

The Impact of Changes in Climate-friendly Behaviour, Climate Change Concern and Personal Responsibility on Heating/cooling Activities GHG Emissions in EU Households

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Extended Abstract

Space heating and cooling account for an increasing portion of total energy consumption and are an intense source of GHG emissions in EU households [1]. Moreover, heating appliances account for the largest energy usage in Europe [2]. Many studies focus on the fact that climate change concern and climate-friendly behaviour reduce residents' GHG emissions. However, there is a noticeable lack of studies [3–5] showing how changes in concern about climate change and climate-friendly behaviour can affect these emissions. Thus, the objective of this study was to analyse whether the changes in concern, personal responsibility and climate-friendly behaviour affected the EU household sector heating/cooling activities GHG emissions from the Paris Agreement until the beginning of the Covid-19 pandemic in 2019. The data related to attitudes and climate-friendly behaviour were collected referring to Eurobarometer surveys (83.4; 87.1; 91.3 performed in May-June 2015; March 2017 and April 2019 respectively)[6]. In each EU country, a number of sampling points were drawn with probability proportional to population size and to population density. The surveys in all EU countries were representative. The correlation analysis revealed that personal responsibility, choice of green energy supplier, heating degree days and cooling degree days have statistically significant correlation with heating/cooling activities GHG emissions. While many studies [7–9] showed that climate change concern determine personal responsibility and actions to reduce climate change, our study indicated that personal responsibility without climate change concern was related to heating/cooling activities GHG emissions. This may be due to the fact that those who had a strong climate change concern did not have the opportunity to reduce these emissions (living in an apartment building where they could not regulate heating). Furthermore, GHG emissions is determined not only by the consumption of energy but also by the type of source and green energy is still a challenge in many European countries. The regression analysis revealed that only one of the climate-friendly behavioural changes (in choice of green energy supplier) significantly influenced the reduction of heating/cooling activities GHG emissions. The changes in other pro-environmental actions as insulation of home to reduce energy consumption has a negative but insignificant influence, while the impact of changes in purchase of low energy homes and energy efficient appliances has positive but also insignificant effect. Thus, promoting these actions is very important to enhance the energy saving which should reduce GHG emissions. Moreover, the changes in climate change concern and personal responsibility insignificantly influenced heating/cooling these emissions. The results contradict several studies [10,11], which showed that the consumption of thermal energy depends on environmental concern. People can be very concerned and motivated to reduce the GHG emissions cause by heating/cooling, but if they have no possibility to select a green electricity supplier, they cannot reduce their emissions. Results indicated that affordability and possibilities to perform climate-friendly behaviour are the main determinants of heating/cooling activities GHG emissions in EU households and policymakers should ensure that.

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