

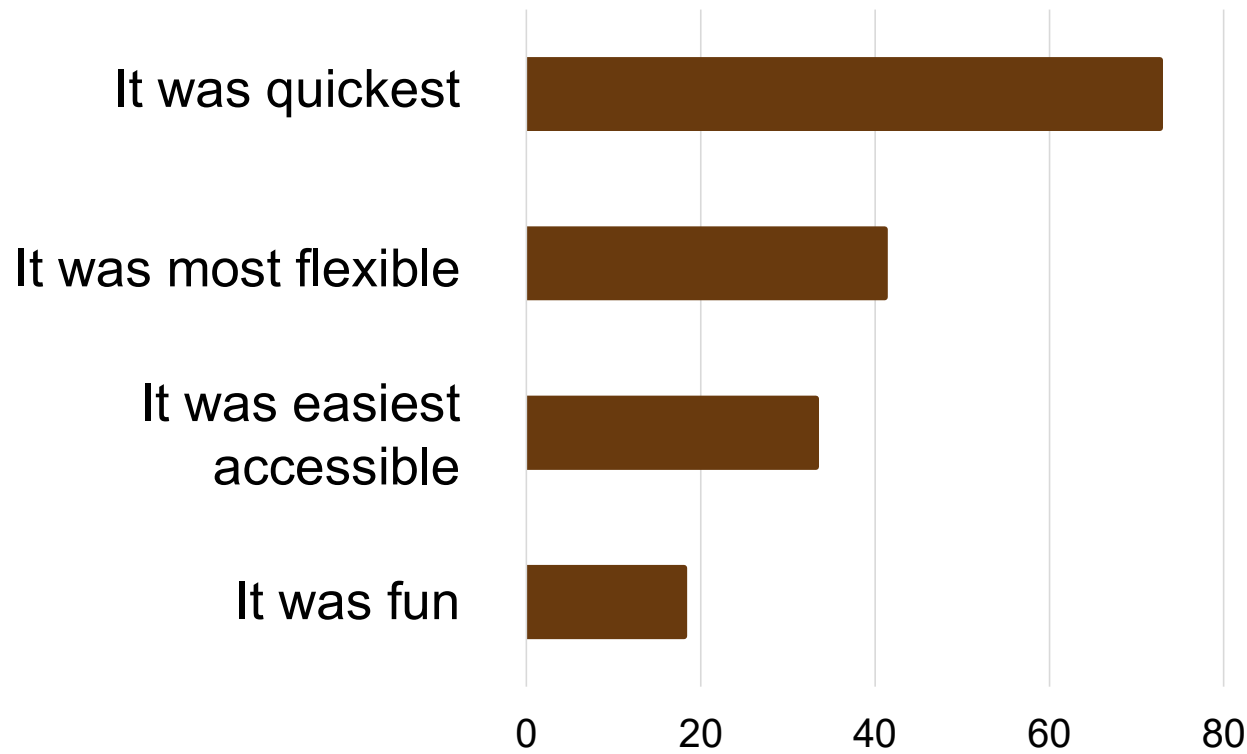


Meta-analysis of e-scooter mode replacement

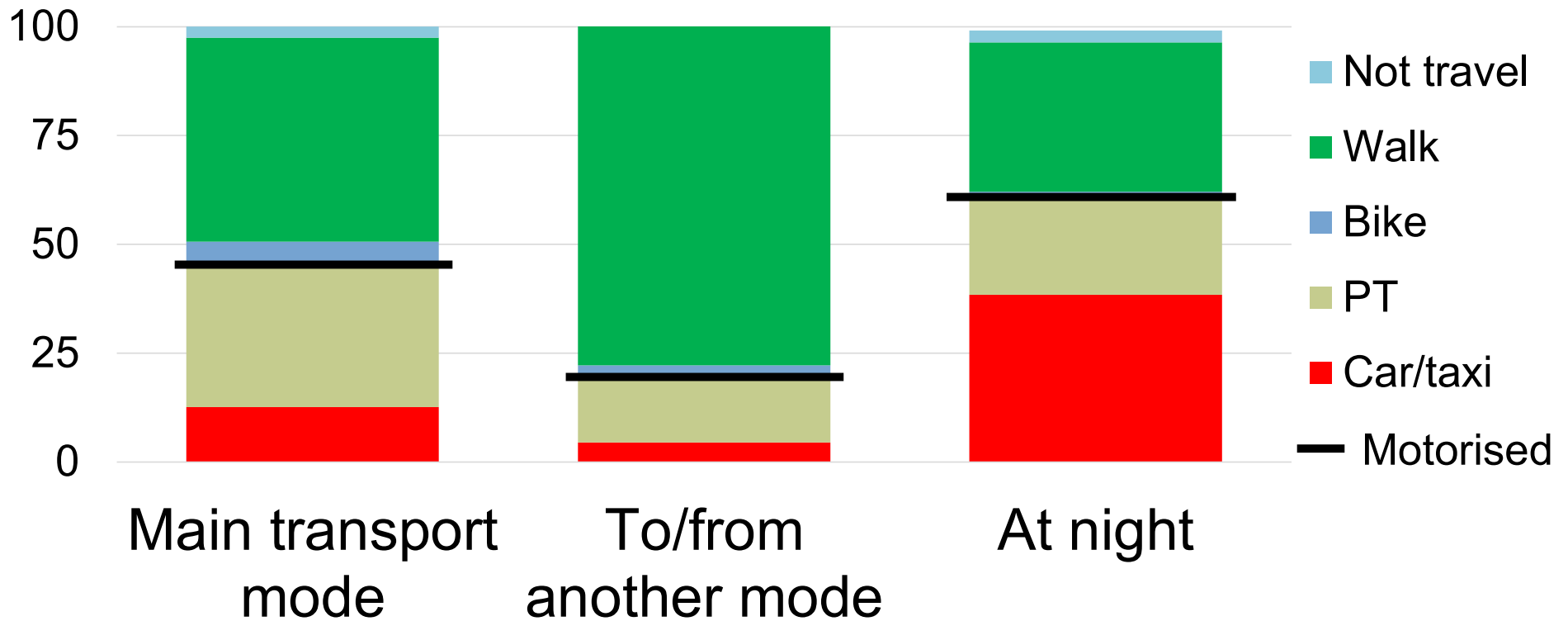
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Institute of Transport Economics, Norway

First and foremost: Utility use



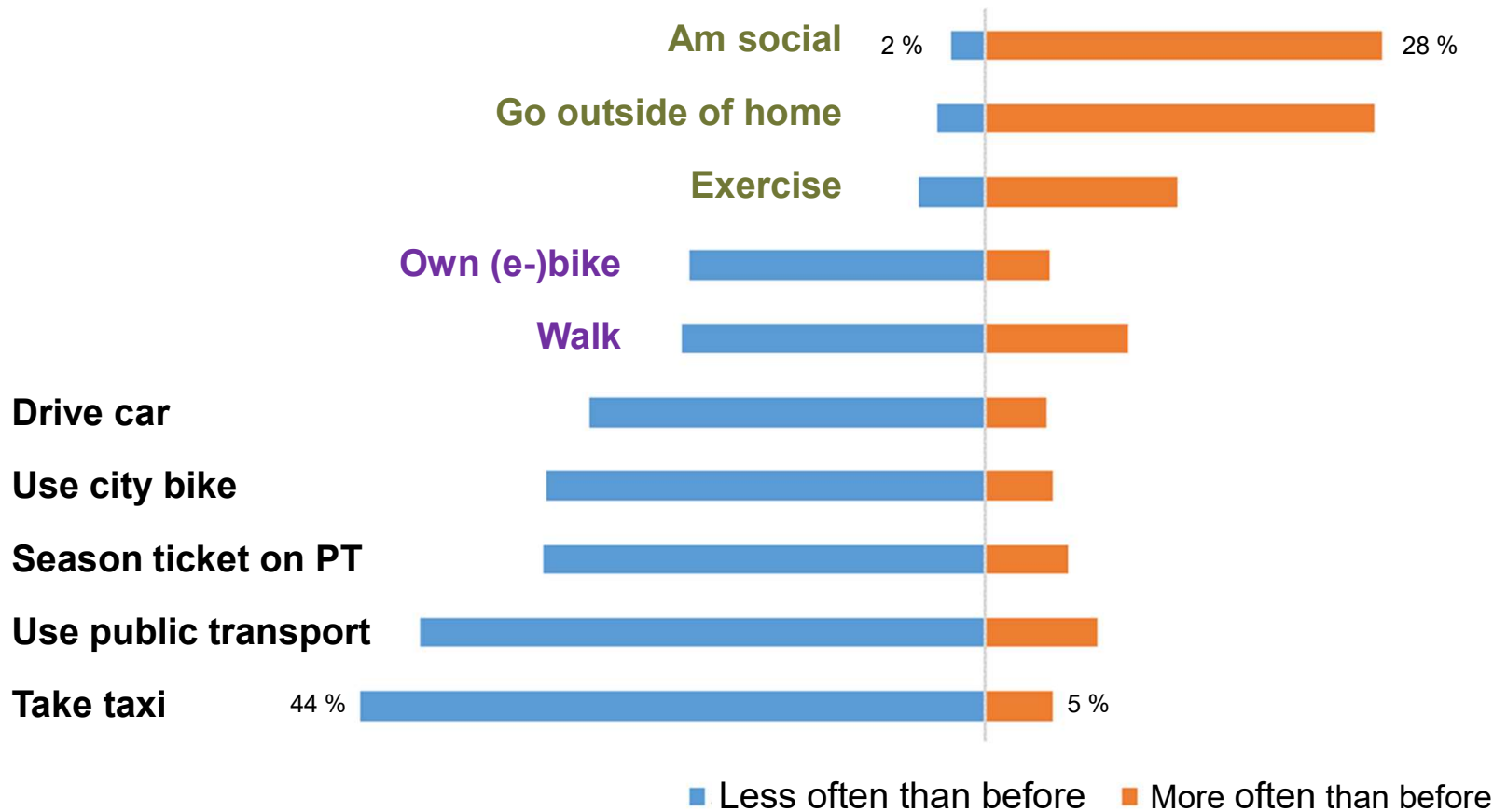
Mode replacement depends on context of use



Last trip replaced car

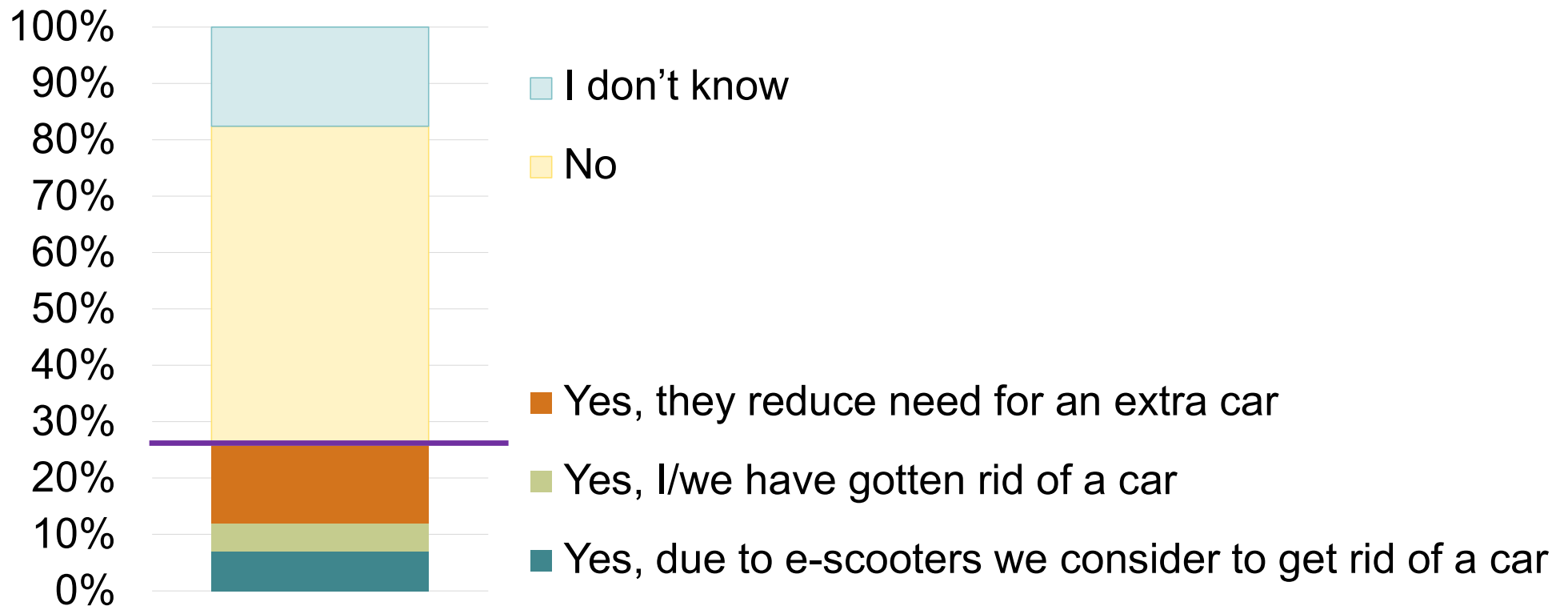
- Outside of city centre
- Longer trips
- Male
- Privately owned e-scooter
- PT does not take me there

Have e-scooters changed how often you...



National user survey N=2557

E-scooters change car ownership need for 1/4



Meta-analysis



Global meta-analysis: E-scooter mode substitution

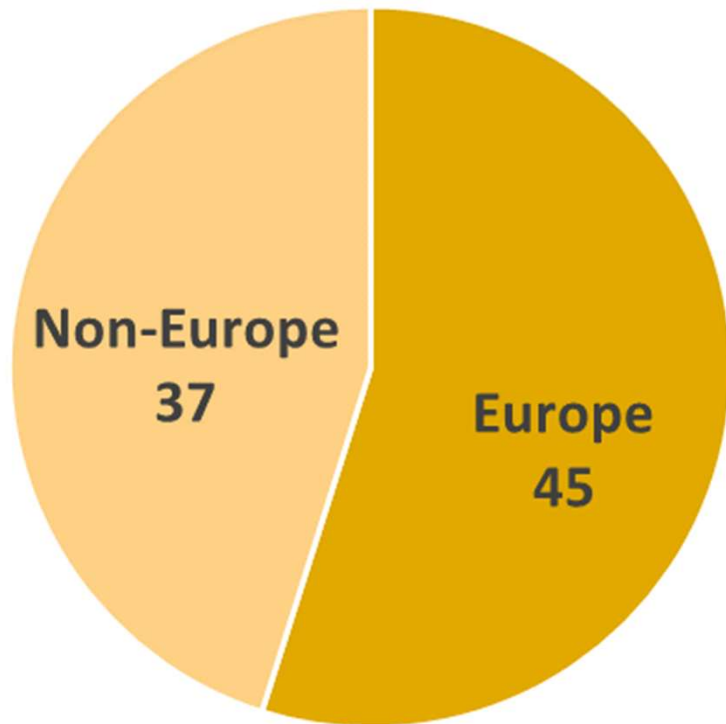
82 studies

**251
outcomes**

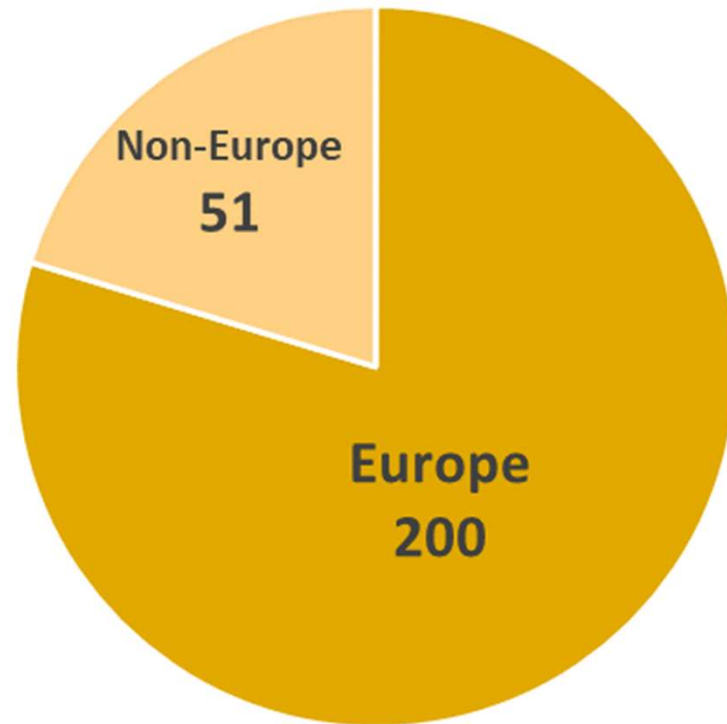
Australia
Belgium
Canada
Denmark
Finland
France
Germany
Greece
Italy
New Zealand
Norway
Portugal
Serbia
Switzerland
Sweden
UK
USA

Meta-study evidence

Studies



Results



Each result coded

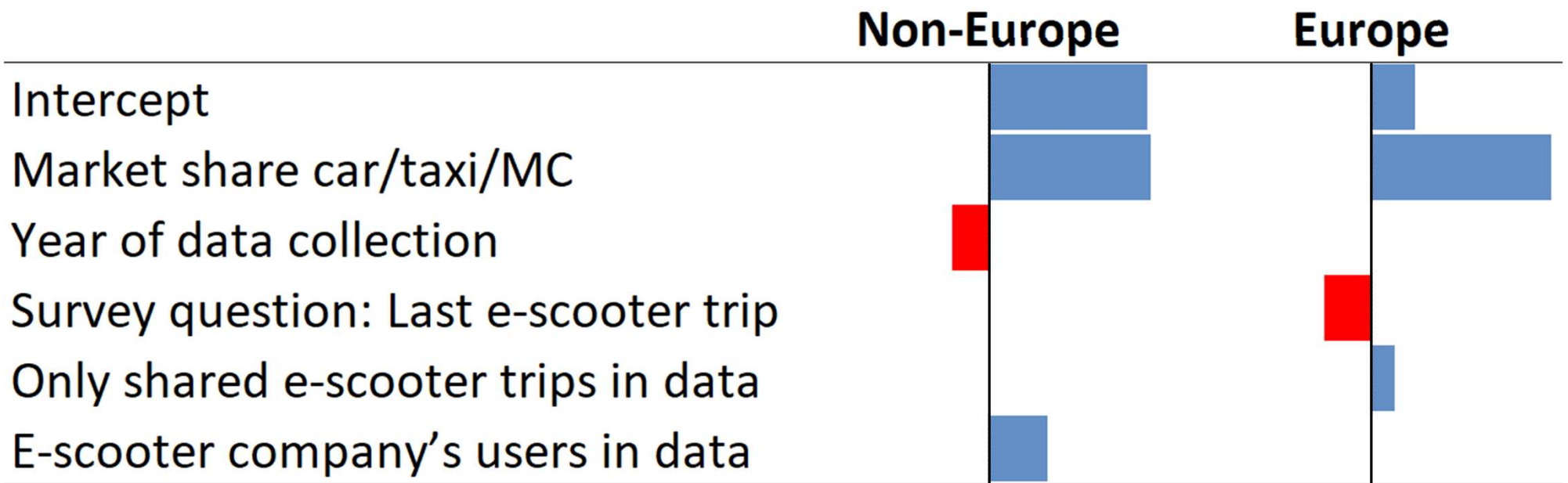
- Study details
- Method
- Sample
- Trip characteristics
- % replacement of:
 - Car – private/shared, taxi/ridehailing, MC
 - Public transport
 - Walk
 - Bike
 - Not travel

Study area information added

- 137 locations
- Some examples:

Country	Location	Population	Km ²	Pop. density	Tram / LRT	Metro	City bike scheme	Car share commuting
Germany	Aachen	248,878	161	1,547	0	0	1	60%
France	Marseille	1,400,000	689	2,032	1	1	1	54%
Norway	Bergen	265,470	90	2,940	1	0	1	46%
Sweden	Malmö	325,069	78	4,150	0	0	1	51%
Belgium	Brussels	1,208,542	162	7,442	1	1	0	43%
Switzerland	Zürich	922,000	243	3,794	1	0	0	21%
Serbia	Belgrade	1,077,000	254	4,240	1	0	0	27%
UK	Birmingham	2,624,000	598	4,388	1	0	0	74%
Australia	Melbourne	5,078,000	9,992	508	1	1	0	50%
Canada	Calgary	1,349,000	585	2,306	1	0	0	79%
USA	Tucson	964,000	917	1,051	1	0	1	89%

Mode shift from **car**



Mode shift from public transport



Non-Europe

Europe

Intercept

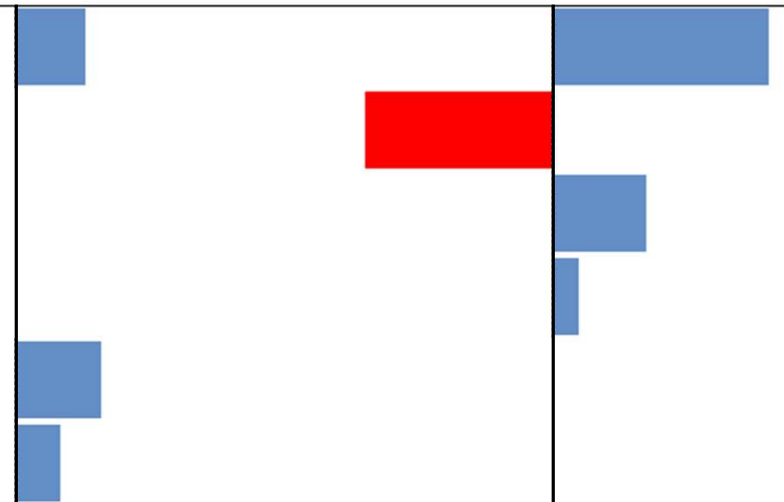
Market share car/taxi/MC

Metro / tram in study area

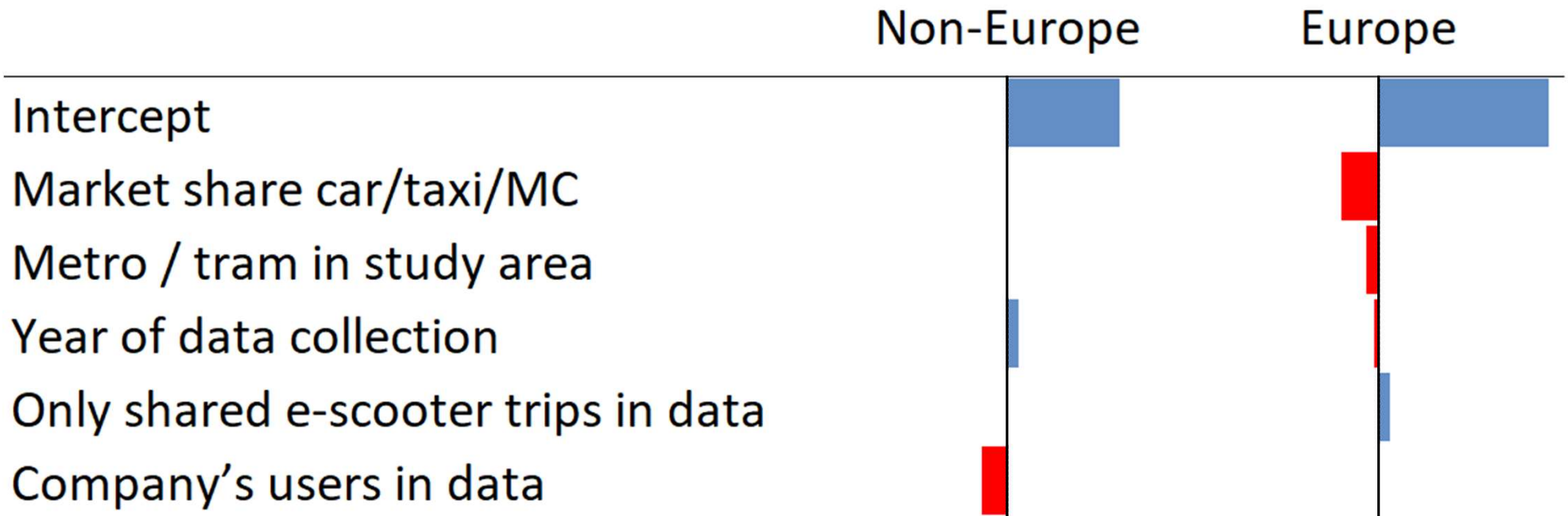
Only shared e-scooter trips in data

E-scooter company report

Peer-review publication



Mode shift from active transport



No surprises here



Take home

- Mainly walk
- Still, considerable impact on **car use** and **car ownership**
- Larger **car substitution**
 - Privately owned – but limited evidence
 - Outside of urban centres
 - Where car dominates (e.g., suburbs, North America)



Take home

- Larger **PT** substitution
 - Europe
 - Where car use is low
 - Rail based public transport in area
(i.e., where public transport presumably is good)



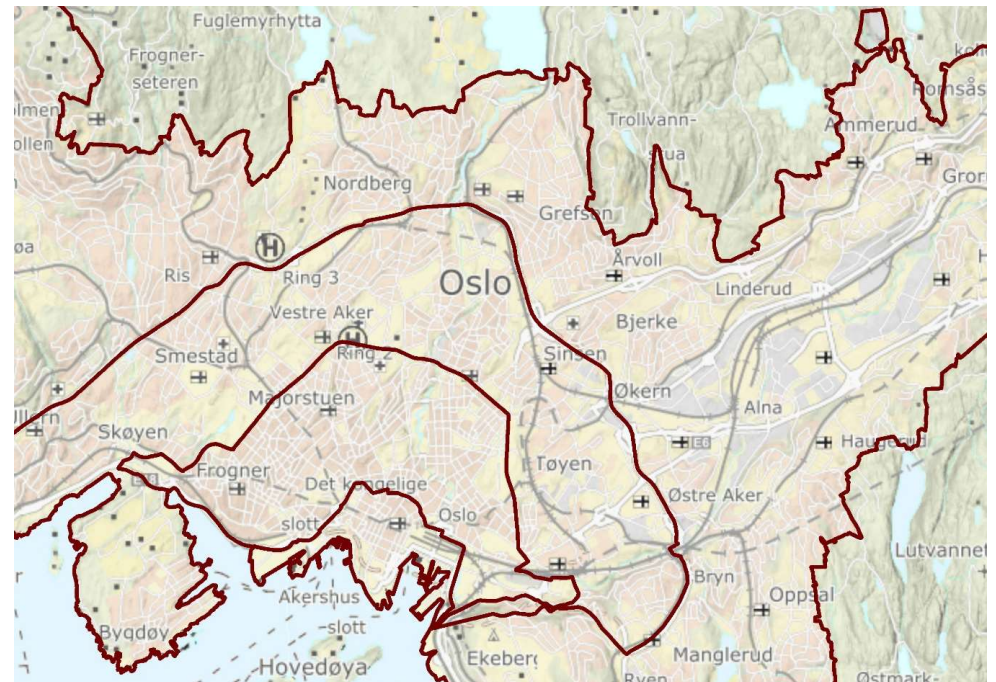
Take home

- Larger **active transport** substitution
 - Short trips
 - To/from public transport
 - Low car shares
 - Low quality public transport (bus only)



Policy implication

Zoning!



Thank you for your attention!

Our projects, results and publications are compiled on our
website <https://www.toi.no/elsparkesykler>