

# Household Property Results – Ireland

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CONSUMER Energy Efficiency Decision Making

# Property Really Matters!

- **High consumption**
- **High variation**
- **High energy saving potential !**



# The Household Energy Efficiency (EE) Decision



Upgrade Efficiency if  
Benefits  $>$  Costs

# Upgrade Efficiency if Benefits > Costs

*The Financial Decision*

$$\sum_{i=1}^T \delta_i S_i + \Delta HV > I$$

*Energy Savings*

*House Value*

*Investment Cost*

# Upgrade Efficiency if Benefits > Costs

*+ non-monetary economic factors*

$$W\_Glow + Health + Conv + Stat + Comf + \sum_{i=1}^T \delta_i S_i + \Delta HV > I + Tran + Adop$$

The diagram illustrates the components of the upgrade efficiency equation. Blue arrows point from descriptive labels to the corresponding terms in the equation:

- Warm Glow* points to *W\_Glow*
- Improved Health* points to *Health*
- Convenience* points to *Conv*
- Status* points to *Stat*
- Comfort* points to *Comf*
- Transaction Costs* points to *Tran*
- Adoption Costs* points to *Adop*

# Upgrade Efficiency if Benefits > Costs

*Potential Market Failure: Credit Rationing*

$$W\_Glow + Health + Conv + Stat + Comf + \sum_{i=1}^T \delta_i S_i + \Delta HV > I + Tran + Adop$$

# Upgrade Efficiency if Benefits > Costs

*Potential Market Failure: Imperfect/Biased Information*

$$W\_Glow + Health + Conv + Stat + Comf + \sum_{i=1}^T \delta_i S_i + \Delta HV > I + Tran + Adop$$



# Upgrade Efficiency if Benefits > Costs

*Behavioural Factors: Present-Bias and Inattention*

$$W\_Glow + Health + Conv + Stat + Comf + \sum_{i=1}^T \delta_i S_i + \Delta HV > I + Tran + Adop$$

# Upgrade Efficiency if Benefits > Costs

*Behavioural Factors: Peer Effects and Social Norms*

$$W\_Glow + Health + Conv + Stat + Comf + \sum_{i=1}^T \delta_i S_i + \Delta HV > I + Tran + Adop$$

# Upgrade Efficiency if Benefits > Costs

*Behavioural Factors: Loss Aversion and Status-Quo Bias*

$$W\_Glow + Health + Conv + Stat + Comf + \sum_{i=1}^T \delta_i S_i + \Delta HV > I + Tran + Adop$$

# Upgrade Efficiency if Benefits > Costs

*Behavioural Factors: Biased Experience Forecast*

$$W\_Glow + \text{Health} + \text{Conv} + \text{Stat} + \text{Comf} + \sum_{i=1}^T \delta_i S_i + \Delta HV > I + \text{Tran} + \text{Adop}$$

# Upgrade Efficiency if Benefits > Costs

*Behavioural Factors: Bounded Rationality and Information Overload*

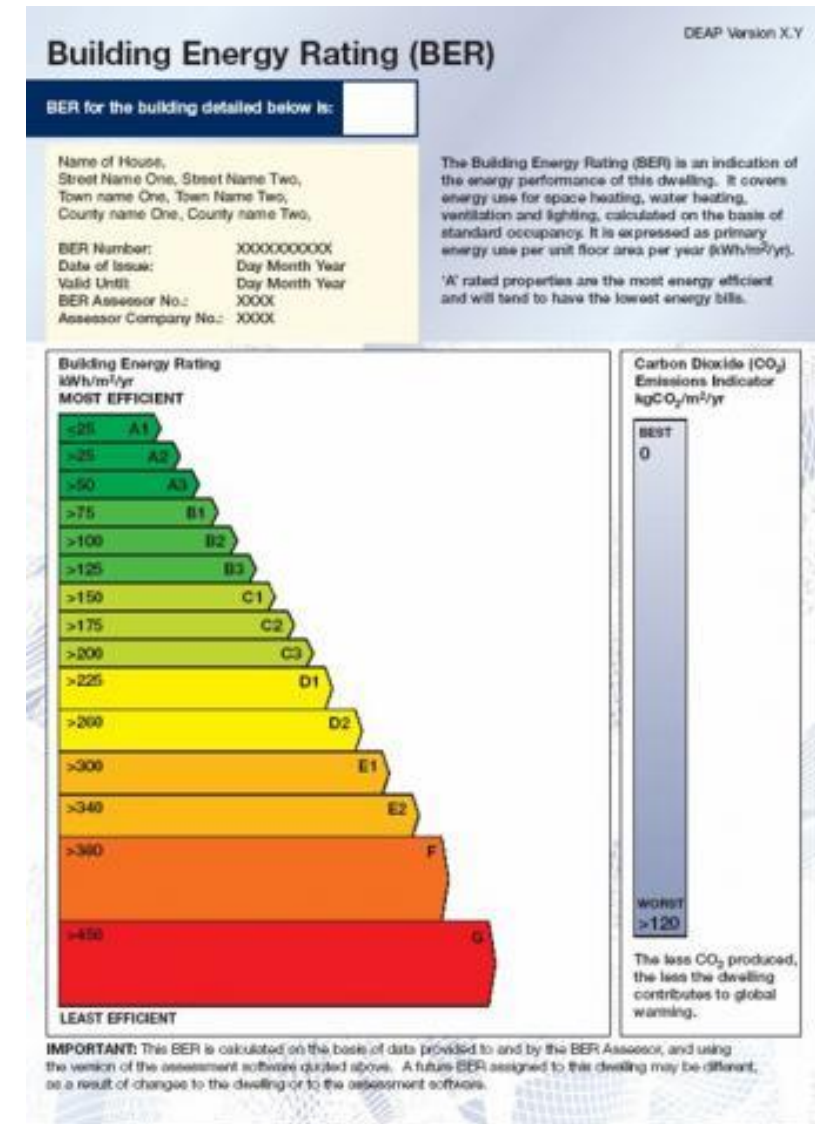
$$W\_Glow + Health + Conv + Stat + Comf + \sum_{i=1}^T \delta_i S_i + \Delta HV > I + Tran + Adop$$

# Results – Key Household Property Survey Findings

Category	Question		IE
<b>Overall</b>	Energy Efficiency (EE) is important when buying (SA %)	Yellow	57%
<b>Labelling</b>	Aware of the labelling system (Yes %)	Green	72%
	Influenced by label (Yes %)	Red	30%
<b>Benefits</b>	EE reduces my environmental impact (SA %)	Yellow	62%
	EE improves comfort (SA %)	Yellow	56%
	EE improves property value (SA %)	Yellow	58%
<b>Knowledge</b>	Understand property energy consumption (SA %)	Red	33%
	Understand money saved if upgrade (SA %)	Red	29%
<b>Technical Attitudes</b>	EE appliances are less reliable (SA %)	Green	17%
	Willing to take a chance on new technologies (SA %)	Red	39%
	EE does not vary across properties (SA %)	Green	24%
<b>Finance</b>	Loan access is limiting investment (SA %)	Red	26%
	I cannot afford to invest in EE (SA %)	Red	36%

# CONSEED Household Field Trial

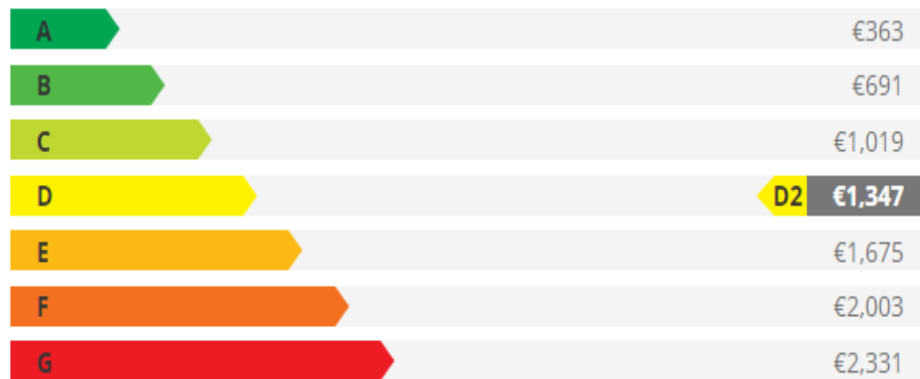
- Core Hypothesis:
  - Energy cost differences are missing/biased from/in property investment decisions
- Treatment:
  - Energy cost label (annual)
- Design:
  - IE: Randomized Controlled Experiment with daft.ie (National Trial)



# Treatment Label

## Treatment Label

How much are the energy bills likely to be for this property?

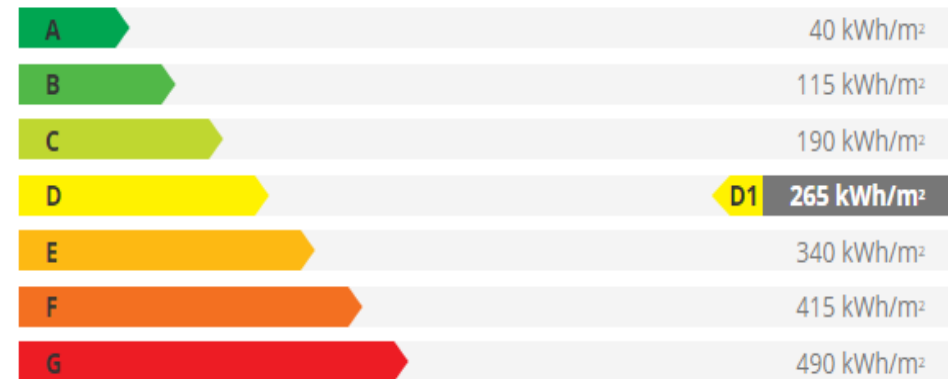


Yearly Energy Costs

The estimate is based on this property's BER rating, size and the current average price of energy. This is also based on a typical occupancy and heating of the house to a comfortable level.

## Control Label

How does the BER affect this property's yearly energy consumption?



Yearly Energy Consumption

kWh estimates for this simplified scale are the midpoint between lower and upper bounds within each BER letter (rounded to the nearest 5kWh). The 'G' category is the lower bound plus half the median range for each BER letter.



# Results – Ireland RCT

- Estimation Methods:
  - RCT: hedonic regression with trial-period/efficiency/treatment interactions (diff-in-diff)
- Results:
  - Control group: large EE premium pre-trial (4%) which declined by about 1 percentage point during trial
  - Treatment group: EE much lower pre-trial (2%) but general market decline offset by treatment

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Questions?

**CONSEED**



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