Concepts | Topic guide 5

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How can fuel poverty be understood?

A series of policy-relevant briefings on the legacy of research supported by Eaga Charitable Trust.

Following 25 years of supporting research on fuel poverty, the Eaga Charitable Trust (Eaga CT) closed in 2019. This series of research digests presents a summary of the research evidence under five themes: homes, people, impacts, approaches and concepts. This briefing focuses on concepts, ways of defining, measuring and understanding fuel poverty.

Readers can find more on these issues and the full breadth of Eaga CT's output in the new online fuel poverty library: www.fuelpovertylibrary.info.

1 Definitions and Measurement

The 10% indicator, introduced by Boardman, whereby a household is defined as fuel poor when it is required to spend over 10% of its income on energy in order to achieve an adequate standard of warmth, remains the most widely cited definition of fuel poverty. This was enshrined in UK legislation in the Warm Homes and Energy Conservation Act 2000, and has functioned as both a definition and a measurement. Over the last two decades, it has attracted much attention across policy and research, with several Eaga CT funded studies contributing to the wider discussion:

- In 2005, at an Eaga CT roundtable event[1], the 10% indicator was criticised for being arbitrary and lacking in its connection to other forms of poverty.
- In a 2008 publication[2], the official 10% definition was considered too general to adequately gauge who really was most at risk of fuel poverty, with the authors suggesting that an amended definition should identify any household in receipt of benefits as 'at risk'.
- Reiterating the criticism that the 10% definition neglected to link with income poverty and other forms of poverty, a 2010 report[3] argued that the experiential aspects of living in fuel poverty were also overlooked.
- Using a participatory approach to investigate take-up of energy efficiency measures, a 2012 study[4] proposed an alternative definition of fuel poverty: 'A household is considered to be in fuel poverty if pricing, access and/or ecological factors render energy inaccessible through the most efficient and harmless channel.'

Several Eaga CT studies have focused on aspects of the measurement of fuel poverty and approaches to calculating household income.

- A 1997 study[5] observed that the underlying structural factors in both Northern Ireland and the Republic of Ireland meant that indicators based on conditions elsewhere may not be statistically sound when applied in the Irish contexts.
- In a 2006 study[6] of rural fuel poverty, it was recommended that the UK government agree standardised definitions of both 'equivalised' and 'After Housing Costs' income definitions, as inconsistencies had made comparisons across areas, projects and schemes difficult.
- Also exploring rural fuel poverty, this time in Scotland, a 2016 study[7] contended that the use of a standardised income measure was flawed because it neglected a series of variables, including fundamental differences between baseline expenditures and energy behaviours of rural and urban households.

Key Points

- Fuel poverty continues to be a reality for many households in the United Kingdom and beyond. Action is needed to reduce the incidence and severity of this social issue in order to reduce the severe impact it has on health and wellbeing.
- Defining and measuring fuel poverty continues to be a subject of debate. This in part arises from the complexity of determining income levels, energy costs and home energy standards for individual households. Although there are several prominent measures of fuel poverty, research has found advantages and limitations to each.
- Energy markets and utilities play a significant role in the continuation of and experiences of fuel poverty. Research has investigated the impact of market deregulation and the role of measures such as Warm Front and Energy Companies Obligation (ECO) that seek to make support available to vulnerable consumers.
- Research has highlighted the distributional impact of policies. Equity and fairness must be a key concern of policy design.
- The recent and continuing rollout of smart metres and related technologies has the potential to help vulnerable consumers achieve comfort and save money, but research suggests that this potential is not yet being realised.
- Research has investigated a wide variety of geographies: urban, rural, local authority, devolved nation and more recently, conceptualisations of energy poverty in the European Union.
- There are myriad opportunities to learn from non-UK national contexts on how we talk about and conceptualise fuel poverty and how we target resources.
- As other cultures and climates are brought into the debate and as the UK climate changes, considerations around terminology become important. Terms such as 'energy justice' offer a broader conceptualisation albeit potentially at the expense of the familiarity and currency of more established terms.

Tools for Measuring Fuel Poverty

A range of studies have developed alternative statistical and data-based tools to estimate the scale of fuel poverty. Many of these tools have been developed in response to a lack of adequate measurement at the local level, as identified in the 2003 Review of English Local Authority Fuel Poverty Reports and Strategies[8].

- The Fuel Poverty Index[9], published in 1998, used five criteria to identify risk among households living in a deprived are in Liverpool. The criteria included: presence of damp/ condensation, insufficient warmth, absence of central heating, a requirement to reduce heating bills, and payment arrears to energy suppliers.
- In 1999, the Affordable Warmth Index[10] was released. This used software to process data including the type, age, size of property, heating system and disposable income to work out the affordability of home heating.
- The Fuel Prophet Tool, from a 2005 study[11], developed and tested a model for social landlords and energy policy researchers to estimate the cost effectiveness of different interventions.
- In 2006, a mechanism[12] for connecting Standard Assessment Procedure (SAP) data with income was proposed as a way of estimating which households were least able to afford energy costs. A subsequent version[13] was developed for Registered Social Landlords in Scotland.
- In 2006, the Fuel Poverty Indicator[14] set out four levels to the 10% definition, which attempted to resolve some of the issues identified with the '10% of income' indicator: 'full income', 'basic income', 'full income (equivalised)' and 'basic income (equivalised)'.
- In 2008, the 'How Much?' threshold model[15] was established. This could forecast the impact on fuel poverty of multiple combinations of different interventions in order to predict which would have the largest effect on fuel poverty.
- The 2012 Housing Energy and Fuel Poverty Assessment Tool (HEAT)[16] aimed to provide a sophisticated software-based modelling tool for those working in the housing and energy efficiency fields.

The Low Income High Cost (LIHC) indicator officially replaced the 10% measure in the 2015 Fuel Poverty Strategy. However the new indicator has, like its predecessor, been subject to criticism. A 2017 study[17] identified a number of methodological shortcomings of the LIHC indicator and recommended the use of an alternative approach combining the Minimum Income Standard (MIS) and a household-based energy efficiency rating (HBEER). This modified calculator incorporated a wide range of data inputs for an individual property, as well as household income and fuel spend. A recent 2018 study[18] found limitations in both the 10% and LIHC indicators, proposing a new tool piloted in England and Spain: The Index of Vulnerable Homes (IVH).

2 Markets

The opening of power supply and generation markets to competition in the 1990s raised a number of important questions, not least in terms of the impact of such changes on energy users who consequently became energy customers.

In a 1999 study[19], it was found that households without bank accounts, those paying via pre-payment meters or by cash, as well as those with special needs, were being disadvantaged by the new market arrangements. Using a large-scale survey, the same negative effects were observed as the process was rolled out nationally. However, competition was seen as advantageous to those paying by direct debit where switching enabled easy access to the cheapest energy deals.

As part of the oversight and regulation of markets, suppliers were obliged to produce codes of practice, but an early review[20] of practice in 1998 found significant shortcoming. For example, many did not promote Fuel Direct as a payment method and examples of alternative formats such as large print or translations were rare.

Several studies have identified failings of energy suppliers to support adequately and provide effective advice to their customers. These studies highlighted a number of recurring themes including: difficulties communicating with customer service departments, a shortage of information on cheaper and/or social tariffs, alternative energy suppliers and energy efficiency measures. Distrust of suppliers is common, as noted in a 2011 study[21], which concluded that an inherent challenge lies with the complexity of the market structure itself and the organisational systems operated by energy companies.

The cost of national energy efficiency programmes, such as Warm Front and ECO, has meant additional levies being added to household bills, with limited assessment of how that might impact on the most vulnerable. A 2011 study[22] called for the energy regulator (Ofgem) to scrutinise the way this was calculated within its review of the retail energy market.

A recent 2016 study[23] investigated the rollout of smart prepayment meters and found that energy companies' performance varied, with some progressing faster than others, but that the potential for this technology to lift households out of fuel poverty was not being realised.

3 Policy and Programmes

The 2001 UK Fuel Poverty Strategy represented the central policy initiative to emerge during the lifetime of Eaga CT. It provided a key benchmark against which to measure the country's progress on the issue and also offered considerable scope for critical engagement with the design and delivery of the policy itself. Nonetheless, several strategic initiatives with substantial significance for the fuel poverty agenda were already in place before the arrival of the Strategy, such as the Warm Front programme and Decent Homes Standard. These were also subject to scrutiny in Eaga CT funded research. Since then, many other relevant policies have been published, arising from legislation such as the Housing Act (2004) and the Energy Act (2011). Some of these are UK wide, while others have been promulgated by the devolved administrations of Scotland and Wales.

Policy Aims

As outlined in a 2011 study[24], a core principle of fuel poverty policy has been that alleviation is best addressed by reducing household energy demand, primarily achieved by improving energy efficiency. However, the authors note that a preoccupation with demand reduction has obscured focus on other aspects such as the potential of micro-generation.

In 2004, a report[25] outlined the need for policy to review its approach in terms of focussing on specific energy efficiency measures. Up until then cavity wall insulation had been prioritised in many energy efficiency schemes but this form of retrofit is not possible with solid wall properties, which are recognised as the 'hardest to heat'.

A 2009 report[26] was one of the first to highlight the inadequate consideration of rural fuel poverty in policy, advocating for enhanced spending by government to recognise the additional challenges faced by rural communities. A later 2016 study[27] proposed community energy projects as one solution policy makers might consider in rural areas.

A 2008 study[28] supported the view that there has been a narrow focus on energy efficiency in policy, arguing that the existing model was neglecting the key issue of income poverty, particularly among both single-person households of working age and the rural poor.

Several reports have set out recommendations for specific housing tenures: a 2011 report[29] focused on private rented properties and publication[30] on the social housing sector. Recommendations in a 2014 report[31] aimed to raise the profile of fuel poverty in Houses in Multiple Occupation, a largely overlooked form of household composition but one increasingly recognised for its complexity and vulnerability. Others have provided recommendations in terms of reviewing eligibility criteria for grants and schemes, such as a 2004 study[32] focused on the Warm Front scheme.

Local Authority Initiatives

Since 2000, local authorities in England have had to provide annual reports on their progress in tackling fuel poverty as part of their legislative requirements under the Warm Homes and Energy Conservation Act (2000). A 2003 review[33] of those reports found that those making the most progress prioritised strategic elements such as partnerships and funding, whereas those who worked in isolation were less effective. A similar focus on best practice by local authorities can be found in 2003[34] study. Again, partnerships, funding and monitoring were key factors for progress, as well as the need to adopt a holistic approach that also considers aspects such as health and low-income.

A 2009 study[35] looked at the detailed strategic planning mechanisms for local authorities, specifically Local Area Agreements, which used a national dashboard to identify working priorities. The agreements were intended to reflect the most important challenges for an area and function as a strategic contract between the government and key public services in that locality. The study found that despite there being a dedicated indictor of fuel poverty within the dashboard (NI187 'Tackling Fuel Poverty'), it was not a popular choice, with local authorities instead selecting an indicator concerned with CO2 emissions (NI186 'per capita reduction in CO2 emissions').

International Perspectives

Eaga CT funded studies have also highlighted key lessons from research undertaken outside of the UK.

- Policy in Germany was examined in a 2015 study[36]. This noted that the inclusion of broader concepts and understandings of poverty gave the issue of fuel poverty less visibility.
- A 2012 study[37] compared the policies of eight nations:UK, France, Norway, Romania, China, Morocco, South Africa and India. It found that there were enough common factors to make sharing effective approaches beneficial and it justified a standardised governmental approach in four areas: definitions, legal frameworks, measurement and a centralised co-ordinating body.
- A meta-analysis of policy at European and individual Member State level in a 2011 study[38] suggested that while European Union (EU) policies on common energy frameworks, climate change and energy markets were well developed, the same could not be said of strategy on fuel poverty.
- A 2017 study[39] profiled low carbon policies across all 28 EU Member States in order to better understand what lessons could be learned and applied in the UK context. The focus was on fuel poverty in rural locations.

Regional differences within and across the UK have also been highlighted. A 1996 study[40], for example, explored commonalities in terms of the experiences of fuel poverty in Northern Ireland and the Republic of Ireland. A similar focus was adopted in a 1997 study[41], which highlighted the notable policy differences between Northern Ireland and the rest of the UK, outlining why a regional approach was justified.

Subsidy and Support

A number of studies have investigated the funding models and mechanisms in the context of fuel poverty alleviation.

- Using statistical modelling, a 2008 study[42] calculated that £6 billion was needed to alleviate fuel poverty. Similar to the principles of the LIHC indictor now in place, this earlier study called for greater focus on the most vulnerable households, as well as the need for better strategic co-ordination of the field by government and industry.
- The impact of the Winter Fuel Payment, a universal payment and subsidy towards the energy costs of people over the age of 65, is largely unknown. A small-scale 2010 study[43] trialled an approach to encouraging older people to utilise this subsidy to carry out low-cost energy efficiency improvements to their homes.
- With significant funding cuts to local and national schemes in the last decade, including those focused on energy efficiency and fuel poverty, a 2013 study[44] proposed a Social Impact Bond model to provide a funding mechanism for households unable to meet the upfront costs of energy retrofit.
- The way in which the costs of energy-related schemes have invariably been passed on to consumers through bill levies and the implications of this for fuel poverty was the focus of a 2011 study[45].
- A 2017 study[46] explored the range of investment models for renewable energy and low carbon technologies across countries in Europe, specifically focusing on rural areas. The study concluded that administrations maintaining consistent, longer-term programmes offering good capital investment within a decentralised model were able to demonstrate the greatest progress in reducing fuel poverty.

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All references are available online in the Fuel Poverty Library: www.fuelpovertylibrary.info/projects

This Topic Guide was produced by Graeme Sherriff, Philip Martin and Danielle Butler at University of Salford as part of the Eaga CT Archive and Legacy Project.