

MOVING HOME AND SWITCHING HEATING FUELS

JOHN CURTIS AND GIANLUCA GRILLI



Moving home and switching heating fuels¹

John Curtis*, Gianluca Grilli

ESRI Research Bulletins provide short summaries of work published by ESRI researchers and overviews of thematic areas covered by ESRI programmes of research. Bulletins are designed to be easily accessible to a wide readership.

OVERVIEW

Families are encouraged to make sustainable decisions related to the energy efficiency and emissions intensity of their homes. This research examines whether families are more likely to upgrade their heating systems when they move home and consequently whether policy initiatives could be designed around changes in dwelling occupancy or tenure.

The analysis is based on census records for the years 2011 and 2016 and investigates the likelihood of dwellings switching home heating fuel from coal, oil or peat (all carbon intensive) to natural gas (which is less carbon intensive). The research finds clear evidence that the probability of switching to gas as a residential heating fuel is higher among dwellings where either occupancy, tenure or both change. Between 2011 and 2016 the probability of a dwelling switching to gas is 7.1 percentage points higher for properties with new occupants compared to dwellings with unchanged occupants. Where tenure changes (e.g. from a rental to an owner-occupied property), the probability of switching to gas is 2.3 percentage points higher compared to dwellings with unchanged tenure. Where occupancy changes (i.e. new family in the dwelling) and the tenure at the dwelling changes (e.g. from a rental to an owner-occupied property) the probability of switching to gas is 14 percentage points higher compared to dwellings with no change in occupancy or tenure.

Over 15,000 properties in the total sample of 110,419 switched to gas in the 2011–2016 period, from oil, electricity, coal or dwellings with no prior central heating. The analysis shows that there is little difference in likelihood of switching to gas based on original fuel type. This suggests that economic rather than environmental factors may be the primary motivation for switching fuel; nonetheless, dwellings switching to gas from peat, coal or oil make substantial emissions savings.

¹ This Bulletin summaries the findings from: Curtis, J., Grilli, G. “Does moving home affect residential heating decisions? exploring heating fuel switching in Ireland”, *Energy & Buildings*. Available: <https://doi.org/10.1016/j.enbuild.2021.110918>

*john.curtis@esri.ie

The occupant characteristic most highly associated with a switch to gas is family size. Families of 6 or more people are over 7 percentage points more likely to switch to gas compared to 1–2 person families.

METHODS

The research is based on anonymised data on heating fuel, property attributes, and occupants' socio-demographic characteristics from the census of population. It focuses on properties not using natural gas-fired central heating in 2011 but where connection to the natural gas network is practically feasible, i.e. located within 30 metres of the gas network. A total of 110,419 dwellings are included in the data analysis. Statistical techniques were used to investigate the probability of switching to gas-fired central heating as a function of building and occupant attributes.

POLICY IMPLICATIONS

While economic rather than sustainability motivations may drive a switch from more to less carbon intensive heating fuels, changes in dwelling occupancy and tenure are clear triggers for heating systems upgrades that policymakers can exploit to encourage sustainable outcomes.

Any new policy initiatives should incorporate the different underlying socio-economic and practical circumstances surrounding different combinations of changes in dwelling occupancy and tenure. For example, new occupancy following purchase of a property may also coincide with short-term budgeting constraints (e.g. new mortgage, etc.) that preclude immediate energy retrofits, so a longer window to avail of any policy support may be beneficial. A sunset clause on any new retrofit supports specifically for new occupants (e.g. additional incentives for insulation, heating controls, etc.) may inhibit indefinite deferral of energy retrofits. Where new occupancy arises with a rental property, it is the landlord that makes the energy retrofit decisions so the design of new policy supports or incentives should differ from those assisting owner-occupiers. For example, the window for renovations may be much shorter and ceases with the arrival of new tenants so the available time for administration of retrofit supports may be more critical.

Any policy initiative to encourage heating system upgrades that specifically targets or focuses on specific fuel types (e.g. coal) or environmental motivations (e.g. carbon emission savings) is not likely to be any more successful than initiatives focusing on building or occupant attributes. While current retrofit grant supports rely on homeowners to take the first action, this research suggests a more vigorous approach, actively targeting new dwelling occupants, could be an effective method to drive more energy efficiency retrofits. Changes in occupancy are usually associated with an exchange of property deeds or registration of a new tenancy. Within a suitable legal context, and with the assistance of real estate agents and lawyers, referrals for energy efficiency guidance and additional retrofit supports could be introduced for property owners coinciding with the time-period of moving into a new home when many energy-related decisions are taken.

Whitaker Square,
Sir John Rogerson's Quay,
Dublin 2
Telephone **+353 1 863 2000**
Email **admin@esri.ie**
Web **www.esri.ie**
Twitter **@ESRIDublin**