ESRI Research Bulletin

An examination of energy efficiency retrofit depth in Ireland

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Policy Context

As part of an ongoing series of energy efficiency directives from the European Union, Ireland is obliged to promote energy efficiency and achieve a targeted reduction in energy consumption of 20% by 2020. One means of contributing to this reduction is to improve the energy efficiency of the nation's building stock. The Sustainable Energy Authority of Ireland administers the Better Energy Homes (BEH) scheme, which provides grant aid to homeowners for residential energy efficiency improvements.

Overview

The Better Energy Homes scheme provides grant aid for up to four retrofit measures. These are attic insulation, one of three types of wall insulation, a boiler with heating controls or heating controls only upgrade and solar collector installation. From the introduction of the scheme in 2009 to October 2015, over 157,000 homes have received grant aid but the average number of retrofit measures for which homeowners have applied for grant aid has fallen steadily. During 2015, retrofits of greater than two measures comprised only 7.5% of applications, down from 13.7% in 2009.

This analysis aims to identify homes that are more likely to engage in a deeper retrofit, at whom retrofit aid may be targeted, as well as to identify homes that are less likely to engage in a deeper retrofit at the time of application, but could be provided with more information with regard to the benefits of engaging in a deeper retrofit. This analysis also aims to identify whether the introduction of bonus payments for 3- and 4-measure retrofits has had an impact on retrofit depth. This research analyses two measures of retrofit depth. These are the number of retrofit measures undertaken by a household and the propensity of homes to undertake what we have termed a 'more comprehensive' retrofit. We view all one-measure retrofits and the two-measure attic and cavity insulation retrofit as less comprehensive retrofits, with all other two-measure retrofits and all three- or four-measure retrofits seen as more comprehensive.

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FINDINGS

The introduction of bonus payments for three- and four-measure retrofits has not coincided with any increase in the number of measures undertaken or more comprehensive retrofits. This finding with regard to the number of measures may be due to reductions in attic and cavity insulation retrofits and an increase in boiler upgrades, although the estimated likelihood of engaging specifically in a three- or four-measure retrofit did not rise with the introduction of bonus payments.

We estimate a period of early adoption lasting for the first twelve months of the BEH scheme where more comprehensive retrofits were most likely. Newer homes are found to engage with more retrofit measures, although older homes are found to be more likely to undertake a more comprehensive retrofit. Apartments were found to engage in more measures than houses but less likely to engage in a more comprehensive retrofit.

"Obligated parties" are energy distributors and retail energy sales companies who are obliged by the Irish state to reduce annual energy sales to final consumers by 1.5% by 31 December 2020. Some obligated parties have chosen to help meet this target by engaging homes in retrofits via the BEH scheme. Homes retrofitting via obligated parties generally undertake fewer retrofit measures. Some obligated parties focus primarily on attic and cavity retrofits, while others focus on boiler with heating controls upgrades.

POLICY IMPLICATIONS

We conclude that retrofit depth is not responsive to financial incentives and that other policy tools may be better suited to increasing retrofit depth. Previous research has shown that comfort gains and energy savings are the most important factors to Irish homeowners when engaging in retrofitting. One possible option may therefore be to provide more information to homeowners with regard to the benefits that can be accrued, particularly monetary gains. For example, SEAI currently provides estimated Building Energy Ratings and yearly energy costs for different home types and ages. Perhaps average yearly energy cost savings could be provided for certain retrofit combinations undertaken by varying home types and ages. This could be done with a table of examples or perhaps with an online calculator. Another option may be to require a pre-works assessment where an assessor provides dwelling-specific recommendations with regard to which retrofit combination would be best applied to a home.