

Mileage Tax for Battery Electric Vehicles: First Insights on Political Feasibility

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1 Introduction

Swiss road infrastructure is primarily financed through taxes on petrol and diesel. Currently, owners of battery electric vehicles (BEVs) do not pay any substitute tax. The Swiss government expects significant tax revenue losses as BEVs' market share grows. This study presents the first insights into public support for a BEV replacement fee (i.e., a mileage tax) in Switzerland.

2 Data and Methods

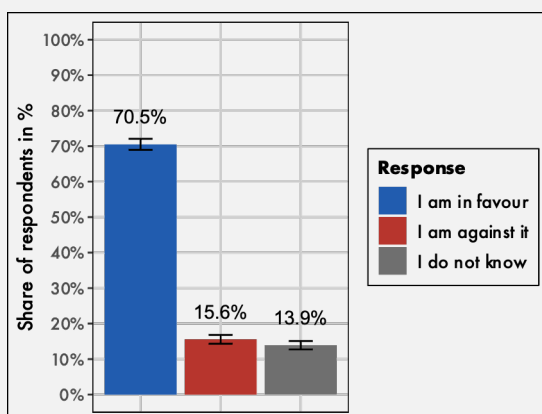
- **Survey-based conjoint analysis** to test how Swiss residents value different policy design attributes
- Respondents are presented with two policy proposals that randomly differ in two attributes

Tariff system (fee per km)	Measurement method (for km)
Same fee for all	GPS-device
Fee depends on weight	Inspection at road traffic office
Fee depends on power	Sending picture of odometer
Fee depends on weight + power	

- Survey experiment conducted between October 2023 and January 2024 in the **5th wave of the Swiss Mobility Panel (SMP)**
- The study population consists of **3'283 Swiss residents** who were invited based on a representative sample provided by the Federal Statistical Office
- Responses weighted by age, gender, education, nationality, marital status, and region

3 Descriptives

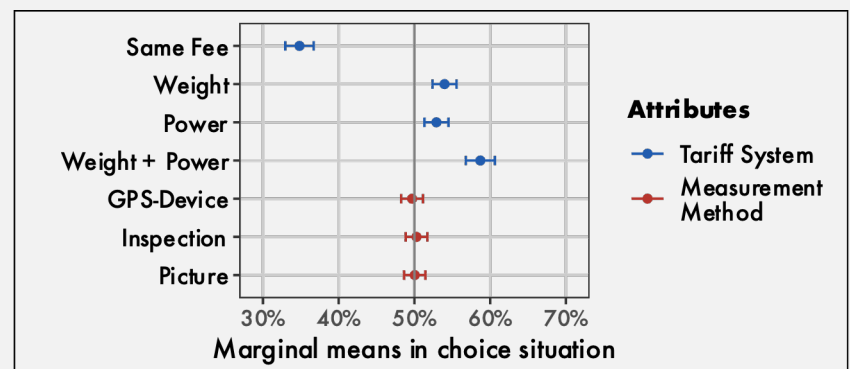
- Respondents show **overall support for the introduction of a replacement fee** that taxes BEV owners similarly to owners of petrol and diesel cars



Question: "As mentioned, owners of purely electric cars (hybrid cars not included) do not fill up with petrol or diesel and therefore do not pay any mineral oil taxes in Switzerland. Are you in favour of or against owners of purely electric cars paying a replacement fee in the future that is similar to the mineral oil tax?"

4 Experimental Results

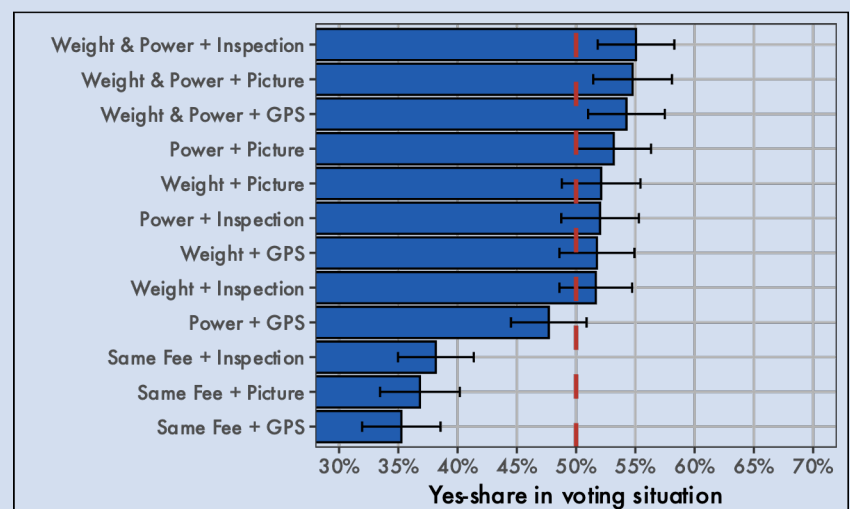
- Policies with **tariff systems that depend on the BEV's weight, power, or the combination of both attributes are preferred**
- No clear preference for distance measurement methods
- Further analysis shows that **support for specific distance measurement methods depends on respondents' privacy and burden concerns**



These plotted marginal means reveal how levels of attributes affect respondents' stated preferences when presented with two random proposals. For example, policies with the tariff system "Weight + Power" were chosen in 58% of cases compared to another random policy proposal

5 Conclusion and Policy Implications

- Respondents want **owners of heavy and high-powered BEVs to pay more**
- **Privacy concerns will play a crucial role** when assessing the measurement method
- **Differences in tariff systems and measurement methods can determine whether or not a BEV replacement fee reaches majority support**



Question: "If this Proposal were presented to you today, would you vote for or against it?"

References

Swiss Mobility Panel (SMP): <https://ib.ethz.ch/research/smp.html>