



ESRI Research Bulletin

Location and occupancy of energy inefficient residential properties

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This Bulletin summarises the findings from: Curtis, J., Devitt, N. & Whelan, A., 2015. Using census and administrative records to identify the location and occupancy type of energy inefficient residential properties. *Sustainable Cities and Society*, 18, pp.56–65. Available online: <http://dx.doi.org/10.1016/j.scs.2015.06.001>

Location and occupancy of energy inefficient residential properties¹

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A Building Energy Rating (BER) certificate conveys useful information about the energy performance of a property. The certificate is accompanied by an Advisory Report that identifies how the property's occupants might improve the energy performance of the property. The Sustainable Energy Authority of Ireland (SEAI), which has responsibility for the BER rating system, maintains a database of all completed BER certificates which is a useful information tool on the energy performance of the residential dwelling stock. However, there are two limitations of the BER database as a tool to inform policy decisions on residential energy efficiency. First, the database is over-represented by newer properties and therefore is not truly representative of the actual housing stock. Second, the BER database says nothing, nor was it designed to say anything about the occupancy and tenure of housing by BER classification. A better understanding of how many energy inefficient properties exist and whether a particular population cohort, or vulnerable group, is more likely to live in such properties is information that has relevance to policymakers.

We used data from the SEAI's BER database and the Census of Population to throw light on these two issues. Using these two data sources we estimated the likely BER rating for every property in the country using information about property characteristics, such as age, building type, and heating fuel. The BER database suggests that roughly 25% of the residential housing stock has the lowest efficiency ratings (i.e. BER letter ratings E, F or G), whereas our estimate suggests that it is substantially higher at 35%. Consequently relying solely on the BER database one would over-estimate the energy efficiency of the national housing stock.

Using census data we examined the tenure and occupancy of energy inefficient properties. All things equal, one might expect a little over one-third (i.e. 35%) of property types or occupants to live in E, F or G (EFG) rated properties. That occurs in the case of owner-occupier properties, where 33% are EFG rated, but one-third is not a rule of thumb across all categories. For example, a substantially greater number of people aged 65 plus live in EFG rated properties. Our estimate is that almost 1-in-2 people aged 65 or more live in EFG properties, across

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approximately 180,000 properties. In the case of children roughly 25% live in EFG rated properties.

Gainful employment is associated with a big difference in the likelihood of living in an energy inefficient property. Approximately 30% of households with at least one person gainfully employed lived in EFG rated properties, slightly less than the one-third average. Of households without anybody gainfully employed, which includes retired, unemployed, students, permanently disabled, etc., 44% lived in EFG rated properties.

Rental properties with low rents are sometimes associated with being of poor quality. That is not always the case, as we found that 45% of high rent properties, exceeding €500 per week, were EFG rated. However, when looking across all property and occupant characteristics we found that the likelihood of living in the most energy inefficient properties was greatest for people living in rental accommodation, with low rental values, and either private or local authority landlords.

The paper provides evidence to support the view that certain characteristics, such as occupant age and tenure type, have a greater likelihood of living in energy inefficient properties. Energy policy targets aim to improve building energy efficiency but this paper suggests that many households that live in the most energy inefficient properties are unlikely to be able to afford energy retrofits (e.g. households with no gainful employment) or shy away from the associated disruption (e.g. retirees).