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Investigating fuel poverty in the transport sector:
Toward a composite indicator of vulnerability

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Fuel poverty is also about transport: households that depend heavily on car use for their daily trips are likely to face difficulties if fuel prices keep on rising.

Fuel poverty is when a household is unable to afford an adequate amount of energy services to satisfy its basic needs. It is at the intersection of four key drivers:

- Low income
- High fuel cost
- Poor efficiency
- Disadvantageous location

What matters for evaluating fuel poverty in the transport sector is to:
- recognise diverse mobility needs
- detect restricting behaviours
- evaluate households’ capacity to adapt

This variety of situations rouses debates about which indicator(s) should be used to evaluate fuel poverty. Yet the choice of indicator leads to different policy choices.

Our work is illustrated with a French case study.

- Data from the National Transport Survey (Enquête Nationale Transports et Déplacements)
- Conducted by INSEE every 10-15 years, last available from 2008
- Interviewed a sample of 20 200 French households
- Offers a detailed description of travel behaviors (compared to BDF) at the national level (compared to EMDI)
- Focus on places to work and study.

We can transpose domestic fuel poverty indicators to the transport sector, but transposed indicators are not satisfactory.

A ratio indicator is the official way of counting fuel poor in France for the domestic sector today. It is advantageous for its simplicity. Applied to the transport sector, we find 10.5% of French households are fuel poor, meaning they spend more than 3.9% of their income on buying fuel. Restricting the analysis to the most deprived households, we find 2.0% are both fuel poor and income poor.

The LIHC* indicator is the official way of counting fuel poor in the UK for the domestic sector. It has the advantage to include households whose standard of living is lowered because of their fuel spending. Applied to the transport sector, we find 3.3% of French households are fuel poor, meaning each person spends more than 32€/month on buying fuel and live below the poverty line.

Limits:

These indicators bring a normative approach to mobility:

- But how to allow for diverse mobility needs and practices when considering what it is ‘reasonable’ for a given household to spend on fuel?
- Restriction and capacity to adapt are not evaluated:
- Don’t we miss essential features?

An approach that targets factors of vulnerabilities is called for, with a new indicator measuring the different dimensions of the phenomenon.

We propose a composite indicator of three dimensions...

...identifying three levels of exposition to rising fuel prices.

By cumulating the factors in which a household is affected, our composite indicator identifies the population most exposed to a rise in fuel prices. It follows the dual cut-off method developed by Alkire and Foster. It employs two types of thresholds: one threshold is defined per factor to determine whether that factor applies to the household, and the other threshold is defined across factors.

A composite indicator of vulnerability highlights the conditions of mobility and reveals households’ exposition to rising fuel prices.