UK Energy Expenditure Shares – A Long Term View

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Abstract The retail energy market in the UK is highly politicised and successive governments have pursued significant policies designed to ease the affordability of energy for certain groups. The paper tracks the proportion of household expenditure devoted to energy between 1992 and 2014, implementing a major new correction to energy expenditure for households with prepayment meters. First, the time series is used to argue that the political salience of distributional concerns in the retail energy market should not come as a surprise. Second, we find that while households with a head aged over 80 have elevated energy expenditure shares, those aged 65-70 have energy expenditure shares comparable to households at the middle of the income distribution. Third, mapping major policy developments against the time series shows the most important affordability support schemes were introduced when energy was nearing its most affordable over a 35-year period.

1. Introduction

Distributional issues and fairness have been a recurrent theme in the British retail energy market.[2] These concerns are motivated by the average share of household expenditure devoted to energy being noticeably elevated among low income households. To address this issue successive governments have introduced a range of affordability support policies, including the Cold Weather Payment (CWP), a Fuel Poverty Strategy (FPS) and the Winter Fuel Payment (WFP). We trace the proportion of expenditure devoted to energy between 1992 and 2014, focusing particularly on pensioners and households in the lowest income deciles, to place these political concerns and the resulting policy responses in context.

We apply a new correction to a serious measurement issue regarding pre-payment meter (PPM) energy expenditures (ENEX) in the Living Cost and Food Survey (LCF). These data enable a comparison of groups receiving notable government support on energy affordability grounds and those devoting the greatest proportion of their expenditure to energy. They also chart the counter-intuitive development of affordability support policies, particularly the WFP and FPS, at a time when ENEXShr was approaching a low rather than a high. We note the changing political ideology of governments likely played a part in this story, with major policies being initiated by the Labour government elected in 1997, and the Conservative-Liberal coalition after 2010 revising the FPS and Fuel Poverty (FP) measurement.

Since the 1990s policy action on FP and the related literature have expanded considerably. While contributing to the FP literature, the present paper explores energy affordability as a wider issue than the traditional statistical FP definitions, by the mapping ENEX and ENEXShr distributions across households. Rather than studying FP in-depth, our tracking of the FPS is intended to act as a proxy for variations in the political emphasis given to energy affordability support.

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[2] Most recently they have led to legislation a price cap to 'protect' 'inactive' consumers, see Domestic Gas and Electricity (Tariff Cap) Act, 2018

Our historical mapping also places recent ENEXShr in a historical context: while ENEXShr since 2009 are high compared to the early 2000s, real ENEX and ENEXShr values are similar to those in the late 1980s and early 1990s. However, following a period of remarkable stability between 1992 and 2003-4, nominal ENEX doubled in the following decade, no doubt generating consumers' perceptions of continuously rising energy prices and contributing to the pressure for price caps in 2016-18.

The ENEXShr and ENEX patterns, arise from the inelasticity of energy with respect to both price and income[3]. Inelastic demand explains both why lower income groups have higher ENEXShr and the positive correlation of ENEXShr with energy prices through time. The median equivalised after housing costs ENEXShr[4] in 2014 for the lowest income decile[5] was almost three times that for the highest income decile; and between 2003-04 and 2014 the lowest income decile's median ENEXShr increased by more than twice that of the richest group. This highlights the significant variation in the proportionate welfare impact of rising energy prices by income level: while for those at the top of the income distribution rising ENEX may have been inconvenient, for those with the lowest disposable income it implied serious budget choices.

While ENEXShr for households headed by someone over the age of 80 are similar to those of households in the bottom third of the income distribution, the ENEXShr of younger pensioner households (i.e. those with a head aged 65-70) generally lie around the middle of the income distribution. This is significant as the WFP represented in a shift in the balance of affordability support from those on low incomes to older households.

The next section reviews relevant literature, while Section 3 discusses our data and methodology. Section 4 reports aggregate results over time and presents evidence on ENEXShr by income and age. These findings are used to discuss affordability support policies in Section 5, before Section 6 concludes.

2. Existing Literature

The current paper builds on the methodology and policy detail of Advani et al. (2013) but differs in two important respects. First, an alternative correction for PPM 'zero expenditures' is applied reflecting evidence indicating the zeros are missing data. This correction is significant as it implies the average ENEX for a PPM household in the uncorrected data is too low; the distribution of PPMs across households means this issue particularly affects low income consumers. Second, whereas Advani et al produce a detailed distributional analysis of energy policy in 2009-10, the current paper focuses on the historical context by mapping ENEXShr over the period 1992-2014, with additional observations in 1977, 1982 and 1987.

The issue of PPM users' zero ENEX, and the correction method used, not only affects distributional analysis of ENEX, it likely affects earlier work analysing the distributions of household energy consumption and carbon emissions. A mini-literature taking ENEX from the LCF and converting it into energy consumption and carbon emissions, for example, see Dresner and Ekins (2006), Druckman and Jackson (2008) and Buchs and Schnepf (2013). Applying our PPM correction seems likely to soften the positive relationship found between income and carbon emissions.

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[3] Dimitropoulos et al (2005) estimate the long-run price elasticity of residential energy in the UK to be -0.23 and the long-run income elasticity to be 0.34.
[4] All references to ENEXShr use this definition unless stated otherwise.
[5] All references to income deciles in this paper refer to the equivalised after housing costs income distribution.

The present analysis builds on Levell and Oldfield (2011), Waddams and Deller (2015) and Deller (2016) and Ofgem (2017), but departs from these earlier works by using a more sophisticated methodology to calculate ENEXShr. Levell and Oldfield investigate low income households' spending patterns, with particular reference to domestic fuels, and the current paper confirms their findings that the impact of energy price fluctuations varies substantially by income. Ofgem (2017)[6] charts the share of after tax income devoted to energy for the bottom and top income deciles between 1993 and 2015. We focus on the share of total household expenditure, after equivalisation and the deduction of housing costs, devoted to energy purchases this provides more precise comparisons of affordability pressures across households. Waddams and Deller (2015) and Deller (2016) take a different approach from the current paper, by comparing affordability across multiple EU states and assessing the ability of policy interventions to alter FP rates.

A further range of papers investigate determinants of UK households' ENEX econometrically. An early example is Baker et al. (1989), while Baker and Blundell (1991) estimate price and income elasticities for gas and electricity by season, central heating fuel and tenure. Crawford et al. (1993) explicitly look at the distribution of ENEXShr by income, while Meier and Rehdanz (2010) consider determinants of ENEX for renters and home owners and Meier et al (2013) investigates the relationship between income and ENEX. The present paper complements these studies by charting the long-term trends in ENEX and ENEXShr against the policymaking context.

3. Data and Methodology

The data come from the Living Costs and Food Survey and its precursors. These are annual cross-sectional surveys designed to be nationally representative, where each household has their expenditure data collected at one point in the year. The data are used to form an annual time series from 1992 to 2014, with additional observations in 1977, 1982 and 1987. Weights are applied to ensure representativeness.[7]

ENEX figures are annualised and defined as the total expenditure reported by household members on all fuels to provide fuel, light and power to their home (i.e. excluding transport expenditure). ENEX is converted to 2014 prices using the Retail Price Index (RPI)[8].

ENEXShr is calculated as a proportion of total household expenditure. Total expenditure is used rather than income due to the former displaying less volatility and providing a better indication of living standards.[9] As the paper aims to identify affordability pressures, total expenditure is calculated after housing costs have been deducted and is equivalised using the modified OECD scale.[10]

Before analysing ENEXShr two corrections are applied.

3.1 Evidence for our correction of PPM expenditures

[6] Figure 3.2, pg 59.

[7] Official survey weights are used when available. Prior to 2001-02 weights have been calculated using a simplified version of the official methodology which compares the survey sample with census data.

[8] ENEXShr, as a fraction, is independent of the choice of inflation measure, however, the choice of CPI or RPI affects time variations in real ENEX. Since CPI is generally lower than RPI, using CPI would make ENEX in earlier years fall relative to the results in this paper.

[9] See Brewer and O'Dea (2012).

[10] Equivalisation and the deduction of housing costs increase ENEXShr compared to the simple proportion of household expenditure devoted to energy. Figure A1.1 reports the distribution of unequivalised ENEXShr inclusive of housing costs.

While Advani et al. (2013) correct reported PPM ENEX by assuming many consumers topped up their PPMs less frequently than fortnightly, we have implemented a different correction. Our decision to treat PPM 'zeros' as missing data is based on a range of evidence.

First, there is a sharp jump in median ENEX for PPM households between 2012 and 2013, coinciding with a question change in the LCF. Prior to 2013, PPM ENEX was collected in a two week 'expenditure diary' where households were supposed to record expenditures as they occurred. If a PPM user did not top-up within the two week diary window, their PPM ENEX was recorded as zero leading to their annualised PPM ENEX also being zero. In contrast, if a consumer paid by Arrears or Direct Debit, they were asked to state the amount of their last energy bill and the period which it covered.

The percentage of PPM zero observations increased significantly during the 1990s coinciding with a substantial decrease in PPM consumers' median ENEX. From 2013 PPM consumers were asked a two-part question mirroring that for Direct Debit and Arrears customers. This question change is associated with the disappearance of 'zero' PPM observations and a more than doubling in median ENEX, for electricity PPM users raw median ENEX rose from £613 to £1295 between 2012 and 2013.

Second, Figure 1 shows the sharp increase in median ENEX for PPM consumers between 2012 and 2013 in the raw data (111%) is neither replicated for other payment methods (3.6 and 3.0% increases) nor in PPM pricing data, i.e. it is specific to the LCF's PPM data. 'BEIS PPM medium consumption' in Figure 1 reports the energy bill resulting from fixed consumption and PPM tariffs sampled from energy firms.[11]

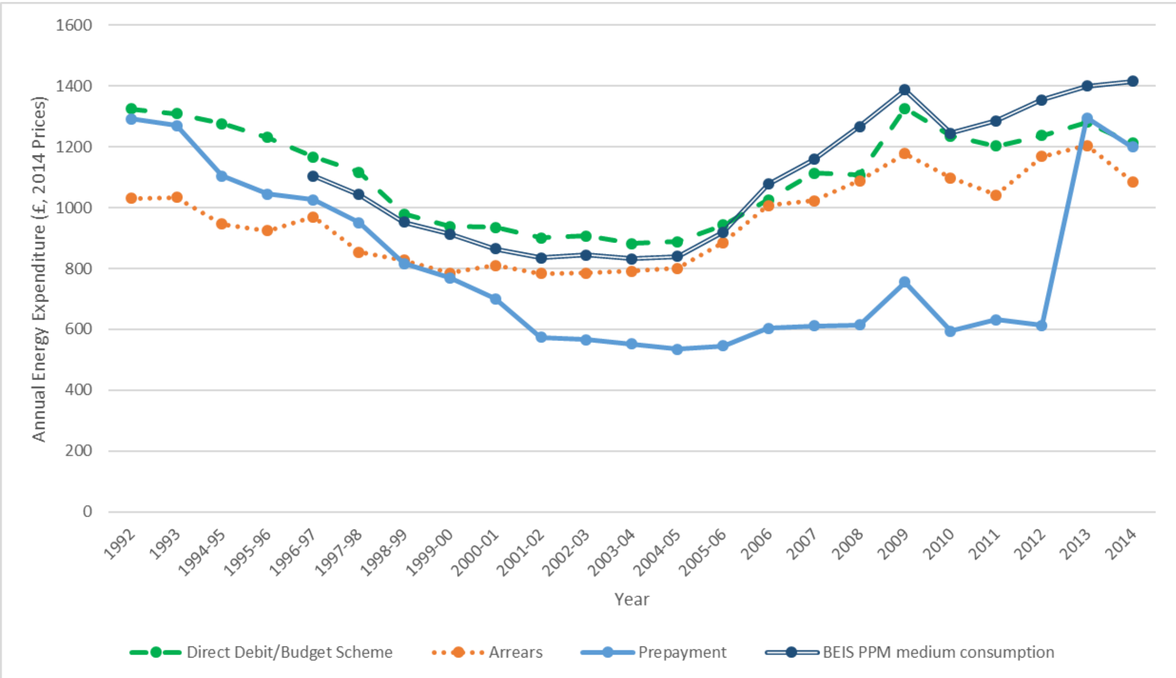

Figure 1 – Median ENEX (raw data) by electricity payment method and BEIS Medium Consumption PPM bill

Third, survey evidence from Waddams et al. (2001) shows 76% of electricity PPM households (72% of gas PPM households) within 1 mile of a top-up point topped up weekly, contradicting Advani et al.'s assumption that many PPM consumers top-up less frequently than once a fortnight. Similarly, using

[11] See tables 2.2.1 and 2.3.1, 'Annual domestic energy bills', Department of Business, Energy and Industrial Strategy.

more recent data, Mummery and Reilly (2010) report "Two-thirds of PPM households topped up their meter at least once in a typical week"[12].

A related point is whether PPM users 'self-disconnect', i.e. have zero credit on their PPM and do not to top up in order to economise. Evidence in Waddams et al. (2001) and Mummery and Reilly (2010) suggests this phenomenon is unlikely to explain the PPM data issue, since self-disconnection is relatively rare and typically lasts for short periods. In particular, Mummery and Reilly report self-disconnection generally lasted only hours: only 9% of those self-disconnecting typically did so for more than 24 hours and only 1% disconnected for two days or more.[13]

Fourth, we observe limited seasonality in the percentage of PPM observations that are zero. If zero expenditures were due to infrequent top-ups, we would expect fewer top-ups (and a greater proportion of zeros) in summer months when heating demand is lower. Figure 2 shows some seasonality, however, the proportion of 'seasonal' zeros relative to all zeros appears small: even in winter around 45% of PPM consumers report zero electricity (gas) expenditure.

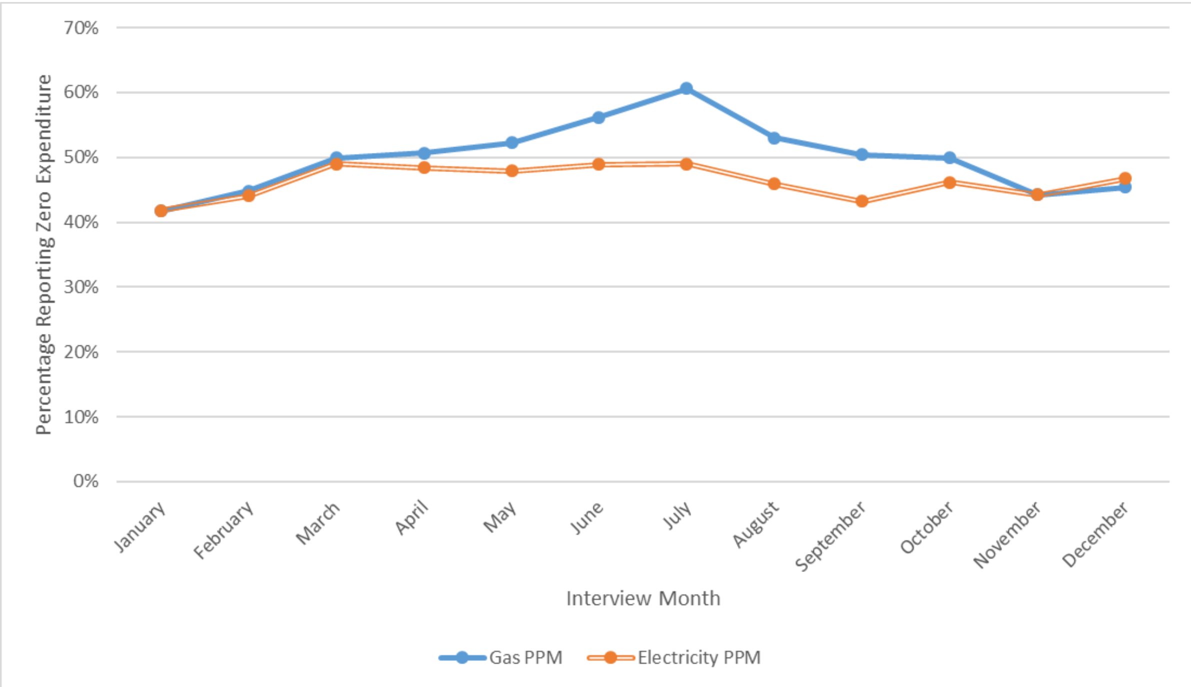

Figure 2 – Percentage of PPM users reporting 'zero' expenditure for relevant fuel by interview month, averaged over 2001-02 to 2012

Fourth, after we perform the PPM correction, the time trend of the corrected PPM ENEX data is similar to that of Direct Debit and Arrears ENEX (Figure 3).

[12] See pg 14

[13] Vyas (2014) report results similar to Mummery and Reilly.

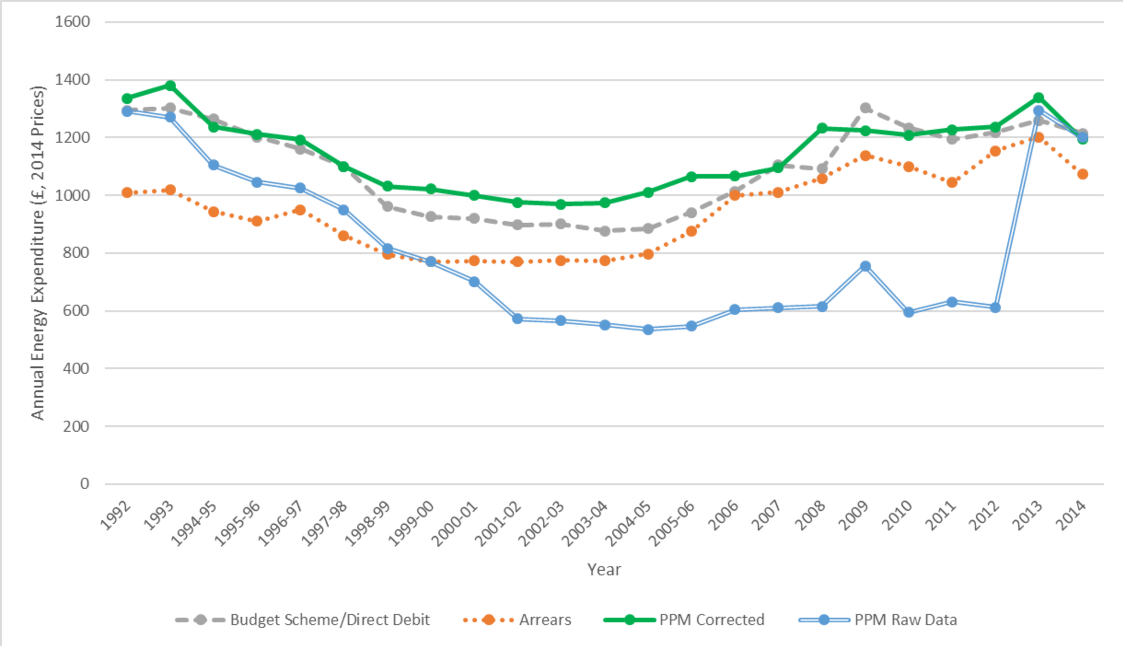

Figure 3 – Median annual ENEX by electricity payment method

3.2 Methodology for imputing missing PPM ENEX

Separate OLS regressions for gas and electricity are run in each year[14] taking the form:

$$y_i = x_i'\beta + \varepsilon_i \qquad (1)$$

where the dependent variable, y_i, is expenditure on electricity (gas), x_i are the explanatory variables, β are the coefficients to be estimated and ε_i is the error term. β is estimated using data from those PPM users who record positive expenditure on the relevant fuel in the relevant year. A comprehensive range of household characteristics are included in x_i including: region/devolved administration, household composition, equivalised after housing costs income decile, age of household head, employment status of household head, dwelling type, tenure type, number of rooms and central heating fuel. β is combined with the values of x_i for the households reporting zero PPM electricity (gas) expenditure to estimate their PPM electricity (gas) expenditure.

Our correction differs from Advani et al. (2013) who assumed average PPM expenditures in the raw data were correct and excessive zeros simply affected the dispersion of the ENEX distribution. Advani et al. (2013) focus on correcting this excessive dispersion; their assumption of infrequent top ups implies not only that some households report zero electricity (gas) expenditure in the two week diary window, but that positive ENEX recorded in the two week diary window will generally be 'too high', in the sense that it covers a period longer than two weeks. Our correction treats positive PPM expenditure observations as correct values and estimates the expenditure only for households reporting zero expenditure.

Given the seasonal variation in Figure 2, we recognise that some zeros observed in the survey data are likely to be 'real'. That we replace these 'real' zeros with estimates of positive expenditure, and leave top ups that might last longer than two weeks unchanged, means that, strictly speaking, we are estimating upper bounds for average ENEX and ENEXShr. However, the limited degree of seasonality in Figure 2 implies these upper bounds are close to the true values of average ENEX and ENEXShr.

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[14] No PPM correction is applied in 1977, 1982 and 1987 due to the low percentage of 'zero' observations.

3.3 Seasonal Adjustment

If seasonality corrections were not applied, the probability of a household lying in the upper or lower tail of the ENEX/ENEXShr distribution could depend on the month of interview. The seasonality corrections follow Advani et al. (2013). Separate OLS regressions for each payment method for each fuel (electricity and gas) are run in each year.[15] The OLS regressions take the log-linear form:

$$LN\ y_i = x_i'\beta + \varepsilon_i \tag{2}$$

where y_i, x_i and ε_i are as in equation (1) above. To enable de-seasonalisation, interview month dummies are included in x_i. Using the co-efficients of the month dummies, for every household electricity (gas) expenditure can be estimated for the 11 months when a household was not interviewed. A simple average is then calculated from the twelve monthly figures to produce a de-seasonalised estimate of a household's annual electricity (gas) expenditure. Total ENEX results from summing the estimates for electricity expenditure, gas expenditure (where relevant) and any expenditure on other fuels.

In addition to charting ENEX and ENEXShr, three statistical tests have been performed on key relationships in selected years: (i) a non-parametric equality of medians test, (ii) the Wilcoxon rank-sum test/Mann-Whitney two-sample statistic, and (iii) a quantile (median) regression with a single explanatory variable representing the different groups/years being compared. The level of statistical significance indicated in the text holds for all three statistical tests.

4. Energy Expenditures and Energy Expenditure Shares

We first examine the time trends of median ENEX and ENEXShr. Since the most costly affordability support policy, WFP, is targeted at older households, we then explore how ENEX varies by household income and age of household head.

4.1 Median ENEX and ENEXShr through time

Figure 4 shows the evolution of ENEX in real and nominal terms between 1992 and 2014.[16] In real terms median ENEX between 1998-99 and 2005-06 was around 20% below its 1992 level, while since 2009 real median ENEX has been around 10% above its 1992 level. Real median ENEX in 2003-04 is significantly different (at the 1% level) from its values both in 1992 and 2014.

[15] For the PPM seasonality correction the regressions are run only using households reporting non-zero PPM electricity/gas expenditures in the raw data. However, the de-seasonalisation process is applied to all PPM households' expenditures.

[16] Figures A1.2 summarises the ENEX distribution in constant (2014) prices.

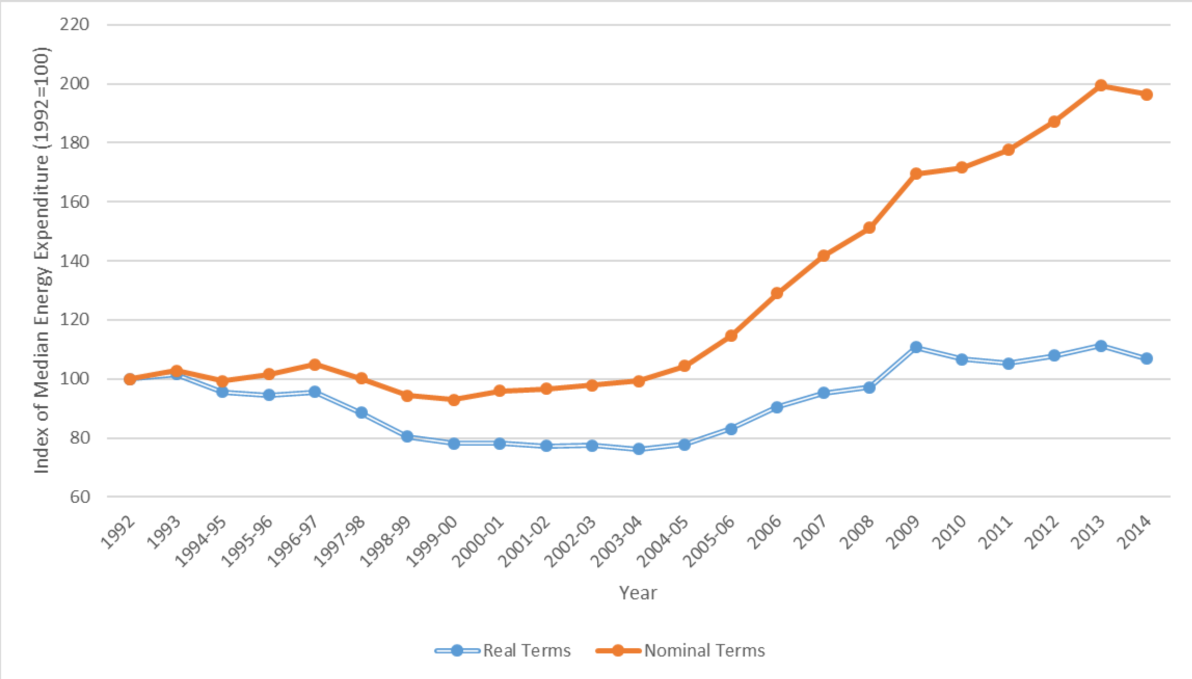

Figure 4 – Indices of median ENEX in nominal and real terms, 1992-2014 (1992 = 100)

If consumers focus on their energy bill's nominal value, i.e. they compare their paper/electronic bills year-to-year, the political attention given to the cost of energy over the past decade is understandable: ENEX in nominal terms doubled between 2003-04 and 2013, supporting adages such as 'energy bills only ever go up'. While inflation is the norm, this rising nominal ENEX is striking for two reasons. First, it has occurred as average household energy consumption has fallen, by around a quarter since 2004 (see Figure A1.3). Second, the stability of nominal ENEX in the decade preceding 2003-04 may have further increased the salience of bill increases after this point.

Additionally, the timing of the increases in ENEX/ENEXShr plays to ideological divisions around the merits of liberalised markets. While increases in ENEX/ENEXShr after 2003-04 are associated with rising wholesale energy prices, the timing provides ammunition to those who critique liberalisation, since these increases began shortly after the final removal of retail price controls in 2002.

To gauge the changing pressure on household budgets from ENEX, Figure 5 reports an index of median ENEXShr through time (1992=100). Between 1992 and 2002-03 median ENEXShr fell by 36% while most of the subsequent increase occurred between 2004 and 2009, with median ENEXShr then hovering around its 1992 level. Median ENEXShr reached a low of 6.7% in 2002-03 and 2003-04, while it stood at 10.6% in 2014 (compared to 10.6% in 1992 and 12.3% in 1982)[17]. These comparisons demonstrate that while ENEXShr after 2009 appears high in a 10 year perspective, ENEXShr in 2013 is similar to its level in the early 1990s, and lower than in the early 1980s. In this longer-term view, the low ENEXShr and relative affordability of energy in the early 2000s appears more exceptional than its recent high values. However, householders seem unlikely to consider 20+ year time horizons, hence, the pressures facing policymakers.

[17] Figure A1.4 reports the full ENEXShr distribution through time. Median ENEXShr in 2003-4 is significantly different (at the 1% level) from its values in 1992 and 2014.

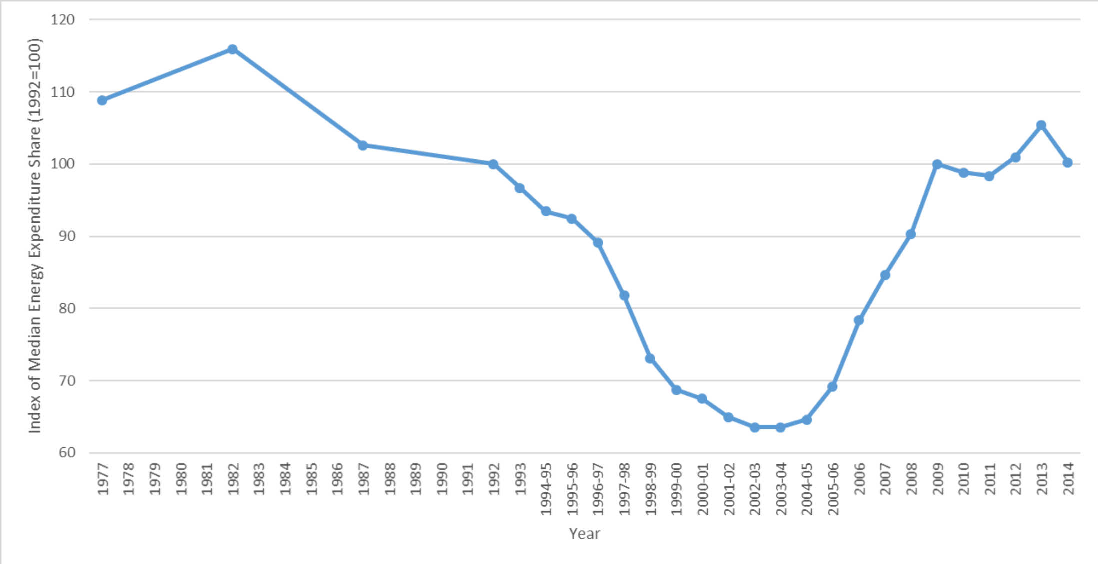

Figure 5 - Index of median (equivalised after housing costs) ENEXShr, 1992-2014

4.2 ENEXShr variations by income decile and age of household head

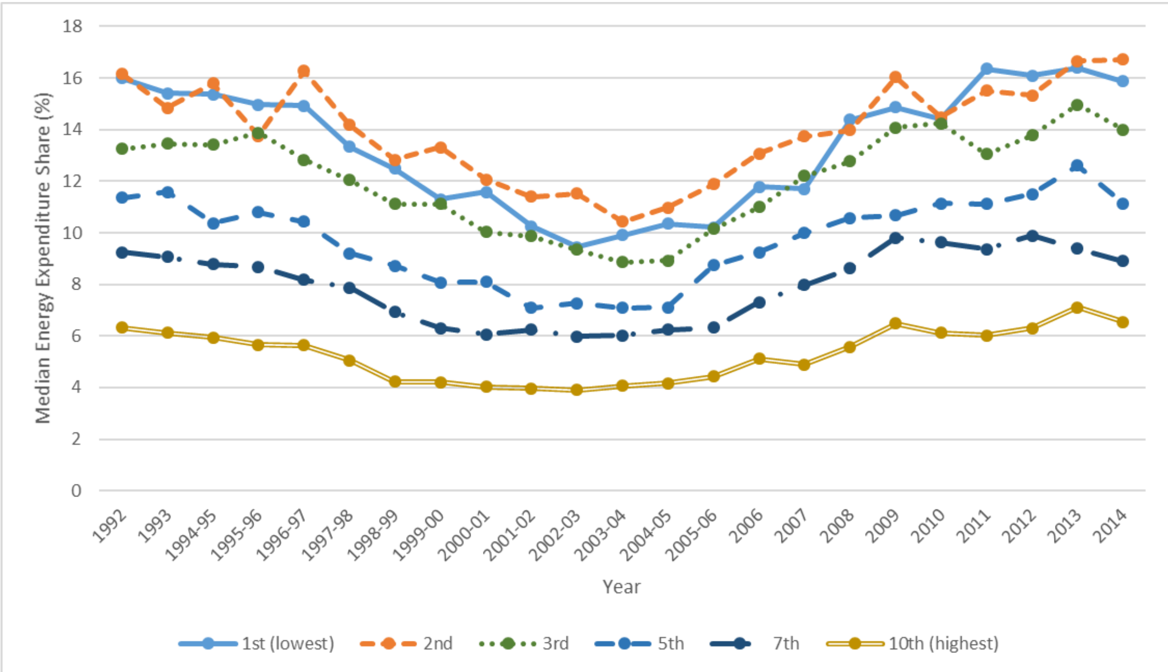

Figure 6 – Median (equivalised after housing costs) ENEXShr by equivalised after housing costs income deciles, 1992-2014

Figure 6 illustrates the higher ENEXShr of households in the lower income deciles[18]: the median ENEXShr of the lowest income decile in 2014 was 15.8%, almost two and a half times the ENEXShr of

[18] The lowest income decile has a central estimate of median ENEXShr below that of the second income decile between 1996-97 and 2007. In seven years between these two dates the equivalence of the two decile's median ENEXShr can be rejected at at least the 5% level. This finding appears to result from applying equivalisation and deducting housing costs from income when determining the income deciles.

the highest decile (6.6%). This difference indicates the much greater salience ENEX, and ENEX increases, are likely to have for low income households.

Moreover this divergence of median ENEXShr across income deciles increases when overall there are higher levels of ENEXShr. The 6.0 percentage point increase in median ENEXShr between 2003-04 and 2014 for households in the bottom income decile represents a more acute relative welfare reduction than the corresponding 2.5 percentage point increase in median ENEXShr for the top income decile.

Comparing the income-ENEXShr relationship across different regulated sectors provides further insight into why the retail energy market has attracted political attention. Figure 7 charts the share of household expenditure devoted to energy, water, telecoms and transport[19] by equivalised after housing costs income decile in 2014. First, for all income deciles, the share of expenditure devoted to household energy exceeds telecoms and water by a noticeable amount. Second, this gap is particularly large for the bottom three income deciles. Thus the salience of rising home energy costs to low income households is likely to be greater than for price increases in other regulated sectors.

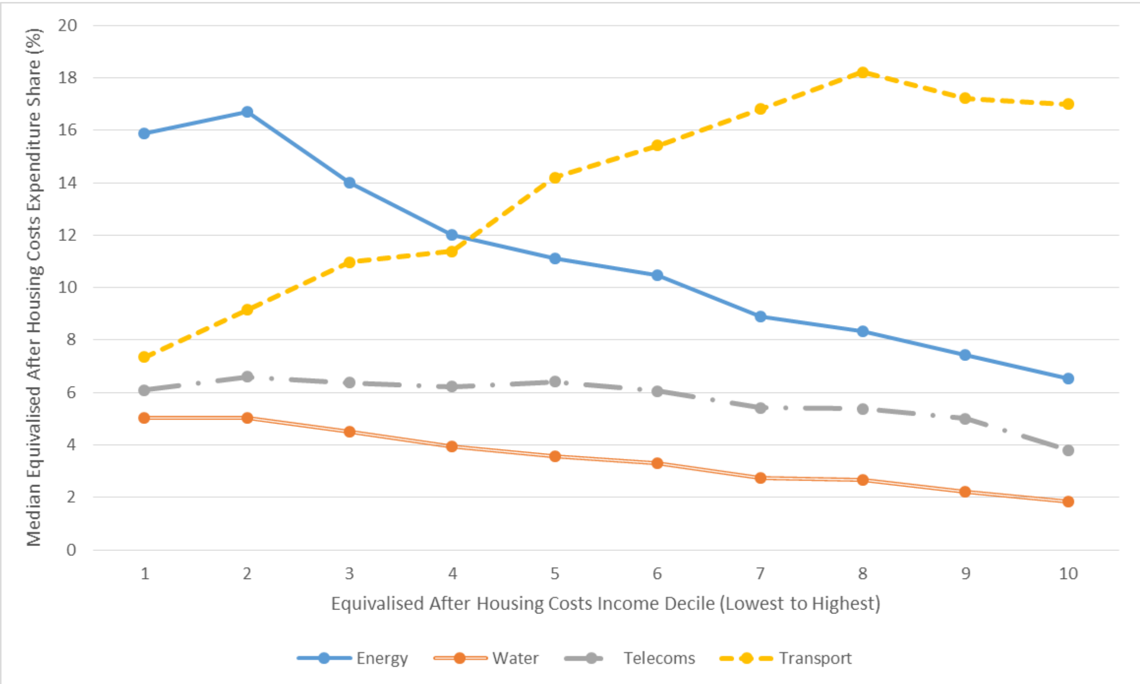

Figure 7 – Median share of (equivalised after housing costs) household expenditure devoted to different regulated sectors by equivalised after housing costs income decile, 2014

ENEXShr among older households is significant since the UK's costliest energy related benefit, the WFP[20], is available to households with an occupant above the female state pension age. Figure 8 shows that while households with a head aged over 80 have an ENEXShr similar to households in the bottom three deciles of the equivalised after housing costs income distribution, households with a head aged

[19] Only ENEX is deseasonalised. Water expenditure includes both water and sewerage; water expenditures that are part of rental payments or property service charges are not included. Telecoms expenditure covers fixed telephony, mobile telephony and broadband, but excludes pay TV services. Transport expenditure covers both private and public transport but excludes vehicle purchase costs.
[20] WFP is a social benefit which increases income rather than reduces ENEX. While WFP is equivalent to a large proportion of households' median ENEX (see Figure 12), its recording as income limits its impact on ENEXShr.

65-70 have ENEXShr similar to households in the fifth income decile.[21] This suggests that affordability pressures alone[22] are a weak justification for providing households aged 65-70 with financial support linked to energy, when compared to expanding support to a wider set of low income households.

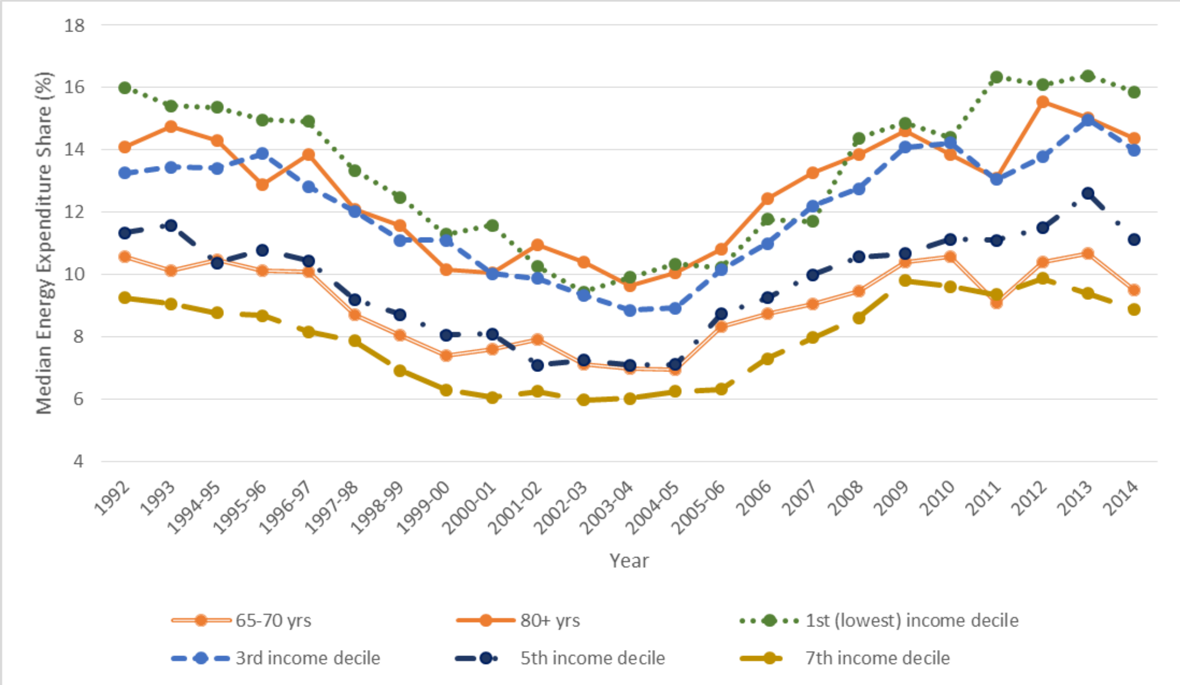

Figure 8 – A comparison of (equivalised after housing costs) ENEXShr for selected age groups and income deciles, 1992-2014

5. Affordability Support Policies

The ENEXShr time series provides context to energy affordability policies in England. These policies seem to have been influenced as much by government ideology, the electoral cycle and fiscal constraints following the Financial Crisis, as by actual energy affordability.

5.1 The Fuel Poverty Strategy

The FPS cannot be viewed as a response to increasing affordability pressures, since the first FPS was introduced in 2001 as median ENEXShr was falling towards a long-term low (Figure 9).

[21] The time series in Figure 8 are inclusive of any impact on ENEXShr from the policy interventions detailed in Section 5. Significantly the finding of 65-70 year old households having similar ENEXShr to the middle of the income distribution precedes the substantial increase in affordability support to this age group. In all years, it is possible to reject the equivalence of the median ENEXShr between the third and fifth income deciles at the 1% level and to reject the equivalence of the median ENEXShr between households with a head aged 65-70 and those with heads aged 80+ at the 1% level.

[22] If the consequences of restricting energy consumption, for example to health, are greater for older households there may still be a justification for ensuring households aged 65-70 can easily afford energy.

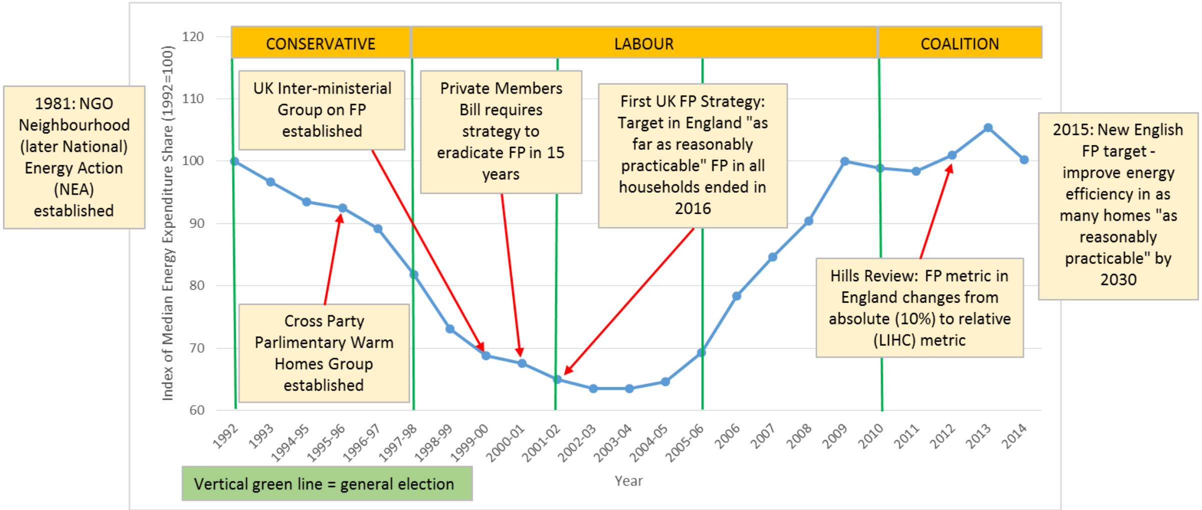

Figure 9 – FPS developments mapped against an index of median (equivalised after housing costs) ENEXShr

However, the first steps towards FP being an issue for policy intervention were taken during the higher affordability pressures of the late 1970s and early 1980s. Isherwood and Hancock (1979) suggested the concept, and in 1981 the NGO Neighbourhood (later National) Energy Action was founded. Boardman's book (1991) stimulated growing political awareness of FP, even as median ENEXShr were falling. The FPS resulted from a Private Members Bill by the Conservative MP David Amess (see Kidson and Norris, undated) and, following strong support in Parliament, the Warm Homes and Energy Conservation Act was passed in 2000.

Figure 9 also illustrates the increasing challenge of reducing FP as ENEXShr rose after 2003-04. The Labour government's 2001 FPS had the, "target that by 22 November 2016 no person in England should have to live in fuel poverty"[23], although, subject to the proviso "as far as reasonably practicable". Until 2012 a FP household was defined as one where ENEX exceeded 10% of household income; by specifying a fixed threshold above which a household was FP, the FP rate was sensitive to energy price fluctuations. Figure 10 shows that as ENEX rose between 2003-04 and 2009 the official FP rate rose from 5.9% to 18.4%, appearing to indicate an abject failure of the government's FPS.

The Conservative-Liberal Democrat coalition government initiated a review of FP leading to the Hills Report (2012) which recommended a new 'Low Income-High Cost' (LIHC) definition. Unlike its predecessor, the LIHC metric is relative: a FP household has high energy costs and a low income relative to an 'average' household. By definition, a relative FP metric will be insensitive to energy price fluctuations that affect all households and so the headline rate of LIHC FP contains limited information about changing affordability pressures through time. Since the LIHC FP metric is relative, eradication of FP becomes all but impossible.

While Hills (2012) provides a range of arguments for the LIHC metric, Figure 10 highlights some possible political benefits of the switch. First, when LIHC was introduced the rate of FP it indicated was considerably lower than under the 10% metric. Second, its lower variation through time may offer fewer striking headlines for the media. Hills (2012) did create a second indicator, the FP Gap[24], which is sensitive to energy price fluctuations, but its salience in media coverage may be limited by its status as a secondary statistic.

[23] pg 7, DEFRA (2004).
[24] This is the reduction in energy costs required to take a household out of LIHC FP.

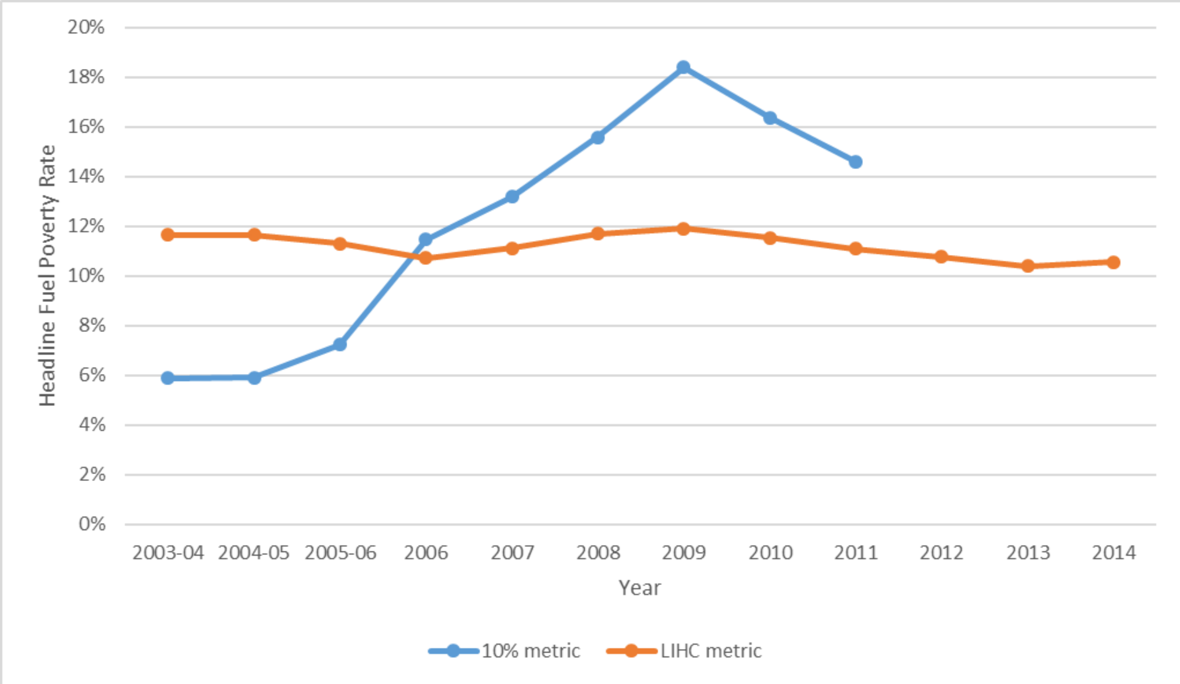

Figure 10 – Official headline English FP rates, 10% and LIHC metrics 2003-04 to 2014[25]

Following the change in FP definition, a new FPS was published in 2015 containing a softer target with a revised focus, namely "to ensure that as many fuel poor homes as is reasonably practicable achieve a minimum energy efficiency rating of Band C, by 2030"[26]. This target is framed in terms of energy efficiency ratings rather than households' required ENEX . While energy efficiency improvements can can improve energy affordability, this target's relevance to improving household welfare relies on improved energy efficiency ratings being strongly correlated with improvements in householders' lived experience. Good performance against this target can be achieved simply by installing energy efficiency equipment, regardless of whether it delivers real benefits to householders.

5.2 Key Energy Related Benefits[27]

5.2.1 The Cold Weather Payment

CWP was introduced in 1986 as a benefit for those on selected means tested benefits to counteract high ENEX during particularly cold weather. Payment is made when the average daily temperature at a household's location is below 0ºC for seven consecutive days.

By 1995-96 CWP was £8.50 per qualifying week, a level constant until 2008-09, when it was increased to £25. This 13 years of nominal stability resulted in the erosion of CWP's real value during a period when WFP was introduced and increased. As a result there was a substantial shift in balance from income related energy affordability support to age related support between 1997 and 2008-09. That those aged 65-70 benefitted from this policy shift raises questions about its appropriateness given

[25] Data for the 10% metric is from 'Trends in Fuel Poverty, England, 2003-2011, 10% Definition', Department for Energy and Climate Change (DECC). Data for the LIHC metric is from 'Trends in Fuel Poverty, England, 2003 to 2014', Department for Energy and Climate Change (DECC).
[26] HM Government (2015).
[27] Detail on the timing and structure of energy transfer payments is taken from Advani et al. (2013).

that their median ENEXShr is comparable to those in the middle, rather than bottom, of the income distribution.

5.2.2 The Winter Fuel Payment

In 1997-98 the new Labour government introduced WFP as a payment to households containing individuals above the female pension age. In 1997-98 WFP's basic rate was £20 while by 2003-04 it had risen to £200 (a tenfold increase)[28]; total WFP expenditure grew to £1.9bn over the same period. This growth in WFP preceded the growth in ENEXShr after 2003-04 (Figure 11).

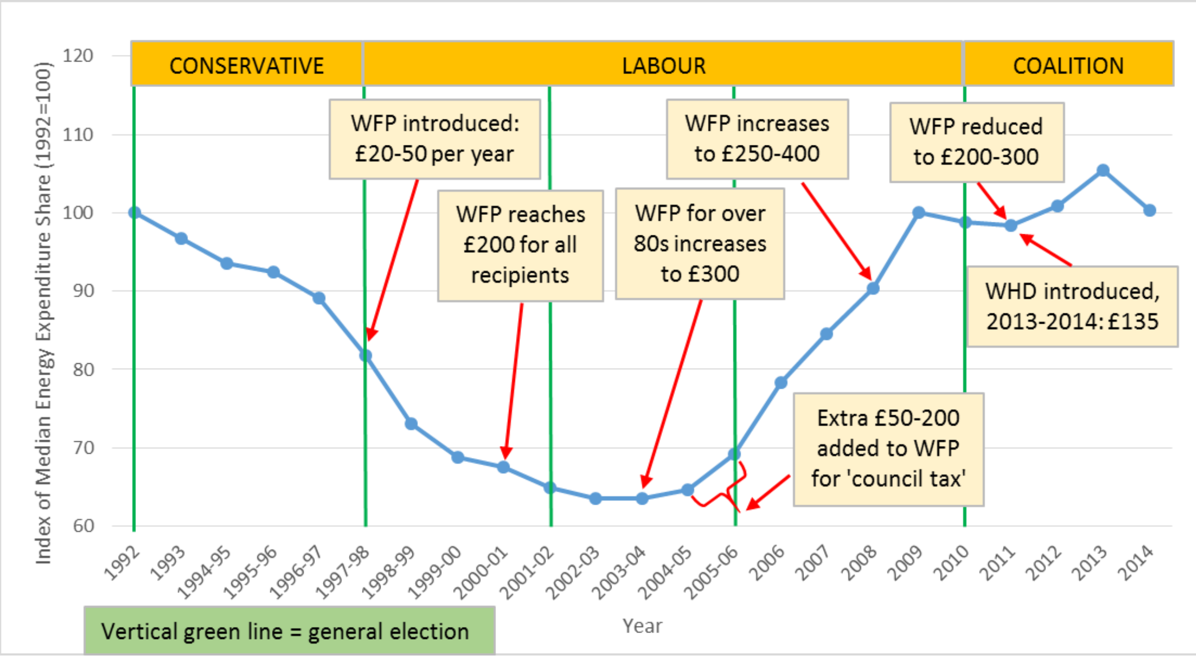

Figure 11: The evolution of the WFP mapped against an index of median (equivalised after housing costs) ENEXShr

[28] Detail on WFP's value is from Table 5.2, Advani et al. (2013).

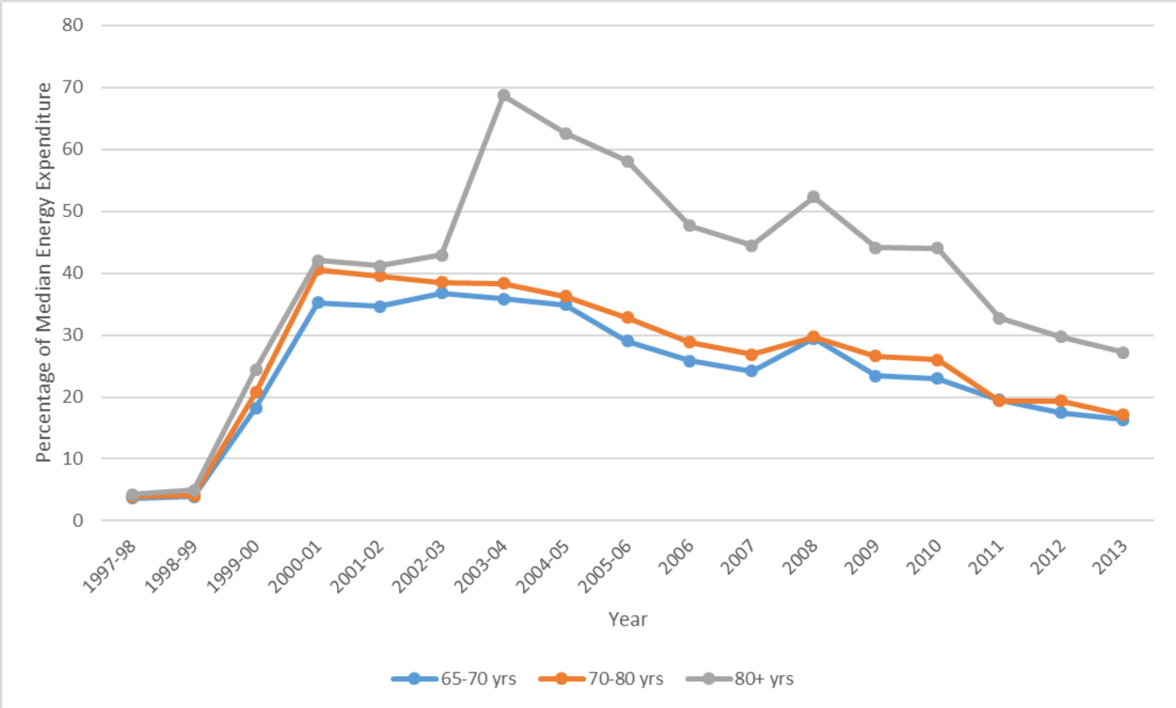

Figure 12 – WFP as a percentage of median ENEX for recipient age groups[29]

Figure 12 shows the main increase in WFP occurred between 1998-99 and 2000-01, with a second jump for those aged over 80 between 2002-03 and 2003-04. In 1998-99 WFP represented 3.9% of median ENEX for households headed by someone aged 70-80, while by 2000-01 it represented 39.5%. A smaller proportionate increase for all groups occurred between 2007 and 2008. The generosity displayed in Figure 12 is all the more notable as it excludes significant additional payments which were channelled through WFP in 2004-05 and 2005-06[30].

The elevated median ENEXShr of those aged 80+ could justify the higher WFP rate for these households, although, the initial level of £300, by representing 68.7% of these households' ENEX, appears generous. It is notable that in 2003-04 resources were used to increase WFP for the very old rather than to widen WFP eligibility to younger low income households, despite similarities in ENEXShr (Figure 8).

Also, since the early 2000s households with heads above the age of 65 have become a weaker proxy indicator for households on low incomes[31]. Between 2001-02 and 2004-05 around 55% of households with a head aged over 80 were in the bottom three deciles of the equivalised after housing costs income distribution, however, between 2009 and 2012 this figure was only around 40%. Similarly, between 2009 and 2014 the central estimate of the proportion of households with a head aged 65-70 in the bottom three income deciles was below 30%.

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[29] Median ENEX is categorised according to the household head's age, while all occupants' ages are used to assess WFP eligibility.

[30] In 2004-05 an extra £100 was directed through WFP to those aged 70+ to ease council tax bills (see Lourie, 2004), and in 2005-06 this was increased to £200 for all WFP recipients aged 65 or over who paid council tax (Advani et al., 2013). These additional payments were removed in 2006-07, after the May 2005 general election had occurred.

[31] Based on LCF data.

6. Concluding Remarks

The UK's retail energy market is highly politicised, with a growing emphasis on fairness, which has led to legislation imposing partial price regulation. These developments are contextualised by the present paper, which maps ENEXShr between 1992 and 2014 using a dataset incorporating a novel data correction. The substantial rise in ENEXShr, and doubling of ENEX in nominal terms between 2003-04 and 2013, help explain the sector's current political salience.

Moving beyond *why* the retail energy market has attracted political attention, we consider the relationship between ENEXShr and selected energy affordability policies. The key support policies, WFP and FPS, were introduced when ENEXShr were low rather than high, suggesting increasing affordability pressures were not their main driver. Our evidence is consistent with political expediency and ideology influencing affordability support policies. First, WFP represents a shift in the balance of resources from households on low incomes to those who are older, a shift consistent with targeting support at those more likely to vote. Second, energy affordability support increased substantially under a left of centre Labour government. Third, after a large rise in affordability pressures the coalition government chose to redefine the measurement of FP and its alleviation target in England in a manner that could be seen as reducing the political salience of FP and the commitment of government to reducing its prevalence.

Appendix 1 – Additional Materials

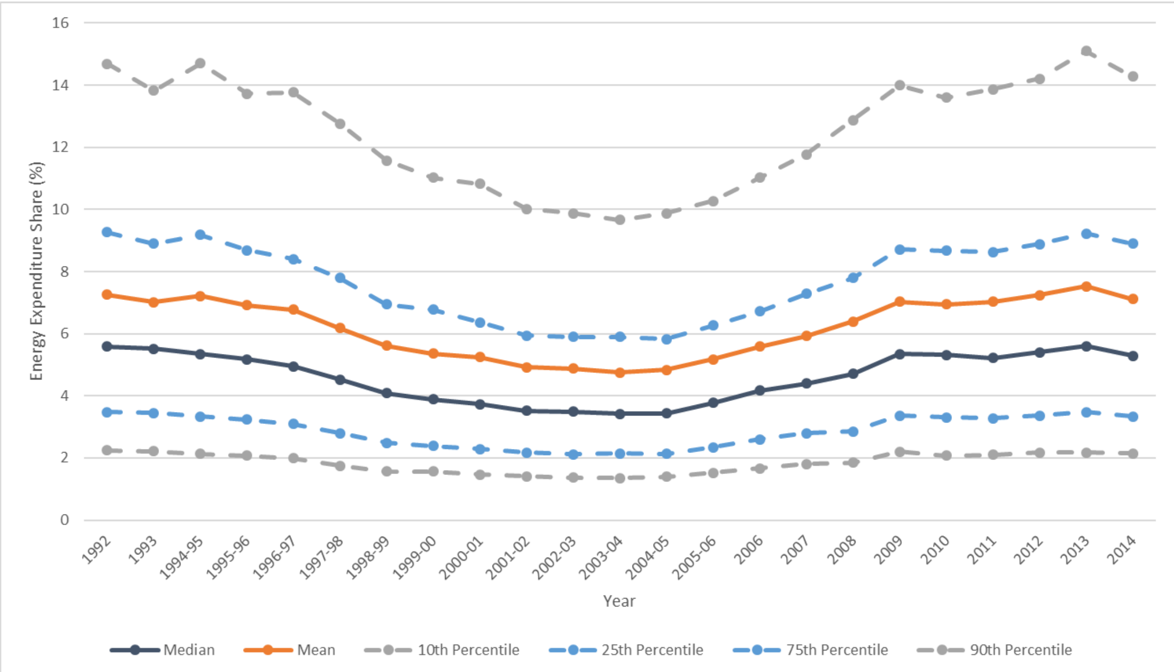

Figure A1.1 – ENEXShr distribution, 1992-2014 (unequivalised and including housing costs)

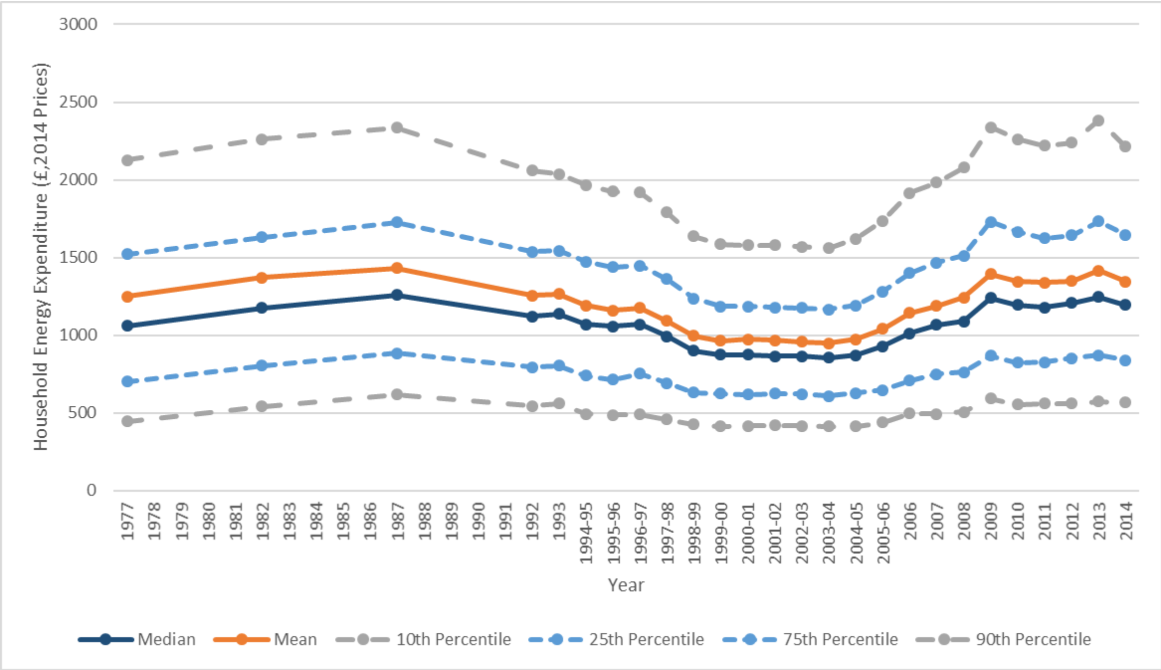

Figure A1.2 – Household ENEX distribution in 2014 prices, 1977-2014

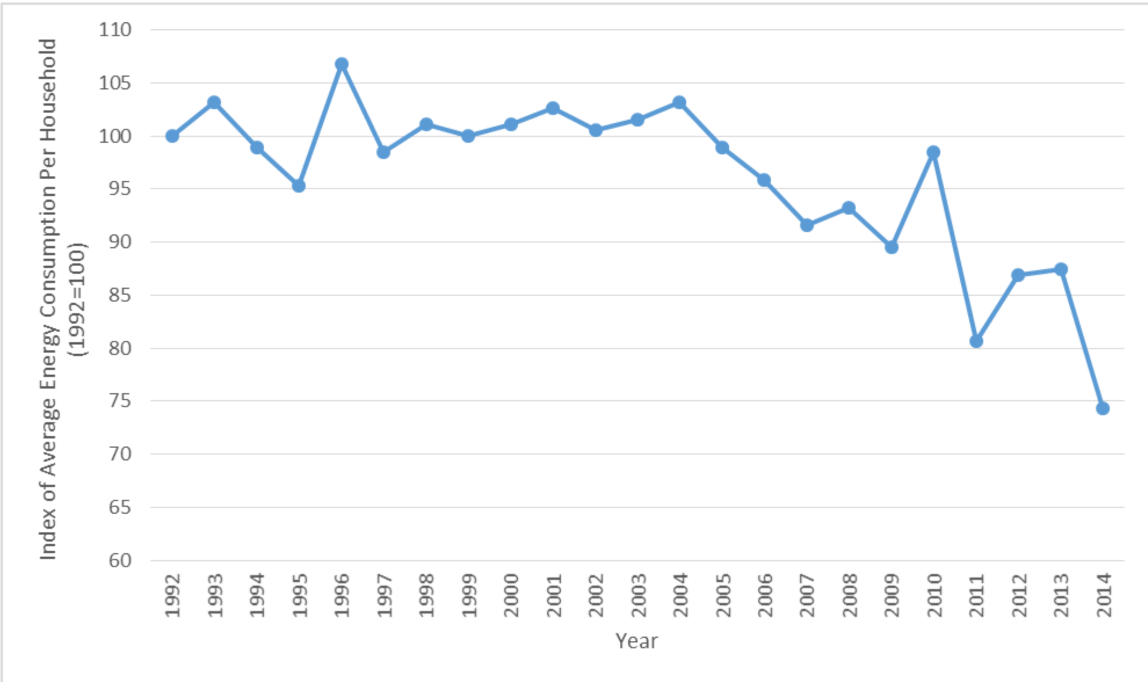

Figure A1.3 – Index of average energy consumption per household (1992=100), 1992-2014[32]

[32] Data from Table 3.04, Energy Consumption in the UK (ECUK) 2016 Data Tables, Department for Business, Energy and Industrial Strategy.

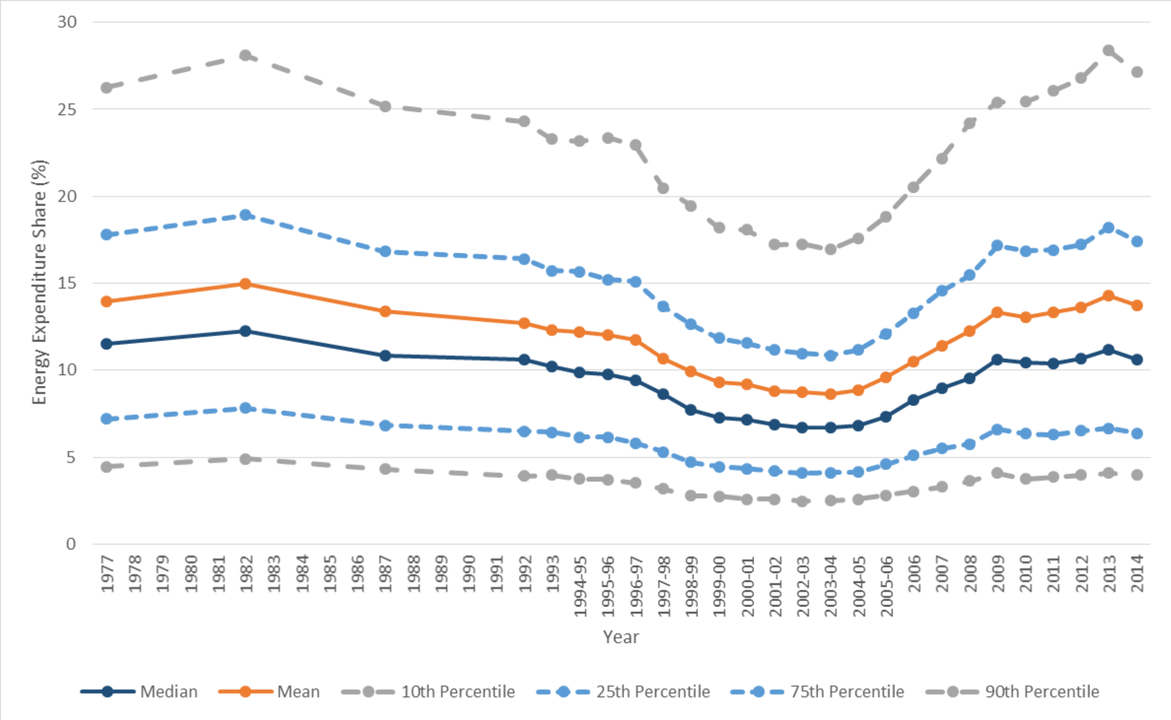

Figure A1.4 – ENEXShr (equivalised and after housing costs) distribution, 1977-2014

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