



Analysis

Green hypocrisy?: Environmental attitudes and residential space heating expenditure

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ABSTRACT

Popular media make claims of a green hypocrisy: groups, which have the strongest attitude towards the environment, also have the highest emissions. This study examines whether environmental behaviours, beliefs and attitudes are associated with space heating energy use in the UK in order to test for evidence of a green hypocrisy. In the UK, the largest proportion of household energy use is for space heating. We find that environmental behaviours are negatively correlated with heating expenditures, while environmentally friendly attitudes and perceptions are not associated with lower heating expenditure. Further, the effect of these attitudes and behaviours does not change as income increase. There seems to be little evidence of a green hypocrisy amongst the UK public with respect to space heating.

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1. Introduction

Without a doubt, environmental awareness has been increasing in the last decades. This trend is reflected in the growth of a number of environmentally-friendly products (see e.g., [Chen, 2001](#); [Hunt and Dorfman, 2009](#)), from fluorescent bulbs to organic food (see e.g., [Torjusen et al., 2001](#)). As the example on fluorescent bulbs shows, environmental consciousness should translate into socially better decisions and energy saving behaviours. Surveys show that wealth and status are often associated with green knowledge and general concern towards environmental quality ([Diamantopoulos et al., 2003](#)). However, there is also an idea deeply rooted in public discourses that environmental awareness translates itself more into slogans than actions. A green discourse is not reflected by actual green actions, or at best, these actions are very marginal. A Google search of the terms such as “Green hypocrisy” or “Environmental hypocrisy” returns 31,000 pages, more than 9000 of which from last year (Google accessed on 15 May 2012), which deal with conflicts between the lifestyles of (sometimes very wealthy and famous) members of green parties or groups advocating energy savings and

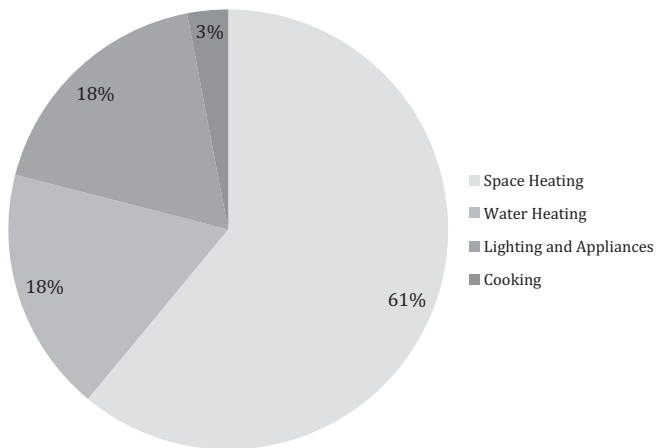
carbon neutral policies while leaving large footprints behind. An activity potentially prone to green hypocrisy is the use of heating to warm one's home. This is due to the difficulty of others to observe energy use for heating and the fact that heating is one of the largest residential energy uses.

Governments around the world are introducing a number of energy use and emissions policies in order to improve energy security and reduce carbon emissions. Policies aimed at the household sector focus on improving their energy efficiency or reducing their energy use. [Fig. 1](#) shows the breakdown of residential energy consumption in UK into its four main component parts: space heating, water heating, lighting and appliances, and cooking. Accounting for 61% of domestic energy use, space heating requires by far the greatest demand for energy in the home. The UK Committee on Climate Change and the Energy Savings Trust argue that turning thermostats down (behavioural change) has significant CO₂ emission reduction opportunities in the building sector.¹ Popular campaigns launched by environmental groups around the globe focus on reducing carbon footprints and raising awareness by

¹ See the Committee on Climate Change's Building and Industry Sector webpage: <http://www.theccc.org.uk/sectors/buildings-a-industry> and the Energy Savings Trust webpage: <http://www.energysavingtrust.org.uk/Take-action/Start-saving-money> (Accessed October 28, 2012).

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Source: DECC (2011b)

Fig. 1. Domestic energy use by type, 2009.

inviting household to “turn down the thermostat”.² Our “green hypocrisy” hypothesis is that, holding everything else constant, individuals with strong environmental attitudes, beliefs and behaviours should spend less on space heating per room. However, if green hypocrisy is pervasive, there should be a positive relationship between heating expenditure and attitudes, beliefs and behaviours, especially considering that heating expenditure is difficult for others to monitor and scrutinize. Additionally, a green hypocrisy may manifest itself more evidently amongst richer individuals, that is, there might be a link between (high) income levels, environmental concerns, and heating expenditures. The latter would represent a more specific kind of green hypocrisy.

Previous studies have focused on the relationship between building and socio-economic characteristics and household space heating, while the field of psychology has investigated the impact of holding environmental beliefs. Van den Bergh (2008) remarks that there are few econometric studies, which attempt to link environmental factors with household energy use. This study attempts to fill this gap in the existing literature by estimating household heating expenditure as a function of building and household characteristics along with environmental attitudes, beliefs and behaviours. A positive and statistically significant sign on these environmental factors will be taken as empirically supporting the “green hypocrisy” hypothesis.

This analysis uses data from the British Household Panel Survey (BHPS).³ The final wave of the BHPS, wave 18, administered between the end of 2008 and the beginning of 2009, contains data relating to environmental issues as well as the standard questions relating to household energy expenditure. The assumption is that household with stronger sentiment for the environment would, on average, turn “their heating down” to reduce emissions and pollution. We find that environmentally friendly attitudes and perceptions are not correlated with lower heating expenditures, though environmental behaviours are negatively correlated. The takeaway point here is that there is no evidence

² One of the most popular campaigns is probably the 10:10 campaign calling for immediate action on carbon emissions reduction launched in Britain in 2009. The second point of their 10-point checklist reads “Turn down your thermostat, turn off radiators in hallways...” <http://www.1010global.org/uk/people/cut/checklist-extended>. More recently, the UK radio campaign “Turn down the heat” reached 1.1 million people in 2010 and 2011, see <http://globalcoolfoundation.org/tag/turn-up-the-style-turn-down-the-heat/>. Other campaigns include <http://www.environmentalsociety.ca/main/wp-content/uploads/2012/08/Turn-Down-the-Thermostat-Campaign1.pdf>.

³ The BHPS is a general survey of the British public which asks questions on almost every policy issue (crime, education, employment, etc). As a result, the authors were not able to design the environmental questions as one might specifically desire, which is possible when one conducts their own survey. The benefits of using the BHPS are a larger and more representative sample and reduce concern with focalism, the tendency for response to a question to be biased in the direction of the focal feature of the survey (Comerford, 2011).

of a green hypocrisy amongst the British public with respect to space heating. The evidence found in this analysis suggests that policymakers might focus on environmental behaviours, like putting on a jumper instead of turning up the heat, when formulating a public advertising campaign.

2. Residential Energy Demand

Residential energy demand has been a subject of research for many years. Houthakker (1951) is the earliest, which sought to model household expenditure on electricity as a function of income and as a function of household total spending. Of course, patterns of residential energy demand have changed significantly since Houthakker's calculations, with increased appliance ownership and usage as well as higher standards of living. A key difference in terms of space heating is the proliferation of central heating (DECC, 2011b). More recent models of space heating demand have taken this technology into account. Dubin and McFadden (1984) modelled residential electricity demand in the United States, including demand for both space and water heating and appliance use. Nesbakken (2001) extends Dubin and McFadden (1984) to include households that utilise more than one fuel in their energy use. They find that building age, age of household and building size are all important.

Leth-Petersen and Togeby (2001), Schuler et al. (2000), Rehdanz (2007), and Meier and Rehdanz (2010) have confirmed that fuel type and house condition are important for understanding heating expenditure. Abrahamse and Steg (2009) examine the factors that determine energy use versus energy saving. They find that attitudes are important for energy saving actions but less important for energy use.

However all of these analyses exclude any discussion of environmental attitudes, beliefs or behaviours in determining energy use. In a review of the evidence of determinants of residential energy use, Van den Bergh (2008) states that most analyses relate household space heating use with physical and socio-economic attributes only. Further, much of the existing research into environmental attitudes relating to energy use comes from the field of psychology, and has rarely been linked to econometric analysis. Two analyses, Clark et al (2003) and Kotchen and Moore (2007), have linked environmental attitudes to green electricity purchases, electricity generated by renewable resources. Di Maria et al. (2010) examine the determinants of uptake of compact fluorescent light bulbs (CFLs) in Ireland using socio-economic variables and environmental attitudes. They find that environmental attitudes and education levels are strong determinants of installation of CFL.

3. Econometric Models

In order to analyse the relationship between heating expenditure and environmental attitudes, beliefs and behaviours, separate specifications of the following econometric function will be estimated using OLS (see Meier and Rehdanz (2010) for a similar econometric model):

$$E_i = \alpha + \beta_H H_i + \beta_S S_i + \beta_R R_i + \beta_A A_i + \varepsilon_i, \quad (1)$$

in which, E is the natural log of heating expenditure of household i ; H is a set of continuous or binary variables of different home attributes (including fuel type, number of rooms, building types and building quality dummies). Each regression includes a set of household characteristics and region dummies as controls (S and R , respectively). Finally, A represents the set of environmental attitudes, beliefs and behaviours, which are the focus of the paper.

We remind the reader to the next section where we present these variables, and their parameterization, in greater detail. As this is a static model featuring data for just one year, features relating to time have been excluded from this formula. In order to investigate the joint impact of income and environmental questions on heating expenditures,

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