What would be the transport equivalent of fuel poverty? Car-related economic stress in the UK

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(with contributions from:
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Definitions: broad or narrow?

Home

Energy Vulnerability

"a lack of adequate energy services in the home" (Bouzarovski & Petrova, 2015)

Fuel Poverty

UK gov. definition
'Triad' of drivers
Heating

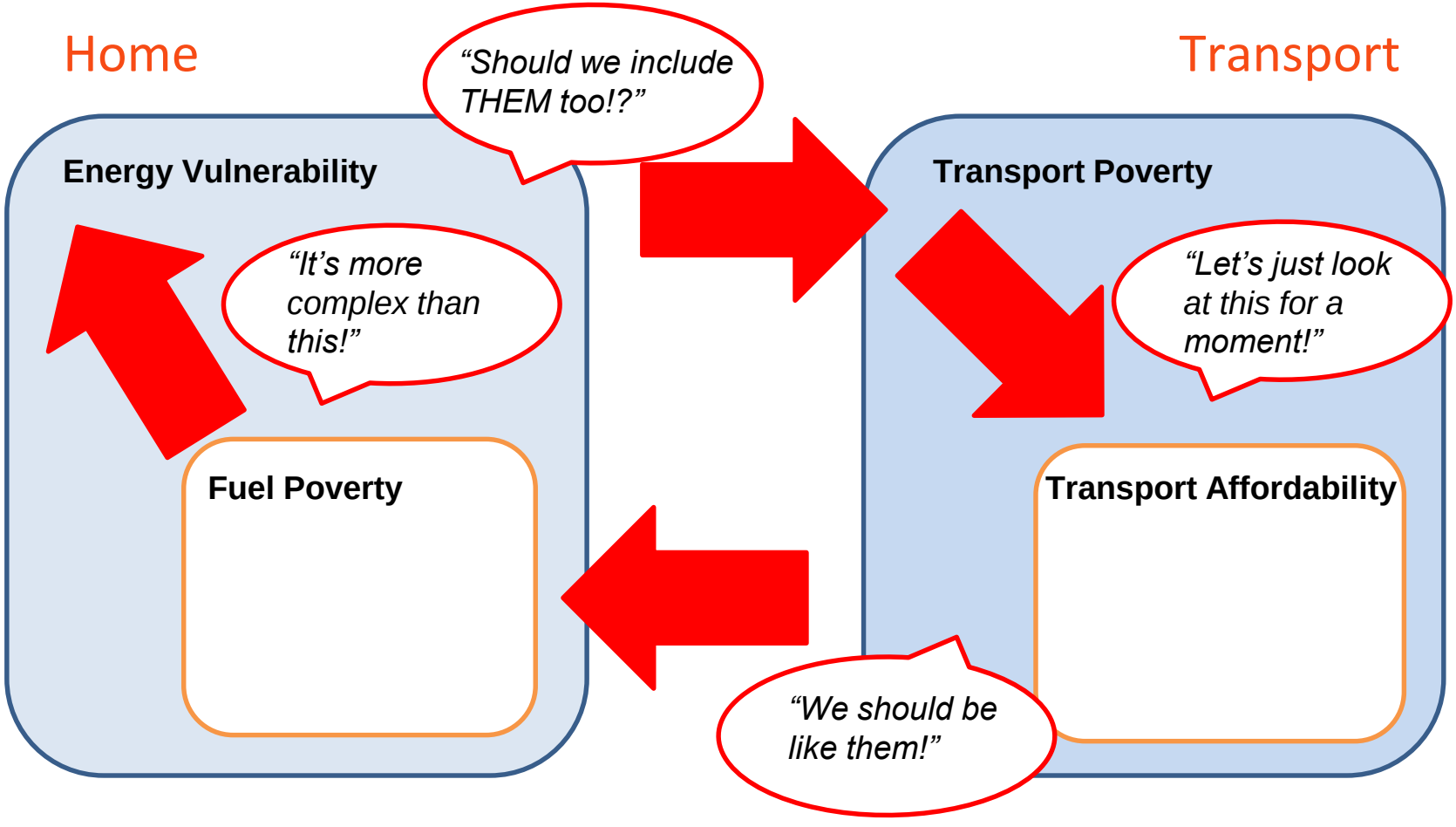
Transport

Transport Poverty

Lack of access to services and opportunities

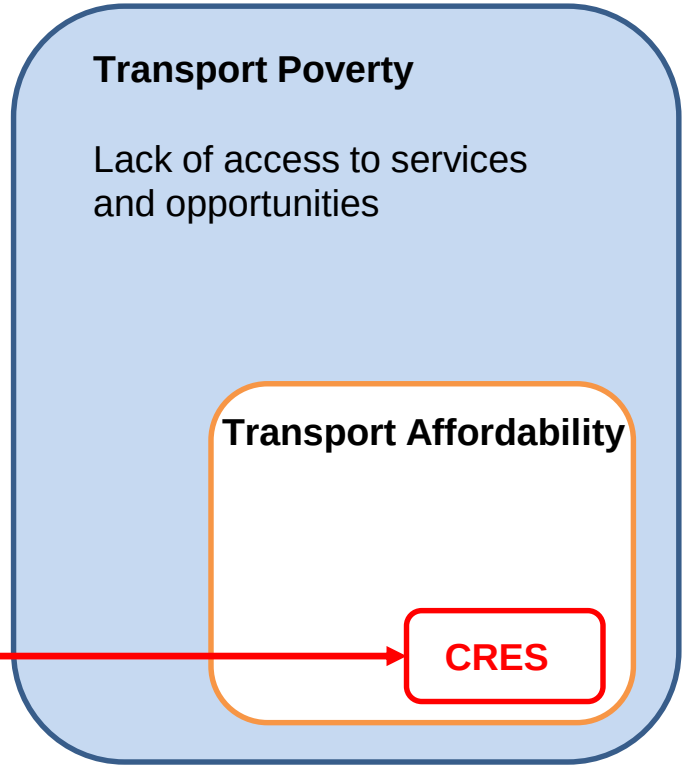
Transport Affordability

Definitions: broad or narrow?



The (t)ERES project (2014-2016)

car-related economic stress' (Mattioli & Colleoni, 2016)
car-owning households who need to spend a disproportionately high share of their income to get where they need to go, with negative consequences in terms of restricted activity spaces and/or spending cuts in other essential areas



The (t)ERES project (2014-2016)

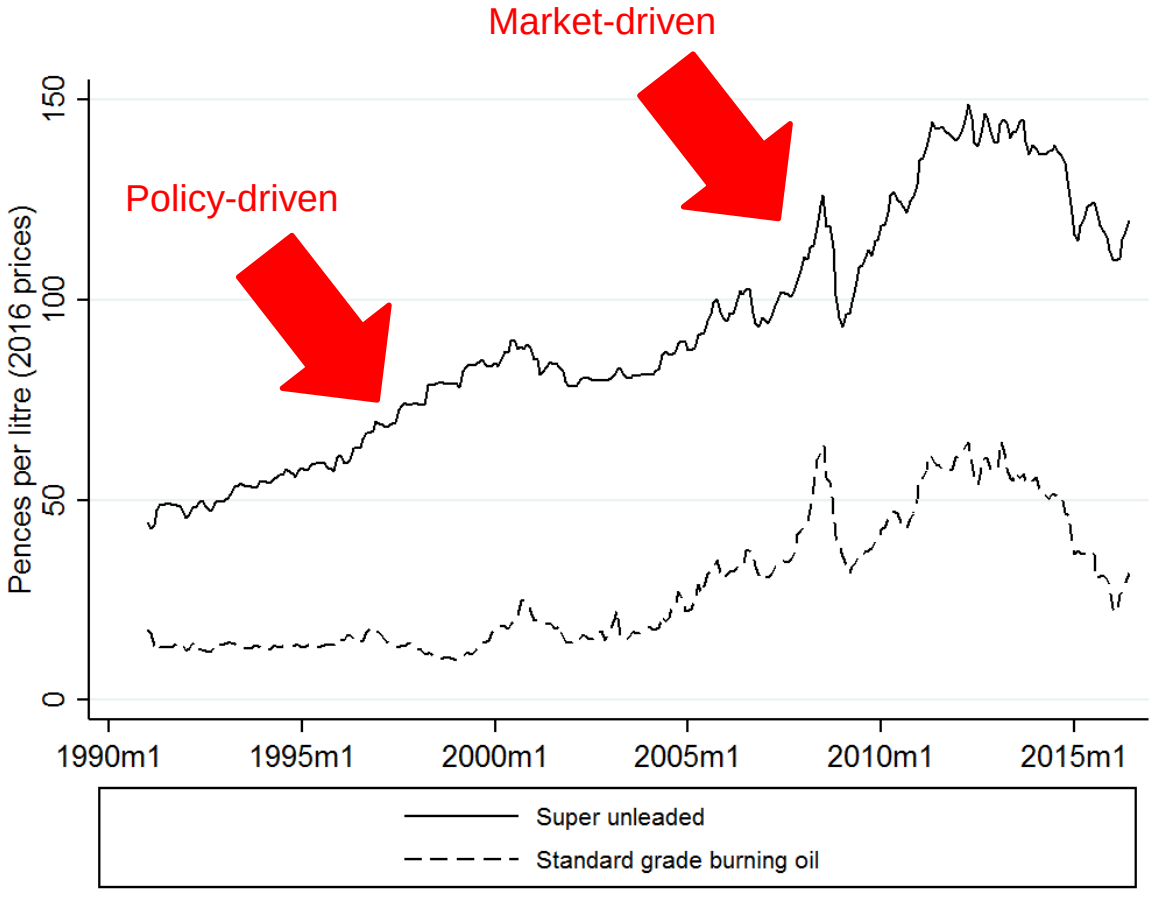
1. Unpick the fuel poverty / transport poverty **analogy**

2. **Quantify** the incidence of CRES based on different definitions / methods / data

3. **Identify** who CRES households are

4. Assess **vulnerability** to future increases in fuel prices

Motor fuel and oil prices, UK 1990-2016



Source:
DBEIS, 2016

The fuel–transport poverty analogy: how not to do it

RAC Foundation

Transport poverty

29 Feb 2012

21 million households in transport poverty

An estimated four fifths of the UK's 26 million households are in what could be described as 'transport poverty'.

This means more than ten percent of their expenditure goes on transport (both personal and public) with the majority of it being used to buy and run a car. By way of comparison, the official definition of fuel poverty is where a household spends more than a tenth of its income on keeping warm.

Analysis by the RAC Foundation shows that when all households (with and without a car) are divided into five equal groups (quintiles) according to income, then in the:

- lowest earning quintile: 9% of expenditure goes on transport
- second quintile: 11.5%
- third quintile: 13%
- fourth quintile: 14.5%
- highest earning quintile: 15.5%

The fuel–transport poverty analogy: how not to do it

EXPRESS
Home of the Daily and Sunday Express

Millions face transport poverty

PRESSURE for cuts in fuel duty in next month's Budget grew yesterday as experts claimed that 80 per cent of British households are now living in "transport poverty".

BBC

Government postpones planned 3p fuel duty increase

26 June 2012 | UK Politics

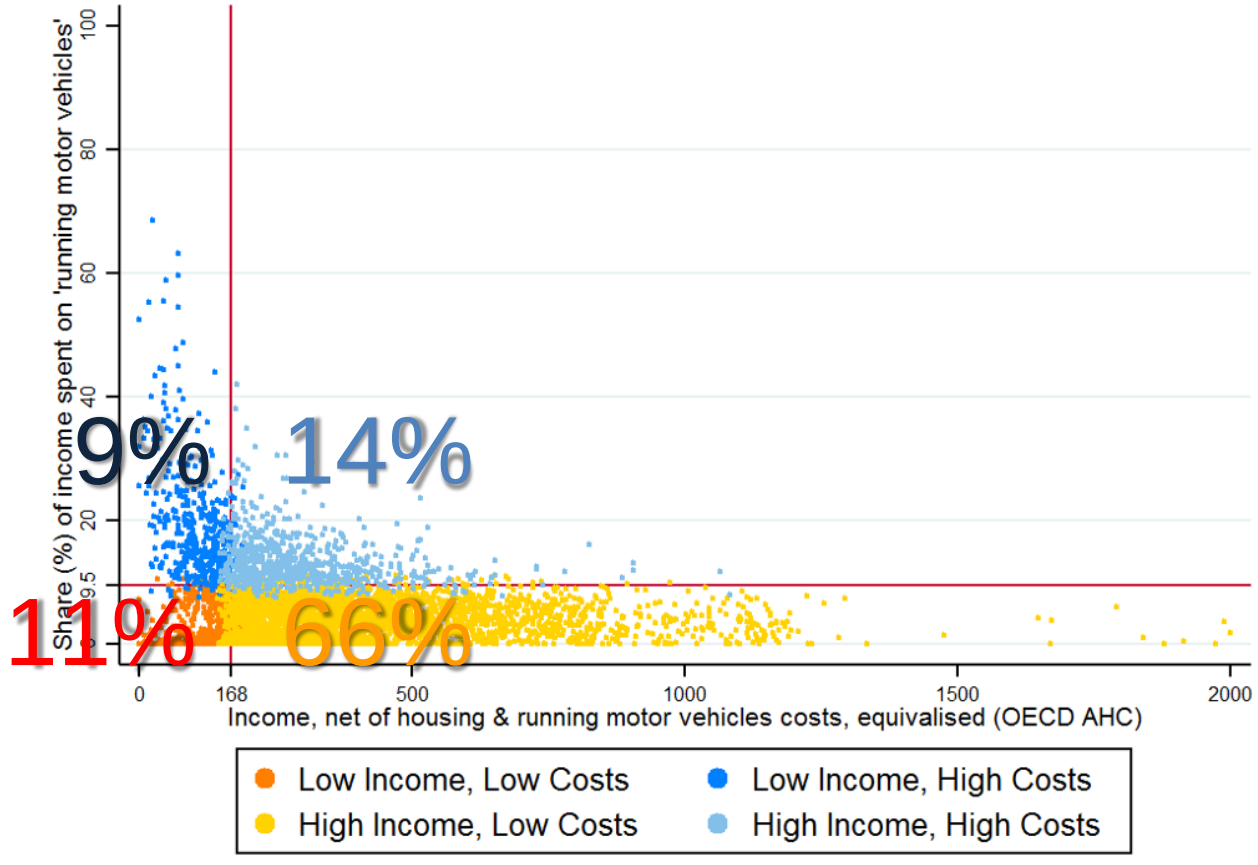
The government has announced it will postpone its 3p-a-litre rise in fuel duty in August until January next year.

The move follows a campaign by some road users' groups, who argued the increase would damage the economy.

From analogy to comparison

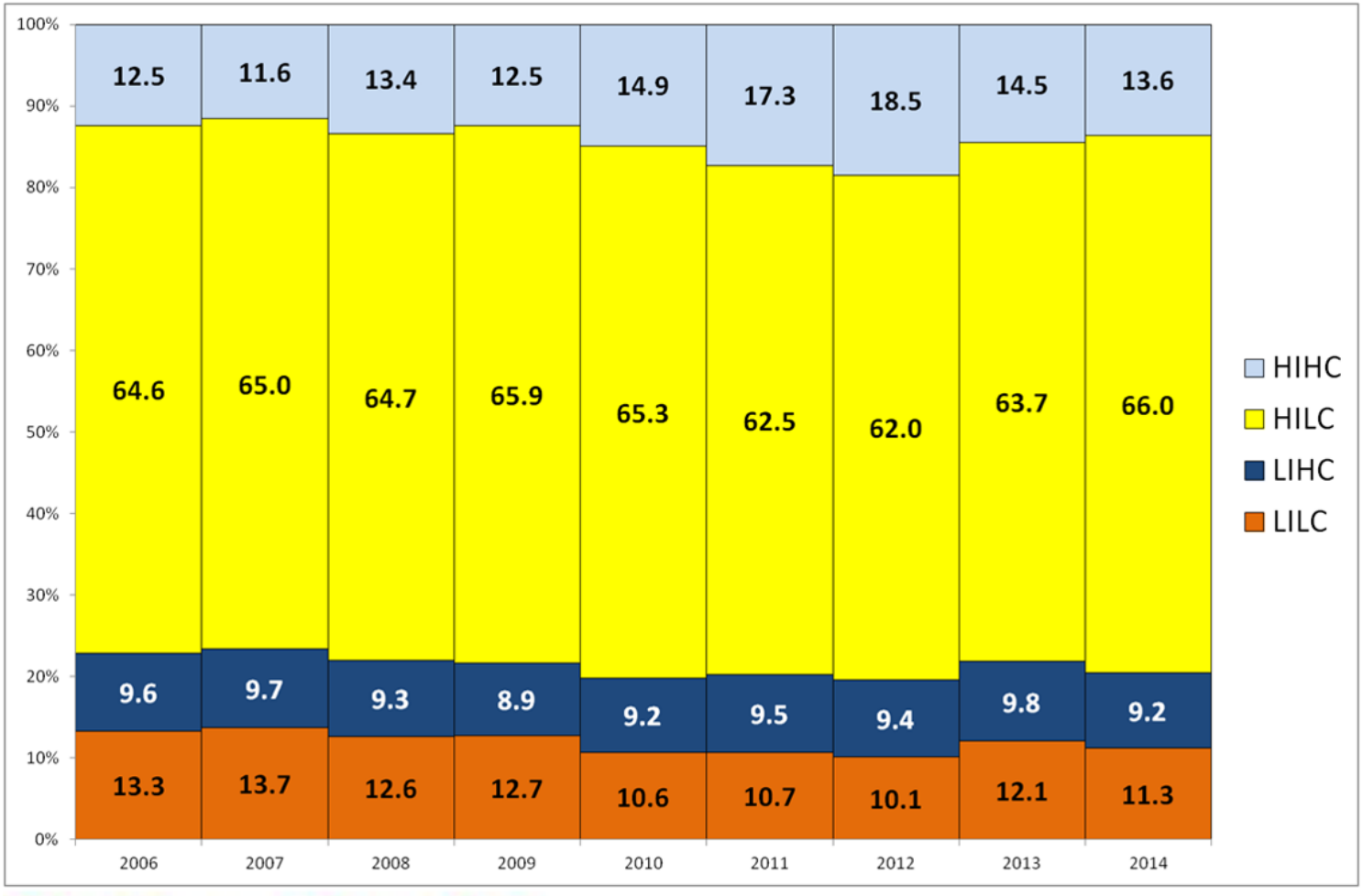
	Fuel poverty (UK)	Transport	
		Factors of complexity	**Implications / solutions**
Consequences	Clear negative consequences on physical health	Recursive relationship between transport expenditure and income	Interest of investigating whether households curtail other areas of expenditure
Metrics	*Required* energy expenditure – includes *underspending* and excludes overspending	Too complex	Use actual expenditure
	Affordability threshold	Using 10% is not appropriate	Should be derived by transport data
	Income threshold	Transport costs not regressively distributed	Income threshold is necessary

A LIHC indicator of Car-Related Economic Stress (UK)



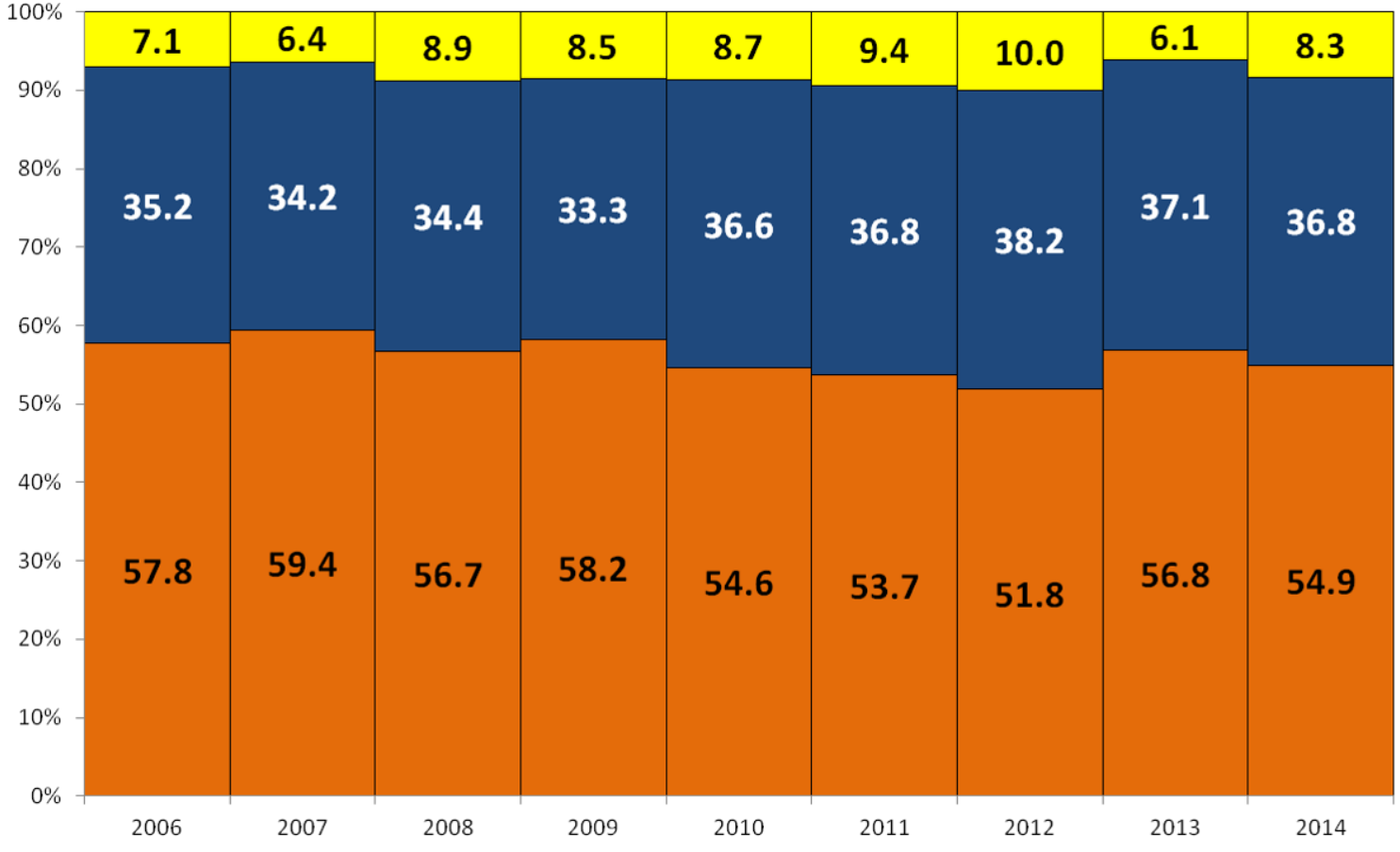
Data: Living Costs and Food Survey 2014

Trends 2006-2014



Data: Living Costs and Food Survey 2006-2014

Trends 2006-2014
(among poor households – AHC)



Data: Living Costs and Food Survey 2006-2014

Material deprivation (EU-SILC definition)

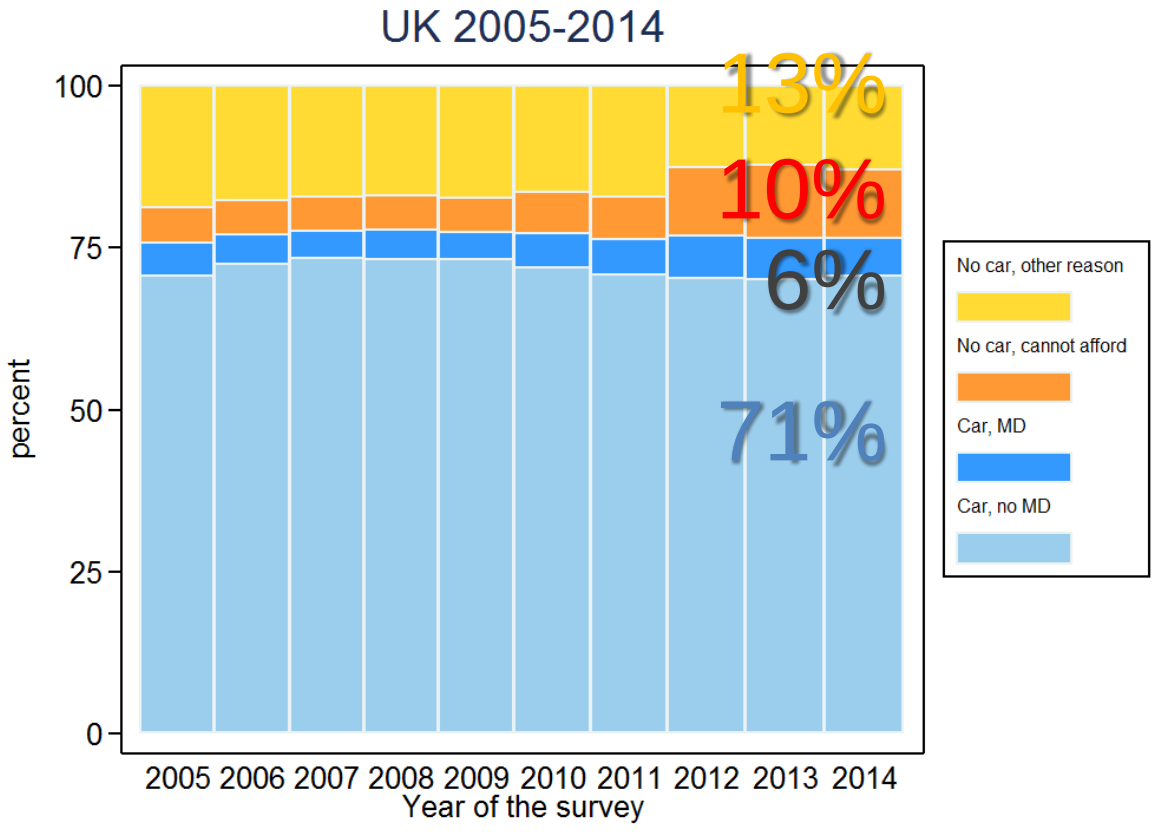
Households who **cannot afford at least 3** of the following:

1. to face unexpected expenses;
2. one week annual holiday away from home;
3. to pay for arrears (mortgage or rent, utility bills or hire purchase instalments);
4. a meal with meat, chicken or fish every second day;
5. to keep home adequately warm
6. to have a washing machine
7. to have a colour TV
8. to have a telephone
9. **to have a personal car**

Economic strain

Enforced lack of durables

A material deprivation-based indicator of CRES



Data: EU-SILC 2005-2014

“Car, Material Deprivation (MD)” households: deprivation profile (2014)

Precarity:

- 99% “unable to face unexpected financial expenses”
- 95% “difficult to make ends meet”

Fuel poverty:

- 49% “cannot afford to keep home adequately warm”
- 80% fuel poor (subjective indicator, Thomson & Snell, 2013)

(Under-)employment:

- 16% are “working poor”
- 15% have “low work intensity”

Debt:

- 51% “credit cards with uncleared balance” (2008)
- arrears on utility bills (41%), loan payments (21%)

Who are the households in CRES?

LIHC (2007-2014)
(vs. LILC)

- **30s-40s**
- **Employed (full/part time)**
  - Small employers and own account workers
- **Male-headed**
- **(semi)detached housing**
- House owners / with **mortgage**
- **Rural areas**

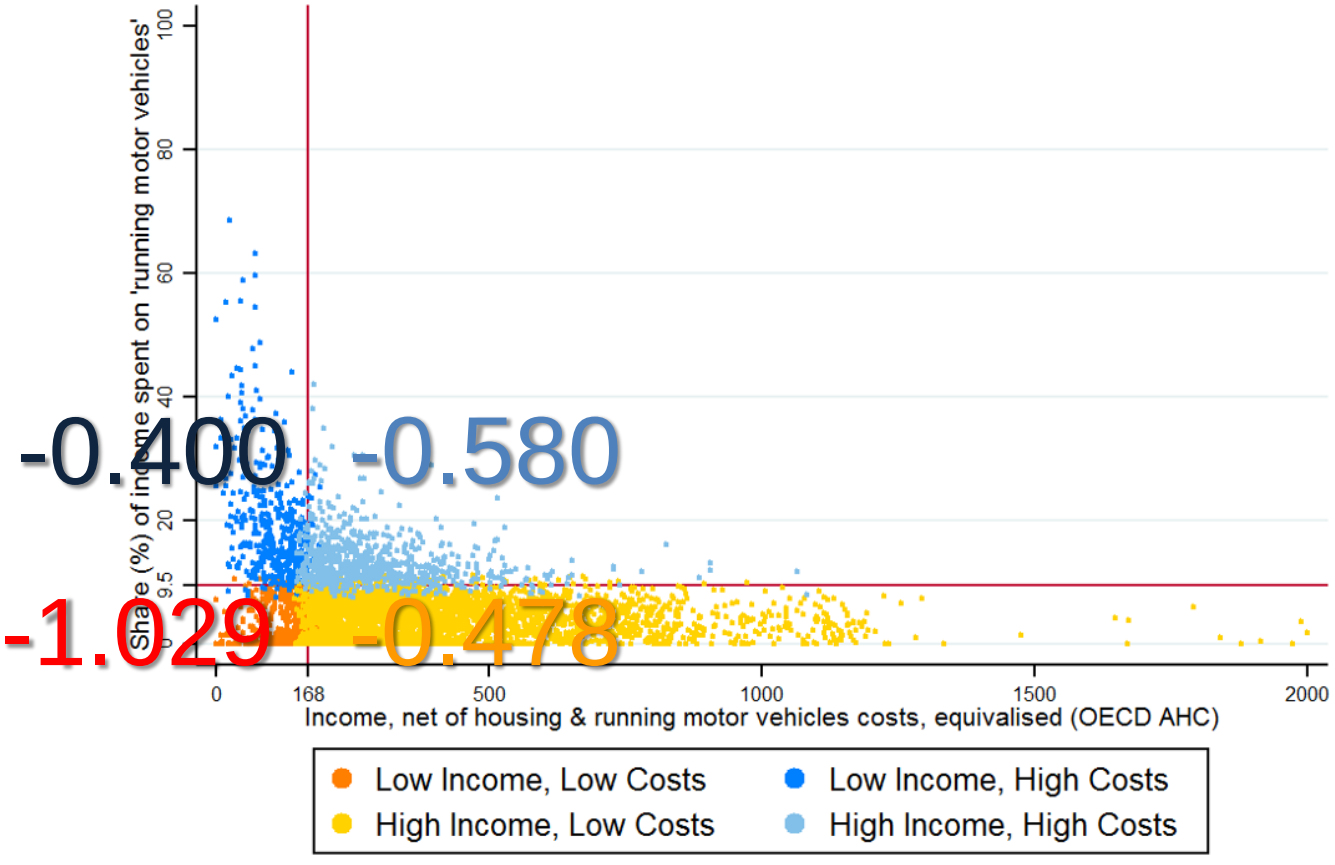
"Car, MD" (2012)
(vs. "cannot afford car")

- **40-50 years old**
- **Medium-high work intensity**
- **Male-headed**
- Large household size
- Mobility difficulties
- **House mortgage**
- 40% housing cost burden
- **(Semi-)detached housing**
- **Thinly populated area**

Vulnerability to motor fuel price increases

- Vulnerability ≠ current economic stress
- Need to take into account possible responses
- Adaptive capacity, resilience
- Much research on spatial patterns of vulnerability (e.g. Dodson & Sipe, 2007)…
- …not so much on the *social* patterning – but research on household-level price elasticity (e.g. Wadud et al., 2010)

Price elasticity



Data: Living Costs and Food Survey 2014

A spatial index of vulnerability to fuel price increases

Oil vulnerability' research (Dodson & Sipe, 2007).

3 components (e.g. Leung et al., 2015):

1. **Exposure**: cost burden ratio = per household expenditure on fuel / median income (MOT vehicle inspection tests)

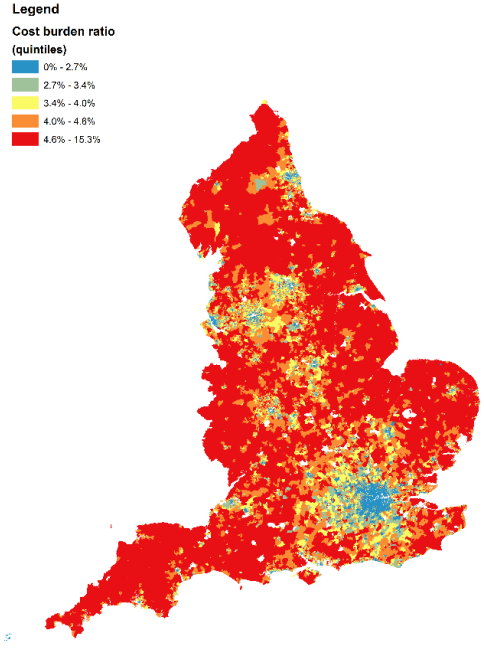
2. **Sensitivity**: median income (Experian income data)

3. **(Short-term) Adaptive Capacity**: travel time to 8 key services by public transport / walking (Government Accessibility Statistics)

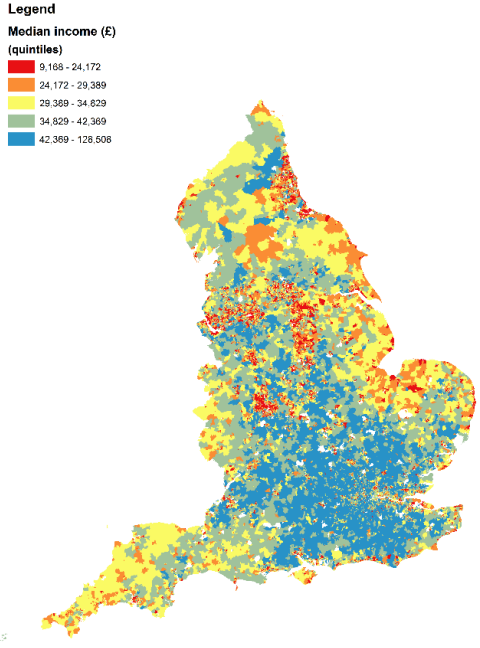
Lower Super-Output Areas (LSOAs) = 400 – 1,200 households

England, 2011

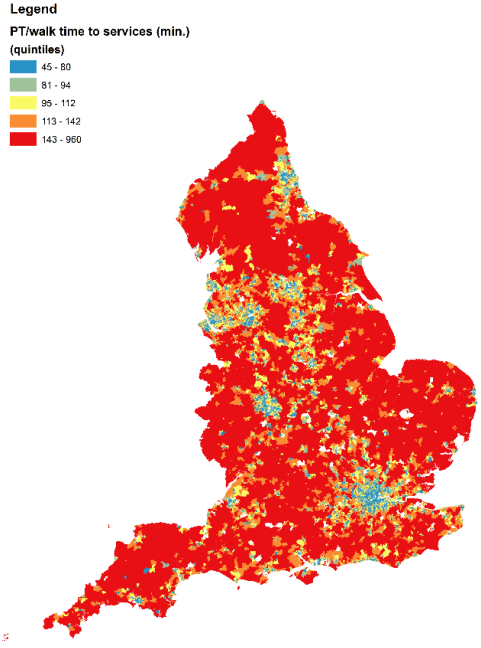
1. Exposure



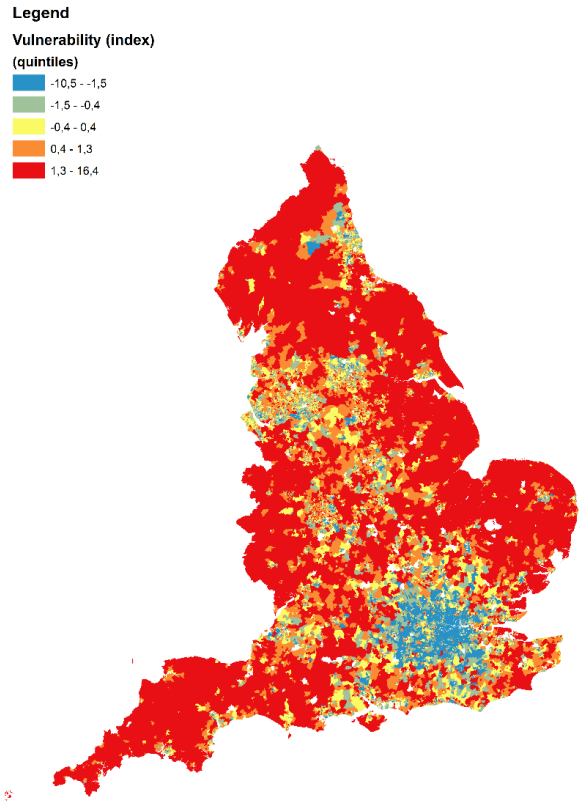
2. Sensitivity

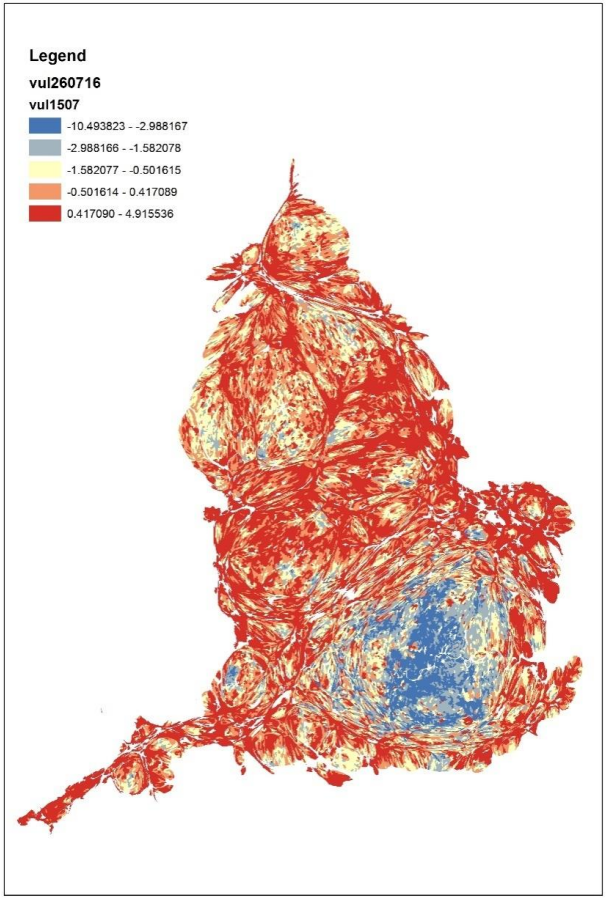


3. Adaptive capacity



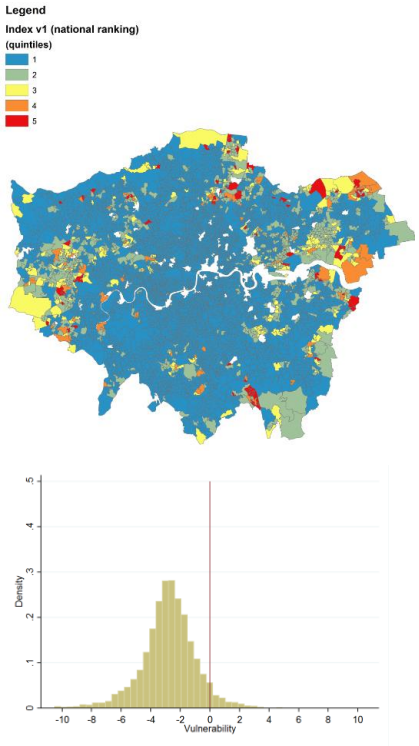
England, 2011



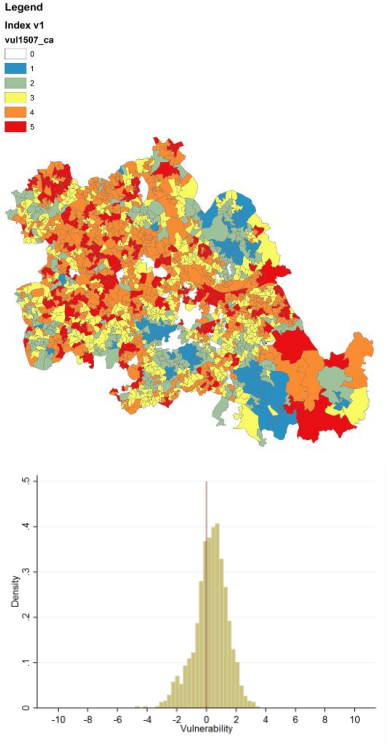


English city regions, 2011

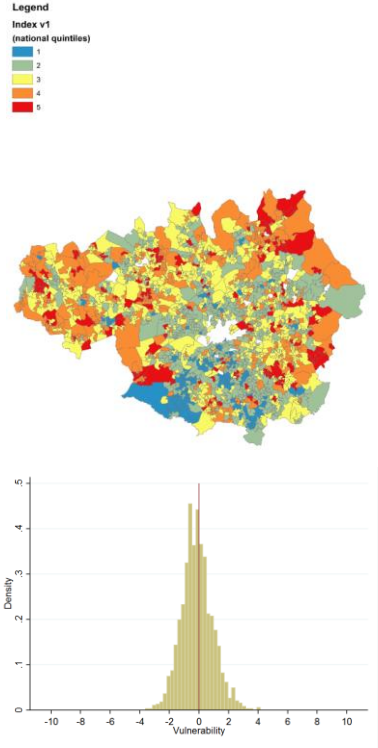
London



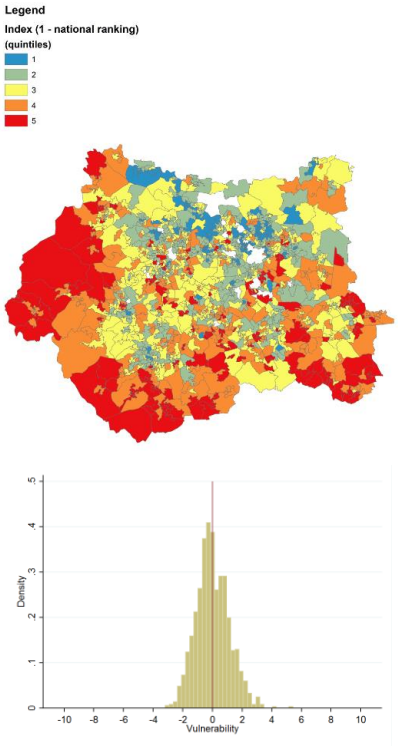
West Midlands



Greater Manchester



West Yorkshire



Conclusions

- Fuel poverty – transport poverty analogy can be instructive… if done well
- CRES: 6-9% of households in 2014 (1.6-2.5 million) – peak in 2012
- Spatial patterns: low density areas, (semi)detached housing, North of England
- Different from other low-income households / who cannot afford cars: 'on the edges of inclusion? Link with in-work poverty? Certain stage of the family life-cycle?
- Inelastic demand for fuel: unable to reduce consumption
- Overlap of different types of economic stress (domestic energy, housing)?

Project-related outputs:

POLICY BRIEFING NOTE:

- Car-related economic stress – is there a transport equivalent of fuel poverty? *DEMAND Research Insight #9*

PUBLICATIONS:

- Lucas, K., Mattioli, G., Verlinghieri, E., & Guzman, A. (in press). Transport poverty and its adverse social consequences. *Proceedings of the Institution of Civil Engineers – Transport*.
- Mattioli, G., Lucas, K., & Marsden, G. (2016). The affordability of household transport costs: quantifying the incidence of car-related economic stress in the UK, *48th Annual UTSG Conference*, 6 January 2016, Bristol.
- Mattioli, G, & Colleoni, M. (2016) Transport Disadvantage, Car Dependence and Urban Form, In: Pucci P; Colleoni, M. (Eds.) *Understanding Mobilities for Designing Contemporary Cities*, Springer
- Mattioli, G. (2015). Energy-related economic stress at the interface between transport, housing and fuel poverty: a multinational study. *Second International Research Days of the Sociology of Energy*, 1 July 2015, pp.254-257.

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- Leung, A., Burke, M., Cui, J., & Perl, A. (2015) New Approaches to Oil Vulnerability Mapping for Australian Cities: The Case of South-East Queensland, the 200km City. *State of Australian Cities Conference 2015*
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- Thomson, H., & Snell, C. (2013). Quantifying the prevalence of fuel poverty across the European Union. *Energy Policy*, *52*, 563-572.
- Wadud, Z., Graham, D. J., & Noland, R. B. (2010). Gasoline demand with heterogeneity in household responses. *The Energy Journal*, 47-74.

Thank you for your attention!

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