Potentials for Modal Shift through HOV/HOT Lanes in Germany

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• Introduction

- No HOV and HOT lanes in Germany.
- No pricing or tolls on German highways.
- Goal: Traffic management with tolls for a fast lane to enhance car sharing.

• Materials and methods

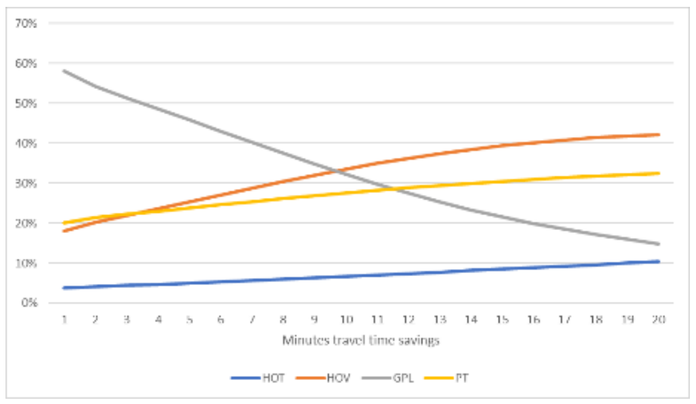
- Survey among German commuters.
- Analysis with multinominal logistic regression.
- Agent-based as well as higher-level area-based approach.
- Complex formulars simplified for daily use with Taylor Approximation.

• Results

- Six factors influence mode choice
  - Commuting Distance
  - Costs
  - Travel time gains
  - Income
  - Gender
  - Age
- Sensitivity analysis: first three factors have the strongest impact.
- Carpooling has greater unexploited potential than public transportation.
- Pricing should be in the range of €5 - €10.

Studying three scenarios:

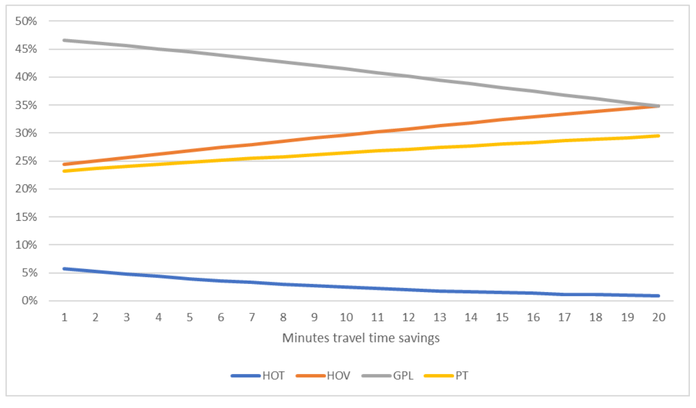
- First scenario: toll €5; mode choice depending on travel time gains.



- Increasing travel time gains

=> increasing use of carpooling and public transport
=> increasing willingness to pay for special lane.

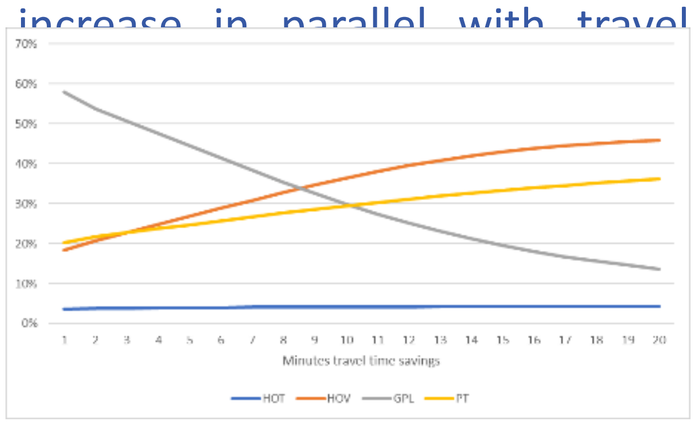
- Second scenario: travel time gain 5 minutes; mode choice depending on tolls for fast lane.



- Increasing costs => increasing sharing and public transport

=> Decreasing willingness to pay

- Third scenario: travel time gains increase in parallel with travel



- Scenario three: high potential for modal shift.

=> increasing use of carpooling and public transport

=> The share of HOT users is constant across distribution.

• Discussion

- Willingness to pay for a special lane is low in Germany.
- No road pricing in Germany so far, high insecurity for commuter acceptance and changes in traffic demand.
- Travel costs play a significant role in mode choice, but the influence of travel time gains is stronger.

• Conclusion and Future work

- Results indicate potential for HOT and HOV lanes in Germany.
- Especially HOT lanes show promising results.
- Average speed differences between Managed Lane and GPL must be sufficiently large to spark an effect
- Next step: implementing the modal split in traffic simulations to evaluate the traffic impact.

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