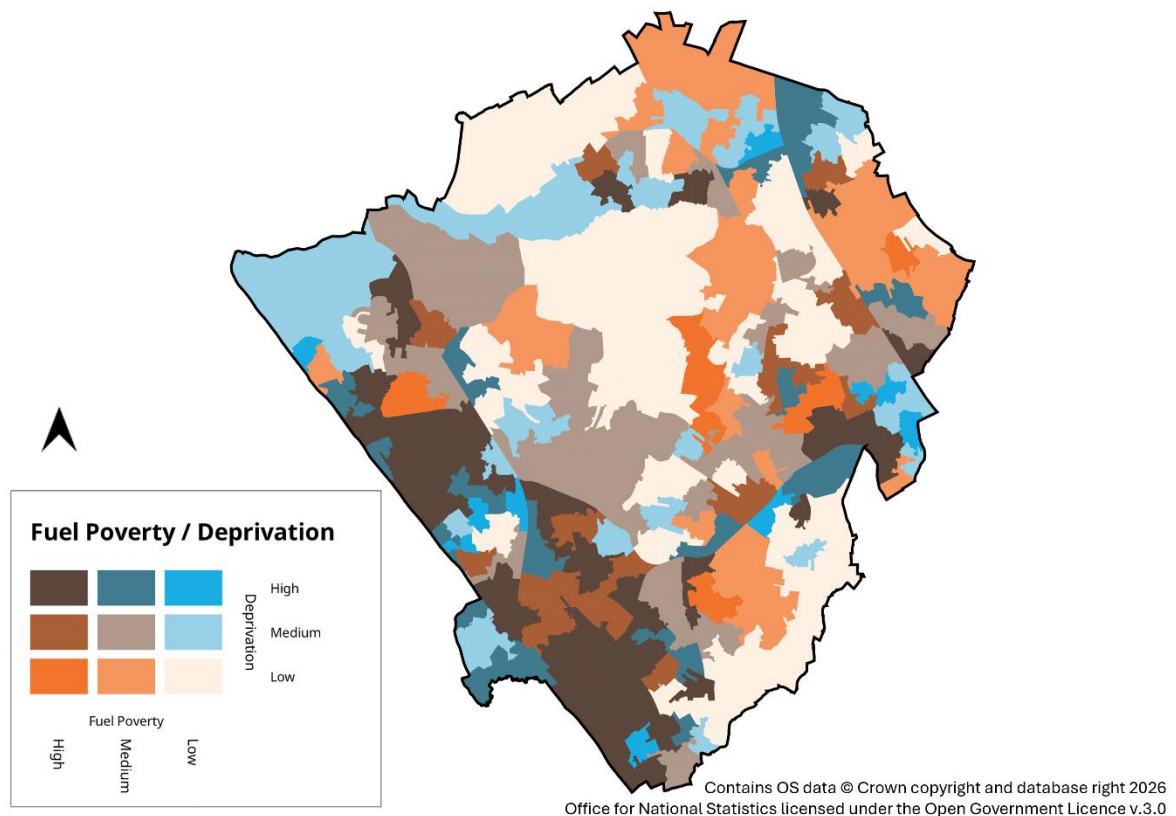
Deprivation in England is measured using the Index of Multiple Deprivation (IMD), which combines several variables into a single measure of overall disadvantage [5]. These variables include income, employment, health, education, etc.

Figure 2: Correlation between fuel poverty and normalised deprivation per Barnet LSOA [5].



The relationship between fuel poverty and deprivation in Figure 2 show a clear, positive correlation between the values. While the relationship is not perfectly linear, deprivation emerges as the strongest indicator of fuel poverty that was evaluated in this exploratory analysis. Together, the factors that define higher deprivation create an environment where properties are more vulnerable to rising energy costs, which correspond to fuel poverty. Figure 3 displays fuel poverty and deprivation tertiles across Barnet LSOAs. Tertiles use 'Low', 'Medium', and 'High' classifications to divide the data into thirds.

Figure 3: Fuel Poverty and Deprivation Tertiles by LSOA [1,5].



Although there is a correlation between the variables supported by the correlation analysis, some less deprived areas still contain properties experiencing moderate to high fuel poverty, suggesting that while deprivation is a strong indicator, it does not fully explain fuel poverty.

2. Income Deprivation

Income is a variable within IMD, selected for a refined analysis on financial vulnerability. This variable measures the proportion of properties experiencing low income, providing a direct link to the affordability aspect of fuel poverty [5].

Figure 4: Correlation between fuel poverty and normalised income deprivation per Barnet LSOA [5].

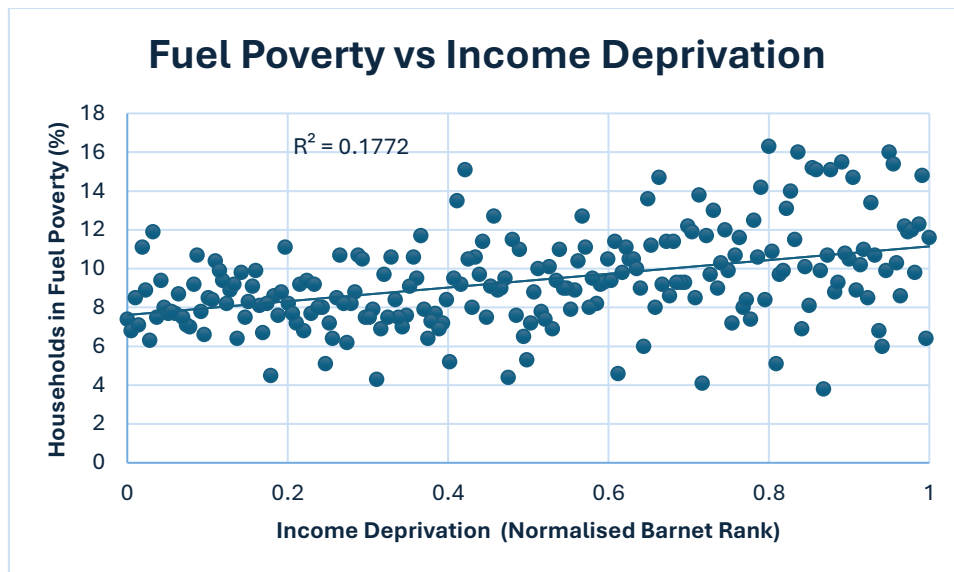
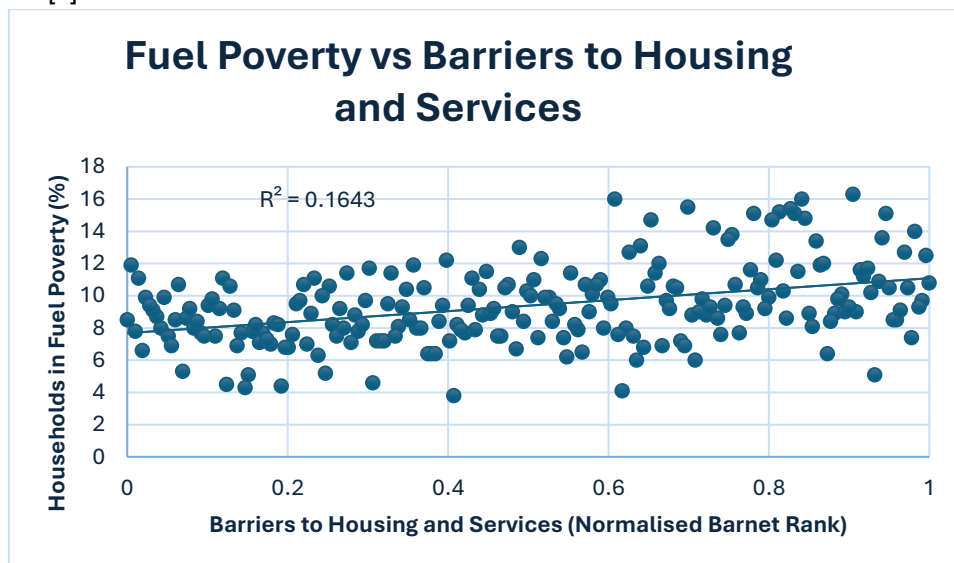


Figure 4 shows a positive, albeit weaker relationship between fuel poverty and lower property incomes. As fuel poverty is partly defined by a property's ability to afford energy costs, lower-income properties are more likely to struggle with energy bills, particularly in regions with rising energy costs.

3. Barriers to Housing and Services

Barriers to housing and services is another component of IMD, and reflects housing affordability, access to local services, and physical accessibility [6].

Figure 5: Correlation between fuel poverty and normalised barriers to housing and services per Barnet LSOA [6].

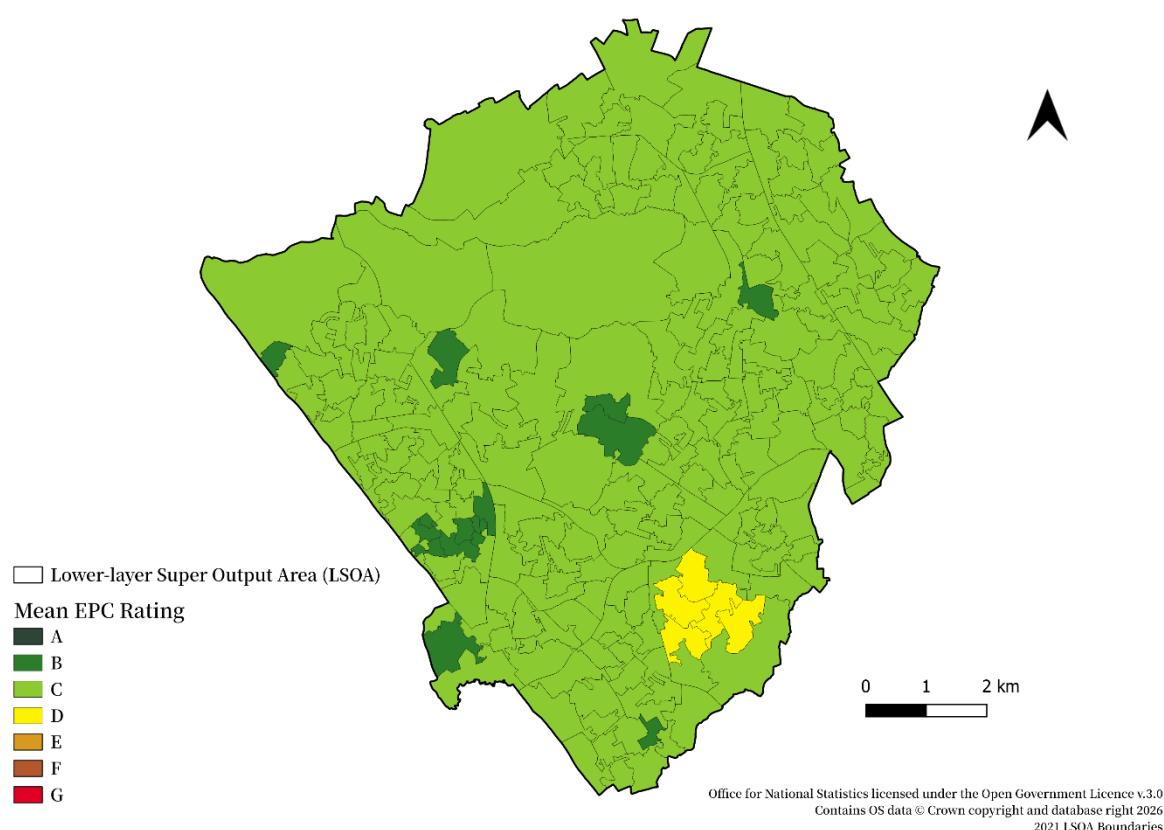


The relationship between fuel poverty and barriers to housing and services in Figure 5 is also positive, but weak. The spread of values suggests that this variable has a lower influence on fuel poverty in Barnet. While there is still a slight positive trend, it is the lowest correlation coefficient between the variables assessed in this analysis. This could be because housing barriers relate more to accessibility and mobility rather than energy costs directly.

4. Energy Efficiency

Energy efficiency was used for this analysis because it helps define fuel poverty. While the official fuel poverty measure uses the Fuel Poverty Energy Efficiency Rating (FPEER), this analysis uses Energy Performance Certificate (EPC) data as a proxy for housing energy efficiency. Both variables are based on similar underlying housing characteristics including insulation, heating systems, and the overall energy demand of a property [7]. Below, Figure 6 shows mean EPC ratings across the LSOAs in Barnet.

Figure 6: Mean EPC Ratings per Barnet LSOA [2, 7, 8].



While EPC data is only available for properties that have undergone a recent assessment for rentals, sales, etc., the data still represents a relative view of energy efficiency.

As seen in Figure 6, most LSOAs across Barnet have an average energy efficiency, with a majority falling into Band C. There is a significant patch of Band D in Garden

Suburb, near Golders Green. When compared to the fuel poverty map of Barnet, the relationship between fuel poverty and poor energy efficiency is not consistent throughout the borough. However, pockets of LSOAs with the highest energy efficiency had low fuel poverty, such as the Colindale regeneration area, suggesting that although weak, there may be a slight correlation. A deeper analysis into energy efficiency and housing age would be beneficial to determine if there is a cause-and-effect relationship between these variables and fuel poverty.

Conclusion

Understanding what plays a part in contributing to fuel poverty helps target the appropriate regions and industries for investment. Visualising these variables at a neighbourhood level can help do the same. Of the variables examined in this analysis, overall deprivation had the strongest correlation with fuel poverty, detailing that broader socioeconomic disadvantages are linked with fuel poverty itself. However, deprivation is not the only correlation, as fuel poverty is influenced by a combination of economic and housing related factors.

Both London and Barnet have experienced a slight increase in fuel poverty since 2023, which shows that affordability pressures remain a challenge for residents in these regions [1].

Further Analysis

This analysis was designed as an exploratory exercise to better understand fuel poverty in Barnet and demonstrate how GIS and data analysis can be used to investigate local issues. There is significant scope to build on this work. Further analysis can understand demographic factors/influences, identify statistically significant hotspots, visualise fuel poverty change over time, understand additional potential links, and more.

Limitations

This analysis was an exploratory investigation, and several limitations should be considered when interpreting the results:

1. Fuel poverty is measured as a percentage of households, but the compared data in this analysis relates to properties. While they can be compared, the variables are inherently different.
2. EPC coverage is limited to properties that have recently been sold or rented, which limits property representation across Barnet.

3. EPC records were aggregated to LSOAs using their postcodes. Certain postcodes overlap multiple LSOAs, so the postcode centroid was used to assign an LSOA.
4. EPC ratings were used as a proxy for energy efficiency, but it is not equivalent to FPEER, the official fuel poverty measure.

These limitations are specific to this project, and further analysis would look to reduce these limitations for a finer, more detailed understanding of fuel poverty in Barnet.

References

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Appendix

Figure 7: Correlation between fuel poverty and the deprivation rankings of Barnet LSOAs across England [5].

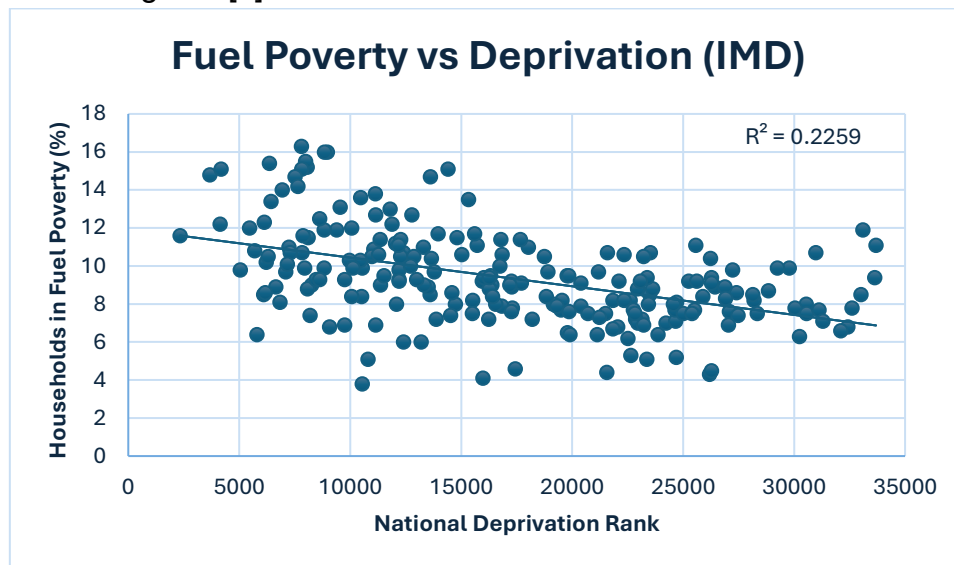


Figure 8: Correlation between fuel poverty and the income deprivation rankings of Barnet LSOAs across England [5].

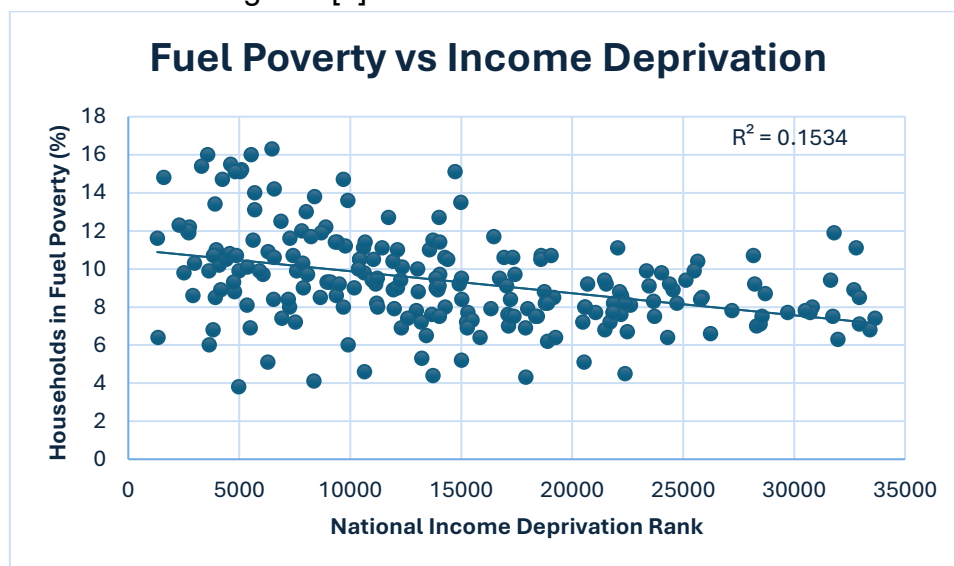


Figure 9: Correlation between fuel poverty and the barriers to housing and services rankings of Barnet LSOAs across London [6].

