



Is the impact of transport modes on health an individual determinant of transport mode choice

Hélène Bouscasse, Sandrine Mathy, Rim Rejeb, Carole Treibich

► To cite this version:

Hélène Bouscasse, Sandrine Mathy, Rim Rejeb, Carole Treibich. Is the impact of transport modes on health an individual determinant of transport mode choice. ISCTSC 2022 - The 12th International Conference on Transport Survey Methods, Mar 2022, Lisbonne, Portugal. hal-03622469

HAL Id: hal-03622469

<https://hal.univ-grenoble-alpes.fr/hal-03622469v1>

Submitted on 29 Mar 2022

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

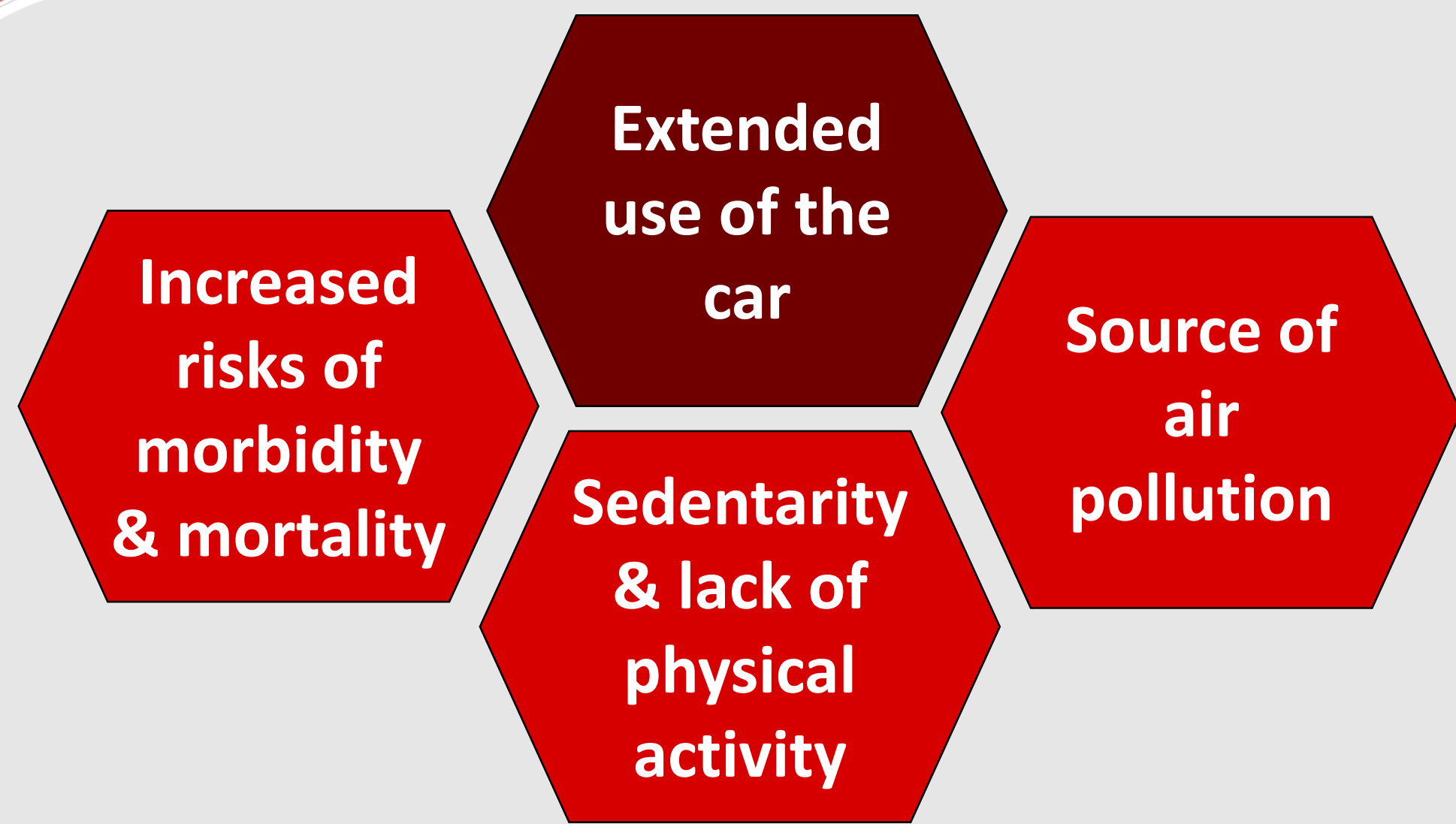
L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Is the impact of transport modes on health an individual determinant of transport mode choice?

Hélène Bouscasse¹, Sandrine Mathy², Rim Rejeb², Carole Treibich²

Centre d'Economie et de Sociologie appliquées à l'Agriculture et aux Espaces Ruraux¹, Grenoble Applied Economics Lab²

Introduction



- Modal choice generates individual and public health issues.
- Modal shift to active and less polluting modes is a valid strategy to reduce:
 - **Individual** health risk related to (a lack of) **physical activity** (Tainio et al., 2016).
 - **Public** health risk related to **air pollution** (Bouscasse et al., 2022).

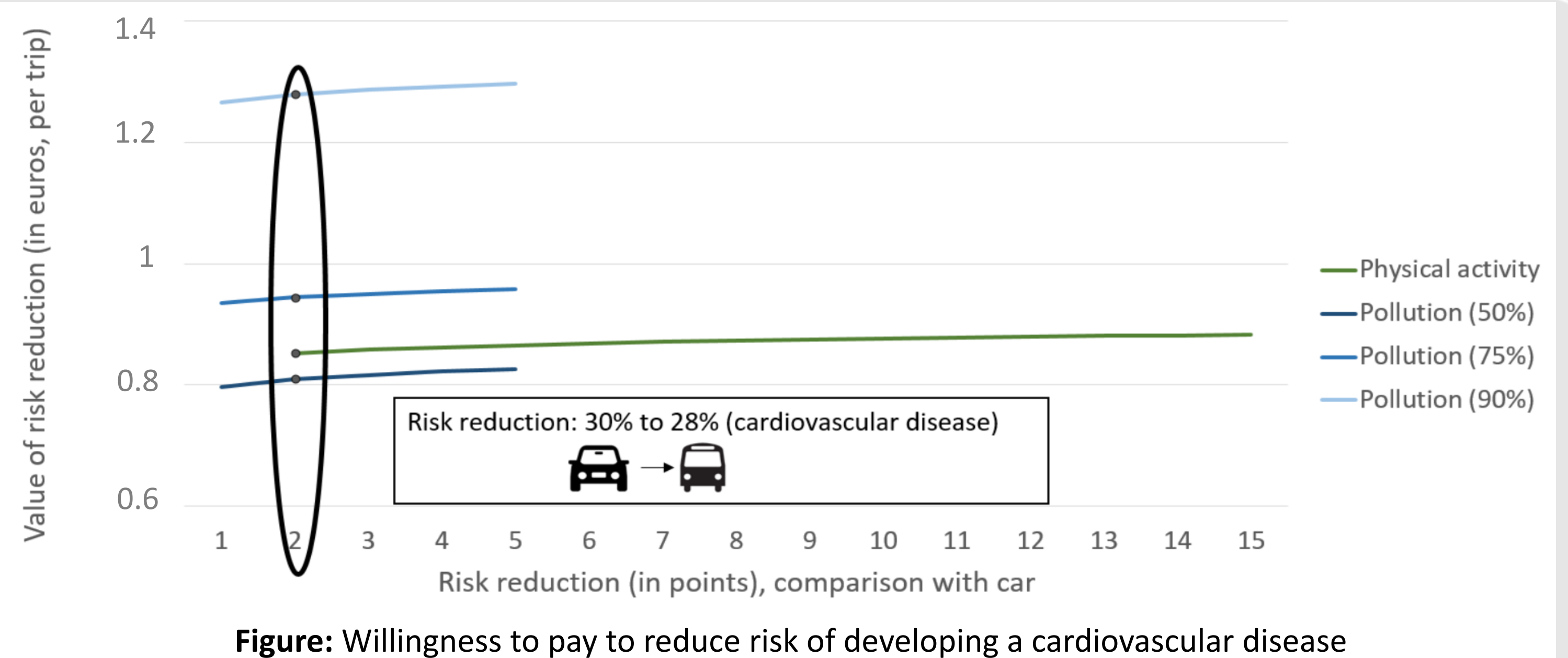
Objectives

- Assess the way introducing these two health dimensions in the individual choice process could influence modal shift intentions
- Account for the perception of health risks in the study of mobility behavior



Results

- **Individual risk reduction:** More significant effect in encouraging modal shift compared to public risk when there is a relatively small share of the population (50%) already using alternatives.
- **Public risk reduction:** Has a larger impact on the mobility preferences than the individual risk reduction with larger shares of the population (75% or 90%) .
- **Both types of information:** the risk reduction is generally under-estimated by the participants.



Conclusion

- Our findings confirm that information on health risks related to air pollution or lack of physical activity both have a significant effect on the preferences of the participants in regards to modal choice.
- Today, in Grenoble, the modal share of people using an alternative mode to the car is rather around 50% or lower, our results indicate that decision makers could play on both the individual and public health impact of modal choices to incent citizens to reduce car usage.

References:

- Bouscasse, H., & de Lapparent, M. (2020). A rank-dependent utility approach to model intra- and inter-individual heterogeneity in risky choice behaviours. *Applied Economics*, 52(31), 3337-3353.
- Bouscasse, H., Gabet, S., Kerneis, G., Provent, A., Rieux, C., Salem, N. B., ... & Slama, R. (2022). Designing local air pollution policies focusing on mobility and heating to avoid a targeted number of pollution-related deaths: Forward and backward approaches combining air pollution modeling, health impact assessment and cost-benefit analysis. *Environment international*, 159, 107030.
- Tainio, M., de Nazelle, A. J., Götschi, T., Kahlmeier, S., Rojas-Rueda, D., Nieuwenhuijsen, M. J., de Sá, T. H., Kelly, P., and Woodcock, J. (2016). Can air pollution negate the health benefits of cycling and walking? *Preventive medicine*, 87:233-236.
- Yaari, M. E. (1987). The dual theory of choice under risk. *Econometrica: Journal of the Econometric Society*, pages 95-115.