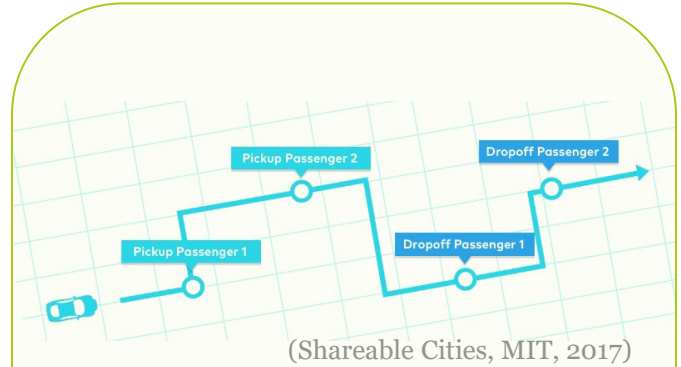
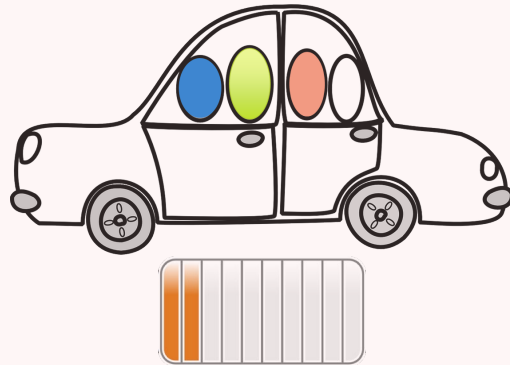
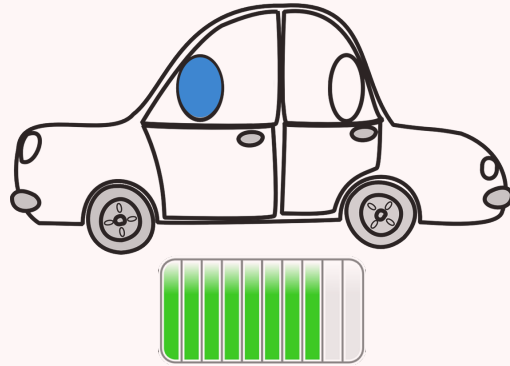


# On the Influence of Cost and Time on the Willingness to Share a Ride: A Scenario Analysis

**María J. Alonso González,**  
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Hoogendoorn-Lanser and Serge Hoogendoorn

*Transportation Research Board 99<sup>th</sup> Annual Meeting*





(Shareable Cities, MIT, 2017)

There is a massive potential of sharing rides with little incurred delays, and this applies to very different urban settings – *Tachet et al, 2017*

# Why are there not more pooled rides?

**PROS**



**CONS**



**COST SAVINGS**



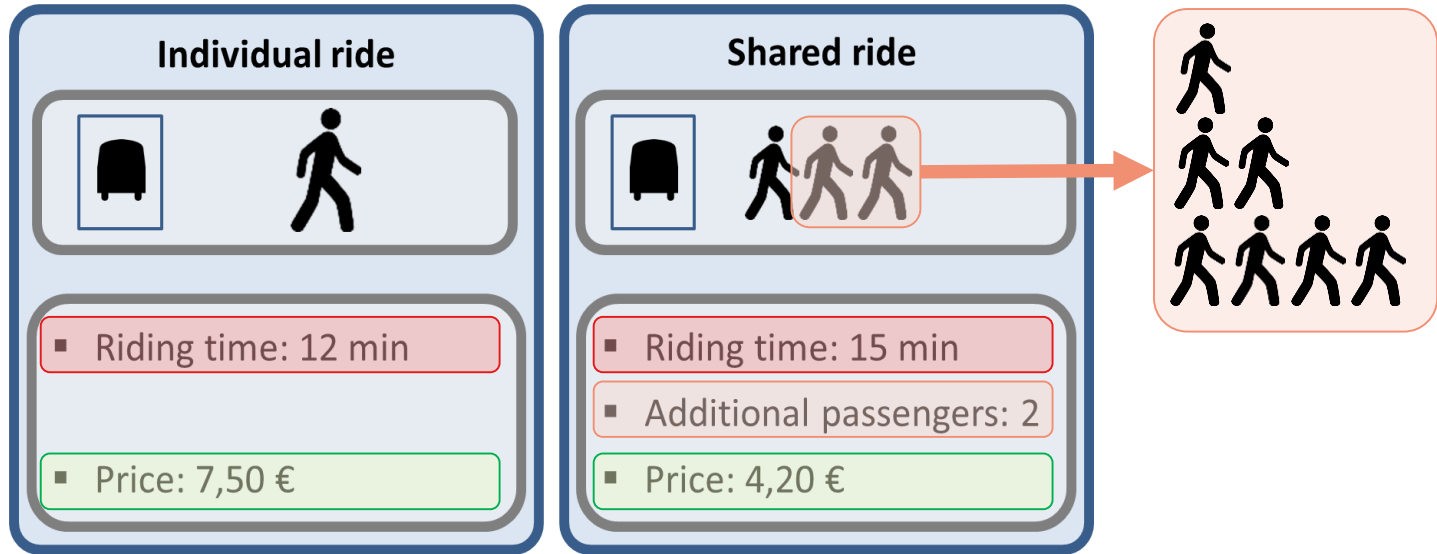
**ADDITIONAL TIME**

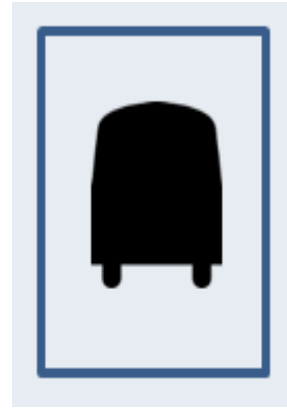
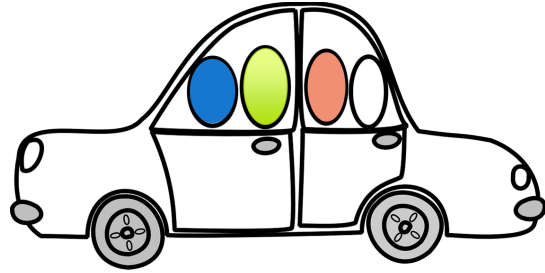


**SAFETY CONCERNS**

**LACK OF PRIVACY**

**REDUCED COMFORT**









- Non-working individuals:  
12.00 €/h (16.25 €/h)
- Working individuals:  
14.50 €/h (20.08 €/h)



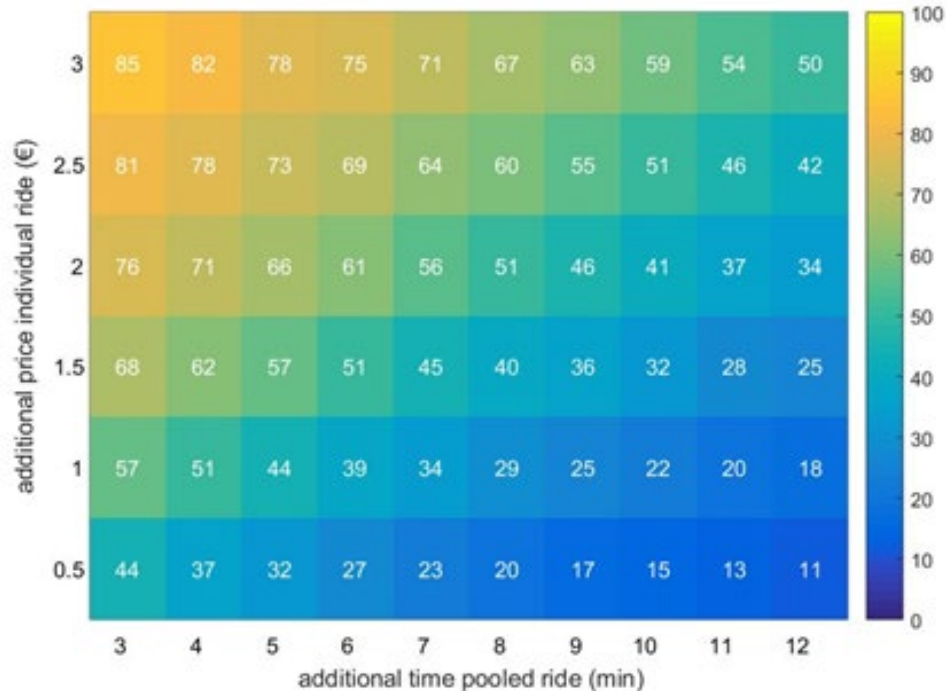
- 1 add. pax: 0.44 €/trip (0.52 €/trip)
- 2 add. pax: 0.44 €/trip (0.52 €/trip)
- 4 add. pax: 2.40 €/h (2.85 €/h)



# SCENARIO ANALYSIS

# Share of pooled trips for different time-cost trade-offs

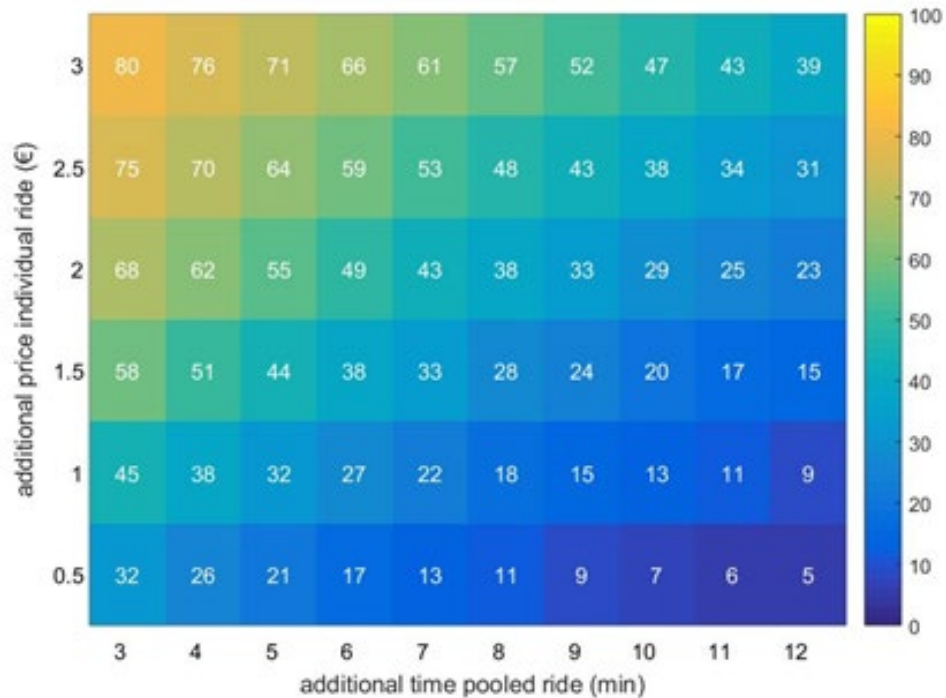
- 20 min individual trip length; 1 or 2 extra passengers



Shares between  
11% and 85%

# Share of pooled trips for different time-cost trade-offs

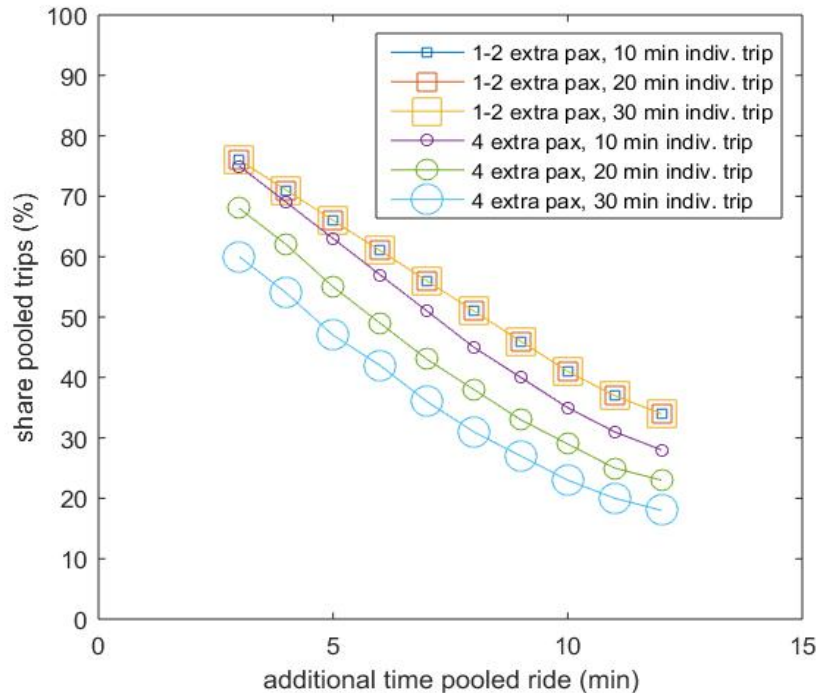
- 20 min individual trip length; 4 extra passengers



Shares between  
5% and 80%

# Share of pooled trips for different trip lengths

## ➤ Pooled trip: 2 € discount



- 1 or 2 add. pass.:  
No influence
- 4 add. pass.:  
~7% drop per add.  
10 minutes

## CURRENT SITUATION



- + 10 min average added time
- 25-60% price savings
- 1 or 2 additional passengers

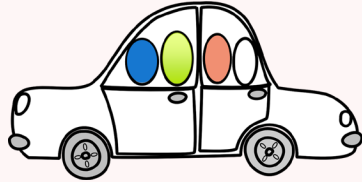
## SELECTED SCENARIO



- Individual ride: 20 min, 6 €
- Pooled ride: +10 min, -2 € (-33%)

**41%** with 1-2 add. pass. / **29%** with 4 add pass.

## SELECTED SCENARIO



- Individual ride: 20 min, 6 €
- Pooled ride: +10 min, -2 € (-33%)

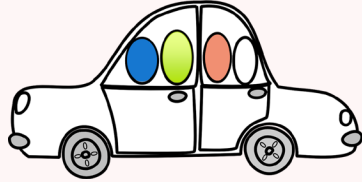
**41%** with 1-2 add. pass. / **29%** with 4 add pass.

## INCREASE IN PRICE DIFFERENCE

- Additional 1 € price difference (3 € price difference in total)
- E.g., through tax in individual rides or subsidy in pooled rides

**59%** with 1-2 add. pass. / **47%** with 4 add pass  
(i.e., +18% / +18%)

## SELECTED SCENARIO



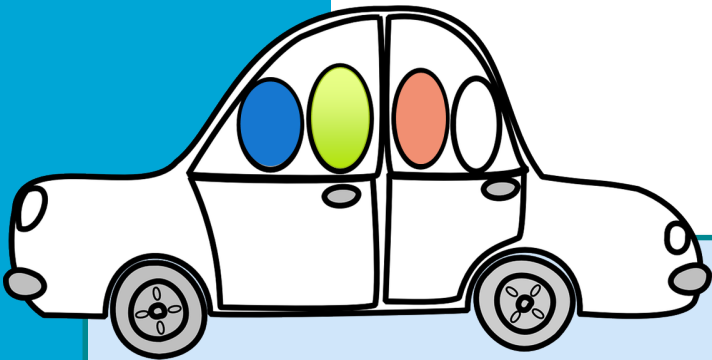
- Individual ride: 20 min, 6 €
- Pooled ride: +10 min, -2 € (-33%)

**41%** with 1-2 add. pass. / **29%** with 4 add pass.

## DECREASE IN TIME DIFFERENCE

- Total time difference between alternatives: 3 min (possible according to simulation studies)
- E.g., allocating dedicated and visible curb space

**76%** with 1-2 add. pass. / **68%** with 4 add pass  
(i.e., +35% / +39%)



## Conclusions

- Potential for an increasing uptake of pooled rides
- Cost-time trade-offs more important than pooling per-se
- The concrete number of fellow passengers plays a role



THANK YOU  
FOR  
YOUR  
ATTENTION!  
ANY QUESTIONS?

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# Explanation of the pooled on-demand service



## Step 1: Book your ride with your smartphone or tablet

- When you need a ride, introduce your desired **start and end trip locations**.
- Your smartphone/tablet shows the possible availabilities.
- You confirm your trip.



## Step 2: Walk to the pick-up point

- Your current location is **1 minute walking** distance to the pick-up point.
- A map in your smartphone/tablet shows you the exact pick-up point.



## Step 3: The ride

- You travel together with up to 5 other people.
- You may need to make a **small detour** to pick-up or drop-off other passengers.

Destination

House

# Attribute levels

|  | Short version |         |         | Medium version |         |         |
|--|---------------|---------|---------|----------------|---------|---------|
|  | Level 1       | Level 2 | Level 3 | Level 1        | Level 2 | Level 3 |
| Expected time (Individual ride) [min]                                | 10            | 15      | 18      | 20             | 25      | 28      |
| Extra expected time (Shared ride) [min]                              | 3             | 6       | 9       | 4              | 7       | 12      |
| Number of other additional passengers (Shared ride) [add. passenger] | 1             | 2       | 4       | 1              | 2       | 4       |
| Cost (Shared ride) [Euro]  | 2             | 4       | 6       | 3              | 5       | 7       |
| Extra cost (Individual ride) [Euro]                                  | 0.5           | 2.2     | 3       | 0.6            | 2.2     | 3       |

# Sample description

| Socio-economic variable | Category                         | Total sample (N=1006) | Dutch (very) high urbanised areas | Dutch 2018 shares |
|-------------------------|----------------------------------|-----------------------|-----------------------------------|-------------------|
| Gender                  | Male                             | 48,2%                 | 48.9%                             | 49,6%             |
|                         | Female                           | 51,8%                 | 51.1%                             | 50,4%             |
| Age                     | 18* to 39                        | 38,1%                 | 38.1%                             | 31,8%             |
|                         | 40 to 64                         | 35,6%                 | 42.0%                             | 44,0%             |
|                         | 65 and above                     | 26,3%                 | 19.8%                             | 24,2%             |
| Education               | Low                              | 25,2%                 |                                   | 31,5%             |
|                         | Average                          | 32,5%                 |                                   | 37,8%             |
|                         | High                             | 42,0%                 |                                   | 29,2%             |
|                         | Unknown                          | 0,2%                  |                                   | 1,4%              |
| Work status             | Working                          | 59,9%                 |                                   | 50,9%             |
|                         | No working                       | 40,1%                 |                                   | 49,1%             |
| Household               | 1 person household               | 49,0%                 |                                   | 38,2%             |
|                         | > 1 person household             | 51,0%                 |                                   | 61,8%             |
| Urbanisation level      | >2500 inhab./km <sup>2</sup>     | 46,9%                 | 48,2%                             | 23,3%             |
|                         | 1500-2500 inhab./km <sup>2</sup> | 53,1%                 | 51,8%                             | 25,1%             |

\* 18 to 39 for the share sample, but 20 to 39 for the Dutch population 2018 values