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# Residential energy retrofits: how disruption impacts homeowner decisions[1,2]

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## INTRODUCTION

Disruption and mess associated with home retrofit works cannot be avoided and, in some projects, can substantially impact on family life. Public policy discussion around home energy retrofits often focuses on technologies (e.g., heat pumps), the energy and emissions benefits, or the return on investment. There is much less discussion surrounding disruption or how it impacts on families. Disruption to home life during retrofit works is a potential barrier to households upgrading the energy efficiency of their homes, but little is known about how it impacts on homeowners' retrofit decisions. This research estimates homeowners' price for avoiding disruption in residential energy retrofits. We show that disruption isn't merely a minor inconvenience, rather it is an important element of households' decisions, the salience of which varies considerably across the population.

## METHODS

The research engaged a representative sample of homeowners via an online survey, asking them about their experiences and intentions with respect to home renovations. During the survey, homeowners were asked to choose between retrofit scenarios that included different levels of capital cost, energy cost savings, and disruption. Four levels of disruption were considered, ranging from full use of the property during renovations; to dust and materials affecting use of some rooms during renovation; to some rooms not being suitable for use during renovations; and finally, to the whole property not being suitable for use during renovations. Using data on over 8000 renovation choice scenario decisions, and employing

[1] This Bulletin summaries the findings from: Curtis, J., Grilli, G., and Lynch, M., "Residential renovations: understanding cost-disruption trade-offs", *Energy Policy*. Available at: https://doi.org/10.1016/j.enpol.2024.114207

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statistical modelling methods, we analyse how homeowners trade-off the positive and negative aspects of the energy retrofit scenarios.

## FINDINGS

The research produces three sets of findings. The first is on willingness to invest in energy retrofits. On average, homeowners are willing to pay €31,000 on a retrofit that yields 30% savings in their energy costs. However, behind the average there is considerable variability. Approximately 1-in-5 of homeowners are willing to invest less than €15,000 for the 30% energy costs savings, while on the other end of the spectrum another 1-in-5 homeowners are willing to invest €44,000 or more on the same retrofit. Homeowners are willing to invest even more for greater energy cost savings.

When disruption is allowed for, homeowners are willing to pay less on retrofits. If the disruption is relatively minor, such as dust and materials affecting use of some rooms, homeowners' willingness to invest in retrofits is €9,000 lower, on average. Where the disruption is greater, for instance, where the whole property is not suitable for use during renovations, homeowners' willingness to invest is €25,000 lower, on average. However, there is considerable variability across households on their appetite for retrofit disruption. For some homeowners, the impact of disruption is practically negligible, whereas for 1-in-5 of homeowners the 'price' of major disruption can exceed €43,000.

The third finding comes from homeowners self-classifying themselves into retrofit stage categories. One-quarter of homeowners are planning or considering energy retrofits (i.e., may apply for SEAI retrofit grants) but more than half of homeowners are not actively contemplating energy retrofits.

## POLICY RECOMMENDATIONS

This research shows that the disruption associated with retrofit works represents a significant barrier for homeowners. In many instances the value or benefit of the grant is unlikely to offset the inconvenience and disruption to family life. Furthermore, while SEAI grants are incentivising many homeowners to undertake retrofits, up to half of homeowners are currently not receptive to existing grant incentives. These findings combined, suggest that it will be challenging to achieve the policy target of upgrading 0.5 million homes to B2 BER status. As part of a wider project, this research is investigating whether residential heating options with lower disruption to homeowners can deliver substantial carbon emissions savings.