The effect of home energy efficiency upgrades on social housing tenants

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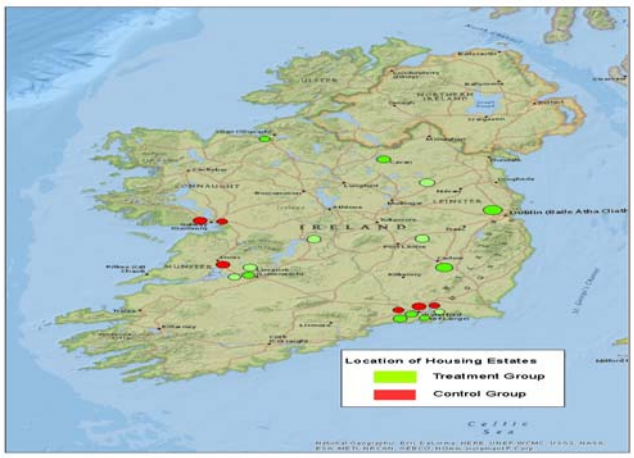
Introduction

- A major instrument of energy policy involves creating incentives to upgrade the housing stock
- Policy makers need to know the effects of various upgrade measures on energy efficiency
- We aim to examine the effect of a range of upgrades by comparing changes in the energy use of households that receive upgrades to those of a control sample
- Research questions:
  - How large are the societal benefits from a given level of efficiency upgrade?
  - How much do these differ from engineering estimates (such as DEAP)?
  - How do behavioural responses relate to the socioeconomic characteristics of residents?
  - How do upgrades affect vulnerability to fuel poverty and other outcomes?

Location of Housing Estates

- Respond! Housing Association provides housing services and related supports to vulnerable households across Ireland
- SEAI has granted funding to upgrade the energy efficiency of 344 of its dwellings, grouped in 16 estates around Ireland. (Better Energy Communities Scheme)
- Houses are situated in various locations...



Description of Upgrades

- A wide range of upgrades have been undertaken

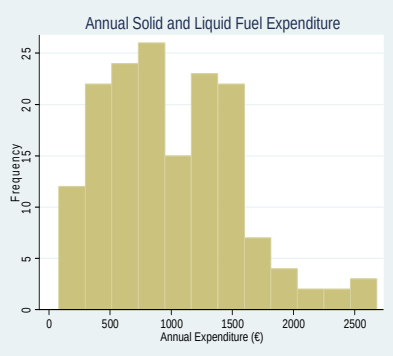
Type and Percentage of Upgrade Undertaken			
Attic Insulation	42%	Gas boiler	57%
Wall Insulation	90%	Oil boiler	9%
CFL Bulbs	61%	Heat pump	0.5%
New windows and doors	63%	Pellet boilers	0.5%
Roof	48%	Rads	2%
Solid Fuel Stove	17%	Electric Heating Upgrade	10%

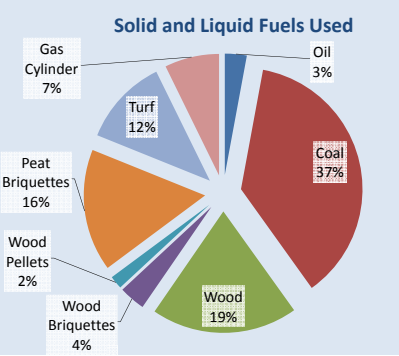
Pre-upgrade Survey

- Households participated in a pre-trial survey in which we collected a range of information related to: socioeconomic and demographic characteristics, solid and liquid fuel purchasing, appliance usage, fuel poverty and attitudes to energy conservation
- We also have detailed data on the characteristics and current efficiency status of each house in our sample
- Excellent income data allows us to compare our sample to the national population of social housing tenants

Household Income Amount		
Income	**Sample Percentage**	**HBS Percentage**
A: Under €10k per year	20%	1%
B: €10-19k per year	54%	39%
C: €20-29k per year	21%	28%
D: €30-40k per year	3%	17%
E: €40-50k per year	0%	15%

- Detailed questionnaire on fuel purchasing allows us to examine annual solid and liquid fuel purchasing by spend and fuel type





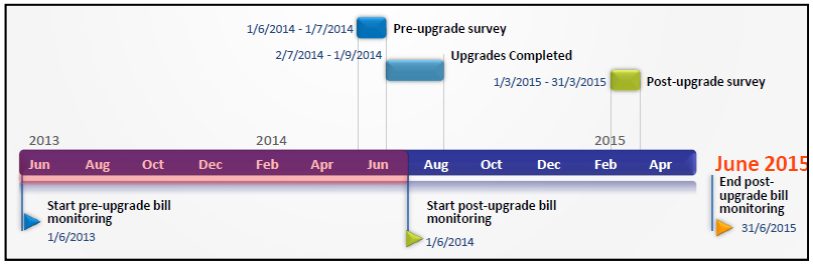
Billing Data

- Households have signed a waiver allowing us access to their gas and electricity bills
- We will use this to evaluate the effectiveness of the programme

Next Steps

- Oct 2014: Collate all pre-upgrade survey results
- March 2015: Prepare and distribute post-upgrade survey
- July 2015: Analyse billing data from gas and electricity utilities

Project Timeline



Acknowledgement

This work was conducted in the Electricity Research Centre, University College Dublin, Ireland, which is supported by the Electricity Research Centre's Industry Affiliates Programme (http://erc.ucd.ie/industry/).

Daire McCoy is funded through Science Foundation Ireland Grant Number SFI/09/SRC/E1780.