Home office frequency and mobility tool ownership choices

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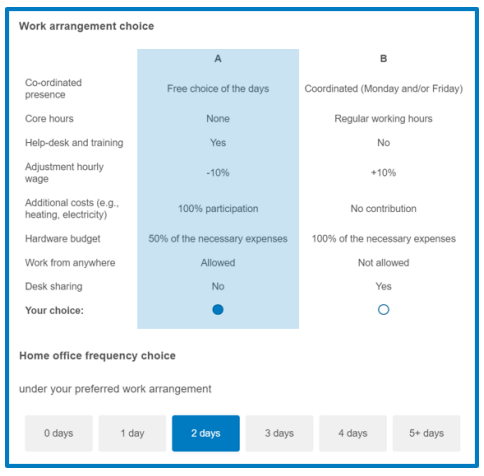
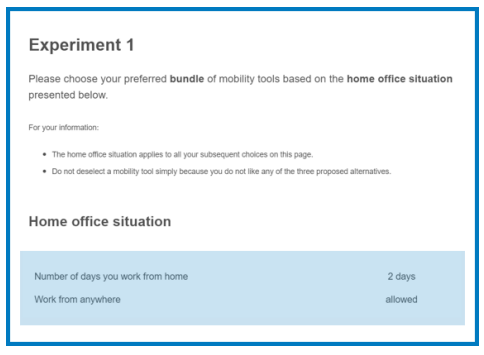
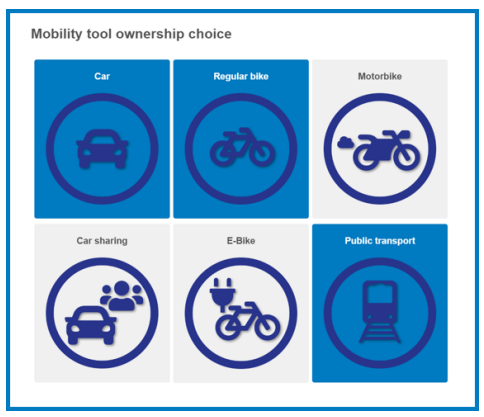
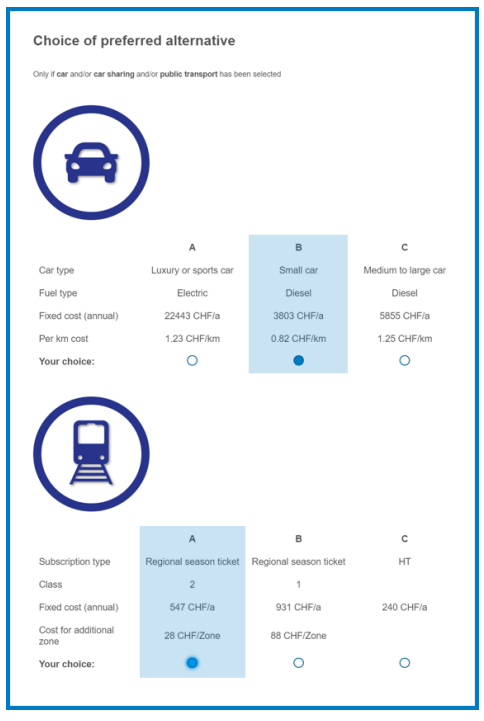
Home office SP



Mobility tool ownership SP







1 Introduction

Home office is the lasting legacy of the pandemic. This study explores the preferences for different work from home (WFH) arrangements and scrutinizes their implications for mobility tool ownership (MTO). Together with alternative daily activity chains the expected shift in transport demand can be simulated under various hybrid work scenarios thereby supporting strategic decision making.

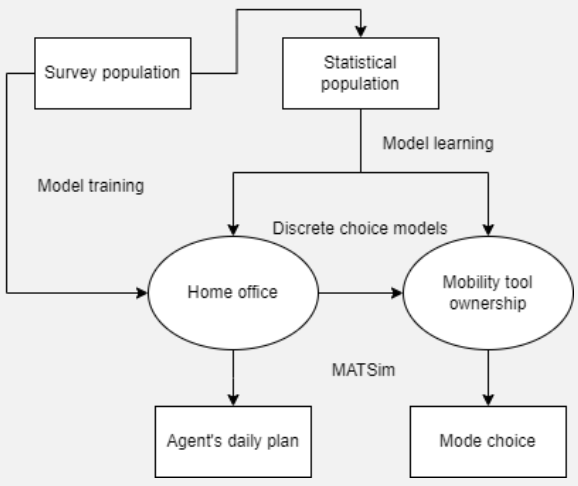
2 Methods

Discrete choice modeling:

- Hybrid choice models: Individuals choose the alternative (e.g., home office work arrangement, mobility tool bundle) which yields the highest utility.
- Utility is a function of alternative-specific attributes (e.g., whether or not work from anywhere is allowed, the car type, its fixed cost, its fuel, etc.) and socioeconomic variables.
- We account for random taste heterogeneity: Utility weights are distributed over population.
- We control for home office feasibility which will be modeled as a latent (i.e., unobserved) variable, and determines which home office frequencies are considered (latent class Manski model).
- We control for the correlation between mobility tools in a chosen bundle (e.g., people who use the bike regularly are more likely to have a PT subscription).
- Multivariate probit or cross-nested logit model.

MATSim integration:

- Multi-agent transport simulation (software developed at ETH Zurich and TU Berlin).
- Utility weights from DCMs can be used to simulate realistic behavior of the agents.
- Models transport demand under general equilibrium conditions and micro-founded.
- Allows policymakers to understand shifts in transport behavior under various (home office) scenarios.



- WFH is hypothized to impact MTO which in turn affects mode choice (in the eqasim pipeline).
- The home office population has different daily plans which interact with the mode choice.
- These interactions will be simulated, scored and updated until no individual has an incentive to deviate from its strategy.

3 Findings from the pre-test

- Work arrangement attributes are substantial impacts, are highly significant and have the expected signs.
- Work arrangement attributes do not impact home office frequency.
- A priori preference for number of days working from home. People only adjust if marginal (dis-) utility outweights the marginal cost (benefit) provided by the arrangement.
- Perceived personal suitability is an important factor (especially when going fully remote).
- Adjustments to the experimental design and survey instruments as envisioned on the left.

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