

# From diagnosis to planning: Harnessing the effective use of indicators

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# Who's who @ OIPE (sept 2023 - 63 members)



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## *food for thought on Energy Poverty*

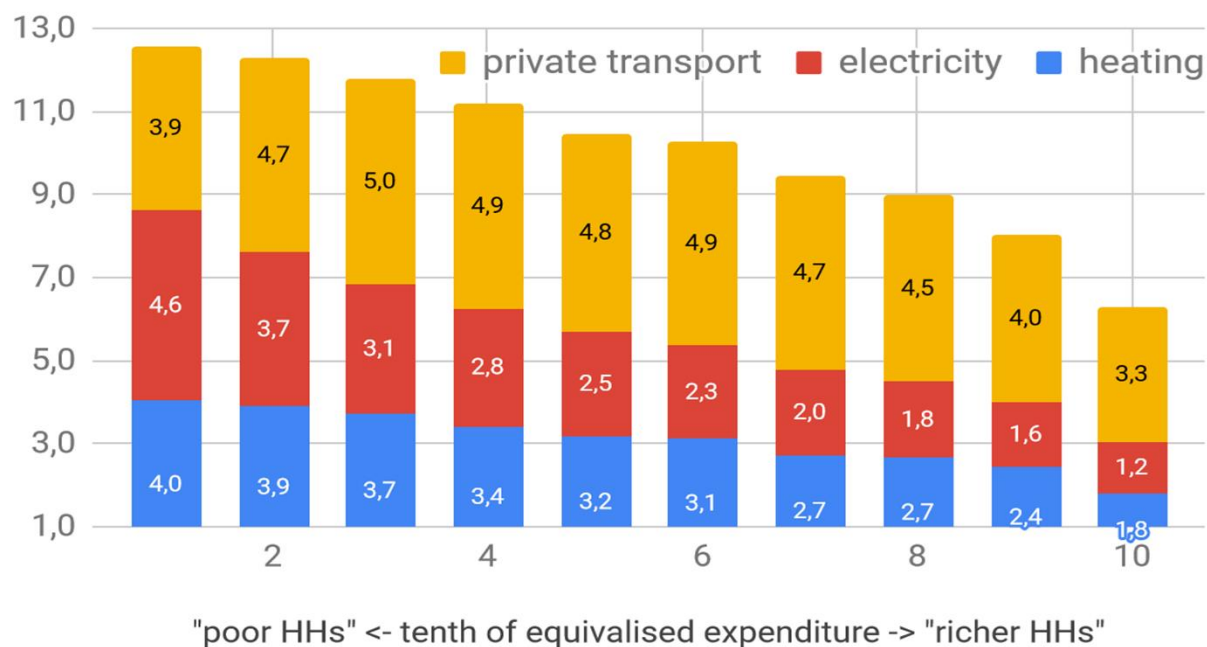
1. Definition
2. Measurement
3. Data collection

# 1. Definition of EP

## Italian households' energy expenditure in 2021 (as % of total expenditure)

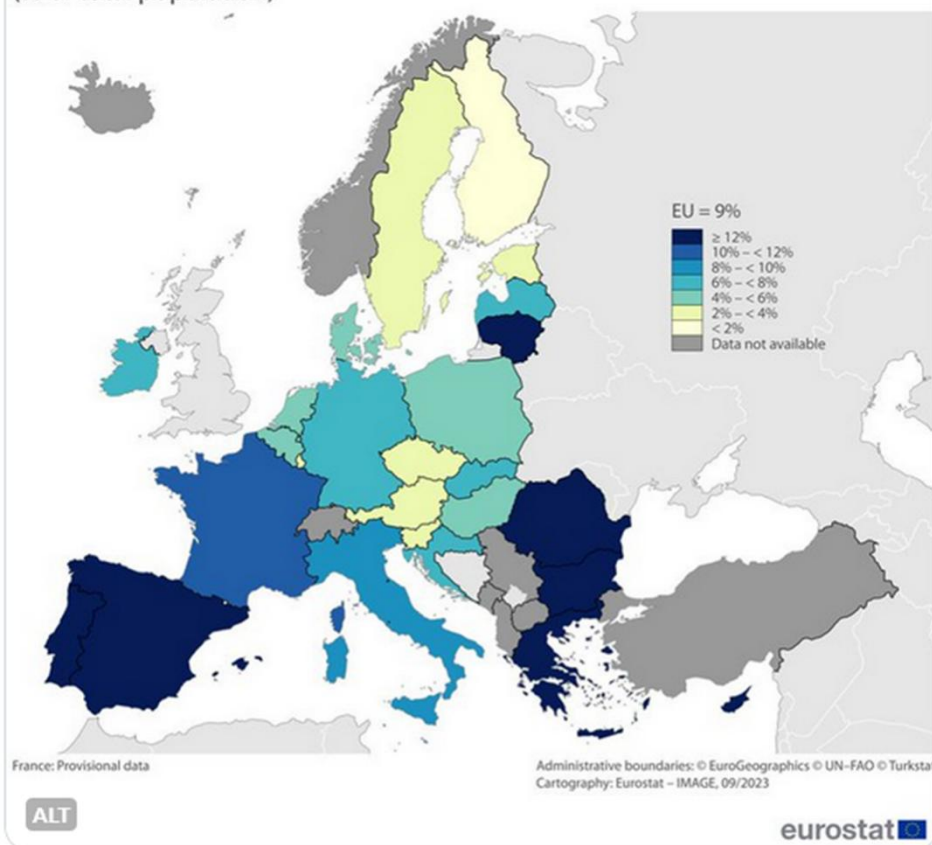
heating  
electricity  
it's time to include private transport!

Source: based on the 2021 Household budget survey (Istat) , OIPE Report 2022

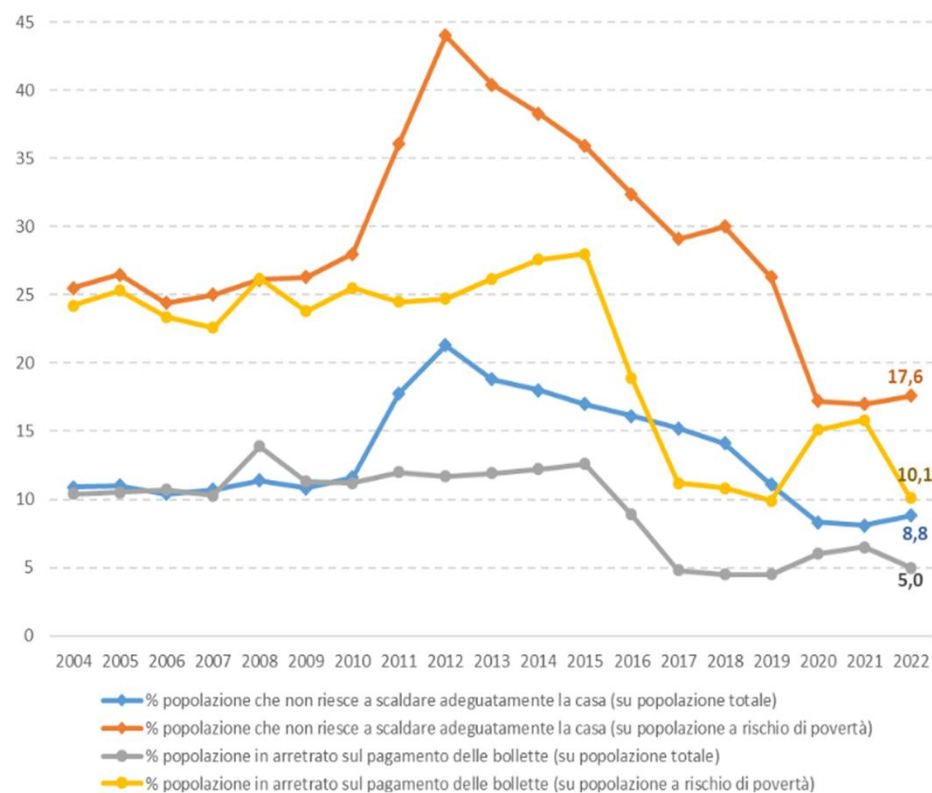


## 2. Measurement: PE in EU, SILC

**Inability to keep home adequately warm, 2022**  
(% of total population)



PIANO NAZIONALE INTEGRATO PER L'ENERGIA E IL CLIMA - giugno 2023



## 2. Measurement: PE in Italy

$$\eta_3 = \frac{1}{n} \sum_{i=1}^n w_i \left\{ I \left[ \frac{s_{ie}^{eq}}{s_i^{eq}} > 2 * \left( \frac{\sum_{i=1}^n s_{ie}^{eq}}{\sum_{i=1}^n s_i^{eq}} \right) \right] * I[(s_i - s_{ie}) < s_j^*] \cup [I(s_i^r = 0) * I(S_i^{eq} < P50_t(S_i^{eq}))] \right\}$$

Heating expenditure = 0  
Equivalent tot exp < median

The *i*-th household is energy poor if

- a1. high energy costs** (share > 2x the average);
- a2. low expenditure** (total eq. expenditure, net of energy costs, below the relative poverty threshold)

**OR**

- b. hidden energy poverty** (zero heating expenditure AND total eq. expenditure < median value)

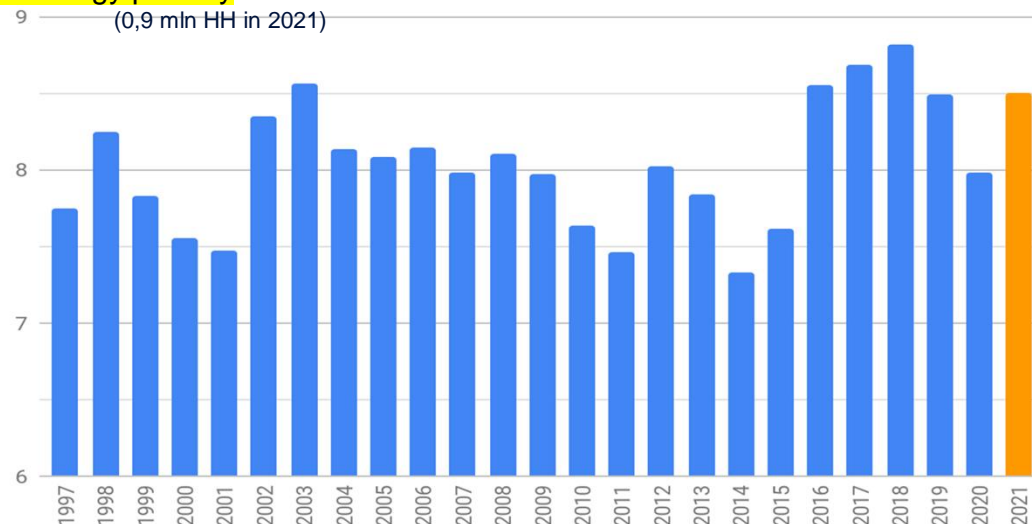
**a1. high energy costs & a2. low expenditure**  
(1,3 mln HH in 2021)

**b. hidden energy poverty**  
(0,9 mln HH in 2021)

Faiella & Lavecchia, 2015. "[Energy Poverty in Italy](#)," [Politica economica](#), il Mulino, 1:27-76.

2021: 2,2 mln households, corresponding to 8,5% of the total population

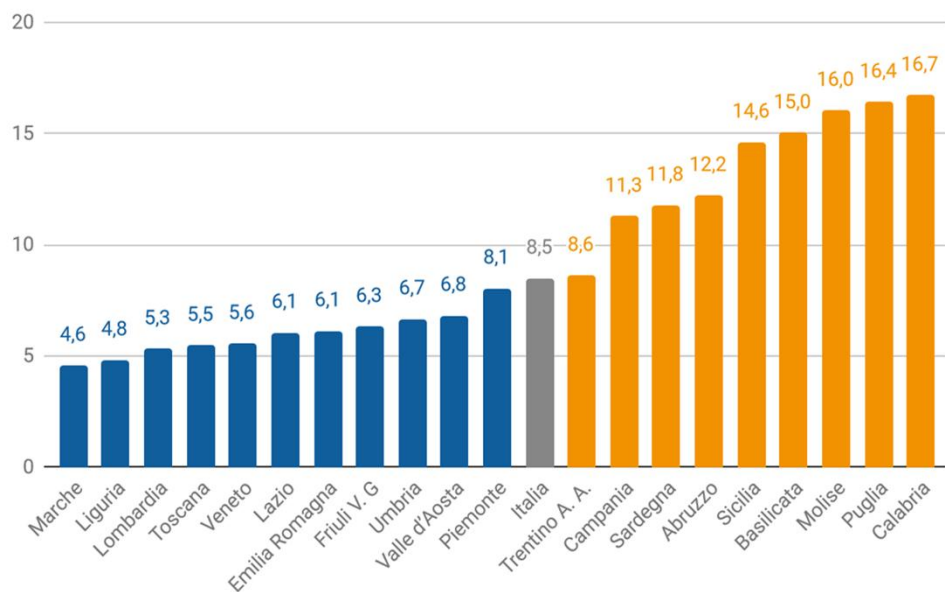
Average 2001 - 2021: 2,0 mln households, corresponding to 8,1% of the total population





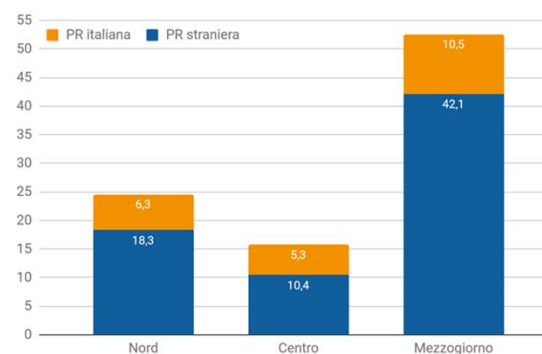
## 2. Measurement: PE in Italy

### Regional figures and Households' characteristics

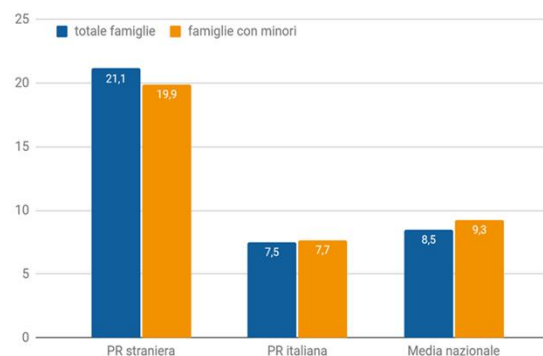


#### Large variability:

- by region: Calabria 16,7%; Marche 4,6%
- in time: +5,5 p.p. Puglia;
- 3.5 p.p. w.r.t. 2020



large N of HH in EP with foreigner breadwinner, in particular in the South



950 thousand children (10%) out of 583 thousand HH in PE, the larger part with foreigner breadwinner

## 2. Measurement: mapping the risk of EP at regional level

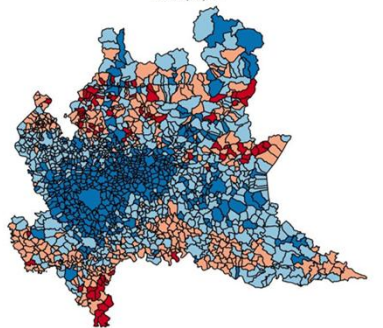
### Lombardy: georeferenced Index of Fuel Poverty Risk

$$FPR_m = (w_{EE} \times d(EE_m) + w_{DD} \times d(DD_m)) - (w_{BQI} \times d(BQI_m) + w_{WI} \times d(WI_m))$$

Fuel Poverty Risk (FPR), four components:

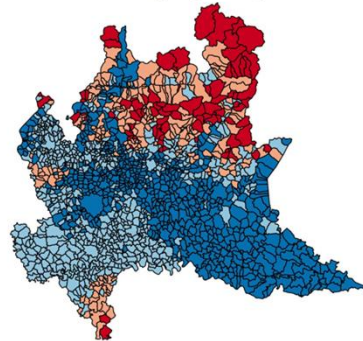
- the expenditure necessary to satisfy the energy needs relating to the home (EE),
- the severity of climatic conditions (DD),
- the quality of the housing stock (BQI),
- the spending capacity of the area (WI).

Average standard heating cost, 2019  
Euro/sqm/year



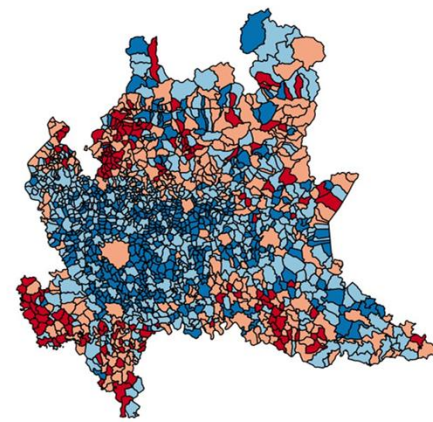
11 - 20 (486)    20 - 26 (592)    26 - 34 (351)    34 - 60 (77)  
from € - to € (# municipalities)

Heating degree days



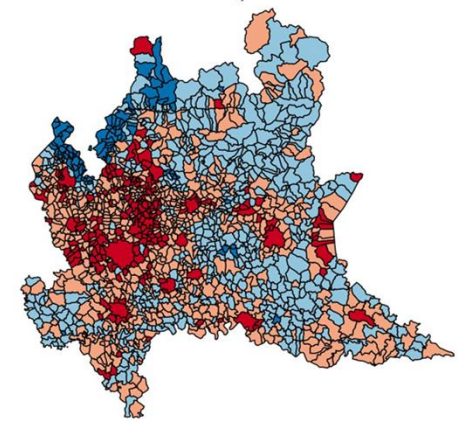
2120 - 2511 (617)    2512 - 2812 (595)    2826 - 3282 (213)    3291 - 4648 (81)  
from - to (# municipalities)

Average age of the houses, 2019  
Years



25 - 51 (427)    51 - 63 (568)    63 - 78 (358)    78 - 111 (153)  
from - to (# municipalities)

Average per capita taxable income, 2019  
Euro/year



3287 - 11559 (92)    11606 - 14822 (538)    14832 - 17375 (660)    17391 - 31789 (216)  
from € - to € (# municipalities)





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## 2. Measurement: mapping the risk of EP at regional level

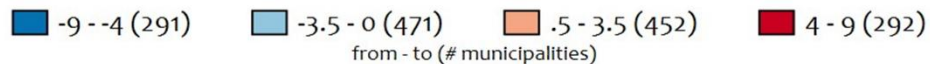
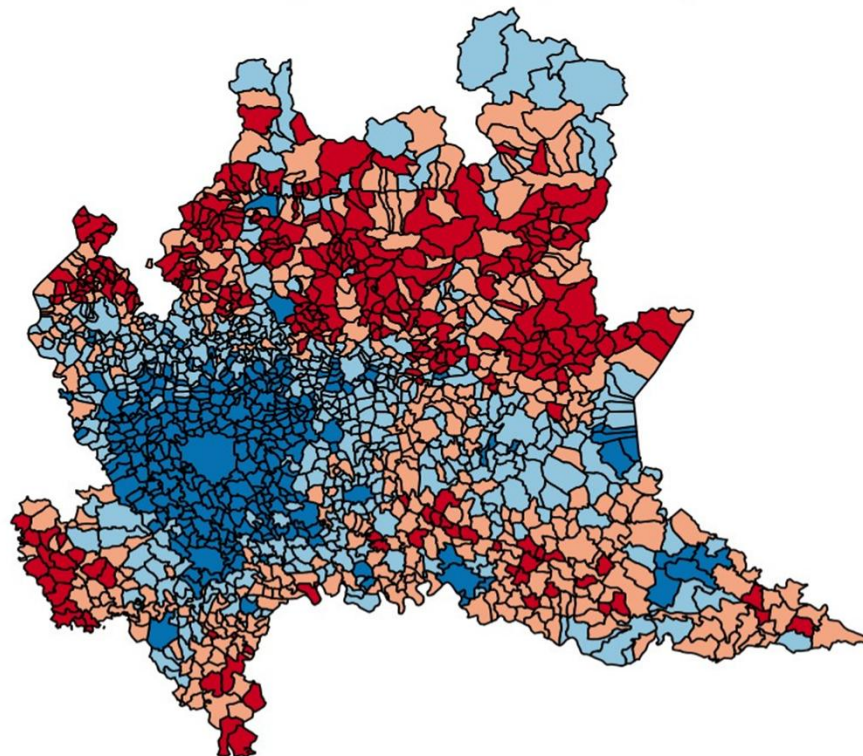


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### Energy poverty risk index, 2019

From -9 (the least risky) to 9 (the riskiest)



Source: "An energy-efficiency based spatial indicator of fuel poverty risk", Miniaci, Valbonesi, Venkateswaran, Zampatti, Faiella, Lavecchia, mima

### 3. Data collection: proposals

'Without data, you're just another person with an opinion' (W. Edwards Deming)

- Need to collect better, more granular data
  - in the short term: extend EU-SILC with an ad-hoc energy module
  - in the medium term: time for an European Residential Energy Consumption Survey (RECS)
- Alternative: use EPCs data (after harmonization..)
- Qualitative/quantitative survey on degraded suburbs and public housing to register vulnerable households' energy needs/consumptions, and instruct responsible behaviour



**Thanks for your attention !**  
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