ESRI
RESEARCH
BULLETIN
JANUARY
2022

AN EXAMINATION OF ENERGY EFFICIENCY RETROFIT SCHEME APPLICATIONS BY LOW-INCOME HOUSEHOLDS IN IRELAND

ARYA PILLAI, MIGUEL TOVAR REAÑOS AND JOHN CURTIS

ESRI ECONOMIC & SOCIAL RESEARCH INSTITUTE

An examination of energy efficiency retrofit scheme applications by low-income households in Ireland[1]

Arya Pillai[2], Miguel Tovar Reaños and John Curtis (Economic and Social Research Institute)

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.

BACKGROUND AND CONTEXT

Apart from contributing significantly to reduced CO_2 emissions, increased energy efficiency in the dwellings of low-income households can alleviate the burden imposed by higher energy costs and improve thermal comfort within the home. Aside from financial constraints, existing literature indicates that behavioural and informational barriers significantly influence the decision-making process of low-income households when engaging in an energy efficiency retrofit. In Ireland, the Sustainable Energy Authority of Ireland (SEAI) administers the Better Energy Warmer Homes Scheme (BEWHS), which provides free energy efficiency retrofits to low-income households. Nonetheless, some households who decide to engage in an energy efficiency retrofit fully funded by the SEAI abandon their retrofit applications due to non-financial barriers. These barriers are often harder to identify, and research on this topic has received little attention.

The main objective of this study is to better understand the factors associated with the abandonment of retrofit grant applications in the absence of financial barriers. Additionally, we quantify how improvements in building energy efficiency among low-income households are associated with retrofit measure type (e.g., insulation, ventilation, etc.) and building attributes (e.g., age of dwelling). Our findings provide insights for policies that are designed to increase adoption of energy efficiency measures by low-income households.

RESULTS

This study utilises administrative data consisting of the application and processing information related to the Better Energy Warmer Homes Scheme (BEWHS). Scheme eligibility is confined to owner-occupier households that are recipients of at least one of six social welfare schemes targeting low-income households. Only owners of dwellings built before 2006 can apply for the scheme. Among other things, the data provides information on the retrofit measures and dwelling and household characteristics of the applicants. We find that 9% of BEWHS applications between the years 2010-2019 were abandoned. This rate of abandonment is lower compared to abandonment rates of partially-subsidised energy retrofit schemes

1 This Bulletin summaries the findings from: Pillai A., Tovar Reaños M.A., Curtis J. (2021). "An examination of energy efficiency retrofit scheme applications by low-income households in Ireland", Heliyon, Available online: DOI:https://doi.org/10.1016/j.heliyon.2021.e08205

2 Arya.Pillai@esri.ie

administered by the SEAI, such as the Better Energy Homes Scheme which has a 15% rate of abandonment.

We also find that a lower number of planned retrofit measures is associated with a higher probability of abandonment. This might be attributed to households perceiving lower potential benefits for fewer planned retrofit measures. We argue that this view implies an informational barrier because a higher number of measures may not necessarily translate into a bigger improvement in energy efficiency, since some of the retrofit activities undertaken may be ancillary to the main retrofit. Seasonality also plays a role in the abandonment of applications. Winter and spring applications have higher levels of abandonment compared to other seasons, which confirms findings in previous studies that disruption due to retrofits, especially in colder months, can be a deterrent to successful completion of retrofits. Certain types of retrofit measures are associated with a higher probability of abandonment. For example, we find that ventilation-related retrofits are abandoned at a higher probability despite the significant health benefits attributed to them.

Our research shows that the scheme in general succeeds in improving the energy efficiency of the applicant dwellings. We quantify the effect of the grant on change in energy efficiency of a dwelling after retrofit. We show that the scheme is achieving the greatest energy efficiency improvements within the most energy inefficient properties, a finding consistent with studies evaluating other energy retrofit grants in Ireland. The highest improvement in energy efficiency is associated with heating system upgrades, followed by attic insulation and wall insulation respectively.

POLICY DISCUSSIONS

The analysis shows that the BEWHS delivers energy efficiency improvements, but the magnitude of improvement varies depending on the initial building energy efficiency, as well as the retrofit measure types that are installed. The greatest improvement in energy efficiency was observed for dwellings with the lowest pre-works energy efficiency levels. Additionally, certain retrofit types such as heating system upgrades yield the highest energy efficiency improvements. However, ventilation retrofits, which are advised for health and safety reasons, show a higher associated level of abandonment. This indicates that greater effort is necessary to convey the benefits of improved ventilation. Expanding the consulting and energy advice components of the scheme, particularly in the early stages, to clearly convey the benefits of energy efficiency retrofits to the occupants may help reduce abandonment rates.

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

ESRI ECONOMIC & SOCIAL RESEARCH INSTITUTE