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## Improving interest in public, active, and shared travel modes through nudging interventions

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This work addresses the following topic(s) from the Call for Contributions:  
(Please check at least one box)

- Placemaking to integrate urban spaces and mobility
- Promoting sustainable mobility choices in metropolitan regions
- Governing responsible mobility innovations
- Shaping the transition towards mobility justice
- System analysis, design, and evaluation
- other: \_\_\_\_\_

### Extended Abstract

From here 700-1000 words, grouped by the following sections:

#### Problem statement

Nudging is a popular approach to changing behavior by designing interventions to encourage, for instance, sustainable or healthy actions without necessarily limiting freedom of choice. Nudging could show particular potential in changing travel behavior by providing governments with softer policy options to reduce the negative impacts of private vehicles in urban areas, especially when used to compliment ‘hard’ policy measures such as taxes or zoning changes. Nudge tools, such as simplification and framing of information, default options, the physical environment, the use of social norms, and moral nudging, have been found to be effective to change behavior in fields relating to anti-obesity, health, safety, poverty, or education, for instance, and should also be investigated in the field of travel behavior to identify methods for encouraging sustainable decision-making.

#### Research objectives

This research investigates the overall efficacy of moral, highlighting individual and social benefits, and norm, using social pressure to promote appropriate behavior, nudging in the interest to use public, active, and shared transport modes. This research further investigates the efficacy of nudging among different trip purposes (shop, work or school, hobbies, visiting family, doctor, or as recreation), those with differing travel attitudes, and those with differing demographic characteristics.

#### Methodological approach

This study investigates nudging in Flanders, Belgium (n=292) through a survey distributed between 5 November 2022 and 8 January 2023. As part of the survey design, nudging interventions in the form of infographics focusing on moral and norm nudges were randomly allocated to two groups. Nudge efficacy, interest in using different transport modes for various trip purposes, travel attitudes, and demographic differences were

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investigated through independent and paired sample t-tests, ANOVA mean-comparison tests, and multiple linear regression models.

### **(Expected) results**

Results indicate that moral nudging is effective overall for the three travel modes, but particularly effective for carsharing. This is important as providing information about carsharing benefits may improve the understanding of these services as they become more popular, and might provide an option for individuals who want to make more environmentally and socially conscious choices without drastically changing their lifestyles. These results indicate that in situations where the private car previously seemed like the only reasonable option, such as trips where travelers must carry heavy or bulky bags or alongside companions with limited mobility, moral arguments might be effective in modal change to more sustainable options, and in situations where individuals must access locations that are not served by public transport, carsharing can serve this need. Further, women might have greater concerns about the environment or making environmentally moral choices, resulting in them being more susceptible to moral nudging, particularly for active travel. Finally, those with greater time flexibility who are younger might be a target group for carsharing, especially when influenced by moral arguments, while older retired and full-time employed individuals may not be willing to give up their private cars.

Norm nudging was found to be effective overall for public transport and particularly for active travel, but not for carsharing. This could indicate that mobility cultures and social acceptance are important to active and public transport use, while norm nudges might be less effective for carsharing as it is still in a stage of first-adoption. The results further indicate that in situations where the trip is taken with companions, individuals can be more easily swayed to use active modes.

Attitudes toward public transport were important to norm nudge susceptibility, indicating that even though individuals know the environmental benefits of public modes, they may not use them until they see others do so. Attitudes toward active travel were not important to nudge susceptibility, indicating that those who prefer active travel already travel this way, at least in Flanders. Attitudes toward car sharing were important to both nudges, indicating that a combination of information about environmental benefits and an improvement in social acceptance is necessary to encourage more people to use carsharing services, though younger individuals might be more likely to switch to carsharing than their older counterparts. However, carsharing may not be practical for families with children and may be a better option in these situations as a second or third vehicle.

In sum, nudging was found to be effective in improving interest in using public transport, active modes, and carsharing. Moral nudging might become less effective over time as individuals learn the ecological and social benefits of certain transport modes, and therefore might be effective with newer or less popular transport options, such as carsharing. Nudging has the potential to influence sustainable travel behavior change, and should be considered as a tool for planners and policy makers looking toward the future to discourage personal car use and encourage active, public, and shared modes of travel.

In terms of policy, nudging might be effective in changing the intention to use certain modes, particularly when using moral nudging to improve carsharing, therefore governments should implement nudging techniques alongside harder measures in their policy toolbox. For example, municipalities in Flanders could implement nudge units similar to those found in the UK or in the Netherlands that could more rigorously test nudge efficacy in real world situations. In terms of carsharing, policy could improve the density of carshare parking, especially in more remote areas outside of city centers, as a main barrier to carsharing in Europe is the long distances to the nearest available vehicle.