Alleviating energy poverty by building renovation

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Research context

- REELIH project: aims at decreasing energy poverty by energy efficiency in Armenia, Macedonia and Bosnia & Herzegovina
- MRI and BPIE consortium
- We are at the conceptual stage of defining what energy poverty means: the current presentation focuses on this

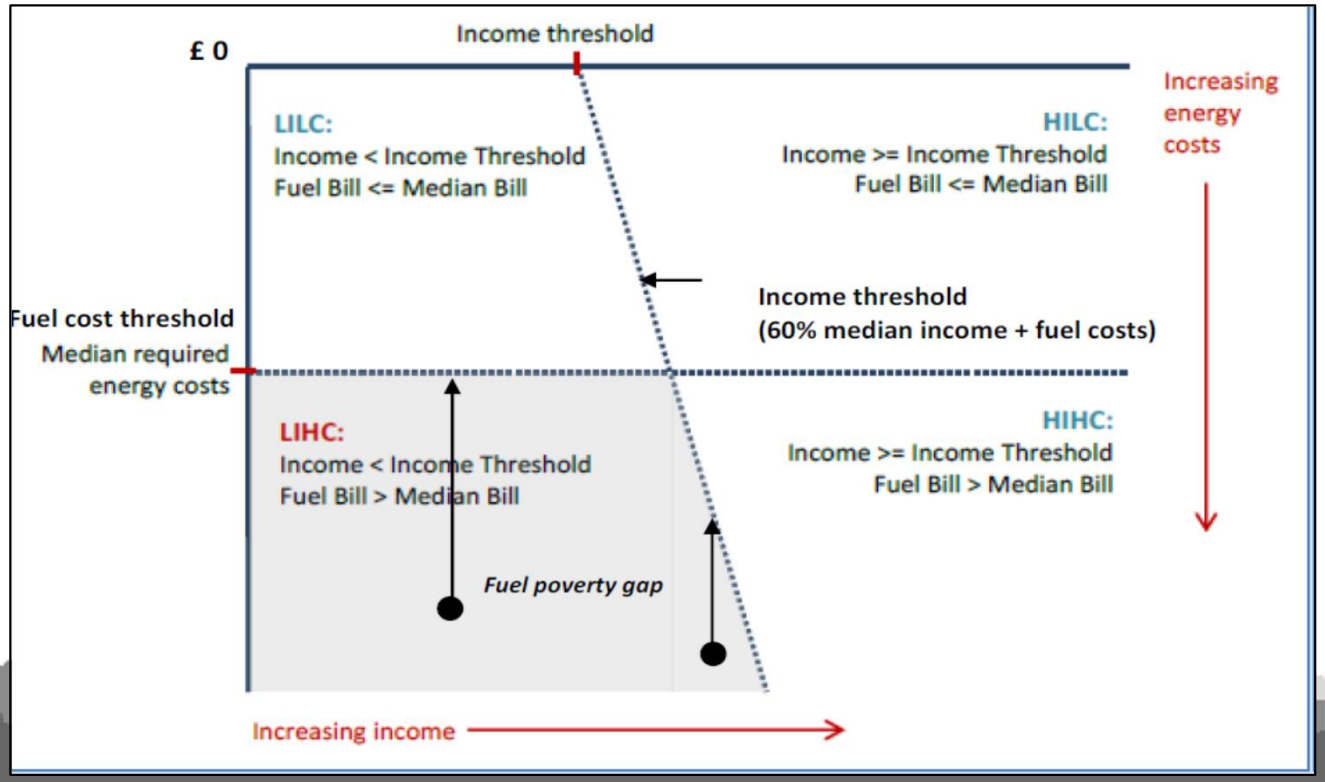
Energy poverty definitions-great variety

- Fuel poverty ≈ Energy poverty
- The essence: Individuals are not able to heat (or provide necessary energy services) at affordable costs
- We may agree on the core of the content but the details result in big differences (e.g. expenditure based measuring or subjective measuring)

Expenditure based measuring

- % of disposable income spent on energy (Ireland 10%)
- LIHC (Low income –high cost model, England):

"A household is considered to be fuel poor where:
they have required fuel costs that are above average (the national median level) were they to spend that amount, they would be left with a residual income below the official poverty line [60% median income]"



EU-SILC indicator

GDP? Climate? Welfare system? Heating system? Very subjective?

Share of population reported to be unable to keep home adequately warm (2016)

	Share of households in average	Share of households among those below 60% of median equivalised income
EU 28	**8.7%**	**21%**
Sweden	2.6%	4.6%
UK	6.1%	14.2%
Bulgaria	39.2	61.9
Poland	7.1	16.7
Slovakia	5.1	17
Greece	29.1	52.5
Spain	10.1	23.2
Portugal	22.5	42.7
Macedonia	25.7	39

Effect of the method applied

Energy poverty?

- **Multi-family/family, Urban/Rural?**
- E.g. Poland: SILC: more urban, LIHC: more rural
- E.g. Hungary: % of expenditure: more urban, residual income: more rural

Intervention logic

- Income based intervention: allowances, employability, vulnerable-consumer policies
- Expenditure based intervention: size of dwelling, energy prices, investments (the later is about EE in buildings)

Who are the energy poor in CEE/Balcans/Armenia

- We are working on it…
- Shortage of data: less data on energy performance, less data on income (high share of informal income): difficult to model
- More structural distorsions:
  - high rate of ownership (upfront costs on owners)
  - forced overconsumption,
  - high level of individual (coal, wood, waste) heating with external health effect,
  - mixed social composition in multiunit buildings (hard to target)
  - weaker welfare system,
  - worse state of the housing stock.

Policy consequences

- Fine-tuning the EE programme for the highest probability of energy poverty (**policy level**).
  - geographical areas (certain urban or rural neighbourhoods),
  - housing types (e.g. buildings with the worst performance),
  - types of interventions (e.g. metering is essential),
  - depth of interventions (low cost-high efficiency).
- Targeting inside the programmes not to the „energy poor" but to the poor – **project level**