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Clean vehicle scoring and external costs

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What lessons from external cost calculations for Clean Vehicle Scoring?

Are external cost estimates clean vehicle scores?
…hardly

Do they nevertheless contain useful guidance?
…yes

External cost estimates:

- aim to capture the costs of car use not taken into account by drivers in their decisions whether, when, and how to drive ➔ usually expressed per unit distance

- use a common basis for impact measurement in terms of marginal damage from an additional unit of use

- rely on valuation to express marginal damage in money units ➔ $/mile, €/km,…

External cost estimates focus on use:

- context of use as important as vehicle characteristics, particularly for congestion and local air pollution, so relevance to vehicle label depends on possibility to weigh usage conditions (a single index requires a 'representative' usage profile)

context: traffic density, population density, weather, presence of other pollutants, etc.

External cost estimates require commensurability. So does a label. What are the difficulties?

- tracing the impact pathway to ultimate damage for a heterogenous set of emissions: impacts on health, environmental, climate

- attaching a money value to the ultimate impact

- particularly difficult: adding up climate impacts with health and environmental impacts

Does it make sense to add up climate impacts with health and environmental impacts?

- ‘here and now’ vs. ‘anywhere and over the (very) long run’

- uncertainty in both cases, but of a different type

- is it possible to calculate an average damage number given the nature of uncertainty over climate impacts? If not, infer valuations from policy instead?

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Example of external cost estimates

Table 5. Marginal external costs from automobiles, US cents/mile, 2005 prices

	Harrington-McConnell (US & Europe)		Sansom *et al.* (UK)		Parry *et al.* (US)	High Fuel-related[a] (US)
	Low	High	Low	High		
Fuel-related: [a]						
Climate change	0.3	1.2	0.5	2.0	0.3	3.7
Oil dependency	1.6	2.7	n.a.	n.a.	0.6	2.4
Driving-related:						
Congestion	4.2	15.8	31.0	35.7	5.0	5.0
Air pollution	1.1	14.8	1.1	5.4	2.0	2.0
Noise, Water	0.2	9.5	0.1	2.5	n.a.	n.a.
Accidents	1.1	10.5	2.6	4.5	3.0	3.0
Total	8.5	54.5	35.3	50.1	10.9	16.1
Percent fuel-related	22	7	1	4	8	38

Sources: Harrington and McConnell (2003), Table 3; Sansom *et al.* (2001); Ian Parry, Walls and Harrington (2007), Table 2. "High Fuel-related".: same as Parry *et al.* except for climate change ($0.76/gal, from Stern 2005) and oil dependency ($0.55/gal, from the high end of range in Lieby (2007), Table 1.

Notes: All numbers converted to 2005 US price levels. n.a. means not estimated, in some cases due to an explicit argument that the quantity is small. Fuel-related costs are converted from per gallon to per mile using prevailing average fuel efficiency.

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Example of external cost estimates – excl. congestion

	HMC, US&Europe		Sansom et al., UK		Parry et al., US	High fuel related
	Low	High	Low	High		
Fuel related	1.9	3.9	0.5	2	0.9	6.1
Driving related excl. congestion	2.4	34.9	3.8	12.4	5	5
Total excl. congestion	4.3	38.8	4.3	14.4	5.9	11.1
% fuel-related	44.2	10.1	11.6	13.9	15.3	55.0

External cost estimates - interpretation

- wide intervals, i.e. low confidence

- congestion costs high, even on average

- local pollution costs high and large share of total cost, even with high values for CO2-emissions

→ added value of Clean Vehicle Scoring mostly might be to highlight local pollution
→ is that added value diluted if CO2 is added to the index (e.g. diesel vs. gasoline)?
→ separate info on fuel economy or CO2 (partly internal, methodological difficulties, information loss in index)?

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Thank you

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