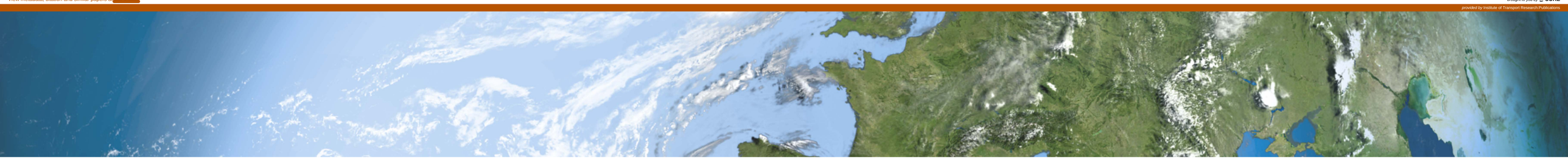


Modelling the Impact of Automated Driving

Private AV scenarios for Germany and the U.S.

Stefan Trommer, Lars Kroeger & Tobias Kuhnimhof (DLR)

Context

- Market entry of autonomous vehicles (AVs) level 4+ (SAE) expected in the 2020s
- When drivers can safely engage in other activities they might be willing to spend more time in the vehicle
- Impact on travel choices expected

Objective

- Modelling the expected fleet of private autonomous vehicles for the U.S. and Germany in 2035
- Modelling travel behavior impacts of introducing AVs into the private car fleet
- Analyze changes in destination and mode choice and VMT

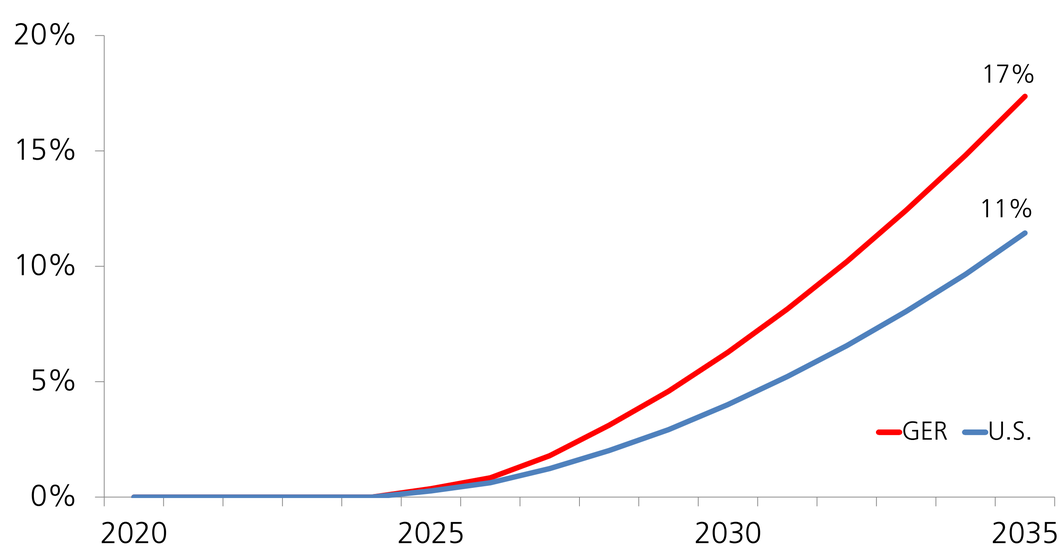
Methodology

AV fleet modelling	Assign vehicles to households	Trip generation	Aspatial travel demand model
• Take rates of AVs derived from historical deployment of ACC systems • Generate AV fleets using a diffusion model	• Vehicle age class differentiation • Allocation of AVs by mileage and user type	• Weighting NHTS datasets for 2035 (demographic effects) • Enabling AV-availability for relevant trips	• Combined distance and mode choice model • Adjustment of generalized costs for AV trips

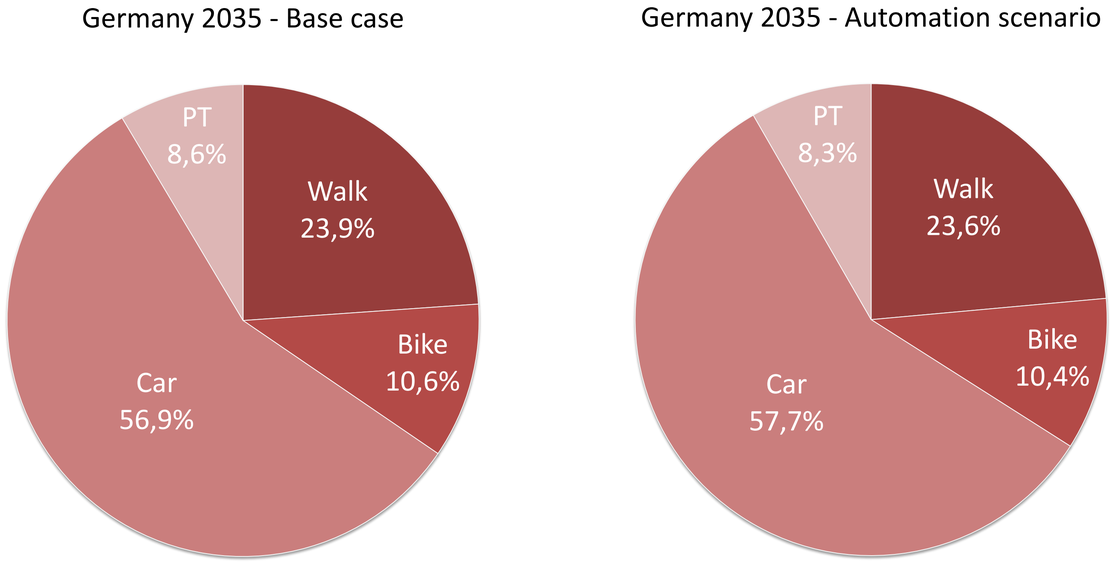
Results

VMT increase by 2,4% in Germany and 3,4% in the U.S.

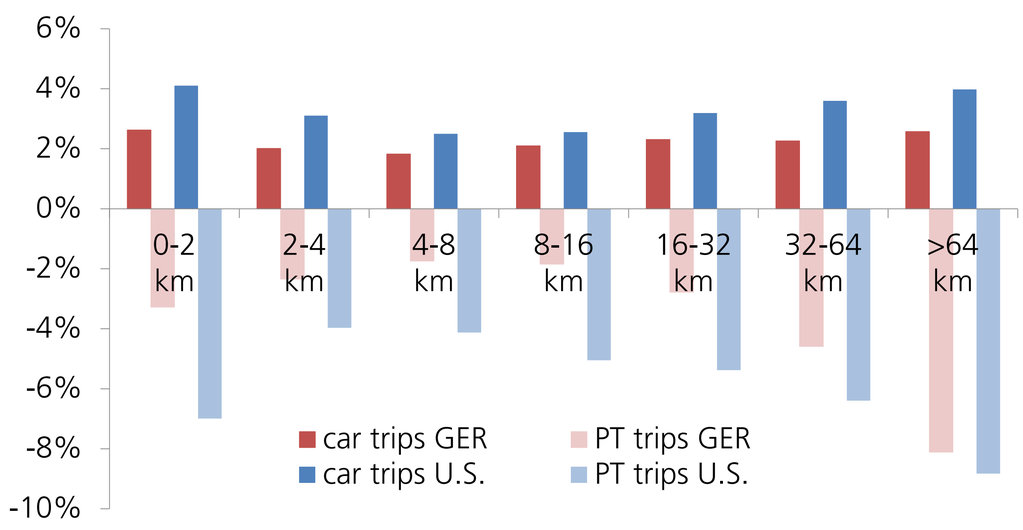
Autonomous vehicle fleet (level 4 & 5)

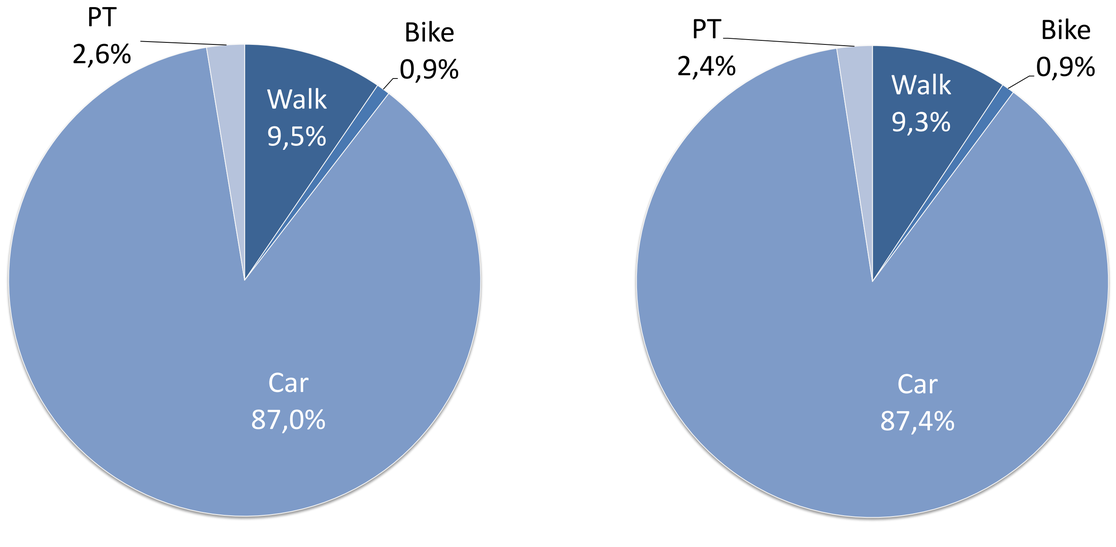


Modal split changes



Changes in trips per distance





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