Energy efficiency as a tool for reducing energy poverty

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What is energy (or fuel) poverty?

- Inability to **afford** an adequate provision of energy services (often **heating**)
- However, **reducing thermal comfort** is only one of the solutions adopted by affected households…
  - reducing the consumption of **other basic goods and services** (e.g., education or food);
  - reducing the fraction of the **floor area heated**;
  - **fuel switch** (e.g., from natural gas to firewood, a less convenient but cheaper fuel);
  - **payment arrears** and **increased indebtedness** with energy suppliers; and
  - **electricity theft** and **illegal firewood collection**
The energy performance of dwellings

Inability to afford to keep the house adequately warm

% of the population unable to afford to keep the home adequately warm

% of the population living in a dwelling with housing faults (i.e., leaking roof, rot in windows, etc.)

\( r = 0.58^{**} \)
The energy performance of dwellings

% of the population on arrears in utility bills

% of the population living in a dwelling with housing faults (i.e., leaking roof, rot in windows)

r = 0.65**

Arrears in utility bills

The energy performance of dwellings
The SOLANOVA example
The SOLANOVA example

-84%
Policy approaches to EP alleviation

**DIRECT SUPPORT**
- Removes incentives for energy efficiency investment
- Poor targeting
- Burden to government budget
- Few connections to other policy goals

**DEEP EFFICIENCY**
- Potential permanent eradication of fuel poverty
- Avoids the lock-in effect
- Connection to other policy goals: employment and energy security

**BARRIERS**: higher costs and financing constraints

**Household income**

**Fuel payments**

**Energy efficiency**

**Energy prices**

**Equipment efficiency**

**Social tariffs**
Conclusions

- Deep EE retrofits are a key tool to jointly solve the energy poverty and climate change challenges
  - Protection of vulnerable households from further increases in real energy prices (e.g., carbon tax)

- Wider positive welfare and economic development impacts – CO-BENEFITS
  - New markets, net employment, energy security

- From financial analysis to social analysis
  - Pay-as-you-save schemes + public support through careful subsidies
Thank you for your attention

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