

How to increase the adoption of sustainable long-term mobility lifestyles?

The future of private car mobility might be dominantly electric, powered by batteries. Yet, considering overall environmental impacts of electric cars, vehicles with smaller batteries (i.e. smaller car, shorter range) should generally be preferred. We will address this trade off between vehicle size, range, and environmental impact by proposing mobility lifestyles with a small EV in combination with carsharing or public transport for trips when the range of the EV is not sufficient.

We further propose an alternative without any car ownership, as this would result in an even more sustainable mobility lifestyle. To the best of the authors knowledge, this is one of the first study to investigate whether consumers prefer multimodal mobility lifestyles over a lifestyle based only on car use. We present preliminary results from a multiple price list choice experiment including 3 different treatment groups and one control group conducted in SHEDS 2020.

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Research Question and Method

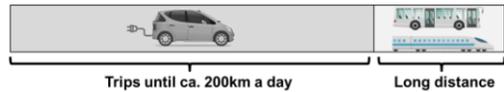
RQ: Which **measures** increase the likelihood of respondents to prefer a **sustainable mobility lifestyle** instead of owning and using their current private fossil-fuel car?

Measures and treatments included:

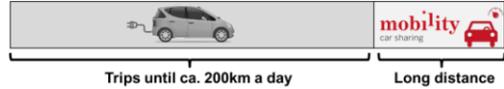
- Better charging infrastructure including Home & Charge and Work & Charge (**HC & WC**)
- Improved carsharing availability (**CS**)
- Information about total cost of ownership (**TCO**)

Alternatives:

1: EV + PT



2: EV + CS

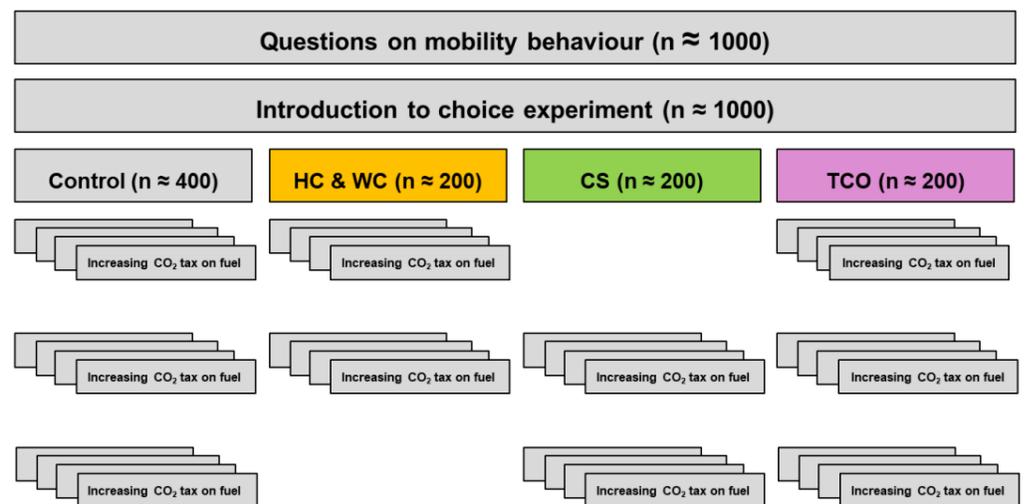


3: PT + CS



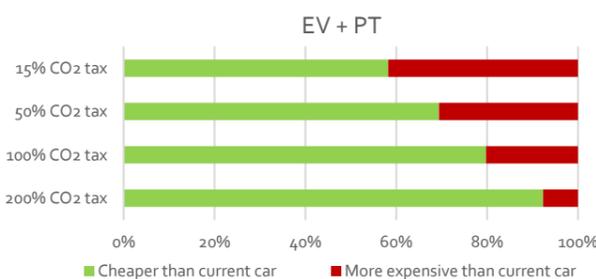
Overview – Multiple Price List Choice Experiment

Respondents chose in a binary choice task between their current mobility lifestyle including a private fossil-fuel car and one of the alternatives 1, 2 or 3. If they chose their private car, a CO₂ tax on fuel increases stepwise from 15%, 50%, 100% to a maximum of 200%, to test when the respondent prefers an alternative.

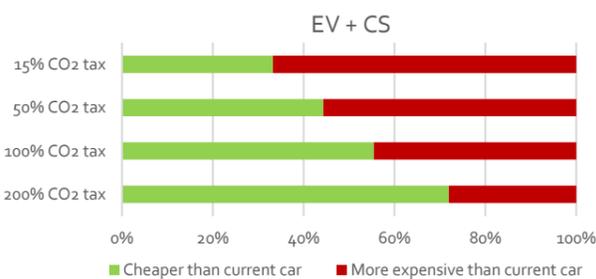


Preliminary Results: CO₂ Tax on fuel and Total Cost of Ownership

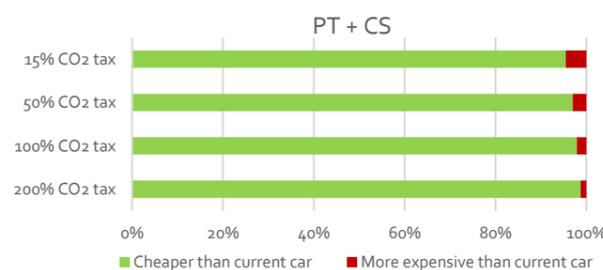
➤ For almost **60%** of the respondents who own a car, the **total cost of ownership** of the alternative of buying a small EV in combination with PT for long trips would be **lower** than their current mobility lifestyle. A 200% CO₂ tax on fuel would increase this number to roughly 90%.



➤ For the alternative of buying a small EV and using carsharing for long-range trips, the situation is different: Now for only slightly more than **30%** of the respondents **switching to this alternative** is cheaper compared to their current mobility lifestyle.

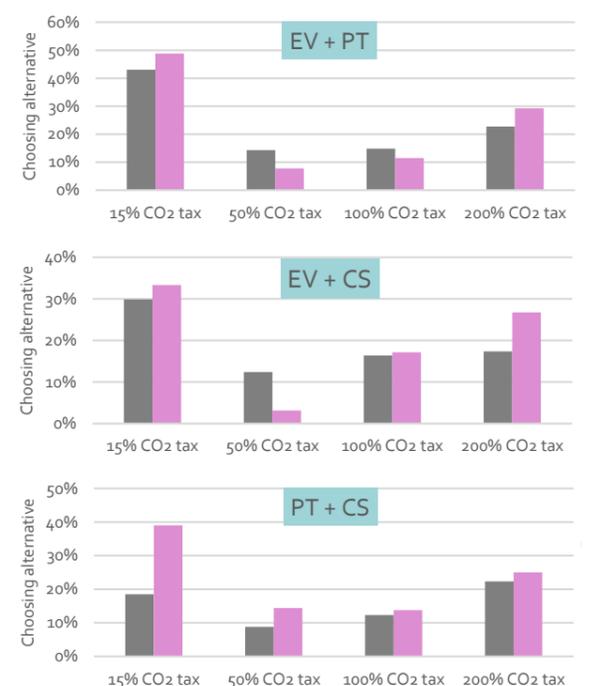


➤ Now for the last alternative of using public transport in combination with carsharing without buying an EV, **almost all participants** would be **better off by switching** to this alternative even without an increase in CO₂ tax on fuel.



Preliminary Results: Choice

➤ The following charts show how consumers, **who would be cheaper off with the alternative**, change their preference when they were informed about the **TCO** of their mobility lifestyles. The **control group** was only informed about fuel cost.



Expected outcome

- How open are people for the different mobility lifestyles, and what is the influence of an incremental increase of CO₂-tax?
- How does willingness to pay change, when charging infrastructure for e-mobility and carsharing availability is significantly improved?
- Does information on total cost of ownership significantly increase preference for the sustainable mobility lifestyles instead of private fossil-fuel car ownership?

Partners