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Abstract

A number of countries offer domestic consumers the option of buying their electricity supply through a 'green tariff', whereby the supplier typically guarantees that all or part of the supply has been generated using renewable energy sources. Various studies have sought to identify variables describing and/or predicting why domestic consumers choose to purchase a green tariff. This study builds on previous work by reviewing the UK market in particular. Using data from the Understanding Society Survey (USS), a number of variables were tested for their predictive power. This included variables identified as statistically significant within other studies, and variables that – to the authors' knowledge – have not been tested through other work. Results find that individuals in the highest income quartile, those with higher qualifications, those supporting the Green political party, those exhibiting strong environmental behaviour and those households *not* in receipt of winter fuel payments were all more likely to have purchased green tariffs. Significant to a lesser degree were strong environmental attitudes and those households with some form of renewable energy technology installed.

JEL Codes: Q4, Q5, H4, L94
Keywords: Green Tariff; Environmental Attitudes and Behaviours; Household Decision Making

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1. Introduction

Many energy industry forecasts project a considerable increase in the contribution of renewable energy technologies (RETs) to global energy supply (e.g. BP, 2012). Green (2011) is one of many authors suggesting that this trend is primarily explained by international efforts aiming to tackle climate change through reduced greenhouse gas emissions: RETs such as wind or solar power offer an obvious route for 'decarbonising' the fossil-fuel intensive electricity sector.

Government projections and targets further illustrate the trend towards increased RET capacity. For example, in order to meet its own targets the UK Government anticipates 15% annual growth in RET capacity between 2010 and 2020 (DECC, 2011). This is not atypical: many other countries project similar trajectories (IEA, 2011). Clearly, a considerable volume of investment will be required to develop the infrastructure necessary to achieve such targets. To that end, various policies have been introduced to attract capital towards RETs: the UK's Renewables Obligation and the EU's Renewables Directive are two high-profile examples of such initiatives. While these policies tend to be aimed at energy suppliers and investors, they do not directly involve or incentivise *domestic* consumers.

Green tariffs offer one route through which domestic consumers can demonstrate support for – and contribute towards – investment in RETs: when a consumer purchases a green tariff the electricity supplier guarantees that all or part of the supply has been generated using RETs. Within the UK, green tariffs initially arose in the wake of electricity market deregulation (Batley et al, 2001). Suppliers established green tariffs partly to raise finance for the development of RETs, partly to help meet statutory targets, and – of most relevance to this research – partly as a response to consumer demand. As Graham (2007, p.2) suggests, green tariffs allow consumers to express their preferences for RETs and are ultimately *"…one of the simplest ways for households to reduce their environmental impact*".

However the work of Graham (2007) and the Green Energy Supply Certification Scheme[1] implies that – for the majority of suppliers – green tariffs have principally been used to help energy companies fulfil their statutory requirements under the UK's Renewables Obligation and the EU's Renewables Directive. This latter approach has proved controversial: some have found it unpalatable that energy companies have used green tariffs to offset their legal obligations, rather than using the income to develop *additional* renewable infrastructure, above and beyond their statutory requirements (Graham, 2007; Friends of the Earth, 2005; BBC, 2008). In addition to these concerns about the legitimacy of green tariffs, it is clear that actual uptake of green tariffs has largely failed to match potential uptake: Graham (2007) compares a survey indicating that 64% of the UK population would *consider* purchasing a green tariff with data suggesting that less than 1% of the UK population *actually purchase* a green tariff. Why is there such a large discrepancy between *stated* consumer preferences and *actual* uptake? This research attempts to answer that question by analysing a large survey of the UK population.

[1] http://www.greenenergyscheme.org: independent, Ofgem-endorsed certification scheme for green tariffs in the UK

2. Literature review

The quantity of research conducted into green tariff adoption is comparatively limited at present, partly explained through the relative infancy of the market: as Ozaki (2011) notes, the earliest green tariffs only arose in the mid-1990s, with still relatively few national markets offering the product.

2.1 Previous frameworks, models and approaches

While all studies are unified in their classification of green tariffs as a consumer product, there is divergence across the various theoretical frameworks as to what the primary influences are on consumer choice when selecting products (or expressing preferences), with these differences inevitably influencing the various hypotheses and models adopted in each study. For example, Hansla et al (2007) start with a theoretical assumption that green tariff adoption is a signal of value oriented consumer behaviour – in this instance pro-environmental behaviour. Consequently, their research looks most closely at the values, beliefs and attitudes of their sample. In contrast, Arkesteijn & Oerlemans (2005) apply a quite different framework, with far broader starting assumptions that delink the specifics of the product. Instead of treating green tariffs in a more generalised fashion, their model is built around a conception of green tariffs as an innovation, rather than a product with predefined characteristics (whether 'pro-environmental' or otherwise). This higher level of abstraction allows for a model that looks at more general consumer variables *in addition* to environmental attitudes and behaviours.

Regardless of these theoretical differences, the majority of studies are predictive in nature, adopting contingent valuation methodology – and more specifically willingness-to-pay (WTP) – as the core tool. Only Kotchen & Moore (2007) and Ozaki (2011) differ in their approaches, applying descriptive models and collating data through surveys without application of WTP. In all studies the data is interrogated via multivariate regressions, with the dependent variable being 'adoption of green tariff' or a variation thereof. A final commonality across studies is the relatively limited nature of the data sets – samples are characterised by both a small number of observations and a constrained geographical reach.

It is important to acknowledge that the theories and methodologies applied within these studies have not arisen in isolation. Studies into green consumerism more broadly (i.e. not just electricity) start appearing regularly during the mid-1990s. These studies – for example, Shrum et al (1995) and Mainieri et al (1997) – tend to start with an assumed relationship between environmental attitudes and green purchasing behaviour, but also explore broader demographic aspects, with their approaches and findings arguably laying some important foundations for future studies. In summary, it is clear that the existing green tariff research is based on similar assumptions, theoretical foundations and practical methodologies applied within research into green consumerism more broadly.

2.2 Previous findings

Despite the limited number of studies there is a degree of consistency across the work. A number of variables are consistently statistically significant when it comes to describing or predicting uptake of green tariffs. Perhaps unsurprisingly, several authors (e.g. Diaz-Rainey & Ashton, 2008; Kotchen & Moore, 2007; Arkesteijn & Oerlemans, 2005) have found that consumers exhibiting greater concern for the

environment are more likely to express an interest in buying green tariffs. In isolation this may seem obvious, but it's more interesting when combined with the finding that strong environmental concern alone is *not sufficient* for actual uptake. Other conditions need to be met before consumers with a supportive attitude actually purchase a green tariff. Indeed, this is what the work of psychologist and sociologists would suggest (Ajzen & Fishbein, 1980; Kollmuss & Agyeman, 2002). Attitudes are generally not very good predictors of behaviour, especially when the attitude (care about the environment) is not the same as the behaviour in question (what type of electricity to purchase).

Although previous studies are in agreement on the inadequacy of 'environmental concern' as a predictor, the studies are less consistent when it comes to isolating the other variables that influence uptake. Most promisingly – and again, perhaps unsurprisingly – consumers that have prior knowledge of renewable electricity or green tariffs are more likely to adopt: three studies identify this variable as significant (Diaz-Rainey & Ashton, 2008; Arkesteijn & Oerlemans, 2005; Ozaki, 2011). There is markedly less agreement around the demographics of green tariff adopters – for instance, Diaz-Rainey & Ashton identify income as significant within the UK market, but Arkesteijn & Oerlemans (2005) do not identify this significance in the Dutch market, and Kotchen & Moore (2007) also note a lack of clear evidence for this in the US market. Studies looking into more detail around demographics (Diaz-Rainey & Ashton, 2008; Kotchen & Moore, 2007) do find agreement on variables that are not significant: age, gender and education demonstrate no significance within these authors' models.

Finally, it is interesting to note that a central contradiction of consumer behaviour towards green tariffs – namely the large discrepancy between stated interest in the product and actual uptake – is repeated across analogous product groups. A representative study is provided by Carrington et al (2010), who explore this 'intention-behaviour gap' in detail, finding a similar pattern amongst consumers exposed to 'ethical' purchasing decisions.

2.3 Knowledge gaps

The literature review demonstrates some agreement across existing studies into which variables describe and predict green tariff uptake. Additional research will certainly help to deepen this understanding, potentially contributing towards a firmer consensus on green tariff consumer characteristics.

However, it could be argued that the knowledge gaps are more fundamental than lack of agreement around explanatory variables. The existing studies are characterised by comparatively limited sample sizes, often only undertaken in a single city: the interrogation of a larger data set could improve accuracy and robustness of findings. Additionally, the number of variables explored tends to be limited: while some studies move away from looking merely at environmental preferences and behaviours, there is clear potential for broader exploration of demographic and economic characteristics.

Finally, all the studies were undertaken using surveys and data sets that were developed *specifically* for the analysis of green tariff adoption: consequently – and from a behavioural economics perspective – all these surveys could suffer from the

framing effects first hypothesised by Tversky and Kahneman (1981). Surveys that gather more general consumer information – and that are not framed specifically as an electricity or green tariff survey – could, without potential framing bias, reveal additional information about consumer behaviour.

3. Methodology

3.1 Sample

The research used cross-sectional data from the Understanding Society Survey (USS), the UK's household longitudinal study, producing annual waves of data from 2009/10 onwards.

Exploration of the USS data holds a number of considerable advantages over existing green tariff studies:

- The sample size is far greater than other existing studies
- The geographical extent of the study is larger than most other studies
- The sheer number of variables available through USS allow for a far broader exploration of potential influences on green tariff adoption
- The sample does not suffer from potential framing bias: USS is a *general* household study, and is not focussed specifically on green tariff adoption
- USS is conducted annually, so the research can be repeated on a yearly basis to determine longitudinal trends; all other studies have been 'one-offs'[2]

3.2 Regression models

The research was based on a series of probit regressions[3], using a dependent variable derived from the following USS question:

"Does your household buy, or is your household seriously considering buying its electricity on a Green Tariff?"

USS respondents were able to choose from four answers to this question:

- **Yes – already buy**
- **Seriously considering**
- **Considered in the past and rejected**
- **No**

The core model focused squarely on identifying variables characterising those consumers that *actually purchase* a green tariff, aggregating all other responses into a single response group of consumers that don't purchase a green tariff:

[2] Wave II of the USS is scheduled to be released in late 2012
[3] Logit models were also tested, returning similar results to the probit models.

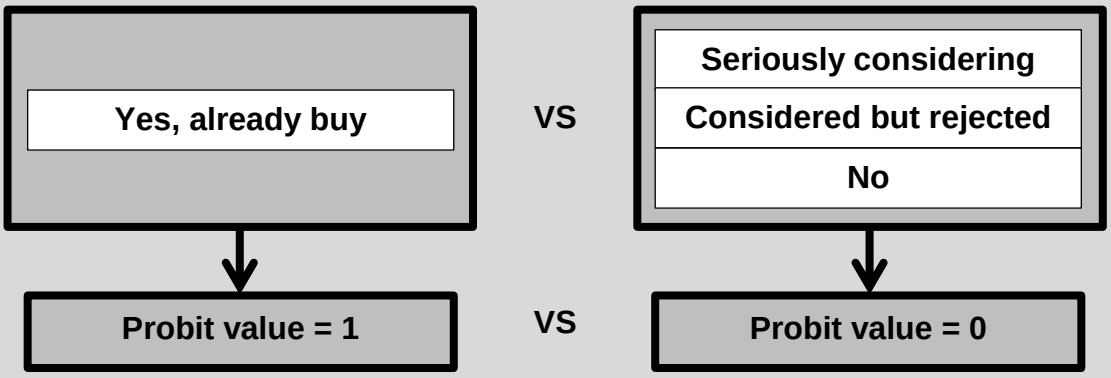

Figure 1: Core model (probit regression)

While the above illustrates the core model, additional regressions were undertaken in order to develop a complete a picture as possible of characteristics defining (and differentiating) each respondent group. Table 1 presents the full set of regressions applied.

Table 1: Regression models and dependent variable probit values

Model	Probit values			
	Yes	Considering	Rejected	No
A	1	0	0	0
B	1	0	(removed)	(removed)
C	1	(removed)	0	(removed)
D	1	(removed)	(removed)	0

Given that all models are binary dependent variable regression results were analysed using the average marginal effects of explanatory variables, rather than slope coefficients.

3.3 Dependent variable limitation

The research made use of two USS components – a household-level survey and an individual-level survey. Individual data can easily be mapped to household data and in most instances this is a logical, justified process. To take the clearest example, if the household survey indicates that the house is in Scotland, then it follows that all individuals permanently living in that house also live in Scotland. However, the household survey also contains variables that are less obviously associable to the individual. Of particular relevance to this study is the green tariff question (i.e. the dependent variable), which is collected at the *household* level. A core assumption of this study is that the household answer to the green tariff question subsequently applies to *all* adults living within that household. For example, if a household is recorded as 'seriously considering a green tariff', then *all* adults within that household are assumed to be 'seriously considering a green tariff'. This is clearly

imperfect, so it is important to be cognisant of this assumption when interpreting results.

Table 2: Explanatory variables and families[4]

Family 1: Preferences and behaviours		
Variable	**Description**	**Values**
politics	Political leaning	Nominal (7 political parties)
commun	Community-mindedness: derived from 8 USS questions	Likert (Cronbach's alpha = 0.88)
relig	Religious?	Dummy (yes/no)
envbvr	Environmental behaviour: derived from 10 USS questions	Likert (Cronbach's alpha = 0.57)
envatt	Environmental attitude: derived from 8 USS questions	(Cronbach's Alpha = 0.61)
renewgen	House has solar for electricity AND/OR solar for water AND/OR wind for electricity?	Dummy (yes/no)
Family 2: Demographic variables		
sex	Sex	Dummy (female/male)
dvage	Age	Interval
wfp	Receive winter fuel payment	Dummy (yes/no)
hiqual	Highest qualification	Ordinal (4 categories)
hhtype	Children in household?	Dummy (yes/no)
hhincyr	Annual household net income	4 quartiles
xpelecy	Annual electricity expenditure	Interval
tenure	Housing tenure type	Dummy (owned/rented)
employ	Employed?	Dummy (yes/no)
gor	Region	Nominal (12 UK regions)

3.4 Explanatory variables

[4] Summary statistics for variables presented in Annex 5

Table 2 presents the full list of the independent variables used in the research, grouped into two 'families', with one containing preference and behaviour variables, the other containing demographic variables[5].

While most variables are self-explanatory, a number require further exposition. Three variables ('community-mindedness', 'environmental attitudes' and 'environmental behaviour') were derived to aggregate and replace sets of similar USS questions. For example, the USS asks respondents to rank their 'community-mindedness' against a series of eight separate statements, measured on a five-point Likert scale (for example, one such statement is "*I borrow things and exchange favours with my neighbours*"). Rather than including all eight of these statements, a *single* 'community-mindedness' variable was constructed using Pevalin & Robson's (2009) recommended approach. The new 'community-mindedness' variable yielded a Cronbach's Alpha value of 0.88, suggesting good internal consistency of the new, aggregated variable.

The same approach was applied to develop an 'environmental behaviour' variable from 10 USS statements. Although these statements are explicitly framed to USS respondents as being about their *environmental* behaviour, they clearly also have an economic dimension (for example, one representative statement is "*I car share with others who need to make a similar journey*"). Moreover, the variable derived using Pevalin & Robson's approach returned a comparatively low Cronbach's Alpha of 0.57. This process was repeated to generate an 'environmental attitude' variable, constructed from 8 USS questions around environmental and climate change attitudes (e.g. one such statement was "*I would be prepared to pay more for environmentally-friendly products*"). Again, a relatively low Cronbach's Alpha of 0.61 was returned. Given these caveats, any results relating to the environmental behaviour and environmental attitude variables need to be treated with caution.

The household survey also gathered information on whether any renewable energy generation systems were installed. A dummy variable was used to indicate whether a household had solar panels for electricity OR solar panels for water heating OR wind turbines for electricity. Similar to the study's core assumption around the green tariff (section 4.3 above), it has been assumed that if a household has a renewable energy system, all individuals within that household also 'have' a renewable energy system.

For annual household net income, both a linear variable and dummy income quartile variables are used. Quartiles were defined by the data set itself:

- Q1: £0 - £14,796 per annum
- Q2: £14,796 - £24,202
- Q3: £24,202 - £36,927
- Q4: £36,927 and above

[5] Taking the lead from Arkesteijn & Oerlemans (2005) and Diaz-Rainey & Ashton (2011), initial regressions were undertaken on the separate variable families, but it was immediately clear that combining all variables together would deliver considerably improved predictive power. For example under the core regression model, family 1 variables returned a pseudo-R2 of 0.069, family 2 returned a pseudo-R2 of 0.057, and the combined model returned a pseudo-R2 of 0.133

A variable was also derived to identify households in receipt of the UK's winter fuel payment: any household with at least one individual over the age of 60 by default receives a payment from government of at least £200.

Dummy variables for the 12 UK geographic regions were also included. Finally, not listed in table 2 is the USS' own weighting variable, which was included in all regressions to adjust for USS selection probabilities, survey non-responses and sampling errors. Annex 2 provides further detail on the original USS questions and data from which all variables were sourced. Summary statistics and Variable correlations are presented in Annex 4 and 5, respectively.

4. Results

Prior to considering the regression models and results, table 3 tabulates the basic breakdown of responses to the USS green tariff question:

Table 3: Responses to USS green tariff question

Does your household buy, or is your household seriously considering buying its electricity on a Green Tariff?	
	Sample
Yes	2.57%
Seriously considering	6.34%
Considered but rejected	1.85%
No	89.24%
Total	8670

The USS data was collected in 2009/10, so uptake has increased considerably since the data quoted in section 2 from Graham (2007), which indicated less than 1% of households purchased a green tariff. However, the level of uptake indicated by the USS data still represents a tiny proportion of the supposed demand that Graham identifies: there is still an enormous behaviour-intention gap.

4.1 Core model (A)

The core model (A) – which compared *only* those respondents that *actually* bought a green tariff against *all* other respondents – indicated a number of highly significant variables. Table 4 provides a limited set of results, presenting only those variables identified as statistically significant (full regression results are presented in Annex 5).

Individuals in the highest income quartile, those within the highest qualification category (tertiary education), those supporting the Green political party and those exhibiting strong environmental behaviour were all more likely to have purchased green tariffs. Also highly statistically significant were those households *not* in receipt of winter fuel payments (i.e. receiving the winter fuel payment meant purchase of a green tariff was *less* likely). Statistically significant to a lesser degree were those households with some form or renewable energy technology installed (5% level) and those with strong environmental attitudes (10% level) – environmental behaviour was therefore a stronger predictor than environmental attitude. Perhaps of equal interest were the variables showing *no* significance: age, sex, employment status, housing

tenure (owned or rented), household expenditure on electricity, community-mindedness and religiousness all showed no significance within the core model. Interactions between household income and strong environmental behaviour were also tested, but showed no significance.

Table 4: Model A results

Probit regression Observations: 8670		
Variable	**Marginal Effect (S.E.)**	
Demographics		
Receive winter fuel payment	-0.014***	(0.005)
Qualifications *(dummy = grp1: none)*		
Grp 4: Tertiary	0.019***	(0.007)
Income *(dummy = Q1)*		
Quartile 4	0.019***	(0.006)
Political preference *(dummy = no party)*		
Conservative	0.011*	(0.006)
Green	0.047***	(0.008)
Environmental		
Env'l behaviour	0.015***	(0.003)
Env'l attitude	0.014*	(0.007)
Have renewables installed	0.027**	(0.010)

, **, * indicates 10%, 5%, and 1% significance respectively*

4.2 Refining an understanding of adopters (Models B, C & D)

Arguably, the results from the core model are the most robust and informative for understanding the 'true' nature of green tariff adopters, as it was the only model that compared *actual* adopters against all other individuals (i.e. non-adopters). Results from the other models certainly provide a more nuanced understanding of differences between the four respondent groups (i.e. 'yes', 'seriously considering', 'considered but rejected', 'no') but how well defined, for example, are those USS respondents classified as 'seriously considering' purchase of a green tariff? There is no way of ascertaining whether those respondents were actively reviewing the green tariff options available to them, or whether they were – for example – indifferent to (or even unaware of) the product prior to the USS question being posed, at which point they felt they would 'seriously consider' a purchase, but reverted to indifference and inaction once the survey was completed.

Bearing such caveats in mind, the additional regression models are still informative around differences between, to take one example, those individuals that have actually purchased a green tariff and those individuals that are *most likely* to purchase a green tariff (i.e. those 'seriously considering' a purchase). Table 5 presents limited results for models B, C and D, which (as per table 1) compared green tariff adopters to each individual respondent group; results for core model A are also represented for ease of comparison.

Table 5: Model A-D results

Probit regressions				
Model:	**A (yes v all)**	**B (yes v consider)**	**C (yes v rejected)**	**D (yes v no)**
Observations:	**8670**	**773**	**374**	**7960**
Variable	**Marg. Eff. (SE)**	**Marg. Eff. (SE)**	**Marg. Eff. (SE)**	**Marg. Eff. (SE)**
Demographics				
Sex	-0.004 (0.003)	0.011 (0.032)	0.038 (0.050)	-0.005 (0.004)
Age	0.000 (0.000)	0.002 (0.001)	-0.003 (0.002)	0.000 (0.000)
Winter fuel	-0.014*** (0.005)	-0.060 (0.054)	-0.116 (0.086)	-0.015*** (0.006)
Employed	0.000 (0.004)	-0.021 (0.040)	0.026 (0.060)	0.001 (0.005)
Tenure (owned)	0.002 (0.004)	-0.052 (0.043)	-0.056 (0.061)	0.003 (0.005)
Kids in household	-0.006 (0.004)	-0.040 (0.035)	-0.165*** (0.053)	-0.006 (0.004)
Electricity expend	0.000 (0.000)	0.000 (0.000)	0.000** (0.000)	0.000 (0.000)
Qualifications *(dummy = grp1: none)*				
Grp2: Other	0.016 (0.010)	0.085 (0.102)	0.163 (0.142)	0.018 (0.011)
Grp3: Secondary	0.011 (0.007)	-0.007 (0.071)	0.137 (0.102)	0.013* (0.008)
Grp4: Tertiary	0.019*** (0.007)	0.019 (0.071)	0.130 (0.104)	0.022*** (0.007)
Income *(dummy = Q1)*				
Quartile 2	0.006 (0.006)	0.055 (0.056)	-0.139 (0.098)	0.006 (0.006)
Quartile 3	-0.001 (0.006)	-0.003 (0.057)	-0.202** (0.098)	-0.001 (0.007)
Quartile 4	0.019*** (0.006)	0.148*** (0.053)	-0.018 (0.095)	0.021*** (0.006)
Political preference *(dummy = no party)*				
Conservative	0.011* (0.006)	0.070 (0.054)	0.034 (0.087)	0.011* (0.006)
Green	0.047*** (0.008)	0.194*** (0.065)	0.149 (0.111)	0.056*** (0.008)
Other party	-0.001 (0.009)	0.015 (0.112)	-0.370** (0.170)	-0.001 (0.010)
Environmental				
Strong behaviour	0.015*** (0.003)	-0.014 (0.026)	0.009 (0.041)	0.019*** (0.003)
Strong attitude	0.014* (0.007)	0.047 (0.070)	0.064 (0.115)	0.015* (0.008)
Have renewables	0.027** (0.010)	0.052 (0.085)	(omitted)	0.031** (0.012)

, **, * indicates 10%, 5%, and 1% significance respectively*

Notwithstanding concerns around the validity of the 'seriously considering' category, model B indicates the key differences between green tariff adopters and those individuals that have not yet adopted but are *most likely* to purchase the product (i.e. the 'seriously considering' respondents): more simply, what are the variables that will push an individual 'over the edge' to adopt green tariffs? Model B suggests only two highly significant variables: adopters are more likely to be within the top income quartile, and are more likely to support the Green party. There is no statistically significant difference in environmental behaviours or attitudes between the two groups.

Model C compared green tariff adopters to those individuals that had considered a green tariff in the past, but had rejected adoption. Some new variables were identified as significant in this model: those rejecting the tariff were more likely to have children in their household and were more likely to vote for a minority political party. Arguably of most interest though was the fact that the dummy variable

describing whether or not a household had renewable energy technologies installed was omitted from the regression due to collinearity: in other words those 'rejecting' the green tariff had a tendency to install their own renewable energy instead.

Model D compared green tariff adopters with those individuals that had answered a straight 'no' within the USS survey (i.e. they are not considering and have never considered a green tariff). Unsurprisingly, the results for model D were very similar to model A, with both models sharing the same highly significant variables.

A multinomial logit regression was also undertaken, and served to validate the results delivered by models A-D. The full results of the multinomial model – and indeed all the other model results – are available in Annex 5.

5. Conclusions

Green electricity tariffs offer one route through which domestic consumers can exhibit support for – and contribute towards – investment in renewable energy technologies. However, there remains a considerable intention-behaviour gap between expressed support for renewable energy technologies and uptake of green tariff electricity products. A 2011 YouGov survey[6] indicated that, for example, 74% of the UK public think that government should be looking to use more solar power (56% for wind power), yet data from the UK's Understanding Society survey demonstrates that less than 3% of UK households purchase a green tariff. This research aimed to identify whether this minority of green tariff adopters had any significant characteristics that differentiated them from non-adopters.

Using data from the Understanding Society Survey, a series of probit regressions were undertaken to identify whether any variables characterise consumers that purchase green tariff electricity. The core regression model – which compared all adopters against all non-adopters – found that individuals from the dataset's highest income quartile (households earning more than £36,927 net/annum), those with higher levels of educational qualification, those supporting the Green party, those households *not* in receipt of winter fuel payments, and those exhibiting strong environmental behaviour were all more likely to have purchased green tariffs. On this latter variable, behaviour was a stronger predictor and descriptor than environmental attitudes, with environmental attitude only significant at the 10% level. A number of variables showed no significance within the core regression model: age, sex, employment status, housing tenure, household expenditure on electricity, community-mindedness and religiousness all showed no significance.

However, it is clear that these findings cannot adequately explain the huge intention-behaviour gap between adopters and non-adopters. The generalist nature of Understanding Society survey avoids potential framing bias inherent within other green tariff research, but within this strength lies a weakness: a thorough, more direct exploration of motivations for green tariff adoption/non-adoption is not possible with the data set.

[6] Available: http://cdn.yougov.com/cumulus_uploads/document/gm4jg0973n/Sunday%20Times%20Results%20111125%20VI%20and%20Trackers.pdf [16.05.12]

It is possible that individuals supporting renewable energy development are not aware of green tariffs, or that low uptake is simply explained by inertia. A general lack of trust in energy companies could also be an important determinant (e.g. Macalister & King, 2011), potentially exacerbated in this specific situation by the controversy that led to the formation of the Green Energy Certification Scheme. In any case, future research should move beyond exploration of general characteristics of UK green tariff adopters, and should attempt to identify more precisely the *motivations* for green tariff adoption and non-adoption.

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Annex 2: Variables – source USS questions and data

Variable	USS question	Possible responses
Dependent	Does your household buy, or is your household seriously considering buying its electricity on a Green Tariff?	• Yes – already buy • Seriously considering • Considered in the past and rejected • No
politics	Two distinct respondent groups: • Do you think of yourself as a supporter of any one political party? • If not, If there were to be a general election tomorrow, which political party do you think you would be most likely to support?	• Conservatives • Labour • Liberal Democrat • Scottish National Party • Green Party • Other • None
commun	Next, here are some statements about neighbourhoods. Please tick the box that indicates how strongly you agree or disagree with each statement: • I feel like I belong to this neighbourhood • The friendships and associations I have with other people in my neighbourhood mean a lot to me • If I needed advice about something I could go to someone in my neighbourhood • I borrow things and exchange favours with my neighbours • I would be willing to work together with others on something to improve my neighbourhood • I plan to remain a resident of this neighbourhood for a number of years • I like to think of myself as similar to the people that live in this neighbourhood • I regularly stop and talk with people in my neighbourhood	USS responses: • Strongly agree • Agree • Neither agree/disagree • Disagree • Strongly disagree commun combines all statements into a single variable (Cronbach's Alpha = 0.88)
relig	Do you regard yourself as belonging to any particular religion?	Yes/No
envatt	The next questions are about your opinions on the environment. Please tick whether, on the whole, you personally believe or do not believe each of the following statements. • I don't believe my behaviour and everyday lifestyle contribute to climate change • I would be prepared to pay more for environmentally-friendly products • Climate change is beyond control - it's too late to do anything about it • The effects of climate change are too far in the future to really worry me • Any changes I make to help the environment need to fit in with my lifestyle • It's not worth me doing things to help the	envatt combines all statements into a single variable (Cronbach's Alpha = 0.61)

	environment if others don't do the same • It's not worth Britain trying to combat climate change, because other countries will just cancel out what we do • People in the UK will be affected by climate change in the next 30 years	
envbvr	Now a few questions about the environment. Please look at this card and tell me how often you personally do each of the following things: • Switch off lights in rooms that aren't being used • Keep the tap running while you brush your teeth • Put more clothes on when you feel cold rather than putting the heating on or turning it up • Decide not to buy something because you feel it has too much packaging • Buy recycled paper products such as toilet paper or tissues • Take your own shopping bag when shopping • Use public transport (e.g. bus, train) rather than travel by car • Walk or cycle for short journeys less than 2 or 3 miles • Car share with others who need to make a similar journey • Take fewer flights when possible	USS responses: • Always • Very often • Quite often • Not very often • Never envbvr combines all statements into a single variable (Cronbach's Alpha = 0.57)
renewgen	• Have you installed solar panels for electricity? • Have you installed solar panels for water heating? • Have you installed a wind turbine to generate electricity?	If respondent answered yes to one or more of these questions, then renewgen=1, otherwise renewgen=0

sex	*Coded by USS surveyor*	Male/Female
dvage	*Not a specific question*: USS derive age post-survey	Interval
wfp	*Not a specific question:* Dummy variable derived for all households with anyone over 60 years of age	Yes/No
hiqual	*Not a specific question*: USS derive highest qualification post-survey	• Tertiary • Secondary • Other (e.g. vocational) • No qualifications
hhtype	*Not a specific question*: USS derive number of kids in household post-survey	Kids in household/No kids in hh
hhincyr	*Not a specific question*: USS derive monthly household income post-survey	Annual = USS value x12
xpelecy	In the last year how much has your household spent on electricity?	Quartiles: • Q1: £0 - £14,796 (pa) • Q2: £14,796 - £24,202 • Q3: £24,202 - £36,927 • Q4: £36,927 and above

tenure	*Not a specific question*: USS derive tenure post-survey	Owned/Rented
employ	Are you in paid employment?	Yes/No
gor	*Not a specific question*: USS derive UK region post-survey	• North East • North West • Yorkshire & The Humber • East Midlands • West Midlands • East of England • London • South East • South West • Wales • Scotland • Northern Ireland

Annex 3: Variable summary statistics

Variable	Obs	Mean	S.D.
Green tariff	8,670	0.026	0.158
Sex	8,670	0.542	0.498
Age	8,670	45.008	16.101
Winter fuel payment	8,670	0.251	0.433
Qualifications1: None	1,315	-	-
Qualifications2: Other	417	-	-
Qualifications3: Secondary	3,508	-	-
Qualifications4: Tertiary	3,430	-	-
Employed	8,670	0.651	0.477
IncomeQ1: £0 - £14,796 per annum*	1,597	-	-
IncomeQ2: £14,796 - £24,202*	2,012	-	-
IncomeQ3: £24,202 - £36,927*	2,406	-	-
IncomeQ4: £36,927 and above*	2,655	-	-
Housing tenure	8,670	0.711	0.453
Household with kids	8,670	0.389	0.488
Electricity expenditure	8,670	621.738	405.526
Politics: Conservative	2,260	-	-
Politics: Labour	2,562	-	-
Politics: Lib Dem	912	-	-
Politics: SNP	118	-	-
Politics: Green	267	-	-
Politics: Other	698	-	-
Politics: None	1,853	-	-
Community-mindedness	8,670	3.599	0.751
Religiousness	8,670	0.531	0.499
Environmental behaviour	8,670	2.781	0.612
Environmental attitude	8,670	0.646	0.250
Renewables installed	8,670	0.010	0.102

*Income quartiles defined against whole USS sample, rather than sub-set of observations used for core regression model

Annex 4: Variable correlations

	Green tariff	Sex	Age	WFP	Qual	Employed	Income	Tenure	HH w/kids	Elec exp	Politics	Community	Religious	Env Bhvr	Env Att	Renew gen
Green tariff	1															
Sex	-0.009	1														
Age	-0.005	-0.061	1													
WFP	-0.030	-0.035	0.665	1												
Qual	0.067	0.017	-0.257	-0.228	1											
Employed	0.032	-0.058	-0.265	-0.412	0.263	1										
Income	0.063	-0.065	-0.113	-0.124	0.275	0.332	1									
Tenure	0.022	-0.028	0.290	0.191	0.108	0.111	0.259	1								
HH/kids	-0.013	0.086	-0.385	-0.383	0.065	0.091	0.115	-0.089	1							
Elec exp	-0.001	-0.006	-0.069	-0.067	0.050	0.018	0.183	0.102	0.197	1						
Politics	-0.027	0.046	-0.182	-0.134	-0.102	0.023	-0.082	-0.151	0.099	0.014	1					
Community	0.010	0.041	0.264	0.178	-0.075	-0.077	-0.009	0.161	0.018	0.050	-0.046	1				
Religious	-0.024	0.078	0.176	0.155	-0.008	-0.090	-0.002	0.085	-0.013	0.036	-0.078	0.119	1			
Env Bhvr	0.085	0.109	0.036	0.035	0.097	-0.086	-0.067	-0.077	-0.055	-0.114	-0.085	0.069	0.013	1		
Env Att	0.066	0.074	-0.017	-0.071	0.206	0.093	0.143	0.050	-0.011	-0.009	-0.089	0.059	0.001	0.208	1	
Renew gen	0.048	-0.019	0.053	0.042	0.020	-0.010	0.022	0.038	-0.020	-0.013	0.008	0.041	-0.003	0.046	0.033	1

Annex 5: Full regression results

MODEL A
Dependent = Yes (vs Considering + Rejected + No)

Probit regression — Number of obs 8670
Wald chi2(36) 227.23
Log likelihood -913.4353 — Prob > chi2 0.0000
Pseudo R2 0.1186

variable		dy/dx	Unconditional Std. Err.	z	P>|z|	[95%	C.I.]
Sex		-0.004	0.003	-1.040	0.296	-0.010	0.003
Age		0.000	0.000	1.100	0.272	0.000	0.000
Winter fuel		-0.014	0.005	-2.650	0.008	-0.024	-0.004
Qualific2		0.016	0.010	1.530	0.125	-0.004	0.036
Qualific3		0.011	0.007	1.610	0.108	-0.003	0.025
Qualific4		0.019	0.007	2.740	0.006	0.005	0.033
Employed		0.000	0.004	0.110	0.912	-0.008	0.009
IncomeQ2		0.006	0.006	0.950	0.343	-0.006	0.017
IncomeQ3		-0.001	0.006	-0.220	0.829	-0.013	0.011
IncomeQ4		0.019	0.006	3.310	0.001	0.008	0.031
Tenure		0.002	0.004	0.430	0.670	-0.007	0.010
Kids in house		-0.006	0.004	-1.560	0.119	-0.013	0.001
Elec expend		0.000	0.000	0.710	0.476	0.000	0.000
North East		0.013	0.008	1.580	0.114	-0.003	0.029
North West		0.002	0.005	0.310	0.756	-0.008	0.012
Yorks Humb		-0.014	0.008	-1.760	0.078	-0.030	0.002
E Midlands		0.019	0.005	3.420	0.001	0.008	0.030
W Midlands		-0.014	0.008	-1.790	0.074	-0.030	0.001
E England		0.010	0.005	2.120	0.034	0.001	0.019
London		0.001	0.004	0.200	0.843	-0.007	0.009
South East		0.011	0.004	2.750	0.006	0.003	0.018
South West		-0.005	0.006	-0.880	0.377	-0.017	0.006
Wales		-0.011	0.009	-1.200	0.231	-0.028	0.007
Scotland		-0.001	0.007	-0.110	0.916	-0.014	0.013
N Ireland		-0.010	0.009	-1.140	0.255	-0.027	0.007
Tories		0.011	0.006	1.960	0.050	0.000	0.022
Labour		0.007	0.005	1.350	0.176	-0.003	0.018
Lib Dem		0.006	0.007	0.960	0.337	-0.007	0.020
SNP		0.014	0.016	0.870	0.382	-0.017	0.044
Green		0.047	0.008	6.260	0.000	0.032	0.062
Other party		-0.001	0.009	-0.150	0.883	-0.020	0.017
Community		0.001	0.002	0.520	0.606	-0.004	0.006
Religious		-0.005	0.003	-1.360	0.175	-0.011	0.002
Env Behav		0.015	0.003	4.940	0.000	0.009	0.021
Env Attitude		0.014	0.007	1.900	0.058	0.000	0.028
Renewables		0.027	0.010	2.590	0.010	0.007	0.047

MODEL B
Dependent = Yes (vs Considering; Rejected and No removed)

Probit regression — Number of obs 773
Wald chi2(36) 84.06
Log likelihood — Prob > chi2 0.0000
-418.73458 — Pseudo R2 0.0984

variable		dy/dx	Unconditional Std. Err.	z	P>|z|	[95%	C.I.]
---	+	---	---	---	---	---	---
Sex	|	0.011	0.032	0.330	0.739	-0.053	0.074
Age	|	0.002	0.001	1.160	0.245	-0.001	0.005
Winter fuel	|	-0.060	0.054	-1.120	0.262	-0.166	0.045
Qualific2	|	0.085	0.102	0.830	0.406	-0.115	0.285
Qualific3	|	-0.007	0.071	-0.100	0.923	-0.146	0.132
Qualific4	|	0.019	0.071	0.270	0.791	-0.120	0.157
Employed	|	-0.021	0.040	-0.520	0.601	-0.099	0.058
IncomeQ2	|	0.055	0.056	0.980	0.327	-0.055	0.165
IncomeQ3	|	-0.003	0.057	-0.050	0.959	-0.115	0.109
IncomeQ4	|	0.148	0.053	2.780	0.005	0.044	0.252
Tenure	|	-0.052	0.043	-1.210	0.227	-0.137	0.033
Kids in house	|	-0.040	0.035	-1.160	0.244	-0.108	0.028
Elec expend	|	0.000	0.000	-1.550	0.121	0.000	0.000
North East	|	0.174	0.085	2.060	0.040	0.008	0.341
North West	|	0.035	0.049	0.720	0.470	-0.060	0.131
Yorks Humb	|	-0.210	0.064	-3.290	0.001	-0.336	-0.085
E Midlands	|	0.047	0.051	0.920	0.357	-0.053	0.148
W Midlands	|	-0.088	0.076	-1.160	0.247	-0.236	0.061
E England	|	0.072	0.047	1.550	0.122	-0.019	0.163
London	|	-0.007	0.039	-0.180	0.857	-0.084	0.070
South East	|	0.120	0.040	2.990	0.003	0.041	0.200
South West	|	0.021	0.057	0.360	0.718	-0.091	0.132
Wales	|	-0.067	0.083	-0.810	0.419	-0.229	0.096
Scotland	|	0.008	0.066	0.120	0.904	-0.121	0.137
N Ireland	|	-0.106	0.097	-1.090	0.277	-0.297	0.085
Tories	|	0.070	0.054	1.300	0.195	-0.036	0.176
Labour	|	0.028	0.052	0.530	0.598	-0.075	0.130
Lib Dem	|	-0.002	0.064	-0.030	0.979	-0.127	0.123
SNP	|	0.051	0.144	0.350	0.724	-0.231	0.332
Green	|	0.194	0.065	2.990	0.003	0.067	0.320
Other party	|	0.015	0.112	0.130	0.895	-0.205	0.235
Community	|	0.007	0.024	0.290	0.775	-0.041	0.055
Religious	|	-0.028	0.033	-0.860	0.392	-0.092	0.036
Env Behav	|	-0.014	0.026	-0.560	0.576	-0.065	0.036
Env Attitude	|	0.047	0.070	0.660	0.507	-0.091	0.185
Renewables	|	0.052	0.085	0.610	0.542	-0.115	0.218

MODEL C
Dependent = Yes (vs Rejected; Considering and No removed)

Probit regression — Number of obs 374
Wald chi2(35) 78.18
Log likelihood — Prob > chi2 0.0000
-213.24296 — Pseudo R2 0.1648

variable		dy/dx	Unconditional Std. Err.	z	P>|z|	[95%	C.I.]
---	+	---	---	---	---	---	---
Sex	|	0.038	0.050	0.780	0.438	-0.059	0.136
Age	|	-0.003	0.002	-1.220	0.221	-0.007	0.002
Winter fuel	|	-0.116	0.086	-1.350	0.178	-0.286	0.053
Qualific2	|	0.163	0.142	1.150	0.251	-0.115	0.441
Qualific3	|	0.137	0.102	1.340	0.182	-0.064	0.337
Qualific4	|	0.130	0.104	1.250	0.211	-0.073	0.333
Employed	|	0.026	0.060	0.440	0.657	-0.090	0.143
IncomeQ2	|	-0.139	0.098	-1.420	0.156	-0.331	0.053
IncomeQ3	|	-0.202	0.098	-2.070	0.039	-0.394	-0.010
IncomeQ4	|	-0.018	0.095	-0.190	0.847	-0.205	0.168
Tenure	|	-0.056	0.061	-0.920	0.360	-0.176	0.064
Kids in house	|	-0.165	0.053	-3.100	0.002	-0.269	-0.060
Elec expend	|	0.000	0.000	2.010	0.045	0.000	0.000
North East	|	0.145	0.187	0.780	0.437	-0.221	0.511
North West	|	-0.049	0.077	-0.640	0.524	-0.199	0.101
Yorks Humb	|	-0.125	0.107	-1.170	0.242	-0.336	0.085
E Midlands	|	0.080	0.082	0.980	0.328	-0.080	0.240
W Midlands	|	-0.024	0.102	-0.230	0.817	-0.223	0.176
E England	|	-0.093	0.071	-1.320	0.186	-0.232	0.045
London	|	0.146	0.063	2.320	0.020	0.023	0.269
South East	|	0.060	0.059	1.020	0.307	-0.055	0.174
South West	|	-0.213	0.076	-2.790	0.005	-0.362	-0.064
Wales	|	-0.193	0.118	-1.640	0.101	-0.423	0.038
Scotland	|	0.010	0.096	0.100	0.919	-0.178	0.197
N Ireland	|	0.256	0.171	1.500	0.133	-0.078	0.591
Tories	|	0.034	0.087	0.390	0.693	-0.137	0.206
Labour	|	-0.107	0.085	-1.260	0.208	-0.274	0.060
Lib Dem	|	-0.130	0.094	-1.390	0.164	-0.314	0.053
SNP	|	0.111	0.236	0.470	0.639	-0.352	0.573
Green	|	0.149	0.111	1.350	0.178	-0.068	0.366
Other party	|	-0.370	0.170	-2.180	0.029	-0.703	-0.037
Community	|	-0.013	0.035	-0.360	0.717	-0.080	0.055
Religious	|	-0.001	0.048	-0.030	0.975	-0.096	0.093
Env Behav	|	0.009	0.041	0.210	0.834	-0.072	0.089
Env Attitude	|	0.064	0.115	0.560	0.574	-0.160	0.289
Renewables	|	(omitted)					

MODEL D
Dependent = Yes (vs No; Considering and Rejected removed)

Probit regression — Number of obs 7960
Wald chi2(36) 244.83
Log likelihood -879.39852 — Prob > chi2 0.0000
Pseudo R2 0.1354

variable		dy/dx	Unconditional Std. Err.	z	P>|z|	[95%	C.I.]
---	+	---	---	---	---	---	---
Sex	|	-0.005	0.004	-1.270	0.204	-0.012	0.003
Age	|	0.000	0.000	1.130	0.259	0.000	0.001
Winter fuel	|	-0.015	0.006	-2.640	0.008	-0.026	-0.004
Qualific2	|	0.018	0.011	1.610	0.107	-0.004	0.039
Qualific3	|	0.013	0.008	1.730	0.084	-0.002	0.028
Qualific4	|	0.022	0.007	2.970	0.003	0.008	0.037
Employed	|	0.001	0.005	0.320	0.748	-0.007	0.010
IncomeQ2	|	0.006	0.006	0.940	0.349	-0.006	0.018
IncomeQ3	|	-0.001	0.007	-0.180	0.858	-0.014	0.012
IncomeQ4	|	0.021	0.006	3.300	0.001	0.008	0.033
Tenure	|	0.003	0.005	0.700	0.485	-0.006	0.013
Kids in house	|	-0.006	0.004	-1.570	0.115	-0.014	0.002
Elec expend	|	0.000	0.000	1.070	0.284	0.000	0.000
North East	|	0.015	0.009	1.750	0.079	-0.002	0.032
North West	|	0.001	0.006	0.210	0.834	-0.010	0.012
Yorks Humb	|	-0.013	0.009	-1.480	0.139	-0.030	0.004
E Midlands	|	0.022	0.006	3.700	0.000	0.010	0.034
W Midlands	|	-0.017	0.009	-1.920	0.054	-0.033	0.000
E England	|	0.011	0.005	2.180	0.029	0.001	0.021
London	|	0.001	0.005	0.160	0.872	-0.008	0.010
South East	|	0.011	0.004	2.590	0.010	0.003	0.019
South West	|	-0.007	0.006	-1.040	0.299	-0.019	0.006
Wales	|	-0.012	0.009	-1.290	0.198	-0.031	0.006
Scotland	|	-0.001	0.007	-0.100	0.924	-0.015	0.014
N Ireland	|	-0.012	0.009	-1.280	0.202	-0.030	0.006
Tories	|	0.011	0.006	1.890	0.059	0.000	0.023
Labour	|	0.009	0.006	1.450	0.146	-0.003	0.020
Lib Dem	|	0.008	0.007	1.150	0.250	-0.006	0.023
SNP	|	0.015	0.017	0.890	0.374	-0.018	0.048
Green	|	0.056	0.008	6.840	0.000	0.040	0.072
Other party	|	-0.001	0.010	-0.070	0.945	-0.020	0.019
Community	|	0.002	0.003	0.690	0.492	-0.003	0.007
Religious	|	-0.006	0.004	-1.530	0.125	-0.013	0.002
Env Behav	|	0.019	0.003	5.560	0.000	0.012	0.025
Env Attitude	|	0.015	0.008	1.890	0.059	-0.001	0.030
Renewables	|	0.031	0.012	2.650	0.008	0.008	0.053

MULTINOMIAL LOGIT
YES

Logistic regression — Number of obs 8670
Wald chi2(108) 9356.55
Log likelihood — Prob > chi2 0.0000
-3464.3872 — Pseudo R2 0.1008

variable		dy/dx	Unconditional Std. Err.	z	P>|z|	[95%	C.I.]
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Sex	|	-0.004	0.004	-1.210	0.224	-0.011	0.003
Age	|	0.000	0.000	1.090	0.276	0.000	0.001
Winter fuel	|	-0.014	0.006	-2.590	0.010	-0.025	-0.003
Qualific2	|	0.015	0.012	1.320	0.186	-0.007	0.038
Qualific3	|	0.013	0.008	1.600	0.109	-0.003	0.029
Qualific4	|	0.020	0.008	2.550	0.011	0.005	0.036
Employed	|	0.000	0.004	0.010	0.993	-0.009	0.009
IncomeQ2	|	0.007	0.006	1.170	0.244	-0.005	0.020
IncomeQ3	|	-0.002	0.007	-0.270	0.788	-0.015	0.011
IncomeQ4	|	0.020	0.006	3.170	0.002	0.008	0.032
Tenure	|	0.003	0.005	0.630	0.530	-0.006	0.012
Kids in house	|	-0.005	0.004	-1.320	0.187	-0.013	0.002
Elec expend	|	0.000	0.000	0.470	0.640	0.000	0.000
North East	|	0.013	0.008	1.550	0.122	-0.004	0.030
North West	|	0.002	0.005	0.320	0.748	-0.009	0.012
Yorks Humb	|	-0.013	0.009	-1.460	0.143	-0.029	0.004
E Midlands	|	0.018	0.005	3.300	0.001	0.007	0.028
W Midlands	|	-0.015	0.009	-1.580	0.113	-0.033	0.003
E England	|	0.011	0.005	2.270	0.023	0.002	0.020
London	|	0.001	0.004	0.240	0.807	-0.007	0.010
South East	|	0.011	0.004	2.840	0.005	0.003	0.018
South West	|	-0.005	0.006	-0.760	0.449	-0.016	0.007
Wales	|	-0.013	0.010	-1.250	0.211	-0.032	0.007
Scotland	|	-0.001	0.007	-0.180	0.856	-0.016	0.013
N Ireland	|	-0.010	0.010	-1.000	0.318	-0.029	0.009
Tories	|	0.012	0.006	1.980	0.048	0.000	0.024
Labour	|	0.008	0.006	1.340	0.181	-0.004	0.020
Lib Dem	|	0.006	0.007	0.880	0.379	-0.008	0.020
SNP	|	0.016	0.016	0.980	0.327	-0.016	0.048
Green	|	0.044	0.007	6.040	0.000	0.030	0.058
Other party	|	-0.003	0.011	-0.300	0.763	-0.024	0.018
Community	|	0.001	0.003	0.410	0.684	-0.004	0.006
Religious	|	-0.005	0.003	-1.450	0.146	-0.012	0.002
Env Behav	|	0.016	0.003	4.990	0.000	0.009	0.022
Env Attitude	|	0.015	0.008	2.040	0.041	0.001	0.030
Renewables	|	0.036	0.009	3.890	0.000	0.018	0.054

MULTINOMIAL LOGIT
CONSIDERING

Logistic regression — Number of obs 8670
Wald chi2(108) 9356.55
Log likelihood — Prob > chi2 0.0000
-3464.3872 — Pseudo R2 0.1008

variable		dy/dx	Unconditional Std. Err.	z	P>|z|	[95%	C.I.]
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Sex	|	-0.017	0.005	-3.180	0.001	-0.028	-0.007
Age	|	0.000	0.000	0.040	0.969	0.000	0.000
Winter fuel	|	-0.019	0.009	-2.190	0.028	-0.036	-0.002
Qualific2	|	0.013	0.016	0.810	0.418	-0.019	0.045
Qualific3	|	0.025	0.010	2.440	0.015	0.005	0.045
Qualific4	|	0.039	0.010	3.770	0.000	0.019	0.059
Employed	|	0.006	0.007	0.910	0.360	-0.007	0.019
IncomeQ2	|	0.002	0.008	0.250	0.800	-0.014	0.019
IncomeQ3	|	0.001	0.008	0.180	0.860	-0.015	0.018
IncomeQ4	|	0.004	0.008	0.530	0.598	-0.012	0.021
Tenure	|	0.035	0.007	4.810	0.000	0.021	0.050
Kids in house	|	-0.008	0.006	-1.290	0.197	-0.019	0.004
Elec expend	|	0.000	0.000	2.840	0.005	0.000	0.000
North East	|	-0.015	0.016	-0.960	0.335	-0.046	0.016
North West	|	-0.007	0.008	-0.850	0.395	-0.024	0.009
Yorks Humb	|	0.053	0.007	7.460	0.000	0.039	0.067
E Midlands	|	0.022	0.009	2.540	0.011	0.005	0.039
W Midlands	|	-0.010	0.011	-0.930	0.352	-0.031	0.011
E England	|	0.005	0.008	0.560	0.572	-0.011	0.021
London	|	-0.001	0.007	-0.090	0.926	-0.014	0.013
South East	|	-0.019	0.008	-2.440	0.015	-0.034	-0.004
South West	|	-0.019	0.010	-1.910	0.056	-0.038	0.000
Wales	|	0.000	0.011	0.000	0.998	-0.022	0.022
Scotland	|	-0.008	0.011	-0.740	0.458	-0.028	0.013
N Ireland	|	-0.002	0.012	-0.120	0.903	-0.026	0.023
Tories	|	-0.005	0.009	-0.560	0.575	-0.021	0.012
Labour	|	-0.004	0.008	-0.520	0.603	-0.020	0.011
Lib Dem	|	0.004	0.010	0.420	0.676	-0.015	0.023
SNP	|	0.014	0.024	0.570	0.566	-0.033	0.060
Green	|	0.042	0.012	3.500	0.000	0.018	0.065
Other party	|	-0.012	0.014	-0.880	0.377	-0.039	0.015
Community	|	0.001	0.003	0.250	0.803	-0.006	0.008
Religious	|	0.005	0.005	0.890	0.375	-0.006	0.015
Env Behav	|	0.048	0.005	9.820	0.000	0.038	0.057
Env Attitude	|	0.010	0.012	0.830	0.407	-0.013	0.033
Renewables	|	0.068	0.018	3.850	0.000	0.034	0.103

MULTINOMIAL LOGIT
REJECTED

Logistic regression — Number of obs 8670
Wald chi2(108) 9356.55
Log likelihood — Prob > chi2 0.0000
-3464.3872 — Pseudo R2 0.1008

variable	dy/dx	Unconditional Std. Err.	z	P>|z|	[95%	C.I.]
Sex	-0.006	0.003	-1.930	0.053	-0.012	0.000
Age	0.000	0.000	1.450	0.148	0.000	0.001
Winter fuel	-0.001	0.005	-0.270	0.786	-0.011	0.008
Qualific2	0.007	0.008	0.890	0.374	-0.008	0.023
Qualific3	0.000	0.006	0.030	0.973	-0.011	0.011
Qualific4	0.009	0.006	1.710	0.086	-0.001	0.020
Employed	0.000	0.004	-0.020	0.983	-0.008	0.008
IncomeQ2	0.009	0.005	1.650	0.099	-0.002	0.019
IncomeQ3	0.008	0.005	1.530	0.127	-0.002	0.019
IncomeQ4	0.010	0.006	1.810	0.070	-0.001	0.021
Tenure	0.006	0.004	1.440	0.149	-0.002	0.014
Kids in house	0.004	0.003	1.210	0.227	-0.003	0.011
Elec expend	0.000	0.000	0.420	0.673	0.000	0.000
North East	-0.010	0.012	-0.830	0.405	-0.033	0.013
North West	-0.001	0.005	-0.230	0.819	-0.010	0.008
Yorks Humb	0.003	0.006	0.590	0.553	-0.008	0.015
E Midlands	0.008	0.005	1.530	0.126	-0.002	0.017
W Midlands	0.005	0.005	0.930	0.355	-0.006	0.016
E England	0.009	0.004	2.100	0.036	0.001	0.017
London	-0.006	0.004	-1.230	0.217	-0.014	0.003
South East	0.002	0.004	0.550	0.586	-0.006	0.010
South West	0.007	0.005	1.520	0.127	-0.002	0.016
Wales	0.003	0.006	0.420	0.672	-0.009	0.014
Scotland	0.004	0.006	0.670	0.505	-0.007	0.015
N Ireland	-0.024	0.009	-2.620	0.009	-0.042	-0.006
Tories	0.004	0.006	0.720	0.472	-0.007	0.016
Labour	0.010	0.006	1.840	0.066	-0.001	0.021
Lib Dem	0.018	0.006	3.090	0.002	0.007	0.030
SNP	-0.003	0.019	-0.170	0.862	-0.042	0.035
Green	0.017	0.008	2.090	0.036	0.001	0.033
Other party	0.023	0.008	2.830	0.005	0.007	0.038
Community	-0.001	0.002	-0.490	0.626	-0.005	0.003
Religious	-0.004	0.003	-1.400	0.163	-0.011	0.002
Env Behav	0.009	0.003	3.620	0.000	0.004	0.015
Env Attitude	0.011	0.007	1.570	0.117	-0.003	0.025
Renewables	-0.275	0.022	-12.280	0.000	-0.318	-0.231

MULTINOMIAL LOGIT
NO

Logistic regression — Number of obs 8670
Wald chi2(108) 9356.55
Log likelihood — Prob > chi2 0.0000
-3464.3872 — Pseudo R2 0.1008

variable		dy/dx	Unconditional Std. Err.	z	P>|z|	[95%	C.I.]
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Sex	|	0.028	0.007	4.060	0.000	0.014	0.041
Age	|	0.000	0.000	-1.350	0.176	-0.001	0.000
Winter fuel	|	0.034	0.011	3.230	0.001	0.014	0.055
Qualific2	|	-0.036	0.020	-1.770	0.077	-0.075	0.004
Qualific3	|	-0.039	0.013	-2.900	0.004	-0.065	-0.013
Qualific4	|	-0.069	0.013	-5.250	0.000	-0.094	-0.043
Employed	|	-0.006	0.008	-0.720	0.471	-0.022	0.010
IncomeQ2	|	-0.018	0.011	-1.660	0.096	-0.040	0.003
IncomeQ3	|	-0.008	0.011	-0.710	0.478	-0.030	0.014
IncomeQ4	|	-0.034	0.011	-3.080	0.002	-0.056	-0.012
Tenure	|	-0.044	0.009	-4.920	0.000	-0.062	-0.027
Kids in house	|	0.009	0.008	1.160	0.246	-0.006	0.023
Elec expend	|	0.000	0.000	-2.510	0.012	0.000	0.000
North East	|	0.012	0.019	0.630	0.531	-0.025	0.049
North West	|	0.007	0.010	0.620	0.532	-0.014	0.027
Yorks Humb	|	-0.044	0.012	-3.720	0.000	-0.067	-0.021
E Midlands	|	-0.047	0.011	-4.350	0.000	-0.069	-0.026
W Midlands	|	0.020	0.014	1.410	0.159	-0.008	0.047
E England	|	-0.024	0.010	-2.470	0.013	-0.044	-0.005
London	|	0.005	0.009	0.590	0.557	-0.012	0.022
South East	|	0.005	0.009	0.610	0.539	-0.012	0.023
South West	|	0.016	0.012	1.400	0.161	-0.007	0.039
Wales	|	0.010	0.015	0.670	0.502	-0.019	0.039
Scotland	|	0.005	0.013	0.400	0.686	-0.021	0.031
N Ireland	|	0.035	0.017	2.080	0.038	0.002	0.068
Tories	|	-0.012	0.011	-1.030	0.304	-0.033	0.010
Labour	|	-0.014	0.011	-1.340	0.180	-0.035	0.007
Lib Dem	|	-0.029	0.013	-2.290	0.022	-0.053	-0.004
SNP	|	-0.026	0.033	-0.800	0.424	-0.090	0.038
Green	|	-0.102	0.016	-6.570	0.000	-0.133	-0.072
Other party	|	-0.007	0.018	-0.420	0.675	-0.042	0.027
Community	|	-0.001	0.005	-0.190	0.850	-0.010	0.008
Religious	|	0.005	0.007	0.700	0.484	-0.009	0.018
Env Behav	|	-0.073	0.006	-12.250	0.000	-0.085	-0.061
Env Attitude	|	-0.036	0.015	-2.470	0.013	-0.065	-0.007
Renewables	|	0.170	0.029	5.880	0.000	0.113	0.227