



Health and equity consequences of energy vulnerability in Europe



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Всемирная организация
здравоохранения

Европейское региональное бюро

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Energy vulnerability in housing
=> problems to keep home warm

WHO LARES survey (2002-2003)

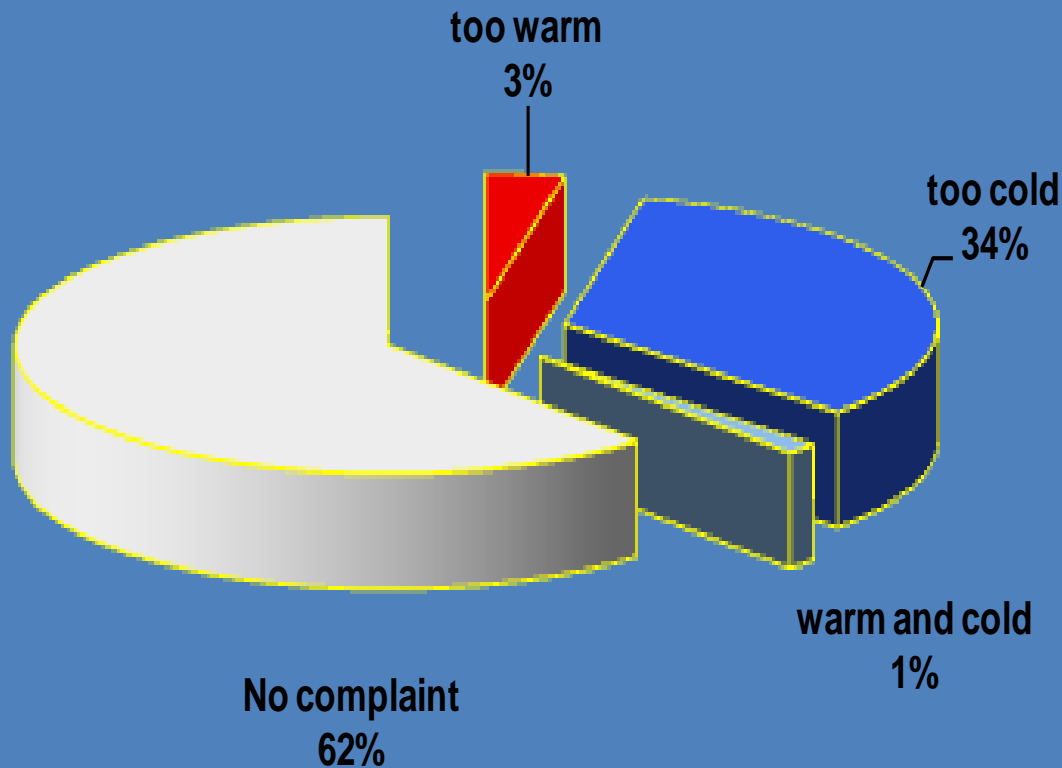
Fuel poverty (defined as $>10\%$ household budget)

Fuel poverty is a big problem:

- Overall prevalence in the LARES survey: 37%
- Largest problems were identified in (1) Eastern European and (2) Southern European cities.
- Bratislava: 49%



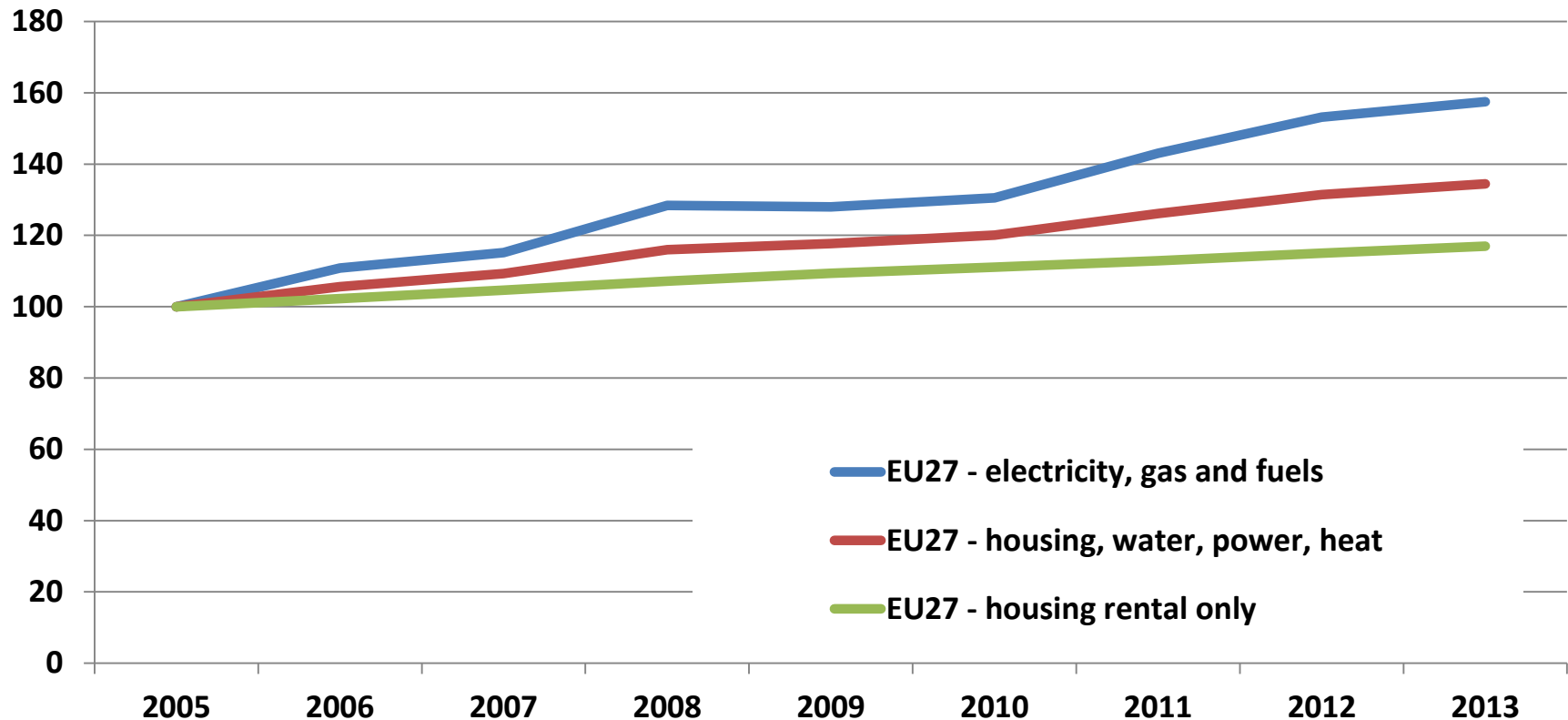
WHO LARES (2003): Perception of too cold temperatures in winter time



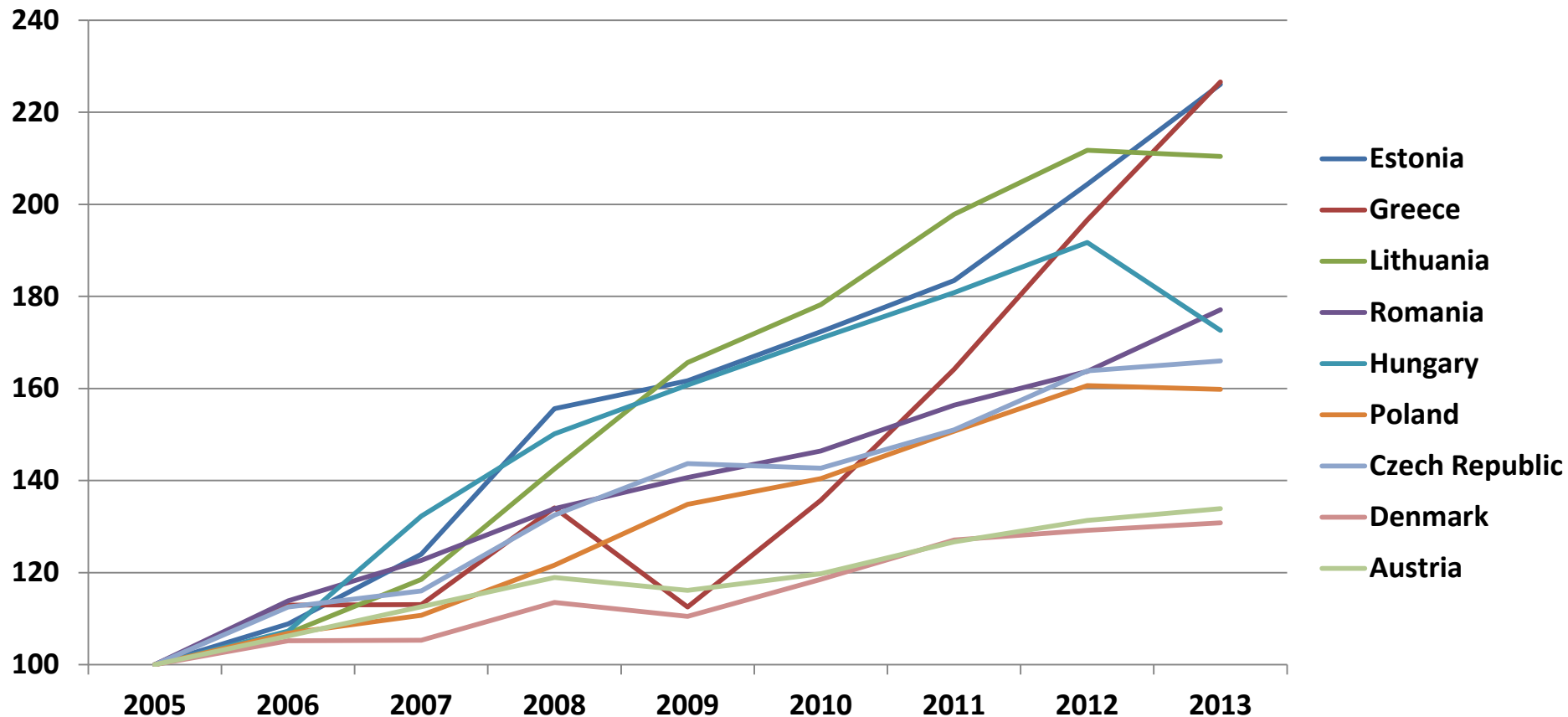
In **Eastern European** cities, **45% of the poorest** households report cold temperature in winter versus 26% of the most well-off households.

In **Western European** cities, **25% of the poorest** households report cold temperature in winter versus 17% of the most well-off households.

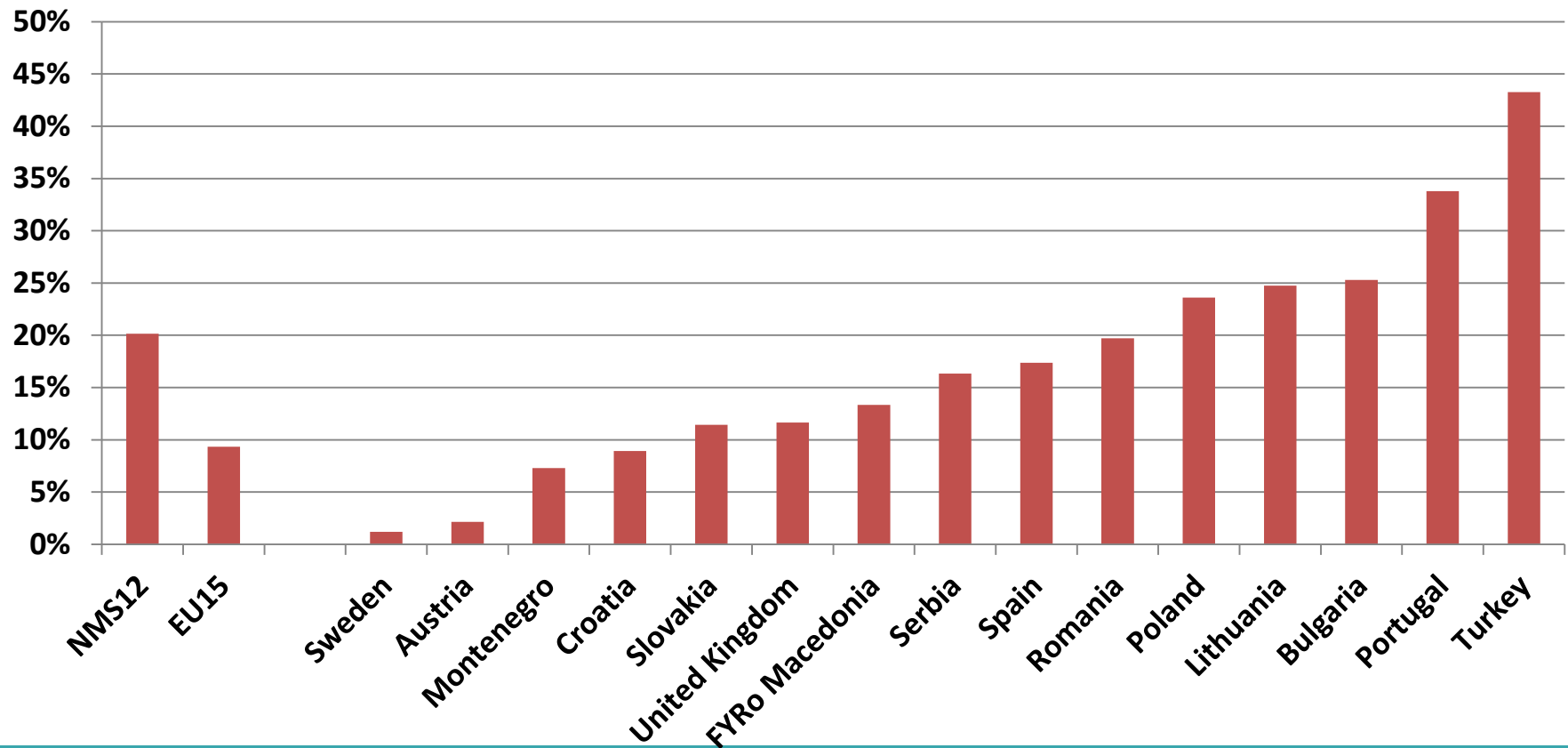
Increase of energy prices: Harmonised indices of consumer prices (average increase, 2005 = 100)



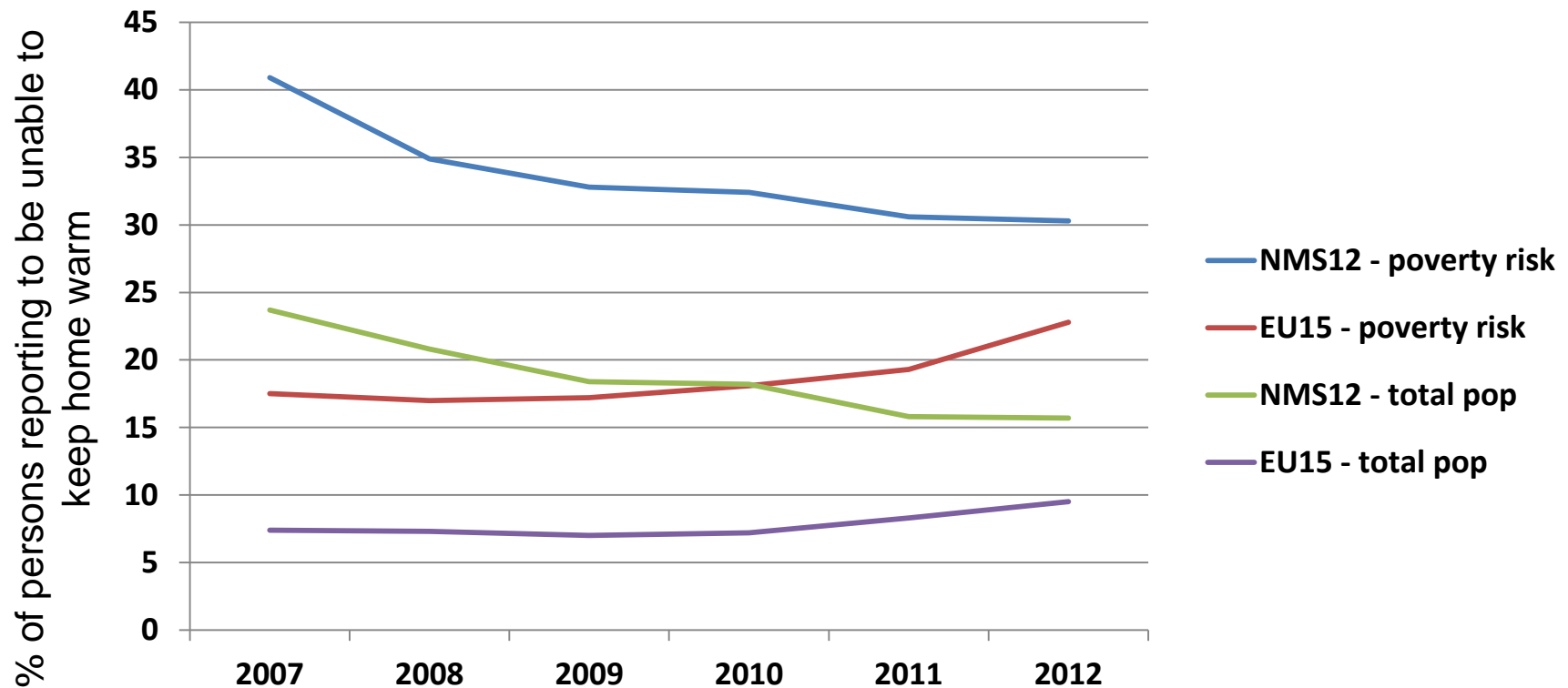
Increase of energy prices: Harmonised indices of electricity, gas and fuels (average increase, 2005 = 100)



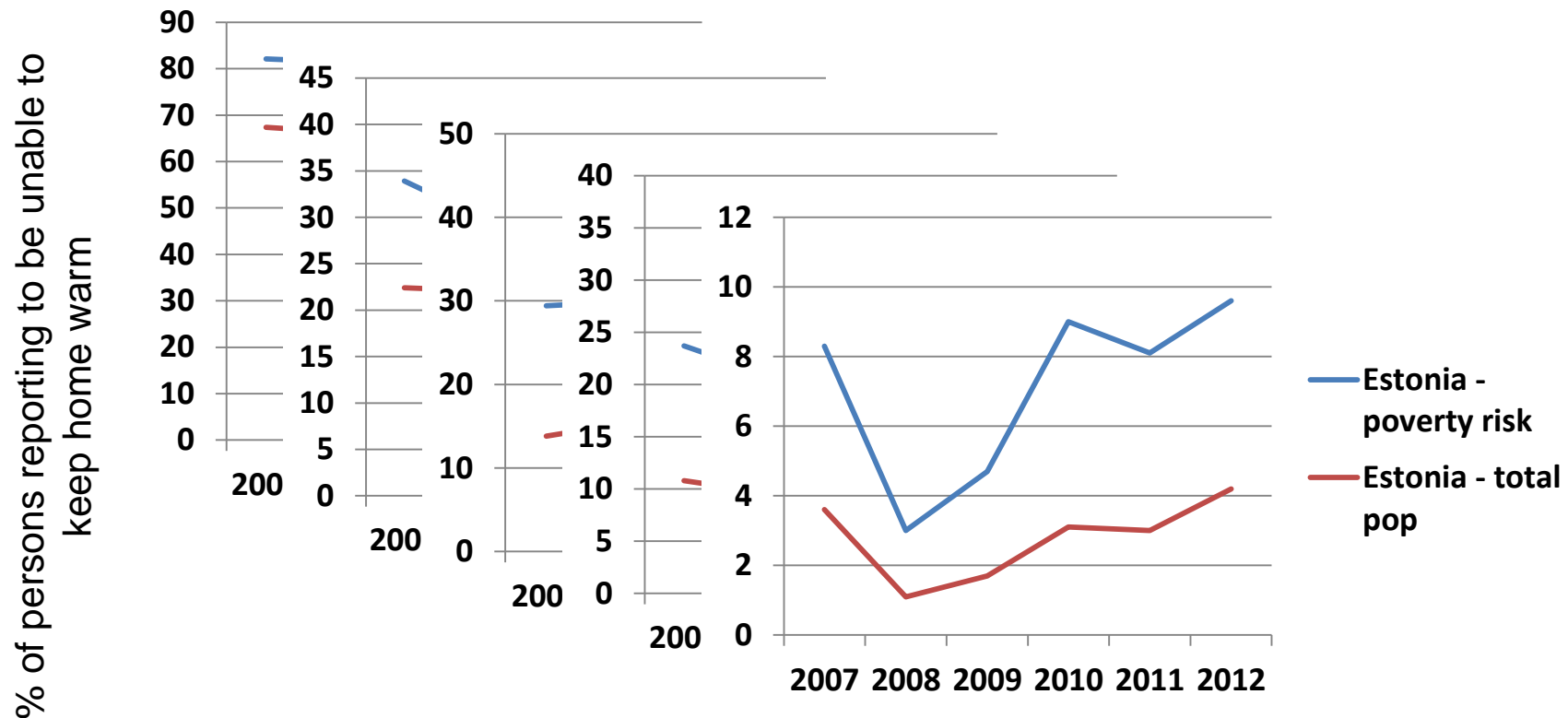
Inability to afford keeping home warm (2012)



“Fuel vulnerability” expressed by “Inability to keep home adequately warm” (SILC data)



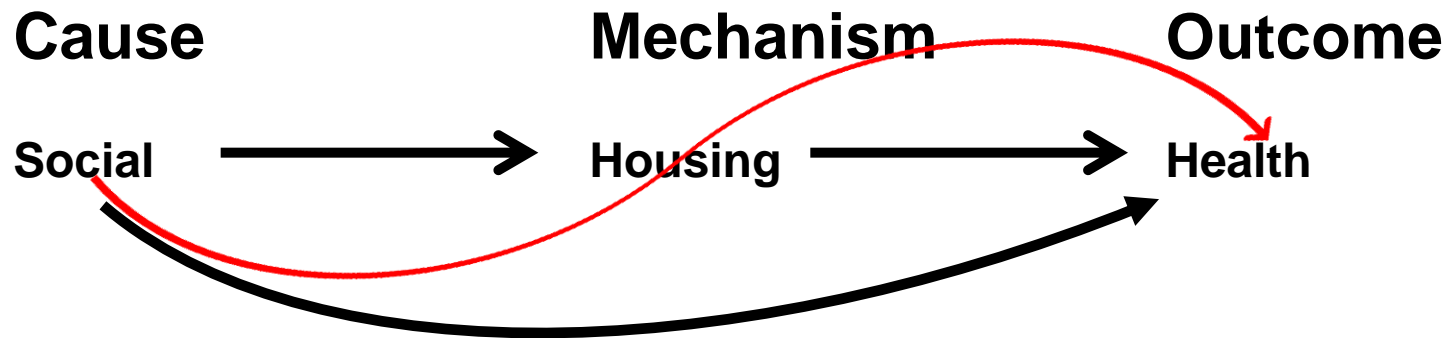
“Fuel vulnerability” expressed by “Inability to keep home adequately warm” (SILC data)



Energy vulnerability in housing and health

The health impacts of...

Energy vulnerability => Cold



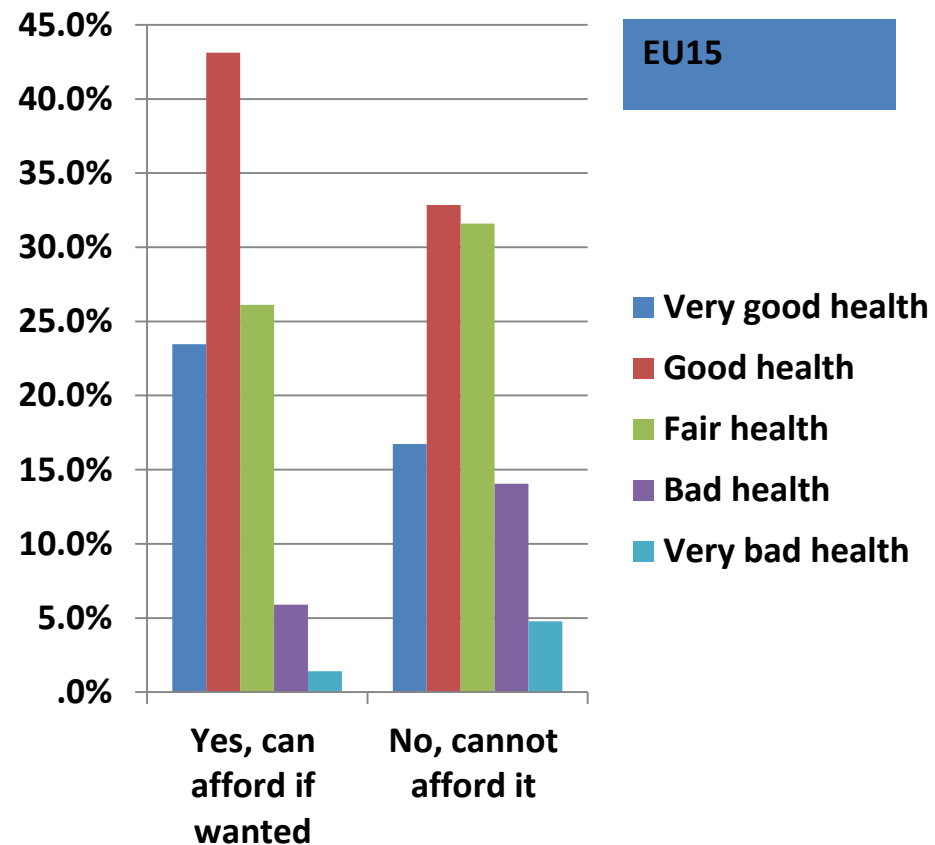
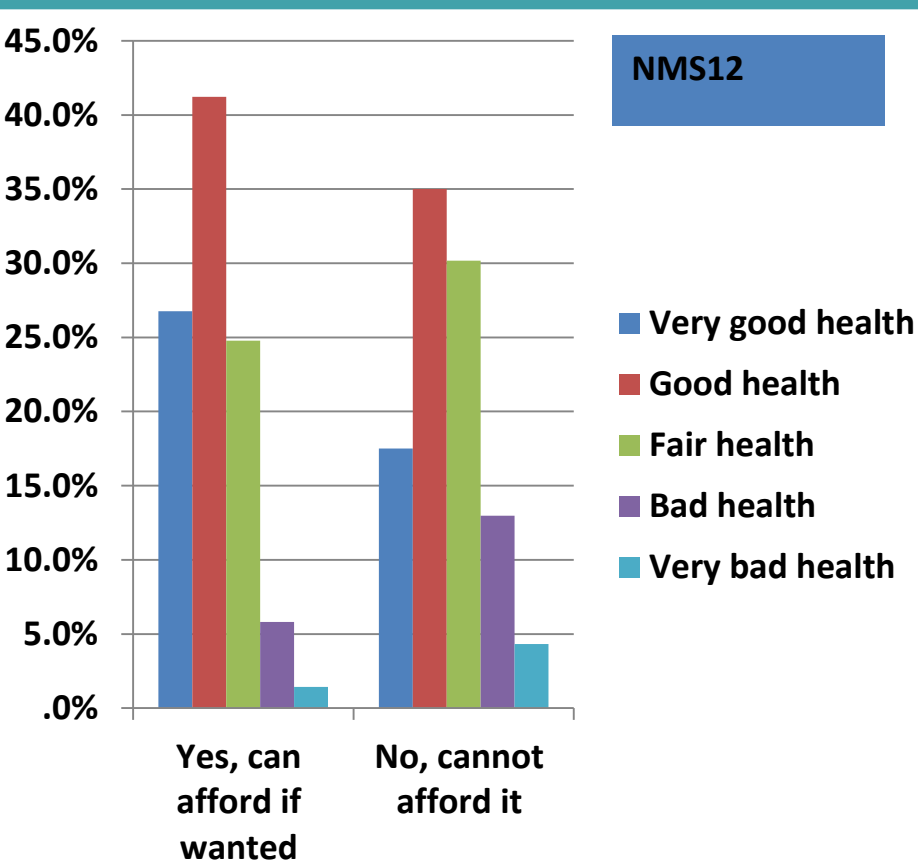
Health effects of indoor cold

- Respiratory: acute infectious diseases, enhanced asthma, chronic obstructive pulmonary disease
- Cardiovascular: coronary and other heart disease, myocardial infarct, cerebral vascular incidents, circulation problems
- Injuries: hypothermia, falls and accidents

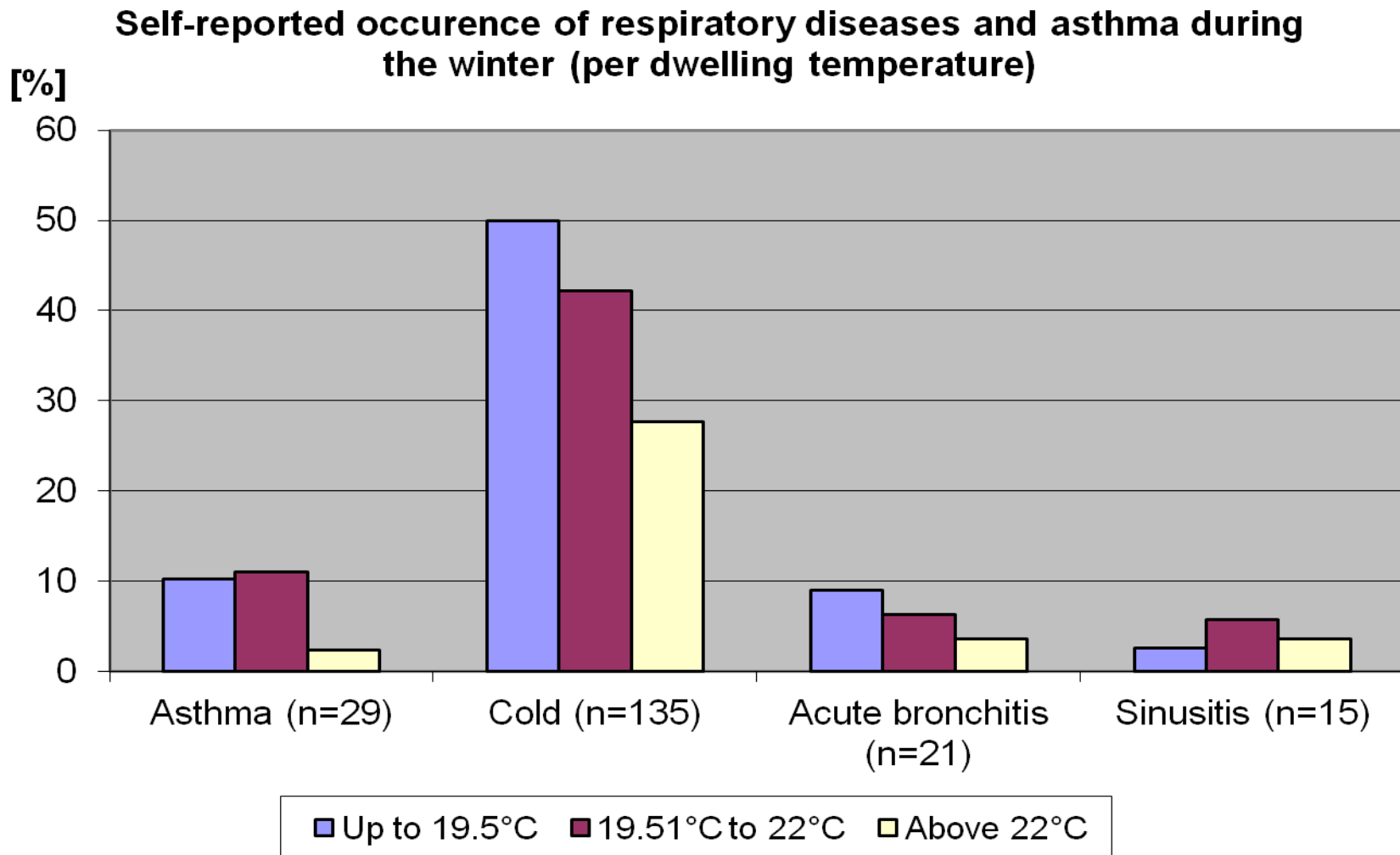
⇒ leading to increased mortality rates:

- Every winter, there are thousands of cold-related excess deaths in Europe.
- The relative excess mortality increases with age

Ability to afford keeping home warm and self-reported health



WHO Frankfurt Study

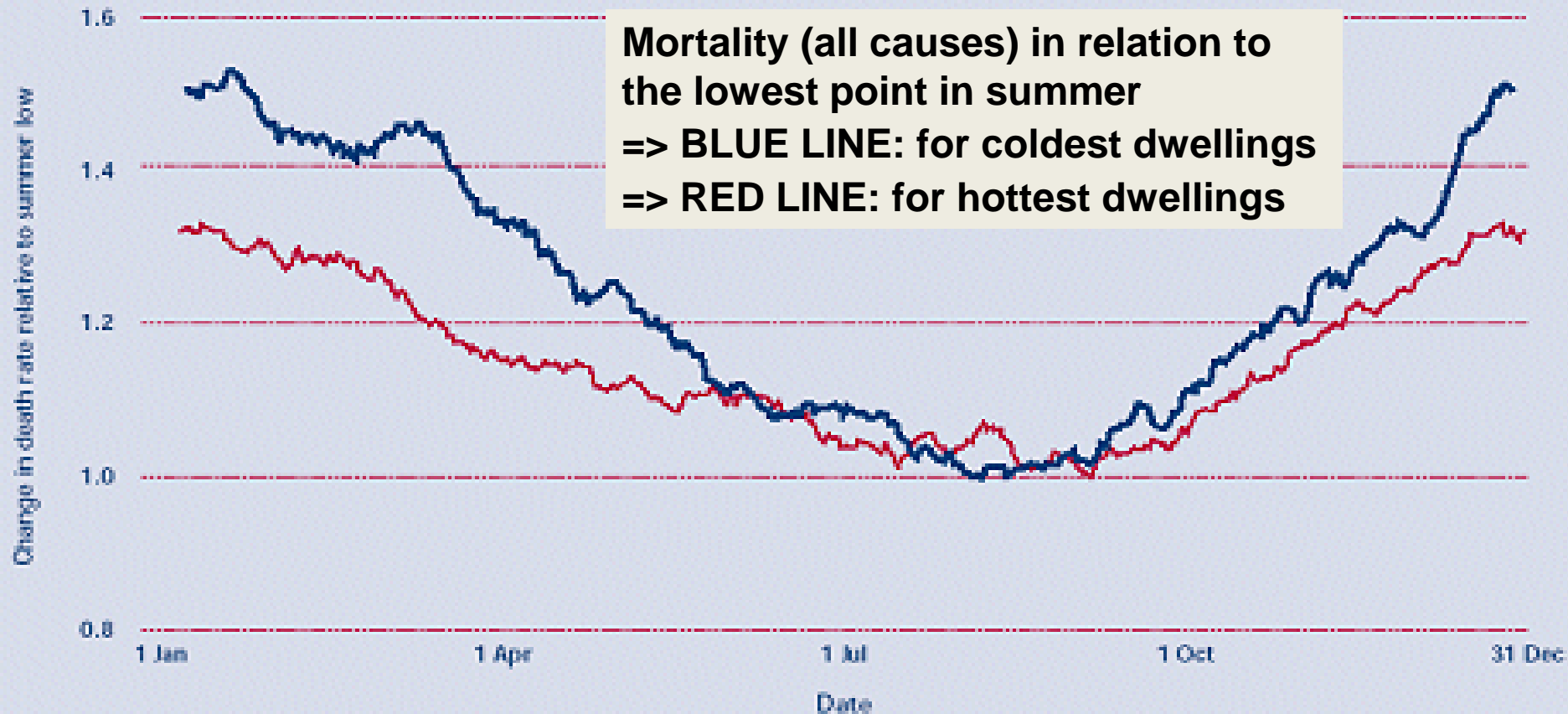


Selected health impacts of thermal insulation in NZ

Effect	Intervention group	Control group	Adjusted Odds Ratio
Bad self-reported health	~15%	~22,4%	0,5
Cold / flu	~57%	~67%	0,44
Low level of vitality (SF36)	~30%	~41%	0.51
Sleep disturbance by cough (in children)	~27%	~38%	0.57

Thermal comfort versus mortality (UK)

Figure 1: **Seasonal fluctuation in mortality**



Note: The two curves represent the 25% coldest and 25% warmest homes

Overall housing EBD assessment



Indoor cold

Excess winter mortality

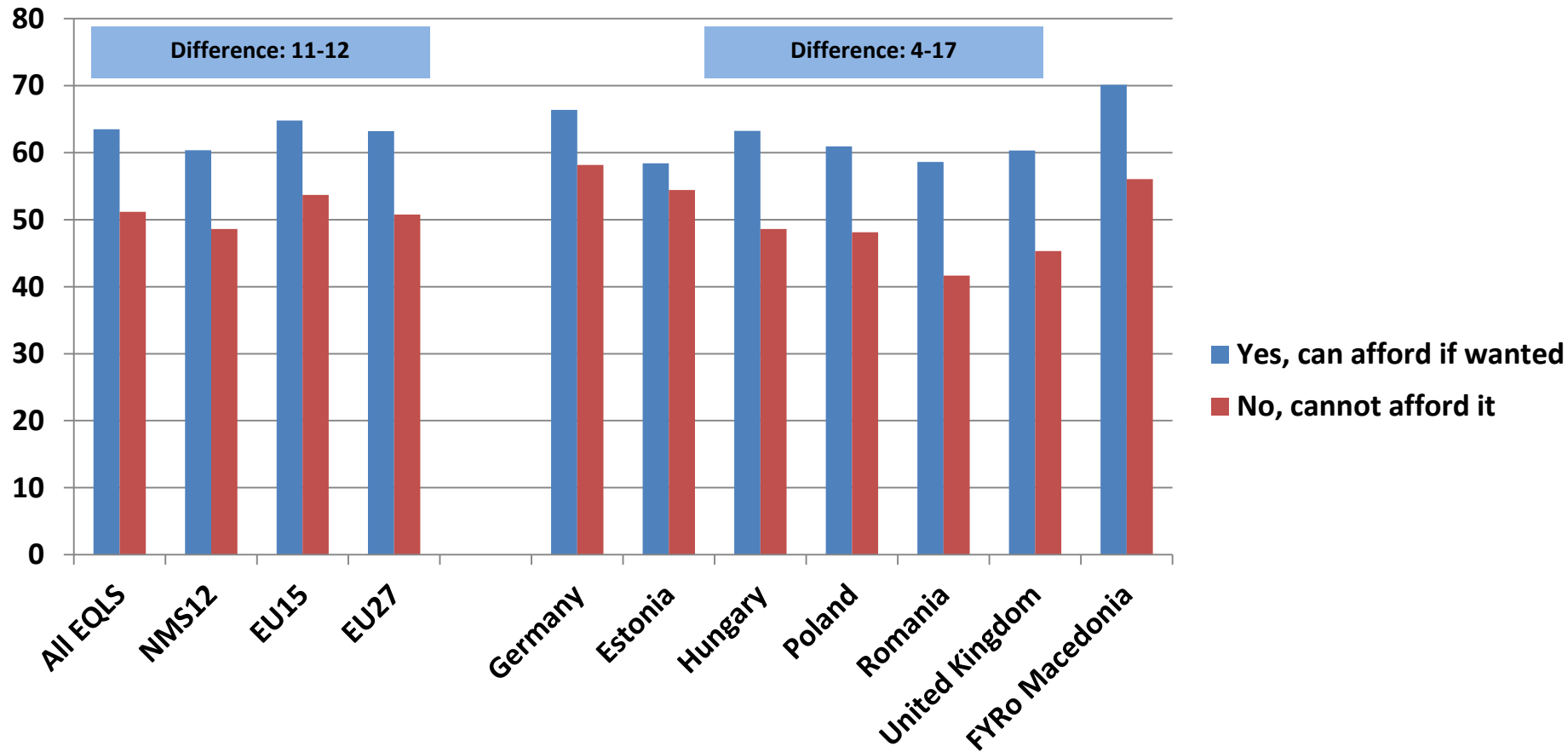
0.15% increased mortality per °C

11 European countries:
38 203 excess winter deaths (12.8 per 100 000)

Cold, fuel vulnerability and lack of heating also affects...

- Wellbeing and comfort
- Mental health
- Perception of home as a “safe harbour”
- Use of the home
- Social behaviour (inviting friends etc.)
- Budget available for other expenses (food, clothing, transport...)
- Use of harmful fuel types (coal, wood, etc.) => Greek example!
- Reduction of ventilation rates

Ability to afford keeping home warm and mental wellbeing (WHO_5 tool)



Warm Front Campaign effects

Before *Warm Front* : spatial shrink

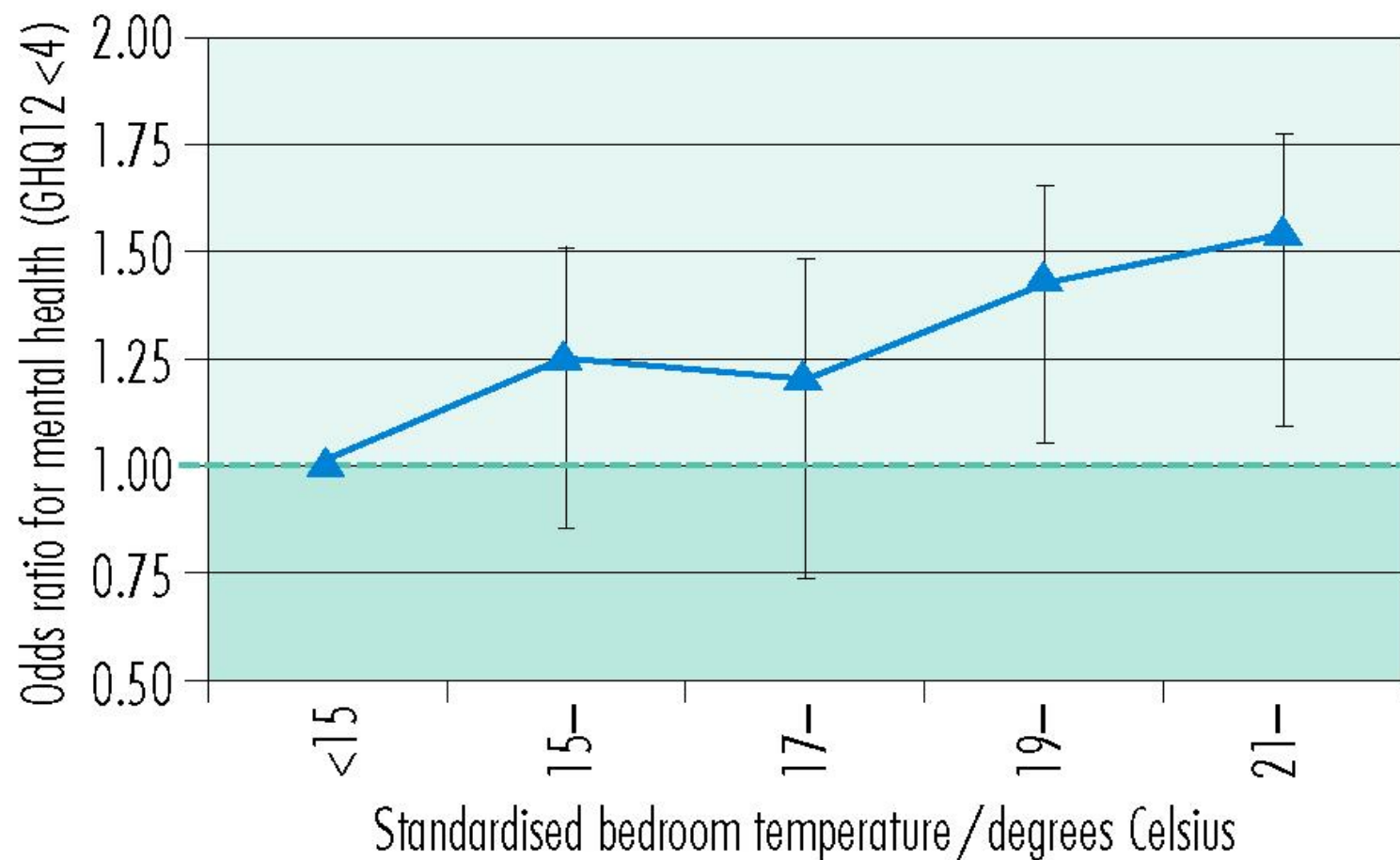


After *Warm Front* : using the whole house



Warm Front results

Mental health increases with bedroom temperature



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Cold-specific health vulnerability

- Elderly
- Infants, children and teenagers
- Persons fallen ill from disease
- People with chronic diseases or physical or mental limitations
- People using certain medications
- Malnourished

Inequalities in thermal comfort and affordability to keep homes warm

Housing conditions and social status (2000)

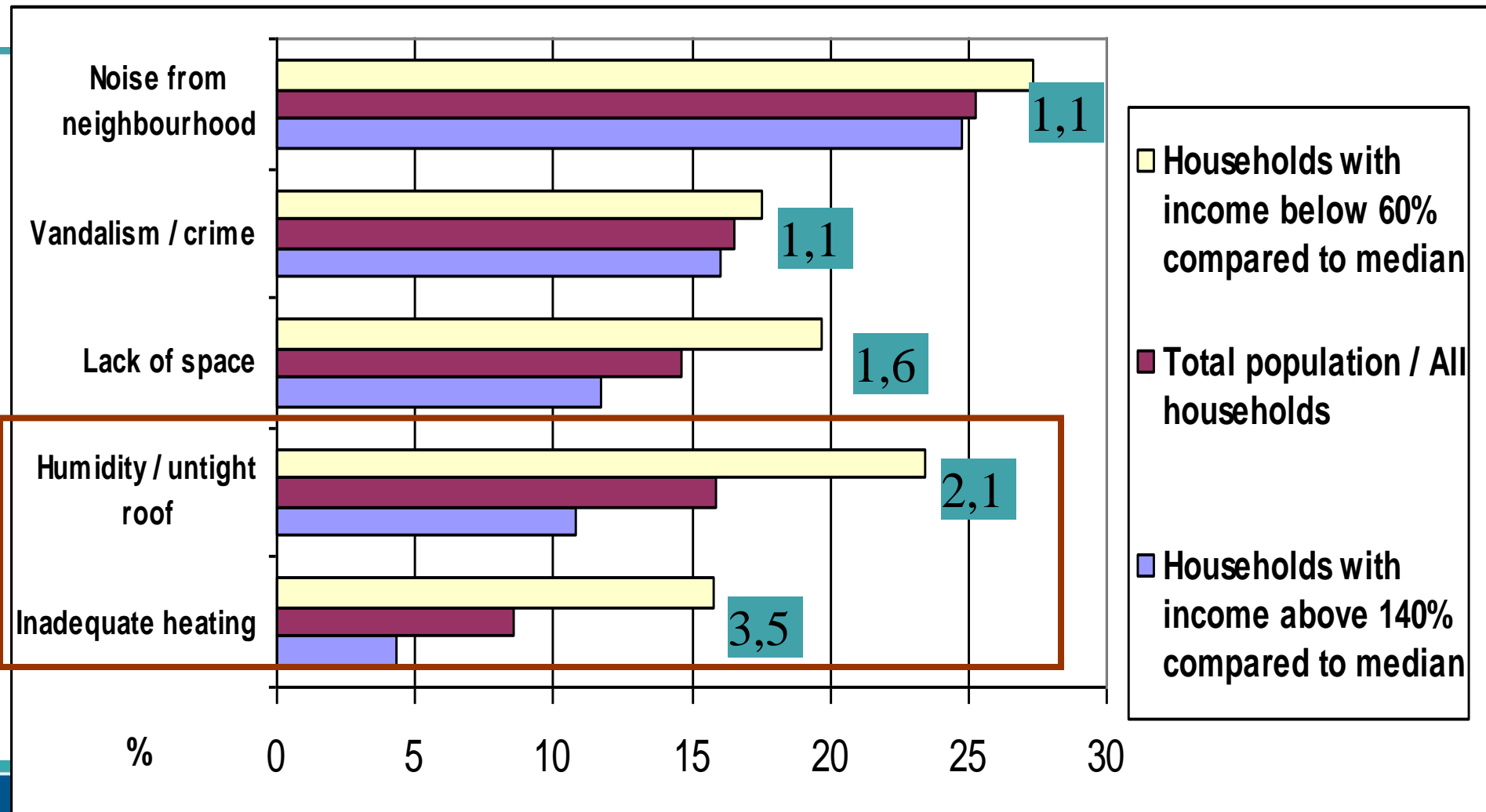
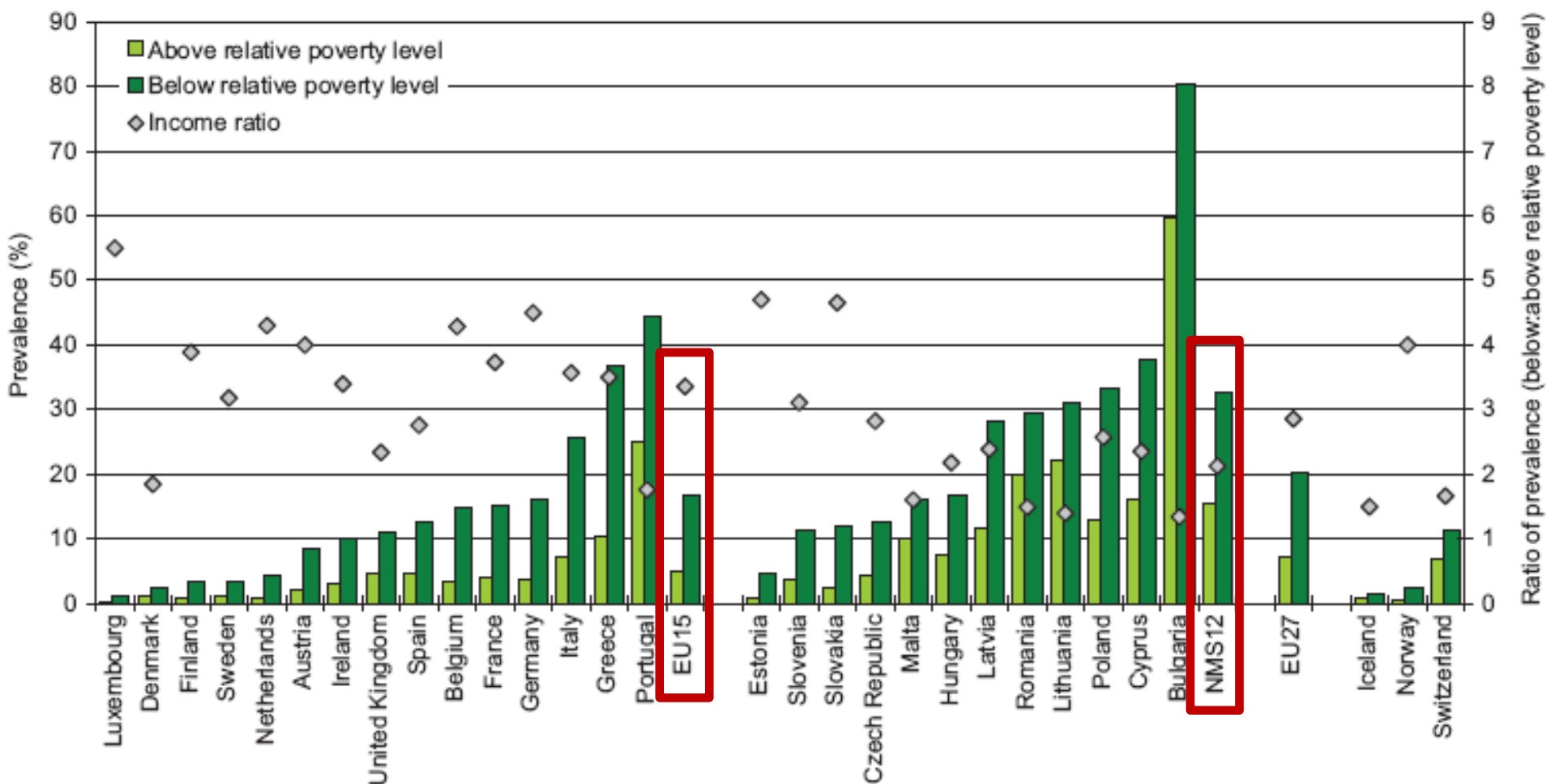
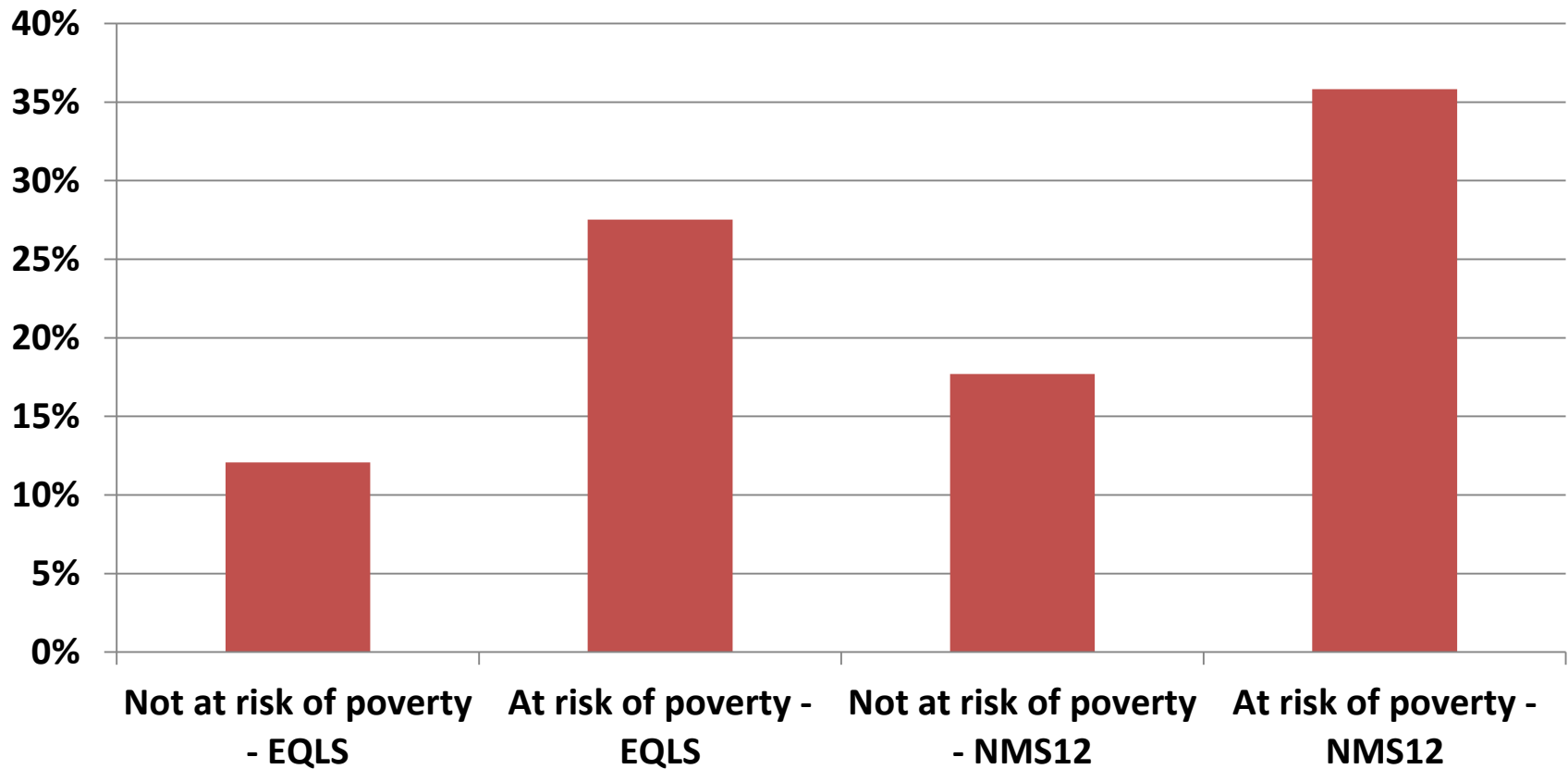


Fig. 15. Prevalence of inability to keep the home warm by relative poverty level (2009)

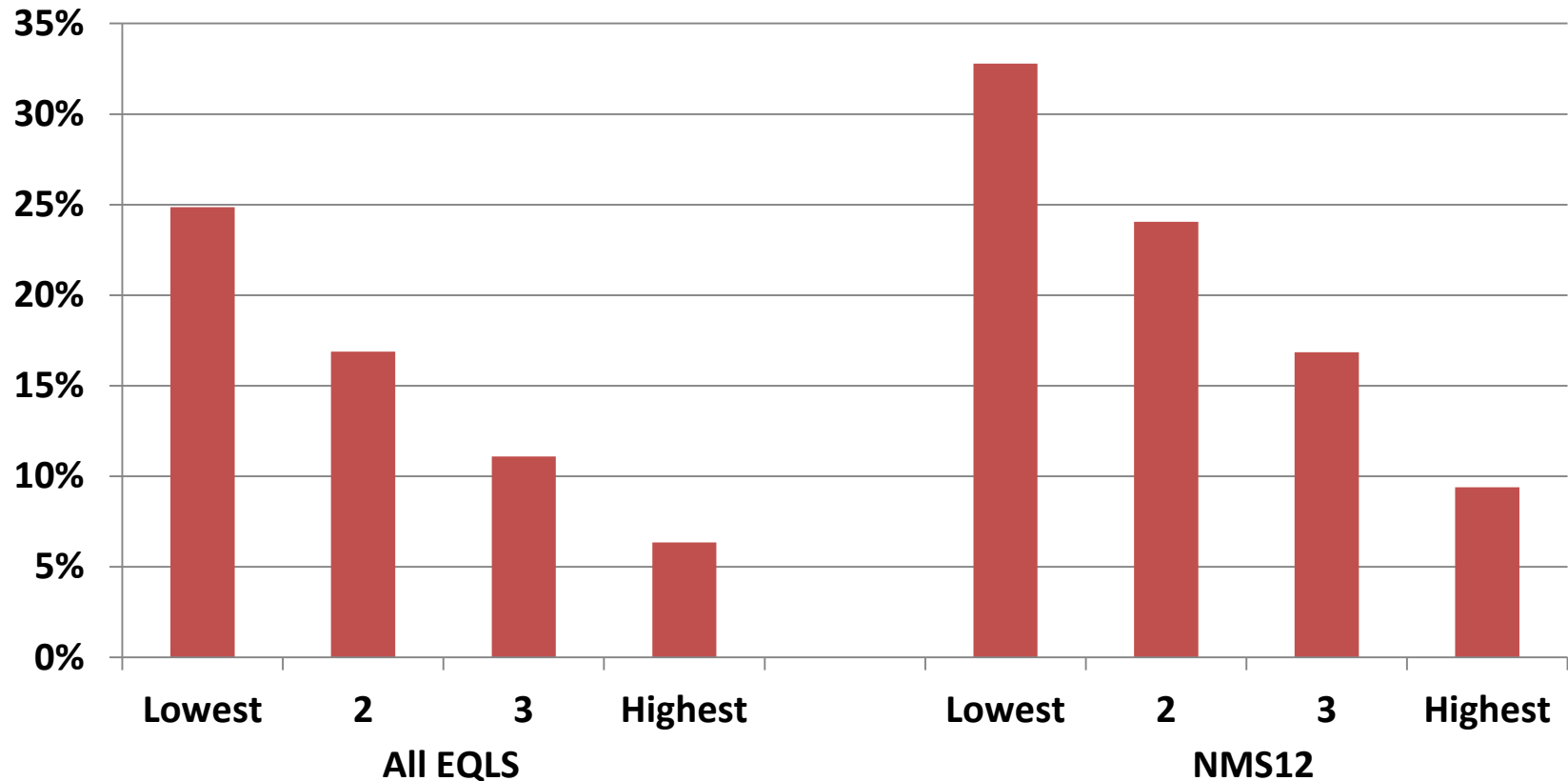


Source: data from EU-SILC, 2011.

Inability to afford keeping home warm by at risk of poverty status



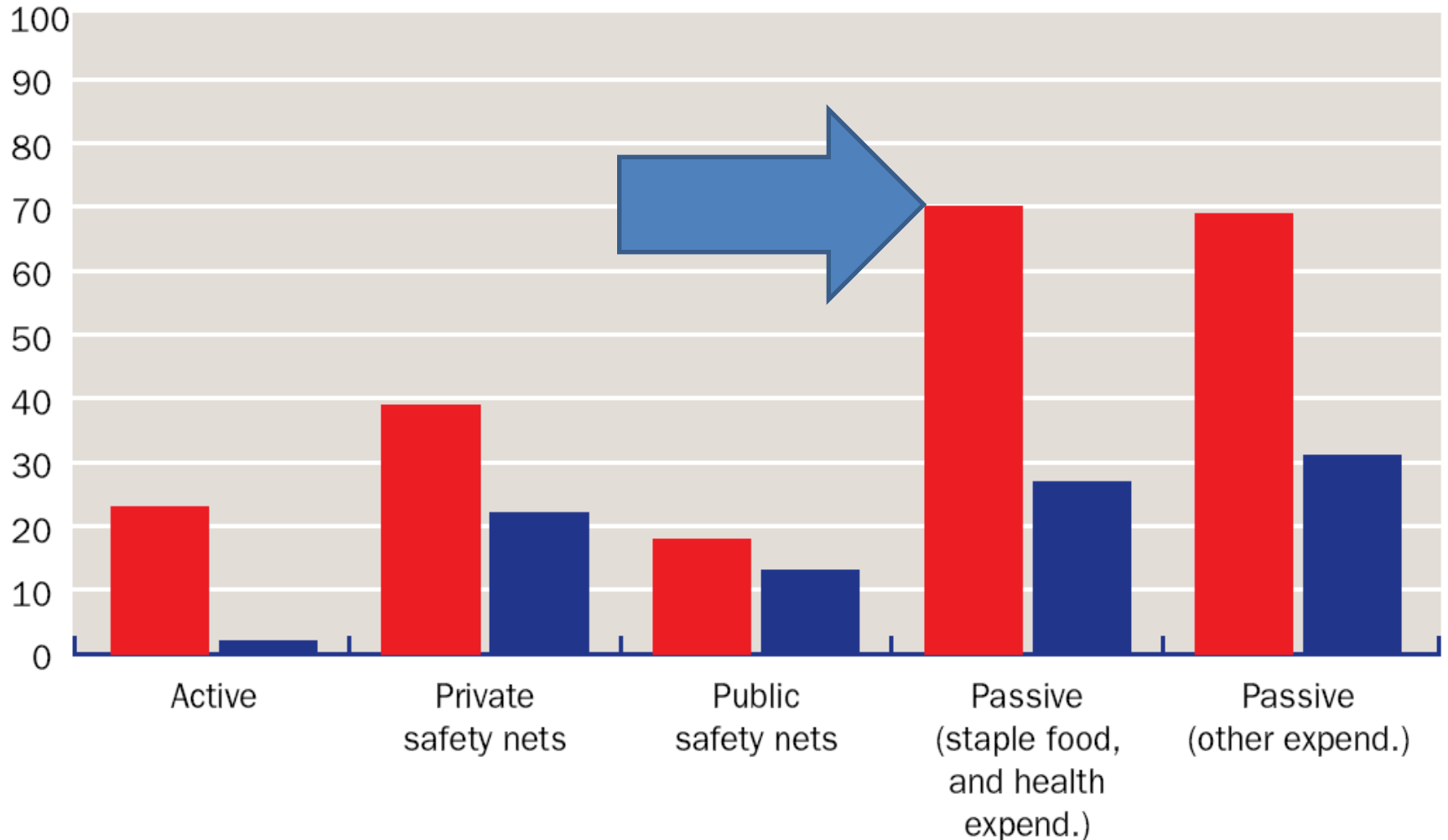
Inability to afford keeping home warm by income



Being affected by the crisis: what effects?

Coping strategies employed by households

% of respondents



■ Affected a great deal of a fair amount ■ Not affected by crisis

Source: LiTS II (2010).

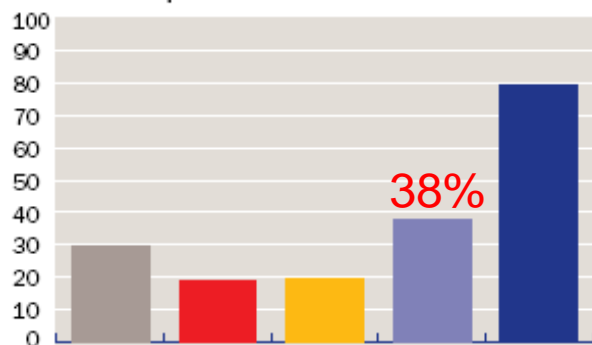
Source: EBRD, 2011

Being affected by the crisis: effect distribution

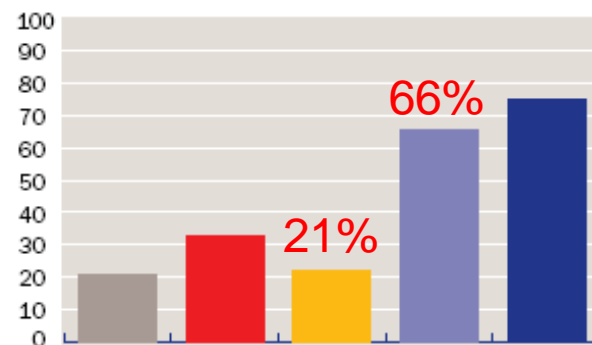
Proportion of affected households using various coping strategies, by subregion

Source: EBRD, 2011

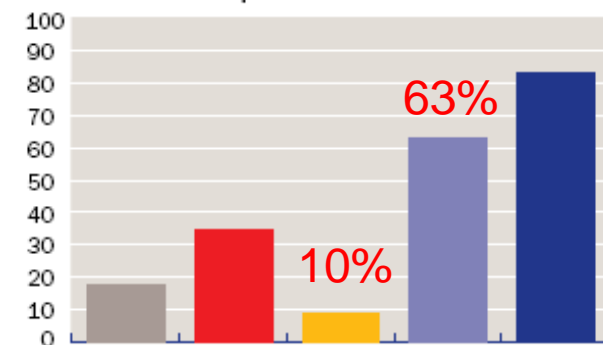
Western Europe



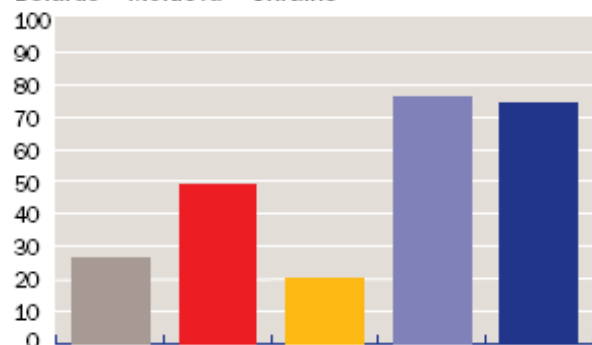
New EU member States*



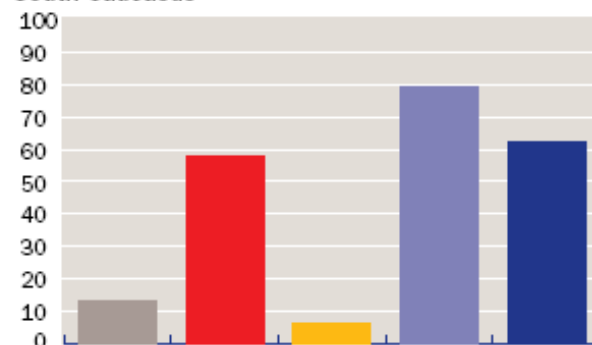
South-eastern Europe



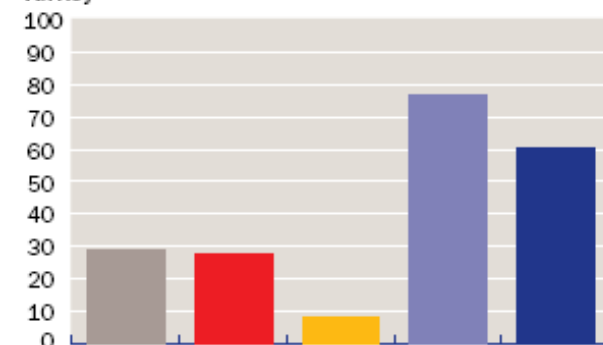
Belarus – Moldova – Ukraine



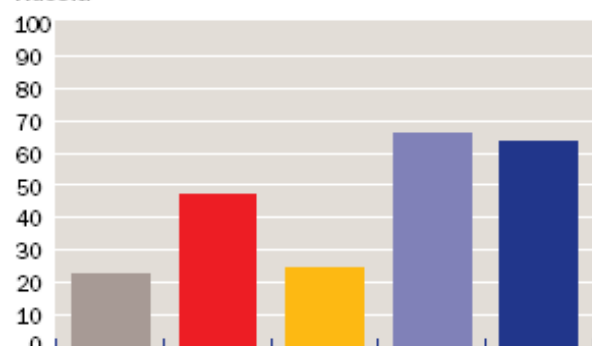
South Caucasus



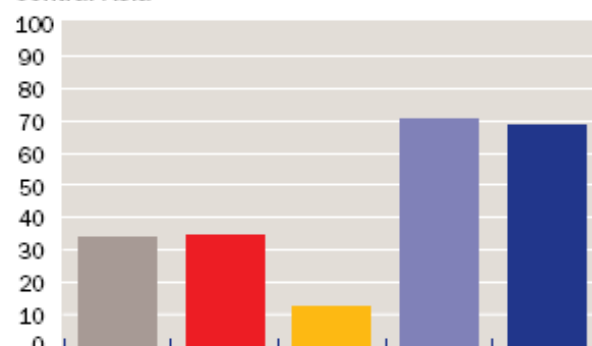
Turkey



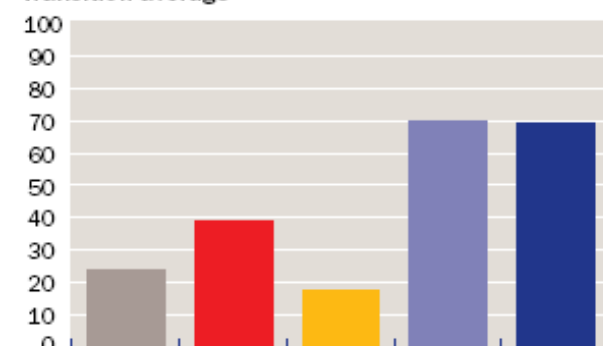
Russia



Central Asia



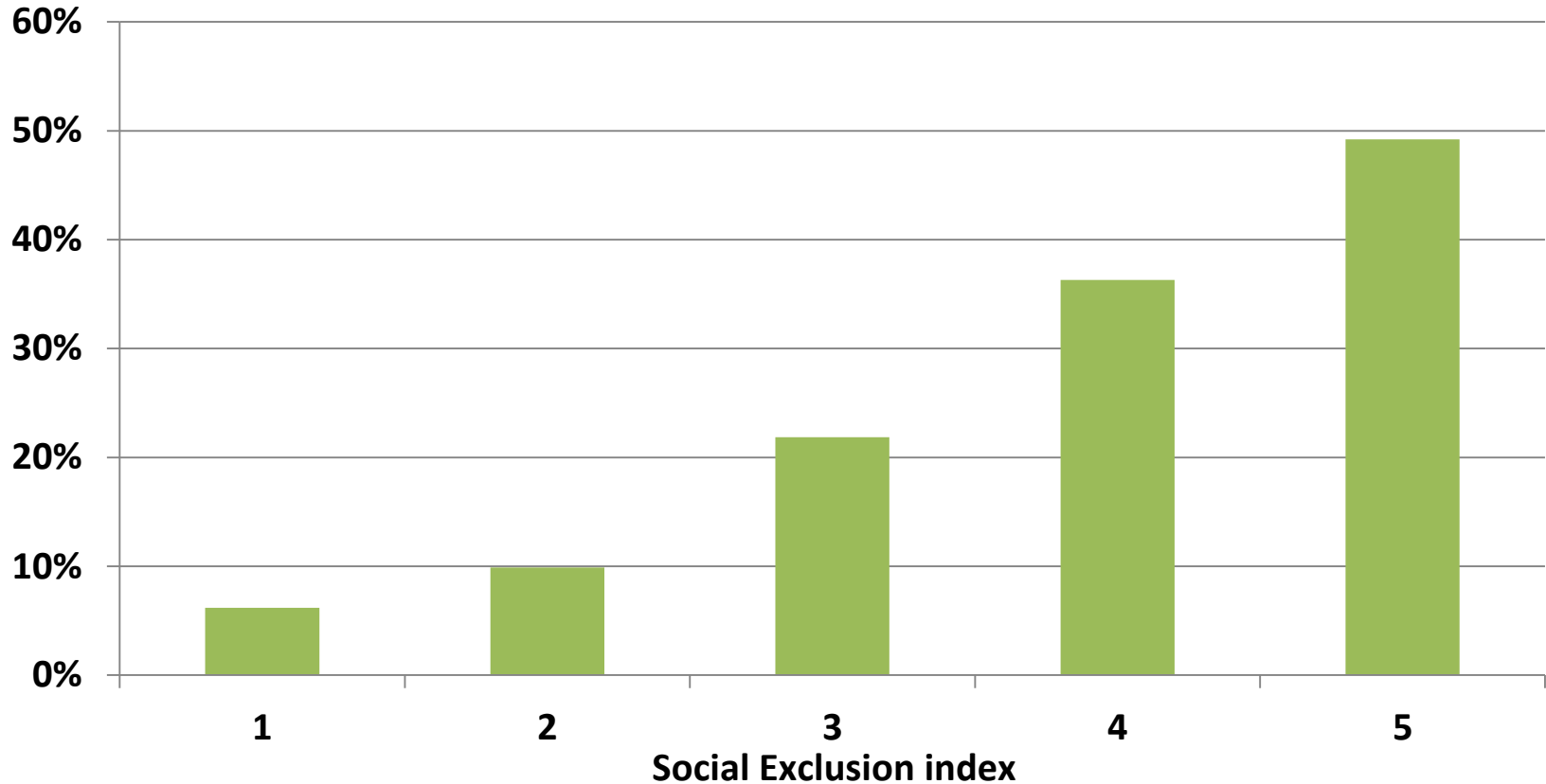
Transition average



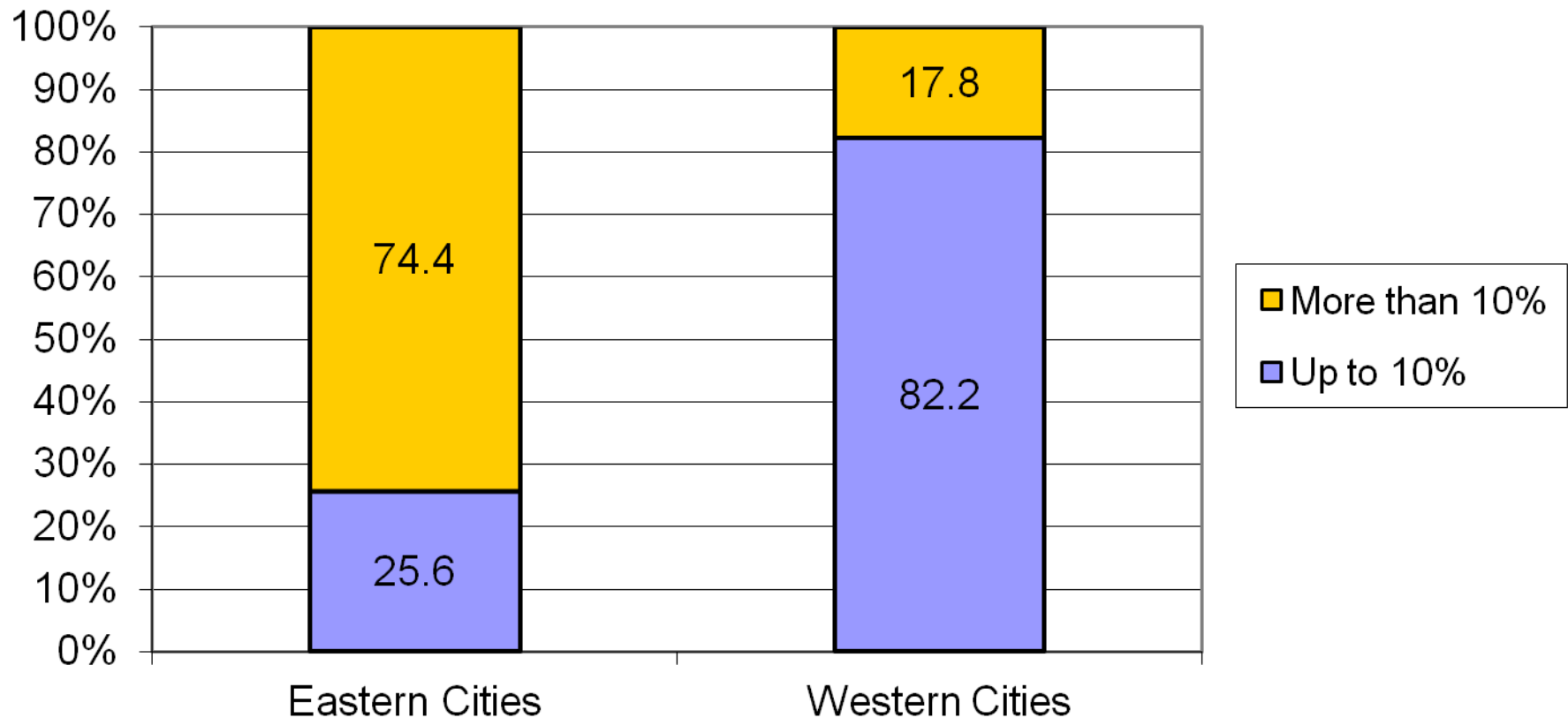
■ Active ■ Private safety nets ■ Public safety nets ■ Reduced staple food and health expenditure ■ Reduced other expenditure

Equity impacts beyond income and poverty

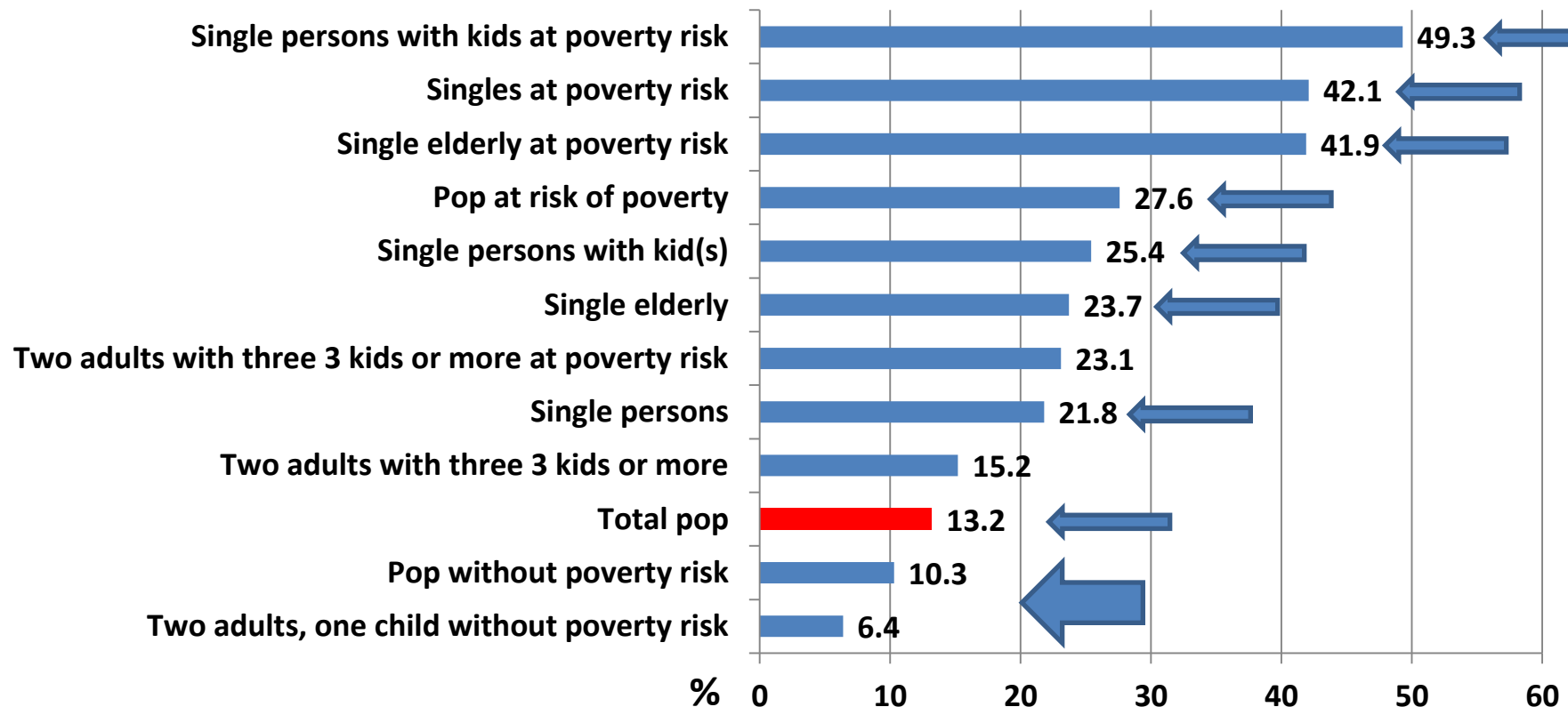
Inability to afford keeping home warm by social exclusion



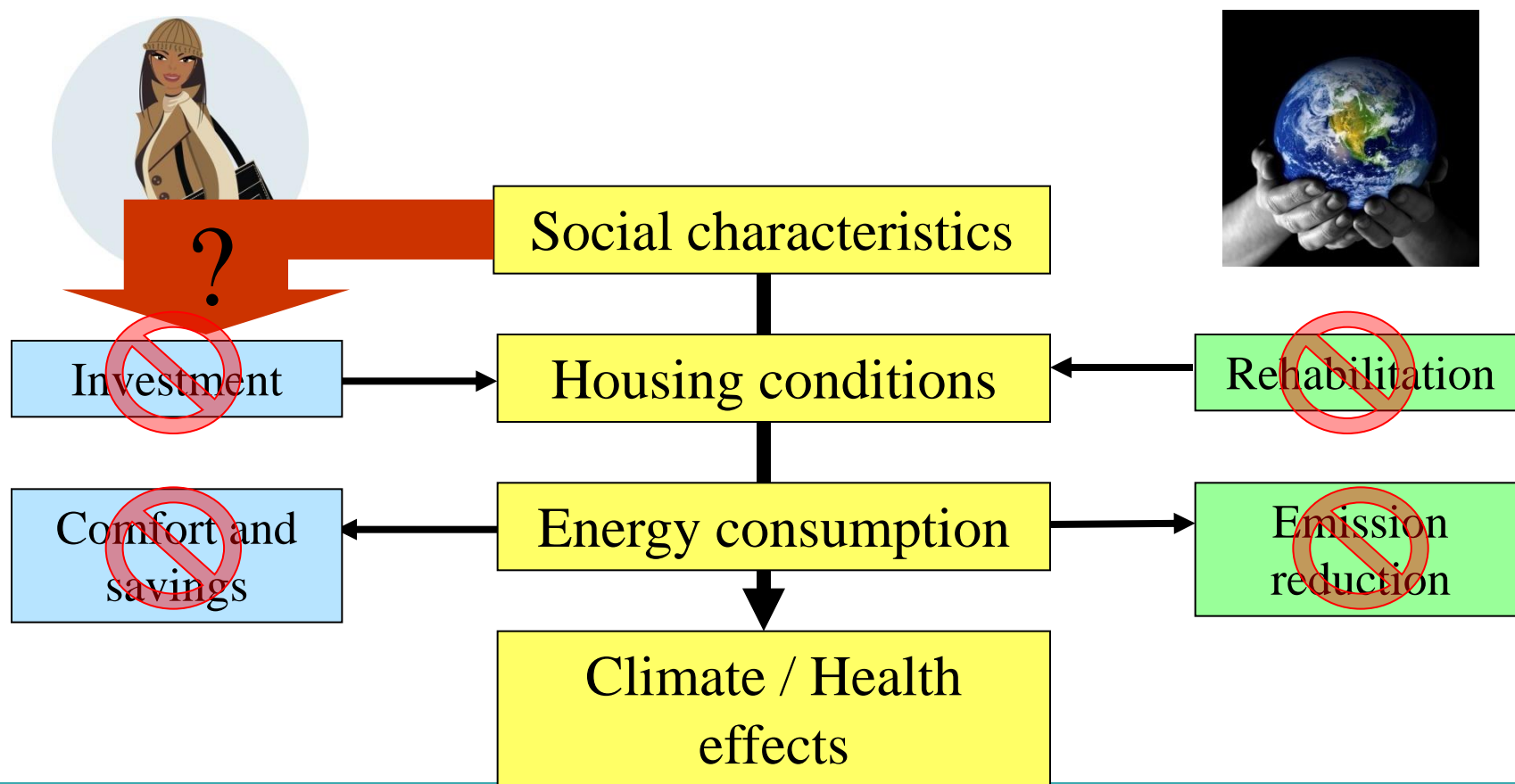
LARES: Heating-related expenses in elderly households (related to income)



Inability to keep home adequately warm in Poland by sociodemographic characteristics



Distributional effects of policies trigger inequity: The example of thermal insulation campaigns

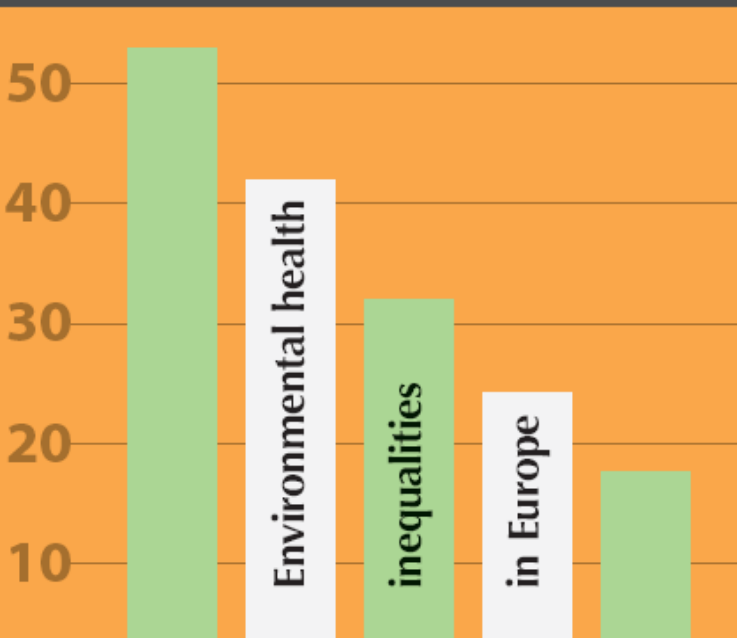


Conclusion

- Inadequate housing has severe morbidity / mortality effects
- Thermal comfort is a key issue of inequality in housing
- Triggers for lack of thermal comfort are
 - => Low-quality housing / ineffective heating => risk of cold
 - => High energy price level, low incomes => risk of cold
 - => Household type (and probably tenure) => risk of cold
- Indoor cold => physical & mental health / wellbeing effects
- Relative contributions of “vulnerable building”, “energy vulnerability” or “demographic vulnerability” to cold-related health effects are impossible to assess
- All vulnerabilities are relevant and interconnected
- Equity issues in Central/Eastern Europe are significant

Thank you!

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