Fuel Debt and Fuel Poverty

A case study of financial exclusion

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CEN

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Further information
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Executive summary

Introduction

Policy interventions to tackle fuel poverty focus largely on structural changes to properties and households. However, this does not take into account the actual behaviour of households in differing situations.

This study provides a nuanced view of households' behaviour in relation to fuel poverty by considering the impact of their financial behaviour. It explores how differences between households living in similar properties, particularly relating to their financial behaviour, can result in very different circumstances that require different types of assistance.

Methodology

The study used an in-depth qualitative methodology. Participants were recruited from people who called fuel advice helplines, energy efficiency survey respondents, and via relevant agencies and organizations.

The study comprised two phases of in-depth interviews 6 to 12 months apart, conducted either by telephone or at respondents' homes. Energy advice was given after the first round of interviews. One aim of the second interviews was to establish changes in behaviour as a result of this advice.

In total 109 households were interviewed during phase 1; of these, 86 were re-interviewed during phase 2. Owner-occupiers (60 per cent), single person households (40 per cent) and older occupants (50 per cent) made up the largest groups of respondents.

Energy modelling and analysis was carried out on respondents' properties, to estimate the expected change in energy use due to different energy efficiency interventions.

Framework of analysis

The study combines findings from its interviews with behavioural literature, and literature on consumer behaviour that explores psychological typologies.

The study devised typologies of control, which can assist with understanding people's behaviour in relation to fuel poverty. These typologies encompass people's knowledge, understanding and personal inclinations.

The researchers also devised a framework of fuel poverty 'indicators', based on observations made during the interviews, to interpret people's behaviour in relation to fuel and to understand the way in which fuel poverty manifests itself. The indicators include fuel rationing, debt, the rationing of other household expenditure, cold room temperatures, amongst other things.

Energy efficiency ratings and installations

The main policy interventions to reduce fuel poverty attempt to improve the energy efficiency of properties. This study found limited correlation between a property's level of energy efficiency and the presence of indicators of fuel poverty; in fact, a significant proportion of residents living in efficient properties rationed their heating, or experienced mould and condensation.

There was also no strong link between a home's energy efficiency and reported heating costs. This may be because people's behaviour and beliefs in relation to heating were having a larger impact than their home's efficiency on the way their home was heated.

Behavioural factors such as how households use their heating system, or their perception of their requirement for heating, did correlated with fuel poverty indicators. The method of payment also had an impact. Some heating behaviours were the result of people trying to control their expenditure, and heating was one area where they felt they could do this.

People in this study were given energy efficiency advice and some were referred for grants. Take-up of these measures was fairly low at around 33 per cent. Take-up was highest where installations did not require a financial contribution. Reasons for not taking up advice or installations included factors such as tenure, property suitability, application difficulties, fear of change and inertia.

Engagement in the energy market

Although most respondents could have made significant savings by switching, they generally had a negative perception towards switching and a low propensity to switch.

People's propensity to switch energy suppliers was influenced by their knowledge of the energy market, their own experiences (good and bad) with suppliers, and hearing about other people's experiences.

Fear of future customer service problems, of making a poor decision, and of problems during the switching process all affected people's decisions. In addition, many felt there was little difference between suppliers, and that any cost savings were temporary.

Financial outlook and behaviour

Particular payment methods, financial arrangements and financial perceptions can directly result in fuel rationing or debt.

Although it might be assumed that people would arrange their fuel bills in line with their financial cycle (for example, if they are paid monthly they would pay their bill monthly), this was not found to be the case. However, where the two matched up there were fewer issues with billing and rationing.

Dissonance between financial cycle and bill cycle often resulted in greater fuel rationing, as some people who paid quarterly restricted their fuel use as they were anxious about being able to afford large bills. Some methods of payment, such as prepayment meters, meant the cost of fuel was very apparent to the user, and led to fuel rationing in some instances. People who paid by direct debit were less likely to ration their fuel.

The payment method also had an impact on the extent of fuel debt. This was linked to payment frequency, and the ease with which the payment method allowed an individual to get into debt. Quarterly bills in arrears were more likely to result in debt than monthly direct debits.

There are often 'triggers' that push people into debt, and these can arise from the supply side (incorrect or irregular bills, for instance) or from the householder (high heating needs, householders' lack of engagement in their finances, mismatch between bill cycle and personal financial cycle).

KEY RECOMMENDATIONS

(see page 49 for full recommendations)

Recommendations for energy efficiency policy and energy efficiency providers

- Fuel poverty policy must link closely to financial capability policy in order to engage households in their finances and to ensure appropriate billing cycles and payment methods are being used.
- Any installation of a significant energy efficiency measure should be accompanied by a substantial behavioural advice programme, including follow-up in-home visits to check heating is being used appropriately.

- Behavioural advice could also help people living in 'hard-to-treat' properties to improve their level of comfort or reduce their bills in a more cost-effective way than expensive structural measures, such as solid-wall insulation.

- Targets should be set to ensure that a high level of grant-eligible clients receive an installation. This will require more support for certain clients, and could take many forms: for example, assurance that the schemes and contractors are bona fide, help with accessing proof of benefit, structural help (loft clearance, etc.).

Recommendation for energy suppliers and energy market policy

- Changing fuel supplier is not simply a financially based decision, so to benefit those households that could make the largest savings the justification for changing should not just be financial. These customers will need to be assured that their supply and billing will be consistent and also that any savings will continue in the long term and not simply for a few months.

- Where a debt is due to an underestimated meter reading or an underestimated direct debit amount the supplier should be sensitive about how the correction is calculated and communicated, to avoid unnecessary anxiety and discourage fuel rationing.

- Suppliers should attempt to ensure that billing cycles and payment methods match their customers' circumstances, particularly where a customer regularly has problems paying their bill. Customers who are regularly in debt should be signposted to other financial advice services

Recommendations for future research

- More research is needed into the actual impact of energy efficiency measures compared to the expected impact. It seems highly likely from this research that the expected reductions in fuel cost or increases in comfort are not being realized due to differences in behaviour.

Chapter 1
Introduction

SUMMARY

Policy interventions to tackle fuel poverty focus largely on structural changes to properties and households. However, this does not take into account the actual behaviour of households in differing situations.

This study provides a nuanced view of households' behaviour in relation to fuel poverty by considering the impact of their financial behaviour. It explores how differences between households living in similar properties, particularly relating to their financial behaviour, can result in very different circumstances that require different types of assistance.

In the current economic climate, the number of households suffering from fuel poverty is rising dramatically and fuel poverty is again moving into the policy mainstream.

There is an acceptance from the BERR Fuel Poverty Advisory Group and other organizations (National Energy Action, Help the Aged, Friends of the Earth) that the targets set out in the government's 2001 Fuel Poverty Strategy will not be met:

> The increase in energy prices has made the fuel poverty targets much more challenging. However, the Government's policies over a period have now made it impossible to meet the 2010 target and this will result in a shortfall, greater than necessary. The Government has recently taken some important steps, but has not yet in our judgement, done everything which is reasonably practicable to meet the targets.
>
> (Fuel Poverty Advisory Group (for England) 2007)

> Since the UK Fuel Poverty Strategy, underpinned by the Warm Homes and Energy Conservation Act 2000, requires the Government to eradicate fuel poverty for vulnerable households, as far as is reasonably practicable, by 2010, it is evident that Government must fail dismally in this objective or introduce significant new resources and measures to remedy this situation.
>
> (NEA 2007)

There is also a lack of clear direction from the government about how to address the issue. In the UK, policy designed to address fuel poverty has been largely based on a fairly simplistic interpretation of its causes.

This report attempts to understand the complexity of the issue of fuel poverty by analysing it as a case study of social and financial exclusion. This approach highlights the range of underlying issues that affect the ability of interventions to succeed in reducing fuel poverty.

The chief causes of fuel poverty are generally cited as energy inefficient homes, low income and rising energy prices. The main government interventions designed to reduce fuel poverty have focused on improving the energy efficiency of homes, and to some extent on maximizing the income of certain households. While these interventions have helped to a point, there remain clear issues:

- Assistance is not available to all households in fuel poverty.
- Not all households that are eligible for assistance take it up.
- Energy efficiency improvements alone are insufficient to fully alleviate fuel poverty in many households.
- Households that are not technically fuel poor are living in cold homes due to rationing or are experiencing fuel debt.

Policy interventions focus largely on structural changes to properties and households. The assumption that they will work is based on a 'rational' economic perspective, i.e. that an increase in income will result in an increase in use of previously rationed heating, or an increase in energy efficiency will result in decreased bills or warmer properties. However, this assumption does not take into account the behavioural aspect. It is unlikely that we always heat our properties in the manner assumed. It is unlikely that for every increase in income we rationally assign it to an increased expenditure.

Giving more consideration to individual behaviour

Researchers have increasingly been looking into the impact of heating behaviour. This study builds on this research and extends it, to explore how financial decisions and behaviour interact with and impact on fuel poverty. Specifically, it looks at the interaction between fuel poverty and financial behaviour.

Financial behaviour is not something that has been examined in detail in relation to fuel poverty, other than the acknowledgement that some payment methods are more expensive than others. Examining financial behaviour rather than simply looking at income and required fuel expenditure adds to our understanding of the process of fuel poverty.

We use the term 'financial behaviour' to cover aspects of financial capability (how people use financial services, how they budget and pay for their bills and how they plan for the future) and financial exclusion (the access that households have to various types of payment methods and finance).

Is a lack of financial capability or exclusion an indicator of fuel poverty? Does financial behaviour impact on the extent to which households are likely to suffer from fuel poverty and on the way in which fuel poverty manifests itself? Does financial behaviour offer an insight into why households do or don't take up advice or interventions? Can financial behaviour help to explain why structural interventions are more successful in some households than others?

Another characteristic of current fuel poverty policy highlighted by this research is that the term 'fuel poverty' is being extensively used to group many different types of households under the same umbrella and treat them in the same way. This is demonstrated by the use of such terms as 'fuel poor', 'pre-payment meter customers', 'benefits recipients', 'priority group' interchangeably, when in fact they are likely to contain a dispersed group of different types of households and properties. This study will show how the differences between households living in similar properties, particularly relating to their financial behaviour, can result in very different circumstances that require different types of assistance.

A particular instance of variability in the behaviour of different householders is illustrated by the relationship between income and rationing of heating. In discussions of fuel poverty there is often a tendency to assume that when a greater proportion of income is required for fuel a household will either begin to ration their heating, ration other household expenditure or get into debt. During this study we attempt to explore the reasons why these 'fuel poor behaviours' can occur when a household appears to have sufficient income to cover their fuel bills. We also explore the closeness of the link between 'fuel poor behaviour' and technical fuel poverty (as defined by the '10 per cent' definition).[1]

Finally, we explore the impact of advice given to households aimed at relieving fuel poverty, including advice on energy efficiency, the use of heating systems and the energy market. The reasons behind the take-up of advice (or lack of it) and households' experience following the advice are explored.

1 'A fuel poor household is one that needs to spend in excess of 10% of household income on all fuel use in order to maintain a satisfactory heating regime', Department for Trade and Industry (2001), *The UK Fuel Poverty Strategy.*

Chapter 2
Methodology

SUMMARY

The study used an in-depth qualitative methodology. Participants were recruited from people who called fuel advice helplines, energy efficiency survey respondents, and via relevant agencies and organizations.

The study comprised two phases of in-depth interviews 6 to 12 months apart, conducted either by telephone or at respondents' homes. Energy advice was given after the first round of interviews. One aim of the second interviews was to establish changes in behaviour as a result of this advice.

In total 109 households were interviewed during phase 1; of these, 86 were re-interviewed during phase 2. Owner-occupiers (60 per cent), single person households (40 per cent) and older occupants (50 per cent) made up the largest groups of respondents.

Energy modelling and analysis was carried out on respondents' properties, to estimate the expected change in energy use due to different energy efficiency interventions.

In order to understand the complex interactions between these factors and to gain an insight into the reasoning behind decisions, the study used an in-depth qualitative methodology.

In-depth interviews took place with households who were identified by the fact that they exhibited some of the signals that are associated with fuel poverty: difficulty keeping a property warm, difficulty affording fuel bills, experience of fuel debt, high energy bills, etc.

These households were recruited in a variety of ways. The majority were recruited during incoming telephone calls to energy efficiency advice or energy efficiency grant help lines. The advantage of this method was that Creative Environmental Network operates a number of these lines centrally and therefore had access to a large sample of potentially appropriate households. These households could also be accurately screened during the telephone call.

In order to ensure a range of different households were interviewed we also recruited respondents by contacting other agencies and organizations who may have been in contact with suitable households, such as community groups, health agencies, local authorities, organizations working with older people, public advice agencies, etc. Finally we also contacted some households who had completed energy efficiency surveys in the past couple of years

where the responses suggested the household may be at a greater risk of fuel poverty. Some sub-groups of fuel poor households can be hard to reach due to issues around language or social exclusion. By utilizing a range of different recruitment methods we hoped to reduce the self-selection bias as far as possible.

Respondents in the sample are from urban, suburban and rural locations across London and Kent.

The research process

The research process comprised:

- two phases of in-depth interviews separated by a period of six to twelve months;
- advice provision;
- energy modelling surveys and analysis.

In-depth interviews, phase 1

The phase 1 interviews were conducted using a mixture of telephone and in-home depth interviews. These interviews were conducted with 109 households and covered:

- household status and characteristics;
- property status and characteristics;
- heating behaviour, practices and perceptions;
- choices and experience in the energy market;
- financial status and income;
- experiences and coping strategies resulting from difficulty keeping the property warm or affording energy bills.

The interviews were structured but fairly flexible in nature. The key points above were discussed in all interviews but some may have been covered in more depth depending on the experiences and perceptions of the respondent. This was necessary to gather useful data from a potentially complex area cutting across a number of different subjects.

Clearly the sensitivity and subjectivity of some of the various research areas caused some challenges. First, some households might have been uncomfortable discussing certain elements at all. Second, some households might have been uncomfortable admitting to the extent of some of their problems while others may overstate their problems. In order to overcome the first issue respondents were assured of anonymity and were reassured that they did not have to discuss any areas that they did not feel comfortable doing. In order to overcome the second issue the discussion guide was designed to break down subjective answers into defined categories.

Advice provision

Based on the results from the phase 1 interviews the households were given tailored advice. This included advice on energy efficiency (grants, measures and behaviour), direct referral for an energy efficiency grant, advice on the energy market (switching, debt, payment methods), referral to debt relief grants and referral to other advice organizations for other issues.

In-depth interviews, phase 2

The phase 2 interviews were conducted six to twelve months after phase 1 in order to give time for the respondents to act on the advice given and for energy efficient measures to have been installed. Again, these interviews were a combination of telephone and in-home interviews. In-home interviews allowed greater depth of information, both through an in-depth energy survey, and through first-hand experience of the interviewee's home. Wherever possible, households who had been interviewed over the telephone during phase 1 were instead interviewed in-home in phase 2. These interviews covered:

- changes to household status and characteristics;
- take-up and experience of previous advice given;
- perceptions of changes in thermal comfort;
- changes in fuel bills and experience with suppliers;
- more in-depth discussion around financial behaviour and choices.

The aim was to understand how any changes since the first interview had affected the household and also to examine what advice had (or had not) been acted upon. Between phases 1 and 2 energy prices had been rising, which provided the opportunity to discuss the perception and impact of these price rises. Finally the phase 2 interviews also looked in more detail at the financial behaviour of the households, including how the interviewees generally organized their finances, how they paid bills and the characteristics of their financial cycles. Eighty-six households were re-interviewed in Phase 2.

Energy modelling and analysis

SAP (standard assessment procedure) ratings were produced for all properties to estimate their energy efficiency. A SAP rating gives a property a score between 1 and 100, based on its energy efficiency. They provide a normalized view of energy use irrespective of behaviour and occupancy. The main purpose of producing SAP ratings was to estimate the extent to which a range of potential measures could improve the energy efficiency of the properties. It was also used to estimate the theoretical change in energy efficiency that happened due to actual installations that took place between phases 1 and 2.

The SAP ratings for the majority of households were generated at NHER level 2. Where level 2 data could not be collected or both interviews were conducted over the phone, the SAP ratings were generated at NHER level 0. The SAP ratings generated using both levels of data are comparable but level 2 is based on a more detailed data set and is theoretically more accurate.

In total 109 households were interviewed during phase 1; of these, 86 were re-interviewed during phase 2. An 80 per cent re-interview rate was considered successful, considering the required time-lapse between phases 1 and 2. Seventy households were interviewed at home during phases 1 or 2.

Sample composition

The sample composition, in terms of properties and households, is similar to that of the analysis of the English House Condition Survey by the Department for Trade and Industry (2001).

Owner-occupiers were the largest group, making up 60 per cent of the sample. There was a fairly high proportion of older properties; around half were built before 1935. As had been found in previous research, there was a high proportion of single person households (41 per cent) and a high proportion of households containing older people (the household decision maker was over 60 in 50 per cent of the households). A more detailed breakdown of the sample can be found in the appendix (page 53).

Additional notes on the research interviews

Clearly, many of the issues discussed during the interviews are sensitive, complex and somewhat subjective. Placing the interviews within the context of advice provision helped to encourage the respondents to provide full and open responses. The flexibility of the interviews, resulting in a conversational structure rather than a structured survey, also helped to bring out full answers and subtleties within these answers.

Chapter 3
Framework of analysis

SUMMARY

The study combines findings from its interviews with behavioural literature, and literature on consumer behaviour that explores psychological typologies.

The research team devised typologies of control, which can assist with understanding people's behaviour in relation to fuel poverty. These typologies encompass people's knowledge, understanding and personal inclinations.

The researchers also devised a framework of fuel poverty 'indicators', based on observations made during the interviews, to interpret people's behaviour in relation to fuel. The indicators relate to both energy efficiency and affordability issues.

Our analysis is presented in three sections. We begin by examining the impact of energy efficiency on the way in which fuel poverty manifests itself (page 21). We then explore the way in which households reacted to advice and interventions aimed at relieving fuel poverty, first in the context of energy efficiency advice (page 27) and second in their interactions with the energy market (page 34). Finally, we look at the impact of financial behaviour on debt, heating behaviour and interaction with the energy markets (page 39).

When examining behaviour it is often difficult to explain apparently irrational actions. Many of the decisions made concerning finance and fuel usage are highly complex and interlinked with other priorities and perceptions. Often the activity in these areas is not the result of actively considered decisions, but happens as a result of inertia or is triggered by certain events.

In order to develop a framework for understanding the issues surrounding financial behaviour, energy efficiency behaviour and behaviour in the energy market we have combined findings from our interviews with behavioural literature, and literature on consumer behaviour that explores psychological typologies (FSA 2005, FSA 2008).

A central theme to this framework is the extent of control and engagement, and the motivation behind these in different situations. This can be used to understand the behavioural aspect of both fuel poverty and financial exclusion, and the decisions made within these contexts. One of the possible outcomes of this framework is to help understand perceived irrational or counter-intuitive behaviours by attempting to understand which aspect of their lives an individual is seeking to control.

In order to analyse, compare and understand these issues a number of different frameworks have been used. These are described more fully in the following sections.

Typologies of control

Different typologies of control have been identified in order to explain some of the motivations behind different decisions. The main types of control are described below.

Engagement and learning

This is the most rational form of control where an individual seeks to retain or gain control of their lives by informing themselves of the various options available to them and engaging with the issues.

Incomplete understanding

When an individual does not fully understand something, they can disengage with it. This helps them to retain perceived control by retaining engagement with what they do understand. Issues relating to energy markets, energy efficiency and financial services are often complex and are therefore subject to this lack of understanding and control.

Misconceptions, values and cultural beliefs

This is where an individual makes what appears to be a counter-intuitive decision to an external person, such as a service provider, but one that is rational to them within their value or belief framework.

Avoidance of debt

The motivation to avoid debt can be a strong factor in behaviour and decision making in the context of the energy market, energy efficiency and financial behaviour. This form of control can manifest itself in under-heating in order to ensure the individual does not spend beyond their means. The older age group often display this form of control.

Avoidance of waste

There are examples of behaviour that could be perceived to be rationing but are caused more by natural thriftiness, not wishing to use more than is necessary, and not wishing to waste resources. This is different to the motivation to ration usage in order to avoid debt. When it is excessive it can be the case that the amount of heating is inadequate even though the individual has resources to provide more heating. This behaviour is almost exclusively displayed by the over 60 age group.

Fear of change

Many suggested improvements in financial engagement, energy efficiency and engagement in the energy market require the individual to change their pattern of behaviour or make a change to a structural aspect of their life. In these situations individuals can disengage with the potential changes in order to retain control over that which is familiar and comfortable. This type of control is often manifested as inertia and the level of anxiety about changing circumstances can make this a strong factor towards retaining the status quo.

Indicators of fuel poverty

The research developed a set of 'indicators' of fuel poverty (see box), to identify and describe the way that fuel poverty manifests itself within a household. These were based on observations made during the interviews and were developed and categorized following the interviews.

The interviews revealed that households not necessarily in 'economic' fuel poverty (i.e., according to the 10 per cent of income definition) were demonstrating fuel-poor type behaviours, such as rationing or debt. Examining the circumstances in which the fuel poverty indicators occur may reveal the underlying reasons for 'fuel poor behaviours', as it may explain behaviour that seems irrational and random.

The fuel poverty indicators fall into two categories, energy inefficiency and affordability issues, although there are clearly interactions between the two.

Energy inefficiency or under-heating indicators

Problems with energy inefficient properties can be indicated through the occurrence of condensation, mould or damp; and also through a below-optimum temperature caused by excessive heat loss, inefficient heating or rationing. Rationing in this case refers to cutting back on heating because the household believes that implementing a heating regime that would result in optimum temperatures would be a waste, rather than rationing specifically due to a low income.

Just over one-third of the sample reported having some damp or mould in their property. Around two-thirds of the sample reported their home being cold or or that they were having difficulties keeping it warm.

Indicators of fuel poverty

- Energy inefficiency or under-heating indicators:
  - occurrence of mould and condensation;
  - occurrence of damp;
  - other evidence of cold temperatures.
- Affordability indicators:
  - rationing other outgoings in order to afford heating;
  - rationing heating due to perceived waste;
  - use of debt.

Affordability indicators

A household that is having difficulty balancing its fuel requirements and other household bills with the household budget indicates problems of affordability. Largely these fall into three main categories: rationing heating, rationing other outgoings and the use of debt. Rationing is clearly a difficult, complex and subjective area to research. In order to categorize and break down the discussion the semi-structured conversation included questions such as, 'Are you able to have your heating on as much as you would like?', 'Do you have to cut down on other bills in order to afford your heating?', 'If you received some more income would you increase the amount you use your heating, or would you increase your spending in other areas?' Some interviewer judgement also had to be used to estimate the extent to which a household exhibited rationing compared to others.

Forty-five per cent of households in the study displayed some form of fuel rationing, either stating they feel like they can't afford to use their heating as much as they would like or that they would use their heating more often if they had an increase in income.

Twenty-five per cent of the sample reported having to cut back on other areas of the household budget in order to afford energy bills.

Twenty-five per cent of households had previously experienced fuel debt: however, debt is often caused by other issues rather than simply by affordability of fuel, as discussed on page 42.

Chapter 4
Energy efficiency ratings and installations

SUMMARY

The main policy interventions to reduce fuel poverty attempt to improve the energy efficiency of properties. This study found limited correlation between a property's level of energy efficiency and the presence of indicators of fuel poverty; in fact, a significant proportion of residents living in efficient properties rationed their heating, or experienced mould and condensation.

There was also no strong link between a home's energy efficiency and reported heating costs. This may be because people's behaviour and beliefs in relation to heating were having a larger impact than their home's efficiency on the way their home was heated.

Behavioural factors such as how households use their heating system, or their perception of their requirement for heating, did correlated with fuel poverty indicators. The method of payment also had an impact. Some heating behaviours were the result of people trying to control their expenditure, and heating was one area where they felt they could do this.

People in this study were given energy efficiency advice and some were referred for grants. Take-up of these measures was fairly low at around 33 per cent. Take-up was highest where installations did not require a financial contribution. Reasons for not taking up advice or installations included factors such as tenure, property suitability, application difficulties, fear of change and inertia.

Introduction

This chapter examines the link between energy efficiency ratings and the indicators of fuel poverty, in order to understand the extent to which households living in properties with high levels of energy efficiency are less likely to display fuel poverty indicators, such as fuel debt or rationing. We then examine how actual and modelled fuel usage can differ due to heating behaviour, occupancy and perception. Finally we examine energy efficiency improvements, in terms of the barriers to their take-up and their impact.

Distribution of SAP ratings

Properties in the sample were SAP rated to estimate their energy efficiency. The results were largely similar to the distribution across the whole of England and the rest of the UK (see Figure 1). However, there were more properties in our sample with extremely low SAP ratings of below 15 (and therefore with low energy efficiency), and fewer with higher SAP ratings (over 76).

The effect of tenure on a property's energy efficiency in this sample closely follows the pattern in the English House Condition Survey (EHCS). Social housing is the most efficient, followed by owner-occupied properties, with privately rented properties being the least energy efficient. The average SAP rating of privately rented properties in the sample was particularly low, although this was based on a small sample size (see Table 1).

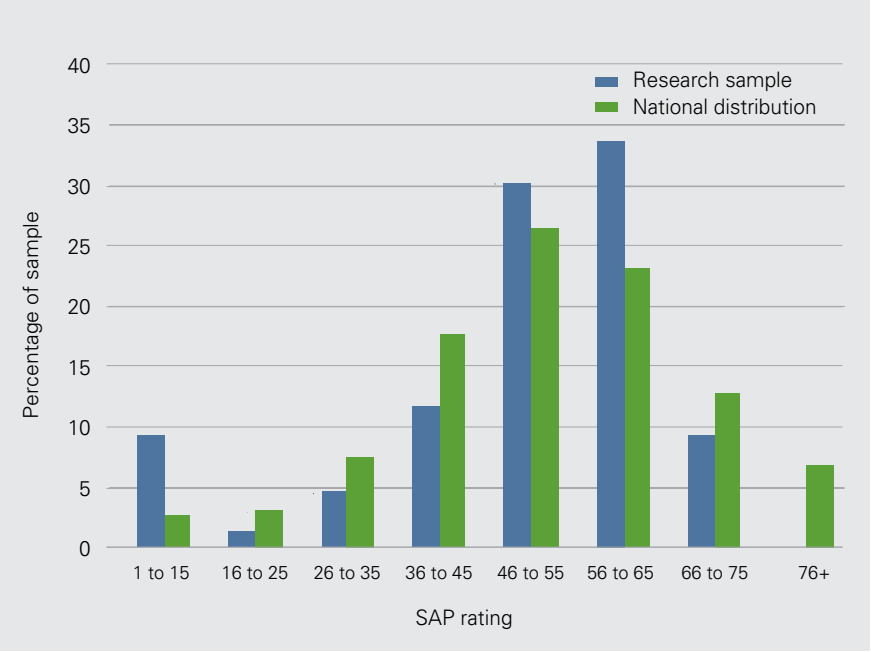

Figure 1
The energy efficiency of the homes in this sample was comparable with the UK average.

Table 1
The average SAP rating of homes varies across tenure, with social housing having the most energy efficient properties.

Tenure	*Research sample*	*English House Condition Survey*
Social housing	57.6	58.5
Owner-occupied	47.4	50.5
Privately rented	34.3	48.5

The link between energy efficiency and the indicators of fuel poverty

Current policy interventions

The main policy interventions to reduce fuel poverty attempt to improve the energy efficiency of properties, in order to reduce the amount of fuel required for adequate warmth. These include the installation of loft and cavity wall insulation or a new heating system. This implies that properties with higher energy efficiency might experience fewer of the indicators of fuel poverty, such as rationing heating and experiencing debt.

Key findings

The following indicators of fuel poverty will be analysed in parallel with energy efficiency:

- damp;
- fuel debt;
- fuel rationing;
- rationing of other household expenditure;
- cold property;
- mould/condensation;
- health issues.

Respondents indicated that their homes/household members suffered these problems. Interviewers also recorded some indicators, such as damp or mould, during the home visit.

When responses from all of the interviews were considered together there was little relationship between energy efficiency and the indicators above. There was a slightly higher occurrence of mould or condensation in properties with the lowest SAP ratings.

The only other significant finding was that fuel debt and fuel rationing were more likely to occur in properties with the highest SAP ratings. Although initially this appears counter-intuitive, the properties with extremely low SAP ratings were much more likely to be privately owned, and properties with higher SAP ratings were more likely to be socially rented. Householders in socially rented properties tend to have a lower income than householders in the private sector, and the lower income appears to be having a larger effect on rationing and fuel debt than the higher energy efficiency of these properties. People's financial behaviour is also likely to explain this difference (this area is explored in more detail in chapter 6).

Households living in socially rented properties were much more likely to have experienced fuel debt – approximately four in ten households, compared to one in ten owner-occupiers. They were also more likely to have demonstrated some form of fuel rationing – two-thirds of social housing tenants compared to one-third of owner-occupiers. This is not simply an issue of social housing tenants tending to have a lower income, but is affected by the different ways in which social housing tenants tend to arrange their finances and pay for their fuel.

Figure 2
There was no significant correlation between the SAP rating and reported heating cost.

Table 2
Mould/condensation and fuel rationing were more likely to occur in properties that were less energy efficient.

Fuel poverty indicator	*Link to SAP*	*Other links*
Mould/condensation	Slight positive	Heating behaviour
Fuel rationing	Slight positive	Underlying traits and behaviour
Rationing of other household items	No link	Income, financial behaviour
Debt	No link	Financial behaviour
Cold	No link	Heating behaviour
Health problems	No link	Wide ranging, including heating behaviour

Even when owner-occupied properties were analysed separately, there is still limited interaction between energy efficiency rating and the occurrence of the fuel poverty indicators. The occurrence of mould/condensation was significantly higher in the least efficient properties, and there was also a slightly higher occurrence of fuel rationing (see Table 2). However, there remained a significant proportion of residents living in highly efficient properties who rationed their heating, or experienced mould or condensation.

The link between reported fuel cost and energy efficiency

Key findings

There was no significant correlation between the SAP rating and reported heating cost (see Figure 2). This may in part have been due to differences in tariffs and payment methods.

Inaccurate estimates of expenditure on fuel are also likely to have introduced some error, particularly across different payment methods, for example an annual cost is easier to estimate when paying by monthly direct debit compared to paying quarterly in arrears due to seasonal changes in use. Although these factors might explain some of the differences and error, it seems likely that behavioural influences are having a larger impact on fuel use than the energy efficiency of the property.

The fact that the SAP rating does not appear to be a good predictor of actual fuel consumption was also identified in a larger study examining the impact of energy efficient refurbishment on heating consumption (Hong et al. 2006).

The impact of behaviour on energy use

It is generally assumed that properties with a higher SAP rating will either be warmer than properties with a lower SAP rating or they will use less energy. However, this assumes a standard occupancy pattern and an efficient use of the heating system. We found that differences in heating behaviours can have a more significant effect than energy efficiency on the warmth and use of fuel and on resulting indicators of fuel poverty, such as damp and mould.

The main behavioural influences that caused a difference between the predicted and actual fuel usage were fuel rationing; occupancy patterns; and inefficient use of heating systems.

Fuel rationing

Rationing of fuel was found across all levels of energy efficiency, although it was slightly more likely to occur in energy inefficient owner-occupied properties than others. As discussed below, the motivation behind fuel rationing was often more related to underlying behavioural traits rather than specifically being restricted to low income or energy inefficiency. Fuel rationing can result in problems such as mould and condensation in more efficient properties where these issues might not be expected.

For example, of the 26 properties with the highest energy efficiency (SAP>60), 11 had problems with condensation and 5 had problems with mould. These were generally attributed to behavioural issues such as under-heating or not allowing enough ventilation.

Occupancy patterns

Occupancy patterns are a key driver in the difference between the modelled fuel usage and the actual fuel usage. The modelled energy usage is calculated based on the assumption that the dwelling is heated for 9 hours per day during the week and 16 hours per day at the weekend. It also assumes that the main living area is heated to 21°C and the remaining rooms are heated to 18°C.

For the majority of the sample, the property was occupied for most of the day and therefore required more heating than assumed by the model. Approximately two-thirds of properties

were occupied for almost all of the day and approximately four in five were occupied at some point between nine in the morning and five in the afternoon. These households with high occupancy patterns were also more likely to be vulnerable. The majority of these households were older residents, and there was also a high proportion of households with children.

Inefficient use of heating systems

The inefficient use of heating systems was found equally in properties with all levels of energy efficiency. It fell into two main areas – the inefficient use of controls, and restricting the use of the heating system to one or two rooms.

The inefficient use of controls included using room thermostats incorrectly (e.g. using them as an on/off switch) or not using the timer. Just over half of the households were using the timer on their heating system.

The restriction of heating to one or two rooms was particularly common in households who were less used to living with central heating systems. This either took the form of turning off a number of radiators in the system or a tendency to use room heaters in preference to central heating. This form of behaviour was particularly likely to result in damp and mould in the under-heated rooms.

The inefficient use of heating systems was often linked to rationing behaviour. Where a household was seeking to ration their heating they often looked to retain control through not using a timer or through using the room thermostat as an 'on/off' switch. In this way the controls were used as a coping strategy to try to reduce bills or waste.

While the inefficient use of a heating system is likely to result in higher bills or a colder home, it is difficult to estimate or model the extent of this.

Case study

Mrs C. and three children lived in a mid-terraced property with a two-year-old gas central heating system and a SAP rating of 71. The central heating system had fairly poor controls; it had thermostatic radiator valves (TRVs) and a boiler temperature control, but no room thermostat. In an effort to reduce fuel costs, the use of the central heating was significantly cut down. Gas and halogen room heaters were used in place of the central heating system in the belief that heating a single room would be cheaper. When the central heating system was used the boiler temperature was set low, again in the assumption that it would use less fuel. The combination of using inefficient and expensive room heaters and running the boiler in a way that it could not reach peak efficiency resulted in higher bills than would have been expected using the central heating in a standard way. It also resulted in some condensation and mould in rooms that had been under-heated.

Over-heating

The models for estimating fuel use are based on an average temperature in the living area of 21ºC and of 18ºC in the bedroom area. Some of the households that had higher bills than expected simply had a preference for warmer temperatures, sometimes significantly so.

Over-ventilation

While this factor was not very prevalent it appeared to be significant in some cases. Over-ventilation, in the form of leaving windows open, was largely driven by a perception that it was healthier.

Payment method and tariff

How people pay for their fuel has an effect on the tendency to ration fuel use. Payment frequency and the visibility of payment rather than the price differentials between payment methods appeared to be the key factors. This is discussed further on page 43.

Summary of findings on the impact of behaviour

We did not find a significant link between the energy efficiency of a property and the actual fuel consumption, or between energy efficiency and many of the fuel poverty indicators. Owner-occupiers in energy inefficient housing were more likely to display rationing behaviour, although there was also a significant proportion of rationing behaviour in efficient properties.

However, behavioural factors such as how households use their heating system or their perception of their requirement for heating did correlate with fuel poverty indicators. And the method of payment and general financial cycle can also have an impact on the use of heating systems and the extent to which they are rationed.

Some of the behaviours that have been identified, such as rationing or the inefficient use of heating controls, can sometimes appear to be irrational or unnecessary. These types of behaviour can be explained by looking at which element a household is looking to control. These decisions and behaviour take place in a context of uncertainty, for example around future energy prices or due to a household's limited income and unknown future expenditure. Within this context of uncertainty these behaviours are often essentially a coping strategy, with households seeking to exert influence in an area over which they have control, such as the extent to which they use their heating.

Energy efficiency improvements

Energy efficiency programmes remain the main government policy for tackling fuel poverty so it is worth considering their impact in some detail.

During and immediately following interviews in phase 1 of the study, respondents were provided with tailored advice covering:

- potential energy efficiency measures and grants;
- behavioural change advice (how to use heating controls, etc.);
- advice on the energy market (payment methods, how to compare and switch suppliers);
- referral to debt advice agencies or debt relief grants.

In addition to simple advice, some households were referred directly into the grant process if they were eligible.

The take-up of energy efficiency measures

Approximately 70 per cent of respondents who took part in phase 2 of the research had been given advice on potential energy efficiency improvements. Of these, around 33 per cent implemented the improvements, most of them through applying for a grant. Almost all of those who implemented the energy efficiency improvements received full grants and did not have to contribute to the cost of the improvements.

SAP ratings of the properties after intervention showed an overall improvement (see Figure 3). There was a decrease in the proportion of properties with a SAP rating lower than 40 from 23 per cent to 16 per cent. However, the potential SAP rating of the properties, assuming all of the standard insulation measures are installed (not including solid wall insulation) and the property has an efficient heating system, was significantly higher than the actual SAP rating following the intervention. Much of this gap was due to a new heating system being the main measure required to improve the SAP rating; this is the measure with the most barriers. These barriers include tenure (social housing tenants must wait for their landlords to replace the heating system), cost and grant eligibility.

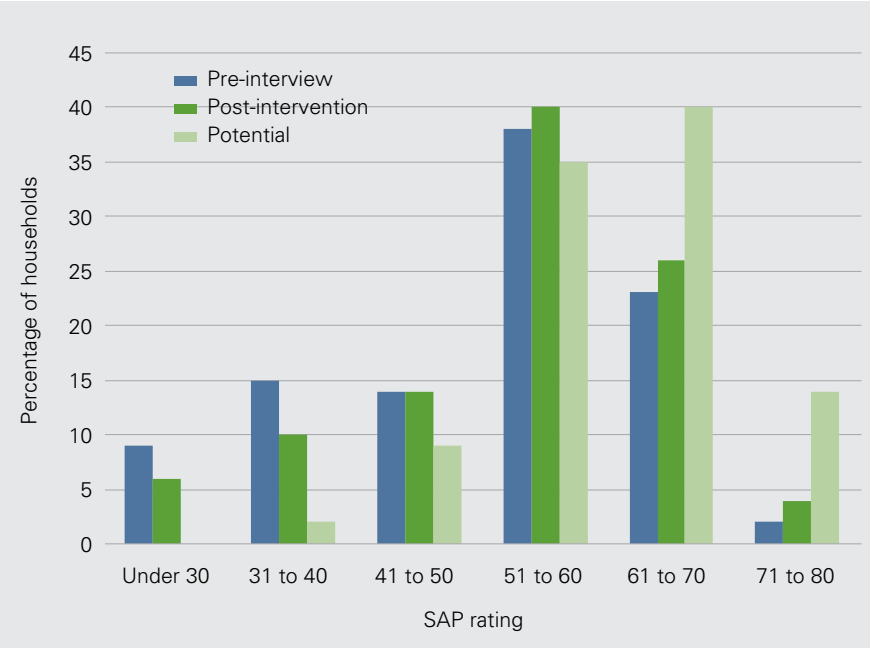

Figure 3
Although the distribution of properties along the SAP scale improved after respondents had taken up advice and improvement, many properties did not achieve their potential SAP rating.

There were a large number of properties that would retain a SAP rating lower than 50 even after the 'priority' improvement measures had been installed – such properties have been termed 'hard-to-treat'. Thirteen per cent of properties in the study fitted this criteria, and 21 per cent would have a SAP rating lower than 55 per cent. The majority of these were solid-walled properties, and the rest were a combination of properties with no access to the loft, flat-roofed properties or flats.

There were various reasons for not proceeding with energy efficiency improvements, or not taking up energy efficiency advice. Many are in common with those found by other research (NEA 2006, Dodds and Dobson 2008). Reasons for not proceeding were categorized as 'externally driven' where the reason behind the decision was mainly external to the individual and most people in the same situation would make the same decision, and 'internally driven' where people chose not to act on advice for non-structural reasons.

External barriers to the take-up of energy efficiency advice

Tenure

Tenure is a key reason why the potential SAP rating is much higher than the actual rating, because tenants rely on their landlords to install measures. Although social housing is likely to be more energy efficient, there are still a significant number of measures that could be installed by landlords that will not be installed by tenants.

For example, analysis of the English House Condition Survey 2004 suggests there are over 800,000 socially owned houses or bungalows with un-insulated cavity walls and approximately 400,000 that have less than 100mm of loft insulation.

Property structure and access

In some properties installations were not possible for structural or access reasons. For example, there may have been limited access to the loft, or the building may be a flat, making it difficult to insulate the cavity walls. Another reason was the prioritization of other factors above energy efficiency improvements. These could be structural issues, such as the loft currently being boarded and not wanting to lose storage space.

Grant eligibility or cost

Around two-thirds of the respondents who were advised to install energy efficiency measures (e.g. it was structurally appropriate and the tenure was appropriate) would not have had to contribute to the cost of the measures. The remaining one-third would have had to contribute to the cost of the work through an energy supplier scheme. The cost of this contribution was likely to be around £150 each for loft and cavity wall insulation. No households that would have to contribute to the cost of insulation measures went ahead with the installation. Some households paid for a more efficient boiler or heating system but this was due to having to replace the old system.

Difficulties with the application process

Some respondents who were eligible for a grant and initially tried to take one up were put off by difficulties with the grant application process. These included requiring proof of benefit receipt, and filling in forms.

Internal barriers to the take-up of energy efficiency advice

The reasons not to proceed with energy efficiency measures that we classed as 'internally driven' can often be explained by the 'typologies of control'. These can help to understand why apparently non-rational decisions are made.

Fear of change

A fear of change was one of the key drivers not to act on energy efficiency advice, and was generated in a number of different ways. Some respondents felt that free offers were 'too good to be true' and worried that they would have to contribute. Some were wary about installers and potential 'cowboy builders'. Some expressed concerns about new technology – 'My old boiler works fine, I've heard the new ones don't last very long.' And some households that didn't have central heating were concerned that installing it would result in additional fuel costs.

Other priorities

For some individuals, personal stress or having other priorities in their life meant that energy bills or structural changes to a property were not their main priority.

> 'The fuel bills are the least of my worries at the moment, I'm trying to sort out my debts first.'

Hassle and inertia

Some respondents perceived that the process of arranging the installation would be difficult and that this difficulty was not worth the benefits it would generate. There was a general level of inertia; often a household had a positive perception of a measure and intended to install it at some point, but had not taken any action by phase 2 of the research.

Impact of improvements

The impact made by the energy efficiency improvements that had been installed was difficult to research due to the fairly short amount of time between the installation and the phase 2 research interview, and also due to the seasonality effect and other changes during the research period, such as changes in supplier or rising fuel prices. However, we have analysed observed behaviour changes following installations and also reported differences in comfort and warmth. We also analysed the modelled difference in fuel expenditure before and after the installation. Although we have already discussed the limitations of these models they are useful in this instance as they remove the problems of seasonality and changing fuel costs.

In this section we analyse the change in fuel costs that is anticipated through the energy efficiency improvements. We also analyse reported changes in the comfort of the household

within the property. Finally we examine how the heating behaviour of a household changed following an installation of energy efficiency measures.

Change in costs

As has been said, measuring the actual change in fuel cost prior to and following the intervention was difficult. For the households that installed measures following the phase 1 interviews the average modelled reduction in fuel usage was 15 per cent. This potential saving would go some way toward reducing the impact of rises in fuel prices over the research period; however, overall fuel costs would have risen if all other elements remained constant.

Change in comfort

Respondents were generally positive about the impact of the installations on the level of comfort within their homes. The majority of households who had received significant installations, such as a replacement heating system, cavity wall insulation or loft insulation in a previously un-insulated loft, reported a noticeable improvement in warmth. Households who received a top-up to their loft insulation generally reported that they did not notice a change.

A number of households mentioned the level of warmth in their property was more consistent following the installation of insulation or heating. With heating installations this improvement in consistency was attributed to improved heating controls.

Many of the households who received a new heating system were replacing a broken heating system, or did not previously have central heating in the property. These households reported the greatest improvements in the level of comfort.

Case study

Mrs D. was a pensioner living on her own in a small flat. At the time of the first interviews she only had some electric storage heaters for heating the property and an immersion heater to heat the water. Following the interview she received a grant to have a gas central heating system installed.

> 'It's much warmer now, also with the old electric ones you couldn't control when they were on or off. This way if it's cold I can just turn it on.'

Change in heating behaviour

The modelled changes in energy use discussed above are based on a standard occupancy pattern and the efficient use of the heating system and controls. Behaviour around the use of heating systems was found to have particularly strong levels of inertia. Often, even when a new heating system was installed, the household retained their previous inefficient behaviour.

Such behaviour included:

- a preference for using a gas fire or room heater rather than central heating (this was particularly common for single person households and households who had limited experience with central heating);
- using the room thermostat as an on/off switch, resulting in large changes in the temperature of the property;
- rationing the use of the central heating system.

Households that had received new heating systems and had demonstrated rationing behaviour or limited use of heating during the phase 1 interviews often continued this behaviour following the interviews. Offering simple energy efficiency advice around the use of thermostats and timers was not enough to effect change in many cases. The result of this was that many properties that received energy efficiency improvements were still likely to experience low temperatures.

The reasons for continued rationing or limited use of heating systems were often driven by underlying traits or perceptions, or a willingness to retain control:

- avoidance of waste – a feeling of only wanting to use as much as you have to and a general level of frugality;
- unknown cost – caution around how much fuel a new heating system would use commonly resulted in rationing in properties that had not previously had central heating;
- inertia – continuing to use inefficient room heaters or previous inefficient use of controls.

Case study

Mrs E. was a single pensioner living on her own in a semi-rural, semi-detached house. Previously, the property had only had electric and gas room heaters. Following the phase 1 interviews she received a new central heating system through a Warm Front grant.

A mixture of ingrained previous behaviour and caution around the amount of gas used by the new central heating system meant her use of the central heating was limited.

> 'No, it's not on the timer. If I'm cold in the morning I might just turn it on for an hour, then I normally just have the [gas] fire on in the living room during the day. I haven't had a bill yet [since the heating system was installed], it's due to come in soon, I'm a bit worried about it. I just hope it hasn't used too much more.'

A lack of understanding of heating controls also resulted in some inefficient behaviour, although the installation of a new heating system often acted as a trigger for a household to gain knowledge of the controls. The most common inefficient behaviours as a result of a lack of understanding of controls were:

- using the thermostat as an 'on/off' switch;
- switching the heating on and off rather than using the timer.

> 'If I get too cold then I just turn it up, then when I'm warm enough I turn it back down.'

The level of complication of some of the controls and programmers installed with a heating system often caused the household to disengage with them and simply to control them manually.

While a lack of understanding of the controls was an issue it also interacted with a desire to retain control in order to avoid waste. For example, many households did not use the timer, to ensure that the heating did not come on when the property was empty or when they were not cold.

Summary of findings on the impact of energy efficiency improvements

We found that the take-up of energy efficiency installations was much higher when no financial contribution is required from the client. However, there were still a large number of grant eligible clients where an installation was not carried out, and the reasons for this included difficulties with the application process, anxiety about applying for a grant or about making changes to a property. Ways of identifying which clients may need more support during the grant process would help to ensure that more of those who are grant eligible receive the installations they are entitled to.

The predicted improvements in temperature and fuel use reduction following the installation of energy efficiency measures assume that a household will have:

- the technical knowledge to operate their heating system;
- sufficient income to pay for fuel;
- attitudes and behaviour that will lead to them implementing a heating regime that will result in them heating the property to an adequate and healthy temperature.

We have found that following the installation of energy efficiency improvements these assumptions are not fulfilled in many cases. While it is difficult to estimate the impact of each of these areas it appears that together they are likely to have a significant effect on the success of installations. A simple briefing on how to use a heating system efficiently is not enough to overcome the inertia of other attitudes and behaviours.

Further research is required to measure the actual difference between the assumed and actual changes in temperature and fuel usage prior to and following installations.

Chapter 5
Engagement in the energy market

SUMMARY

Although most respondents could have made significant savings by switching, they generally had a negative perception towards switching and a low propensity to switch.

People's propensity to switch energy suppliers was influenced by their knowledge of the energy market, their own experiences (good and bad) with suppliers, and hearing about other people's experiences.

Fear of future customer service problems, of making a poor decision, and of problems during the switching process all affected people's decisions. In addition, many felt there was little difference between suppliers, and that any cost savings were temporary.

Switching fuel suppliers is often promoted as one way that people can reduce their energy bills. In this chapter we review people's reaction to advice about the energy market, covering areas such as switching supplier, payment method and tariff.

Prior to phase 1 of this study around half of all households had some experience of switching energy supplier. During phase 1 the majority of respondents were given advice on how to compare and change suppliers. Of the 86 households that were re-interviewed for phase 2, 19 had switched their gas or electricity supplier since phase 1. Some of their motivations for or against changing suppliers are discussed below. (It should be noted that second phase of research took place during a period of price rises in the fuel market.)

The decision-making process of switching supplier

Some simple models of switching behaviour look at the balance between the benefits and risks of switching. However, these models miss some of the areas of complexity such as imperfect information, status quo bias and the customer relationship with the supplier. They also miss the general level of inertia involved in these decisions.

Figure 4 illustrates the process that an individual may go through when changing energy supplier. This model has been developed from the Henley Centre's model of consumer behaviour, based on the findings of this study's interviews. It is based on the fact that few households regularly research and compare tariffs and that switching supplier is a 'trigger-driven' activity. We discuss the elements that make up the model below.

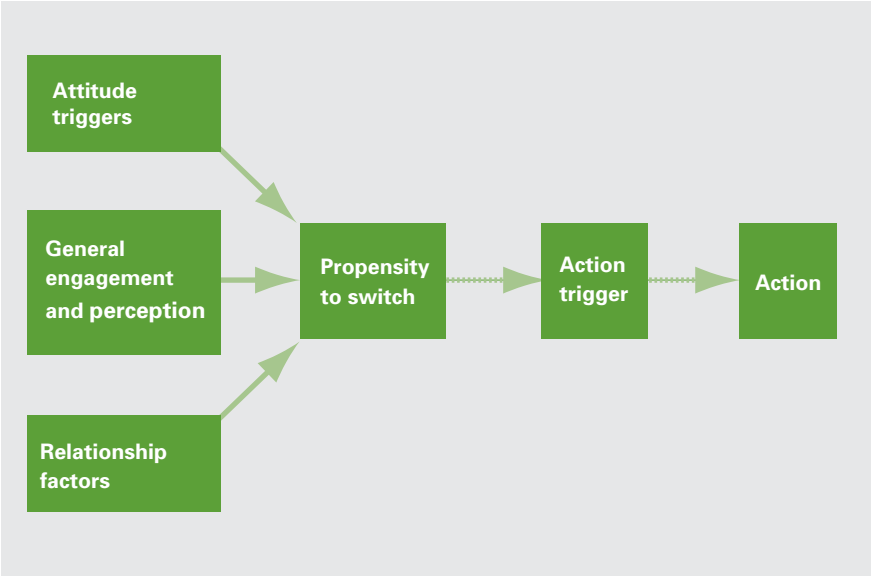

Figure 4
An individual may go through a variety of behavioural stages when changing energy supplier.

Source: Developed from the model of consumer behaviour by the Henley Centre (FSA 2005).

Propensity to switch

The 'propensity to switch' indicates how positive or negative an individual's view of changing supplier is. This is influenced by:

- **General engagement** How actively do they shop around for items of household expenditure other than fuel? What is their attitude to risk? How aware are they of their options in the market? And so on.
- **Attitude triggers** These are triggers that can produce a step change in the propensity to switch. They could either increase propensity to switch or decrease it. Factors that increase the propensity to switch could be receiving a large bill or experiencing customer service problems, or learning that significant savings could be made by switching. Hearing about other people's negative experiences, such as problems switching or customer service problems with other suppliers, also decreased propensity to switch. These triggers may be caused by personal experience, the experience of other people they know, or information picked up from the media.
- **Relationship factors** These are factors that more gradually impact on the propensity to switch. For example, does the individual generally believe they have received good value from the supplier? Have they generally had good customer service? What have they heard about other suppliers?

Action trigger

A high propensity to switch does not often, on its own, automatically result in a change. It also generally requires something to trigger the individual to action. These triggers could include proactive marketing, such as doorstep sales or telephone marketing, or they could be more subtle, such as seeing an advertisement for a price comparison service or receiving a bill.

Impact on behaviour

The model can help to explain various aspects of behaviour in the energy market, such as why people do not change supplier even if they have negative experience and perceive poor value, and why people change to a supplier where there is not a significant advantage in doing so.

Case study

Negative experience but not considering switching

Mrs G., a single pensioner, had some negative customer service experiences with her existing supplier. These had a negative impact on her relationship and formed negative attitude triggers. However, she still had a very low propensity to switch due to a highly risk averse outlook, a negative perception of the energy sector as a whole and high inertia, as she had been with her current supplier for a long period of time.

> 'What if I switched supplier and they put up their prices? They're probably all as bad as each other anyway, I might as well stick with them.'

Case study

A high propensity to switch, but narrow and negative experience

A family had problems with their previous supplier with inaccurately estimated bills and other customer problems. These triggers gave them a high propensity to change supplier, but they had limited awareness of how to switch and were not triggered into acting. Eventually they were visited by a doorstep selling agent, which triggered them into switching. However, because they did not compare prices when they switched supplier (due to changing via a doorstep agent), the change resulted in a higher expenditure on energy. The family quickly changed back to their original supplier through another direct marketing call and developed a more risk averse outlook and a lower propensity to change supplier.

Financial behaviour and engagement

Even when a household has switched once it should not be assumed that they are therefore engaged in the market. A household that takes action and switches could then have a low propensity in the future because the factors causing them to change have been dealt with.

Motivation against switching supplier

Although the majority of respondents could have made significant savings by switching, many factors gave them a negative perception towards switching and a low propensity to switch.

'Fear of change' was one of the key motivators against engaging in the energy market. This fear was often based on previous problems with a supplier, either experienced personally by the household, or by friends or relatives.

Fear of future customer service problems

Where a customer was largely satisfied with the customer service with their current supplier, but had experienced problems with a different supplier or had heard of others experiencing problems through their social network or the media, they tended to fear future customer service problems.

> 'I was with X but they kept sending incorrect bills. I switched to Y and they seem OK, I wouldn't want to try anyone else.'

Indeed, billing and customer service problems were more often a driver for changing supplier than looking to save money. More value was often placed on remaining with a known supplier than on significant potential financial savings that could be made by switching. These elements are referred to in behavioural economics as 'status quo bias' or 'loss aversion' (FSA 2008).

Fear of making a poor decision

Another element where 'fear of change' was a driver was in the fear of making a poor decision or losing out by switching – again linking into the ideas of 'status quo bias' and 'loss aversion'.

> 'I bet if I switched to them they'd put their prices up and I'd be worse off. Better the devil you know.'

In all cases where 'fear of change' was an issue, the individual tended to place more weight on the negative potential consequences than the positive ones. This is linked to the perception that suppliers act in a similar way and increase and decrease their prices together.

Fear of problems during the switching process

This fear can be based on problems previously experienced with the switching process – 'Our daughter changed supplier and was getting bills from both of them', or general problems with other suppliers. This fear was expressed less often than the previous examples.

Perception of little difference between suppliers

Disengagement in the market was often driven by a perception that 'macro-market' factors are the main causes of change in the market and that there is little difference between suppliers. Interestingly, this was also often the case when someone had recently switched supplier – for example, a change in price is often attributed to the macro-market rather than the supplier:

> 'I changed to X supplier, I think it's costing a bit more than it used to but I suppose they would have gone up anyway [if I'd stayed with the old supplier].'

The perception of there being little difference between suppliers and the influence of a 'fear of change' was displayed across different types of households and does not appear to be particularly dependent on how engaged the household is in their finances more generally.

'Never switched'

In addition to the general level of antipathy and inertia in the market there was a subgroup who are unaware of the energy market and have 'missed' competition. The households are likely to remain with inherited suppliers, or if forced to choose a supplier are likely to choose the supplier they have been with previously.

Prepayment meter specific issues

For customers paying by prepayment meter almost all switching was completed through 'doorstep' representatives. In some cases this helped households to engage in the market:

> 'He talked through how much I was paying with my old supplier and how they are cheaper. It seemed like a good deal so I changed.'

Some households appeared to have signed paperwork consenting to switch supplier while not being fully aware of what they were doing. For example, one household on a prepayment meter thought their supply was from 'supplier x'; however, further investigation found paperwork that showed they had switched to 'supplier y' but the householder had no recollection of signing the paperwork.

Summary of people's interaction with the energy market

The decision whether to change energy supplier or not was generally not a simple, financially based decision. It depended on the overall level of engagement of the household, their experience and perception of their current supplier, their perception of the energy market as a whole and the extent to which they were concerned with potential problems. Even if they generally had a positive perception of switching, a trigger was often required for action to take place. This trigger could be in the form of a high bill or customer service problem with a current supplier, or through proactive marketing by another supplier.

Some current policy is aimed at promoting supplier switching as part of the solution to fuel poverty. Attempts to increase knowledge of the market and of the potential savings made through switching will only encourage a small proportion to engage in the market due to a general level of scepticism and other perception-based issues, such as loss aversion.

A high value is placed on the consistency of service. A potential saving of £80 to £100 a year is often not seen to outweigh the value of a known and reliable supply. There is also scepticism that the level of saving will be consistent and that prices will not rise following a switch.

Chapter 6
Financial outlook and behaviour

SUMMARY

Particular payment methods, financial arrangements and financial perceptions can directly result in fuel rationing or debt.

Although it might be assumed that people would arrange their fuel bills in line with their financial cycle (for example, if they are paid monthly they would pay their bill monthly), this was not found to be the case. However, where the two matched up there were fewer issues with billing and rationing.

Dissonance between financial cycle and bill cycle often resulted in greater fuel rationing, as some people who paid quarterly restricted their fuel use as they were anxious about being able to afford large bills. Some methods of payment, such as prepayment meters, meant the cost of fuel was very apparent to the user, and led to fuel rationing in some instances. People who paid by direct debit were less likely to ration their fuel.

The payment method also had and impact on the extent of fuel debt. This was linked to payment frequency, and the ease with which the payment method allowed an individual to get into debt. Quarterly bills in arrears were more likely to result in debt than monthly direct debits.

There are often 'triggers' that push people into debt, and these can arise from the supply side (incorrect or irregular bills, for instance) or from the householder (high heating needs, householders' lack of engagement in their finances, mismatch between bill cycle and personal financial cycle).

In this chapter we examine in more detail the interaction between financial behaviour, heating behaviour and debt. Specifically, we look at how different payment methods, financial arrangements and financial perceptions can directly result in fuel rationing or debt.

Aspects of financial behaviour

The terms 'financial cycle' and 'financial outlook' are used to describe and explain some aspects of financial behaviour. These models have been developed from the findings of the research interviews and from previous studies examining consumer behaviour.

Financial outlook

'Financial outlook' refers to the traits that influence financial behaviour. These relate to the perception an individual has of, and the value they give to, various aspects of their finances. These are similar to the 'dominant financial traits framework' developed by the Henley Centre in their work on consumer behaviour for the FSA (2005):

Financial equilibrium	Does a household or individual have a tendency to balance their income and expenditure, do they normally save some money or are they usually in debt?
Financial planning	Are financial decisions made in a short-term day-to-day manner or do they have a longer term plan?
Receptiveness to change	How open is the household to changing the way they operate financially?
Awareness and engagement	Is the household aware of other options available to them and do they evaluate these options?
Perception of debt	Are they debt averse or are they open to using debt as a source of finance?

These perceptions are not static and may change over time, due to different triggers or circumstances.

Financial cycle

An individual's 'financial cycle' arises as a result of the 'financial outlook' and refers to how they actually organize their finances, in terms of how they make and plan for payments. Households in this study tended to have a similar financial cycle across different items of expenditure, although there was also some variability.

Payment frequency	Is the general financial cycle weekly, monthly or less regular?
Payment method	Cash, direct debit, payment card.
Buffer or planned expenditure	Does the household budget for outgoings across the financial cycle or do they use a buffer (possibly including debt) to allow them to make payments?

Resonance and dissonance between financial cycles and financial behaviour

There is a tendency to assume that there are consistent links between the financial cycle and behaviour. For example, it could be assumed that individuals who tend to have a typical 'monthly' cycle, with regular monthly income, would set their payment methods and frequency to this cycle.

However, it was found that households' payment method and payment cycle was not chosen in order to fit in with financial behaviour and cycle, but was chosen for other reasons. Although prepayment meters are mainly installed to recover debt, they generally remain after the debt has been recovered and the original resident has moved out. Indeed, the majority of interviewees using prepayment meters had inherited them when they moved into their property. Quarterly payment following a bill was generally not an active choice but rather a result of inertia. Some of those paying by monthly direct debit did so not through preference but because they were given incentives or encouraged to by their supplier. The fact that payment method and frequency was often not a behavioural choice was also shown by the number of households who use a variety of different payment methods for different bills, using prepayment for one thing, direct debit for another and quarterly bills for something else.

Where there was resonance between the 'financial cycle' and the payment method and actual payment cycle there were generally fewer issues with billing and rationing. Where there was dissonance between the actual payment cycle and the 'financial cycle' it often resulted in the payment method driving behaviour, rationing, debt or other issues that generated difficulties for the individual. In the majority of cases where a household had experienced 'customer side' fuel debt (i.e. not as a result of supplier issues, such as inaccurate estimates), the mismatch between payment cycle and the general financial cycle and a lack of financial planning had been a significant factor.

In both positive and negative instances there is evidence that in addition to the payment method and payment cycle having an influence on financial behaviour, it can also have an impact on heating behaviour, specifically the tendency to ration.

Case study

A couple living in a socially rented property received the bulk of their income fortnightly. They paid their gas and electricity bills quarterly in arrears. Their financial cycle was based on their income, and most purchases were made or paid for weekly. Due to the differing payment cycles for energy bills and a lack of budgeting for these bills the couple were regularly experiencing fuel debt.

Case study

A single lady living in an energy efficient council-owned bungalow received a regular weekly income and planned her expenditure on a weekly basis. She paid for her gas and electricity quarterly in arrears and her actual and predicted bills were relatively low. She did not budget for her quarterly bills but severely rationed the use of the heating to ensure she could pay them when they arrived, as she was highly debt averse. This resulted in cold indoor temperatures, even though the property was energy efficient.

Fuel rationing and debt

This section looks further at how financial behaviour and perception can have a direct impact on fuel usage and the occurrence of debt.

The rational choice model might suggest a linear relationship between the 'income: fuel required' ratio and the display of behaviour linked to fuel poverty, such as rationing and debt (see Figure 5). It could be assumed that as the ratio of income to fuel required becomes lower, a household may make a choice between entering debt or rationing their heating or other household expenditure.

In reality however we have found that other factors, such as payment method, perception of debt and financial behaviour can have a larger influence on debt and rationing than the 'income to fuel required' ratio. These areas are explored below, where we show that debt and rationing are not restricted to households with low income or those that require a high level of fuel.

Impact of payment method on heating behaviour

The payment method and frequency of fuel bills is one factor that can have an impact on heating behaviour and rationing. This is linked to the level of visibility and frequency of the payment, and also how quickly a change in usage is reflected in a change in cost. For example, with monthly direct debit payments the link between the cost per month and usage is not

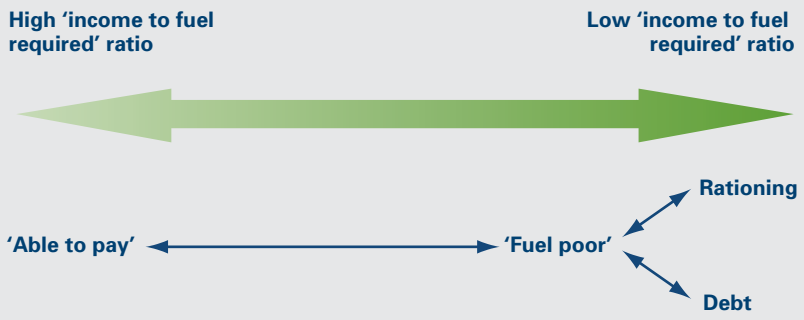

Figure 5
The traditional view of fuel poverty suggests that as people become more able to pay for fuel they will use more of it, and as they become less able they face a choice between going into debt or rationing their fuel use.

Table 3
People are more or less likely to ration their heating depending on the payment method they use.

Direct debit	*Quarterly bills*	*Regular payment plan (pay point)*	*Prepayment meter*
Cost slower to react to use	Prioritizing heating	Cost slower to react to use	Necessity/priority
	Payment only visible quarterly (economize on other things when the bill arrives)		
Payment less visible			Highly visible link between rationing and expenditure
	Fear of quarterly bill		
Anti-waste	Anti-waste	Low income	Low income
Principle/frugal	Principle/frugal	Previous debt	Previous debt

Key

Low occurrence of rationing

High occurrence of rationing

direct (because it is spread across a year), and the payment is less visible (because the payment is automatic). This combination tends to result in less rationing behaviour. Where prepayment meters are used, the link between usage and payment is direct and the payment is highly visible, resulting in more rationing behaviour.

Impact of payment method on debt

Payment method also had an impact on the extent of fuel debt (see Table 4). Again this was linked to payment frequency and the ease with which the payment method allowed the individual to get into debt. For example, direct debit is regular and automatic, and was rarely associated with debt (apart from the rare occasion where a direct debit was cancelled). Quarterly bills paid in arrears are infrequent and variable, and regularly resulted in debt where a financial buffer was not held or was not budgeted for.

Table 4
The payment method used had an impact on the extent of fuel debt.

	Frequency	*Required action from customer*	*'Type' of debt*
Direct debit	Regular	Little, automated	Unlikely to get into debt, occasionally through cancelling direct debit.
Quarterly billing	Infrequent	Active engagement	Debt due to dissonance between financial cycle and billing cycle.
Pay point	Regular	Active engagement	Debt due to prioritizing other things above regular fuel payments.
Prepayment meter	Regular	Active engagement	No fuel debt apart from occasional use of 'emergency credit'. In the case of limited income, debt is likely to be incurred in other services.

Debt issues specific to monthly direct debit payments

When monthly direct debit worked accurately it helped respondents to budget expenditure, avoid debt and reduce rationing. However, where there was an inaccurate estimate made for the size of the direct debit it often caused significant issues. These issues were particularly likely to arise when moving into a new property, following a change in occupancy pattern, following an inaccurate meter reading or estimate, or following the installation of a new heating system. While over-payment can cause problems, the main issues occurred when the monthly payment was under-estimated. These problems can become significant due to the length of time over which changes in direct debit amounts can take effect.

This way of getting into debt caused particular anxiety and stress due to the potentially large size of debt and also because the individual believed they had been paying the correct amount in a timely manner. Where the individual had a negative perception of debt this was particularly stressful, and in many cases respondents showed a preference for making significant sacrifices in order to pay off the debt as soon as possible.

Case study

A mother and three children living in a large end-terraced house were paying their gas and electricity by monthly direct debit. Initially the monthly gas direct debit was £56 per month. After living in the house for almost two years the direct debit amount was increased to £108 per month to recover a debt that had built up (presumably due to the initial direct debit amount being under-estimated). The family could not afford the new monthly payment and cancelled the direct debit, resulting in an increasing debt.

Table 5
People's behaviour and experiences can have an impact on fuel rationing and debts.

Element of control	*Impact on rationing/debt*
Avoidance of waste	The wish to avoid waste is often demonstrated by an individual rationing the use of heating or making other sacrifices. In this instance we are talking about limiting use on the principle of wishing to conserve resources and a underlying wish to be thrifty rather than rationing based on a specific financial need.
Avoidance of debt	Where the willingness to avoid debt is high it can result in rationing, even if the chance of debt is low. Households paying quarterly in arrears who are debt averse will often use a combination of budgeting and rationing (of heating and other items) in order to avoid the chance of debt.
Incomplete understanding and times of change	During times of change, such as rising energy prices, households may not fully understand the impact that the changes will have on them. Due to the level of uncertainty the households often look to act on the element that they do have control over by cutting back on their heating.

Other influences on debt and rationing behaviour

As with rationing of fuel, the occurrence of debt was not directly linked to the relationship between income and heating requirements. There is not a simple continuum from 'able to pay' to 'fuel poor' resulting in rationing behaviour or fuel debt. Other influences, particularly rooted in financial behaviour, can result in debt or rationing where it might not be expected (see Table 5). Some of these factors can result in either debt or rationing while others are specific. These behaviours often link back to the element of control that the individual is seeking to retain.

Figure 6 illustrates how the perception of debt can influence rationing behaviour. A simplified view of fuel debt may be that there are two groups of customers who are in debt – those who 'can't pay' because they are in fuel poverty and those who 'can pay' but do not because they are disorganized, or choose not to in order to prioritize other payments, for example. However, this view ignores the extent to which a household will ration in order to avoid potential or real debt. The bottom two cells of the matrix in Figure 6 illustrate this view.

'Will sacrifice to pay' represents the significant proportion of fuel poor households who choose not to enter fuel debt but rather to make sacrifices in other areas. These households are clearly significantly more difficult to identify and measure than the households that get into debt. The type of households in the 'will pay' category who are able to pay and are debt averse are unlikely to get into debt, and while they are less likely to ration their heating than fuel poor households there is still likely to be some rationing, due to the other factors discussed above. The scale of rationing can be high even in this category.

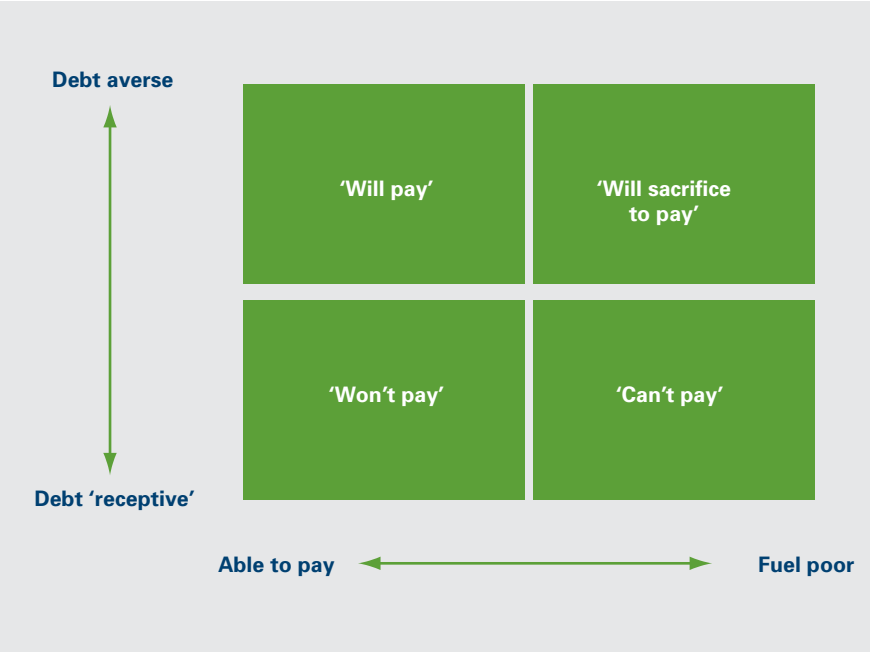

Figure 6
People's perception of debt influences their rationing behaviour.

Triggers of debt

While people's traits and behaviours can explain some of the underlying causes of debt, there are often triggers that instigate it. These triggers can be classified depending on whether they originate from the household or the supplier.

Supplier-side triggers include incorrect estimate for a direct debit; incorrectly estimated bill; and bills being produced irregularly. Household-side triggers include having other priorities; high heating needs; a long billing cycle in comparison to their financial cycle (for example, quarterly billing in a household with a weekly financial cycle); and lack of engagement.

In many cases households that had experienced fuel debt were not technically classified as fuel poor (using the 10 per cent of income definition). Where the debt was not driven by a supplier-side trigger, it was driven more by financial behaviour than high energy costs. The majority of these cases were driven by a failure to plan for cashflow, often compounded by the result of a long billing cycle in relation to the general financial cycle of the household. Many of these households would be at a lower risk of debt if they moved to a shorter billing cycle. However, unless all their billing cycles were reduced it is likely that the debt would simply be transferred to the remaining items of expenditure with long billing cycles.

The link between billing cycles and other financial behaviour

While reducing the billing cycle is likely to result in a reduction in the scale and frequency of debt, the links between a shorter financial cycle and other financial behaviour suggest that simply reducing the billing cycle could cause other problems. For example, households with shorter billing cycles also tended to have a more short-term view and made fewer plans for unexpected expenditure.

Table 6
Respondents were placed on a continuum of financial behaviour.

-5	0	+5
Financial equilibrium		
Debt		*Saving*
Income less than expenditure. Unlikely to have money left, likely to use overdraft/ credit card.		Income more than expenditure. Actively saving. Likely to have money left over at the end of the month/week.
Financial planning		
Short-term		*Long-term*
Shorter outlook, no savings.		Monthly approach, with plans for longer term (savings, pension, insurance).
Budgeting approach		
Improvized		*Budget*
'Juggling' approach.		Planned budget for expenditure. More able to cope with 'lumpy' expenditure.
Awareness and engagement		
Not aware		*Aware of costs/'priorities'*
Disengaged, possibly less likely to pay bills on time, less aware of balance on account.		Aware of costs associated with finance (interest rates, size of bills, income), rationalized choices.
Debt aversity		
Debt 'receptive'		*Debt averse*
Open to using debt as a source of finance. Likely to use overdraft/credit card.		Will make large sacrifices in order to avoid debt.

In order to classify different types of financial behaviour in this study, each respondent was given a score based on the discussion around how they generally make payments, plan for their expenditure and how engaged they are in financial decisions. The scores are based on the types of criteria in Table 6.

It was common for households to be stronger in some areas of financial behaviour than others. Figure 7 shows the average scores for different elements of financial behaviour depending on how a household generally paid their bills. It shows that those households with a weekly cycle tended to have a fairly strong budgeting approach. They often had a fairly regular pattern of income and expenditure and were able to plan this on a weekly basis. However, on the longer term 'financial planning' score they score much lower. Due to the fairly consistent patterns of spending, these households tended to have less of a financial buffer in the form of savings to cope with unexpected expenditure.

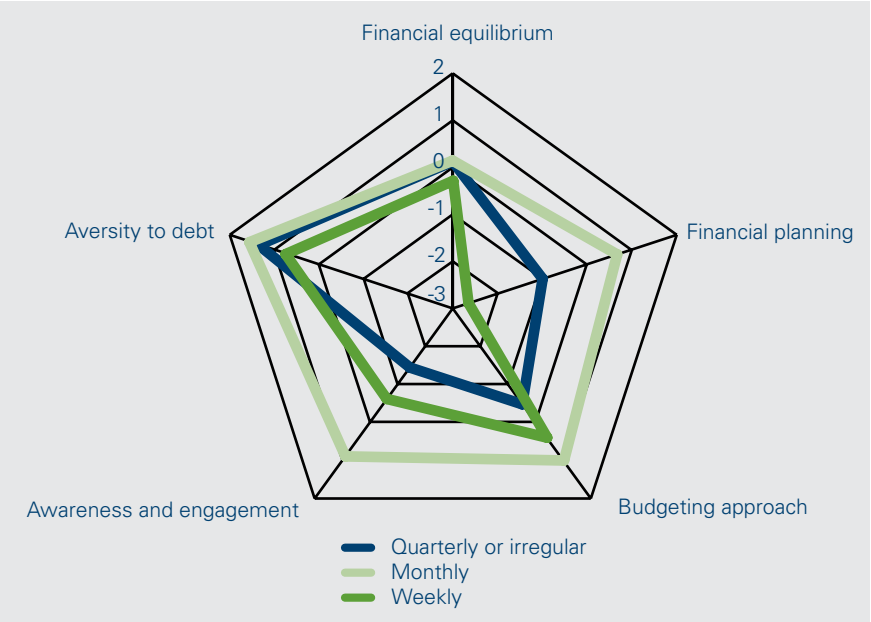

Figure 7
People's overall financial behaviour was related to their billing cycle.

The households whose financial cycle was less regular or quarterly did not score highly for 'awareness and engagement'. These households were often the least engaged in the energy market and were least likely to have switched suppliers.

Summary of debt and rationing

The findings from the interviews show that 'customer-side' fuel debt (debt that occurs due to a customer not paying an accurate bill) has a fairly weak link to fuel poverty and energy efficiency, while the link to financial behaviour and engagement is much stronger. This suggests that while energy efficiency interventions are likely to aid households in fuel debt they are unlikely to make a significant reduction in future occurrences of debt. They will also be insufficient to prevent future debt in other non-fuel debt related areas. Sustainable debt relief can only come though a combination of ensuring a suitable payment method and frequency is in place and through encouraging financial planning. However, simply providing information is unlikely to result in any change due to the underlying psychological and behavioural traits that drive debt.

'Supplier-side' debt, caused by inaccurate meter estimates or inaccurate direct debit amounts, can cause significant stress and anxiety. Customers in this situation believe they have been paying their bills in a timely manner and are normally surprised when they learn of the debt. Where a debt has been accumulated through a 'supplier-side' issue they must be sensitive about how to communicate the debt and how to arrange repayments.

We have also found that fuel rationing is often not a function of a low 'income: fuel required' ratio (apart from in extremely low cases), but is more closely linked to underlying perception and behavioural traits. It can also be affected directly by the payment method used, the frequency and visibility of the payment method and also the directness of the link between a change in fuel usage and a change in cost. However, households with an extremely low 'income: fuel required' ratio are clearly being forced to make more of a choice between fuel and other items of expenditure.

Chapter 7
Conclusions and recommendations

Measuring fuel poverty based on modelled energy use and income offers a sensible proxy to identify those most likely to be struggling to pay their bills. However, thinking about fuel poverty in these terms can blinker and restrict potential solutions because it ignores actual heating behaviour and financial behaviour.

Simply increasing the SAP ratings of properties or increasing the overall income of a household will decrease 'technical' or 'economic' fuel poverty (according to the 10 per cent definition) but it will not on its own drive a large reduction in the actual number of households that are struggling to pay their bills or rationing their heating.

Two similar households living in similarly energy efficient properties with similar incomes but different levels of financial engagement, financial behaviour or different priorities can result in very different levels of heating, debt or anxiety around paying bills.

It is also sometimes unhelpful to think of fuel debt, struggling to pay bills and fuel rationing as symptoms of the same problem. Although they can be interlinked, they are often driven by different things. In many cases fuel is rationed not because households have insufficient income compared to required fuel expenditure, but rather because of householders' other perceptions and behaviour. Fuel debt is more likely to be caused by aspects of financial behaviour rather than low income and high fuel costs.

RECOMMENDATIONS

Recommendations for energy efficiency policy and energy efficiency providers

Linking to financial inclusion and capability policy

Fuel debt and fuel rationing are closely linked to financial behaviour and perception. Focusing on energy efficiency measures and income maximization is unlikely to have much impact on the extent of fuel rationing or fuel debt. Fuel poverty policy must therefore link closely to financial capability policy in order to engage households in their finances and to ensure appropriate billing cycles and payment methods are being used.

Behavioural advice

A structural approach that aims to tackle fuel poverty via 'installing' measures (insulation, central heating, etc.) will not work unless it also looks at households' heating usage and behaviour. However, this study found that heating behaviour was very ingrained and subject to high levels of inertia. Any installation of a significant energy efficiency measure should be accompanied by a substantial behavioural advice programme.

Various methods should be tested, but one example of the process could be as follows. Immediately following an installation the household receives in-home advice on how best to use their heating system, and other behavioural energy efficiency advice. They would receive at least one more in-home visit at least three months following the initial installation, to check that the heating is being used appropriately. This advice should be as much about encouraging the use of heating (when rationing is apparent) as about reducing energy usage.

The debate around 'hard-to-treat' properties often centres around expensive measures, such as solid wall insulation and renewable sources of energy. From this research we have found that substantial fuel savings or increases in comfort could be achieved simply by behavioural change. However, this behavioural change will not happen through one-off information provision but through ongoing support, such as that outlined above.

Support for households through the grant process

Many households are eligible for grant schemes and may be referred for a grant or make an initial enquiry but then not go through with the installation. Some of these households will be actively willing and able to proceed with the application process, while others may need more support and encouragement.

Targets should be set to ensure that a high level of grant-eligible clients receive an installation. This will require more support for certain clients, and could take many forms: assurance that the schemes and contractors are bona fide, help with accessing proof of benefit, structural help (loft clearance, etc.).

Recommendation for energy suppliers and energy market policy

Supplier switching

While supplier switching and engagement in the market can potentially offer some help to fuel poor households, its importance should not be overstated. This study found people were sceptical about the energy market, and the importance placed on having strong and consistent customer service and billing means that there was a strong degree of inertia and a lack of fluidity in the market.

Changing fuel supplier is not simply a financially based decision, so to benefit those households that could make the largest savings the justification for changing should

not just be financial. These customers will need to be assured that their supply and billing will be consistent and also that any savings will continue in the long term and not simply for a few months.

'Supplier-side' fuel debt

Where a debt is due to an underestimated meter reading or an underestimated direct debit amount the supplier should be sensitive about how the correction is calculated and communicated. Simply receiving a revised bill with substantial increases in payment can cause significant anxiety and encourage fuel rationing. Debt-averse households will often make great sacrifices to make repayments quickly for debts that they are not responsible for incurring.

'Customer-side' fuel debt

'Customer-side' fuel debt (apart from one-off, emergency causes) is generally linked to financial cycles and financial behaviour. Sustainable debt relief must therefore ensure suitable billing cycles and payment methods are being used. Customers who are regularly in debt should be signposted to other financial advice services.

Recommendations for future research

More research is needed into the actual impact of energy efficiency measures compared to the expected impact. It seems highly likely from this research that the expected reductions in fuel cost or increases in comfort are not being realized due to differences in behaviour.

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Appendix: Sample composition

This sample is comparable to the analysis of the English House Condition Survey by the Department for Trade and Industry (DTI 2001b).

Property summary

Tenure	*Sample (%)*
Owner-occupier	60
Council	18
Private rented	10
Housing association	10
Other (tied, shared, etc.)	2

The predominant tenure in the group is owner-occupier. This follows the pattern found in the English House Condition Survey that 68 per cent of households in fuel poverty are owner-occupiers.

Property age	*Sample (%)*
Pre-1900	5
1900–35	43
1936–75	34
1976–89	11
Post-1990	7

The age of the properties in the study tended to be relatively old; almost 50 per cent were built before 1935. This is likely to be influenced by the fact that a large proportion of the sample was recruited from London, where there is a higher proportion of older properties. Older properties are also less energy efficient and more expensive to heat.

Household summary

Number of people in household	*Sample (%)*
1	41
2	28
3	9
4	10
5+	12

The largest group in the sample was single person households (41 per cent). This is lower than in the English House Condition Survey, which found 64 per cent of fuel poor households were single person households.

Age of household decision maker	*Sample (%)*
19–29	3
30–44	26
45–59	22
60–74	32
75+	17

Again this follows the pattern of the English House Condition Survey, which found that 50 per cent of fuel poor households contained someone over 60 years old.

Does the household decision maker receive income related benefits?	*Sample (%)*
Receives benefits	74
Doesn't receive benefits	26

Seventy-four per cent of the sample received benefits and are therefore likely to be eligible for energy efficiency improvement grants, such as Warm Front. This proportion is higher than was found in an analysis of the English House Condition Survey, which found that 47 per cent of fuel poor households are not in receipt of passport benefits (Sefton 2004).