

# Harnessing evaluability to promote alternative fuel vehicles

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Displaying fuel consumption in a familiar unit increases sensitivity to efficiency advantages and WTP

## Abstract

Consumer judgments depend on the evaluability of a given product's attributes. Describing attributes with familiar units increases evaluability. We argue that the hesitant adoption of alternative fuel vehicles might be partially due to the low evaluability of their consumption units (e.g. kWh). In three experiments, we investigated how a familiar unit of consumption (liters) in contrast to unfamiliar units (kWh, gallons) increases value sensitivity in joint evaluation. We consistently found that the use of a familiar unit increased value sensitivity and that this translated into higher willingness to pay for efficiency advantages. **Our results strongly support the use of fuel-equivalence measures on passenger car energy labels.**

## Theory & Hypotheses

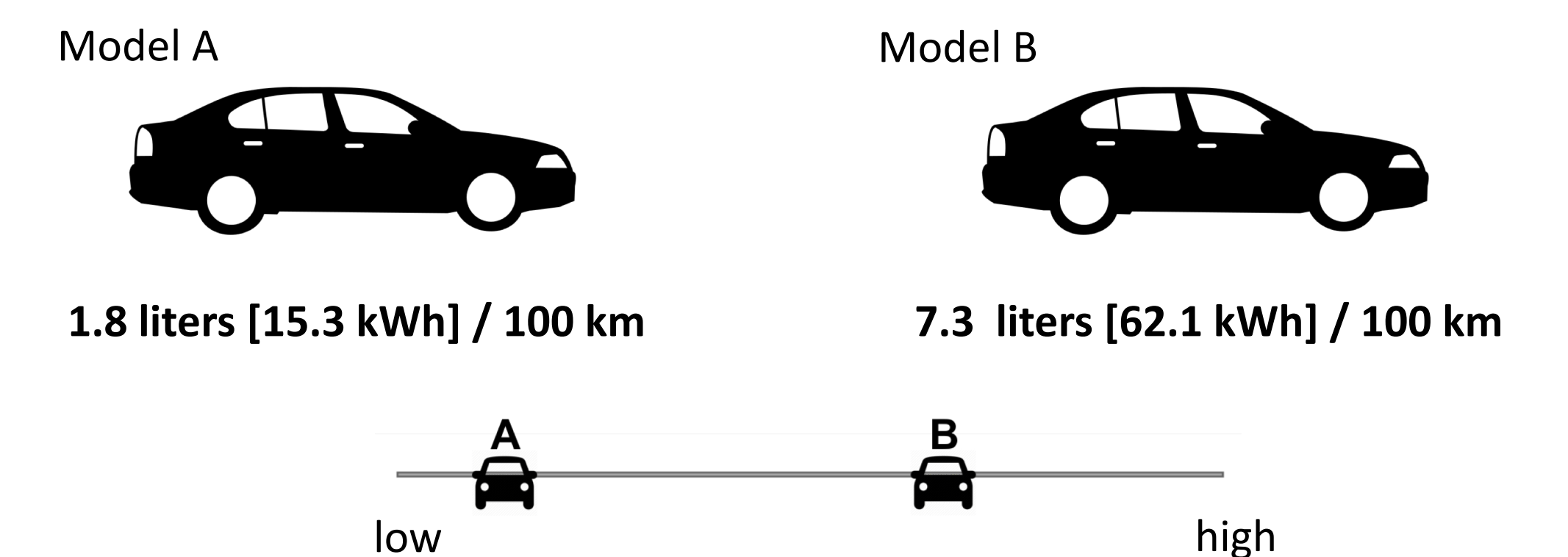
General evaluability theory<sup>1</sup> states three factors that determine attribute evaluability and value sensitivity: nature, knowledge and mode. Drawing on rank-based preference formation from decision by sampling theory<sup>2</sup>, we hypothesized that

**H1:** unit familiarity (knowledge) provides additional distributional reference information in joint evaluation (mode) which leads to increases in value sensitivity

**H2:** increases in value sensitivity from unit familiarity translate to higher willingness to pay for efficiency advantages

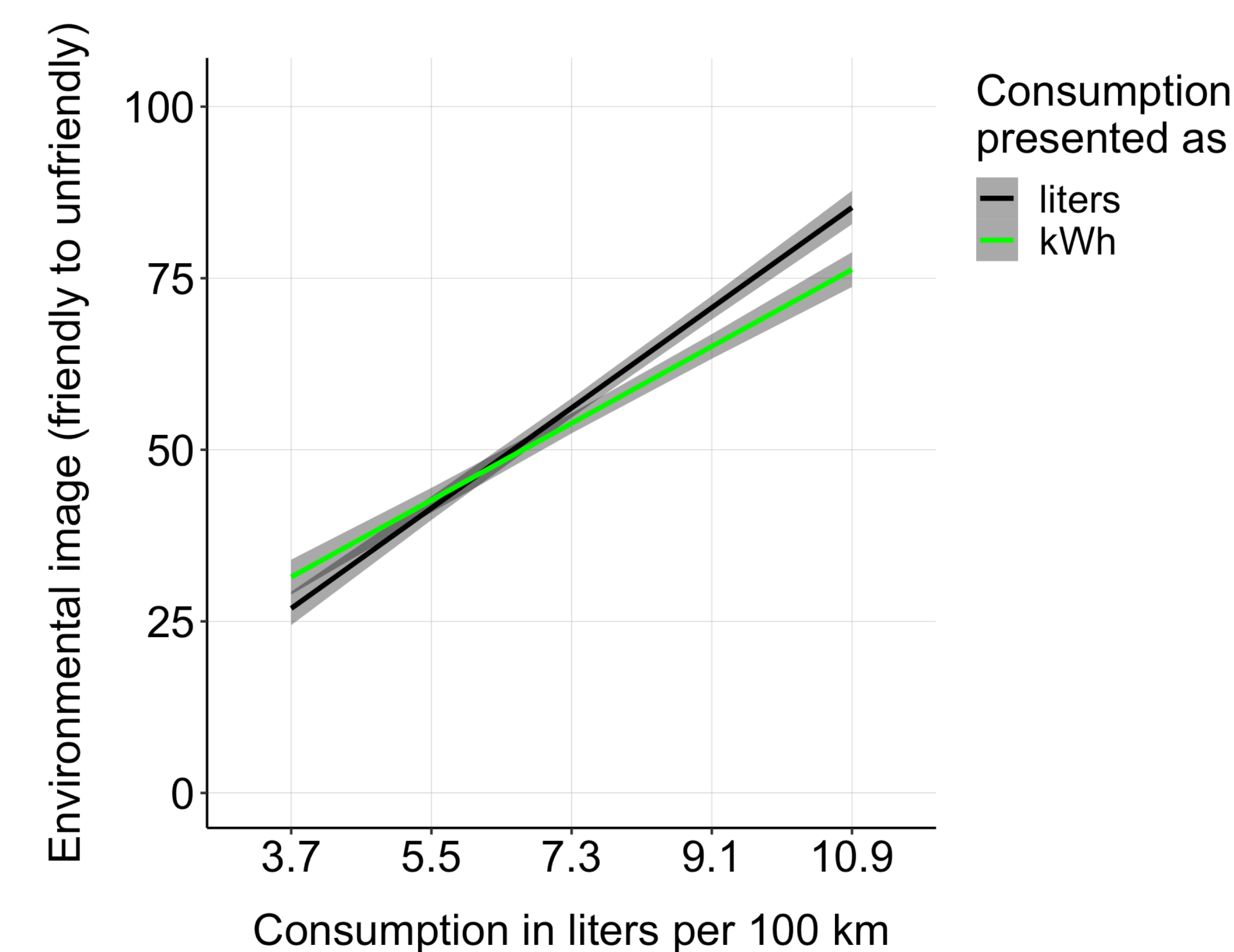
## Methods

European participants evaluated levels of car consumption in ten joint evaluation tasks (see Figure below). We manipulated between subjects if consumption was presented in liters or kWh (Study 1-3), gallons (Study 2), or technology-specific: kWh for the more efficient and liters for the less efficient car (Study 3). Participants were provided with the respective conversion rates. In Study 3 participants additionally reported their willingness to pay for the more efficient car.

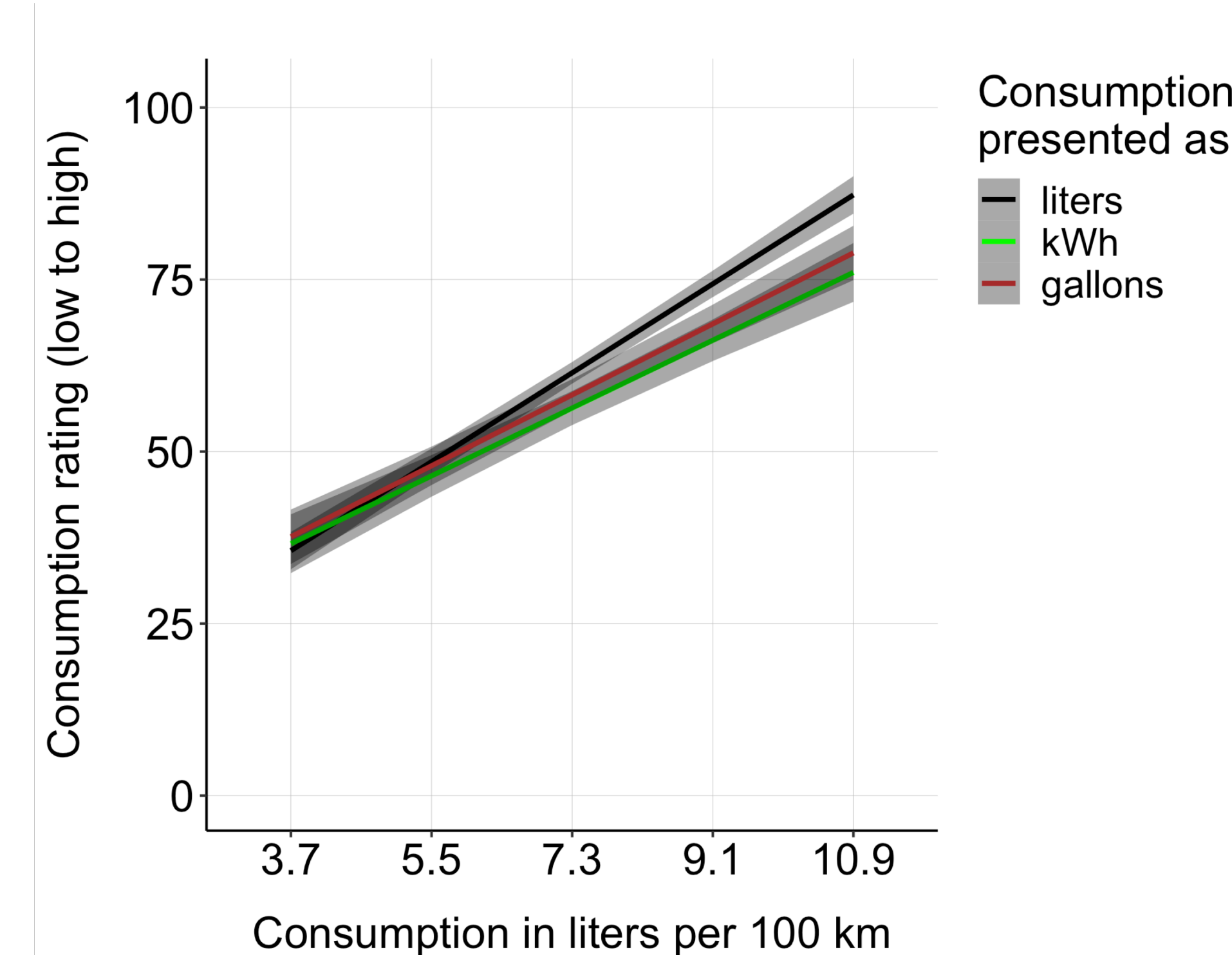


## Results & Discussion

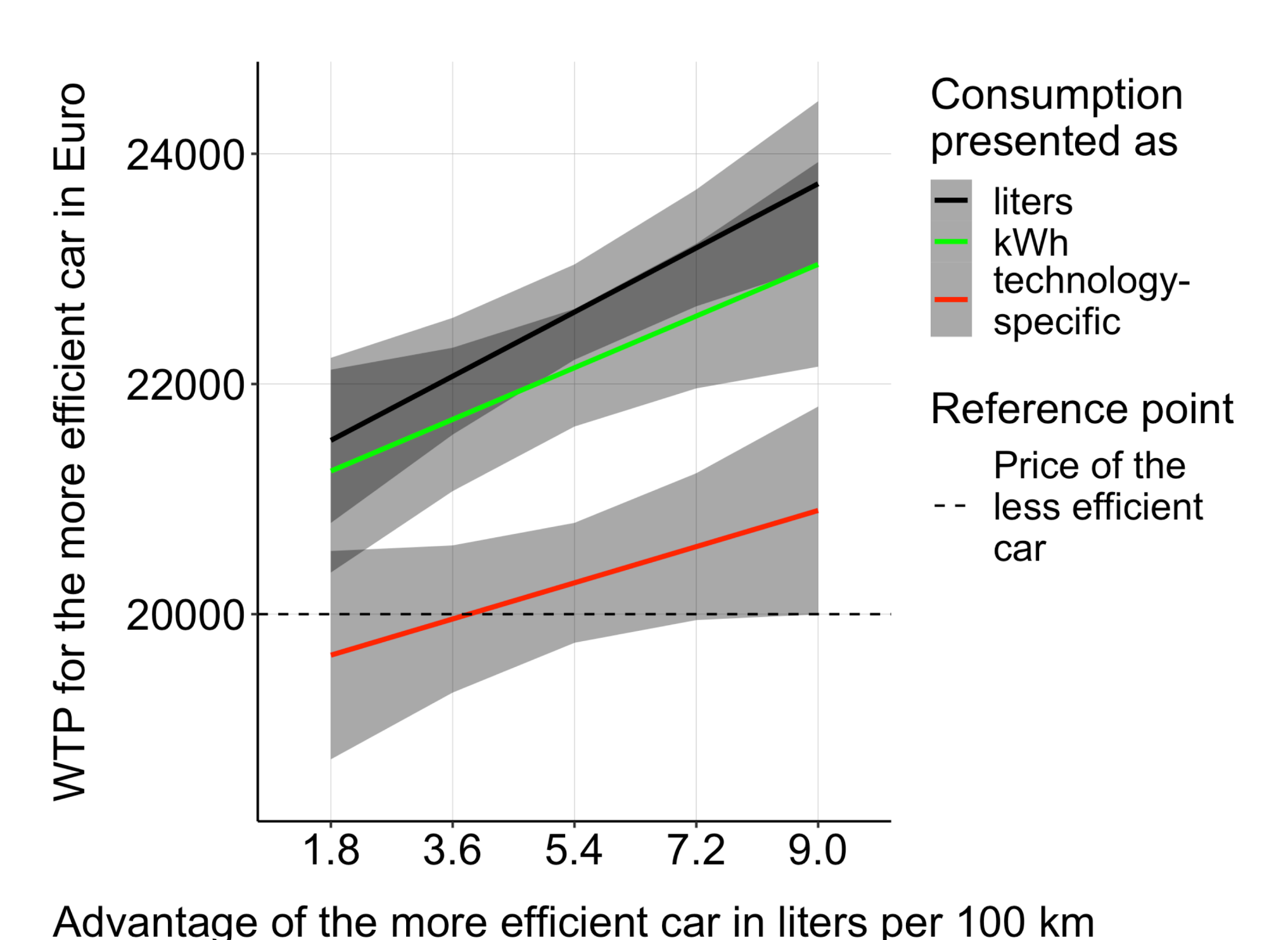
Study 1 (N = 161 car owners)



Study 2 (N = 121 students)



Study 3 (N = 188 car owners)



**Sensitivity** to consumption differences was **higher for the familiar unit (liters) than for the unfamiliar units (kWh, gallons)**. This was reflected by a steeper slope relating level of consumption and consumption rating with liters than with kWh or gallons (see Study 1 and 2),  $\beta = -2.27, p < .001, 95\% \text{ CI } [-2.92, -1.62]$ . **Willingness to pay** for an efficiency advantage was **higher when presented in liters** than when presented technology-specific (see Study 3),  $\beta_{\text{main effect}} = -2.28, p = .024$  and  $\beta_{\text{interaction}} = -2.81, p = .006$ . Grey areas represent 95% CI of the HLM coefficients. Our results **support H1 and H2** (partly), which urges the use of fuel-equivalence measures in policy making.

## References

- Hsee, C. K., & Zhang, J. (2010). General evaluability theory. *Perspectives on Psychological Science*, 5(4), 343-355. <https://doi.org/10.1177/1745691610374586>.
- Stewart, N., Chater, N., & Brown, G. D. (2006). Decision by sampling. *Cognitive psychology*, 53(1), 1-26. <https://doi.org/10.1016/j.cogpsych.2005.10.003>.

