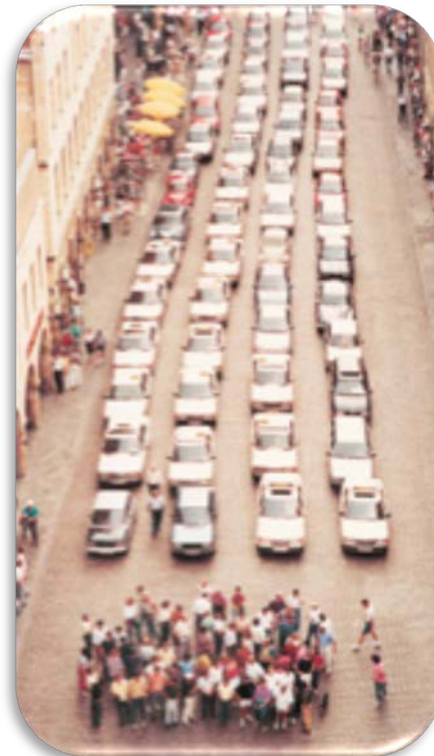
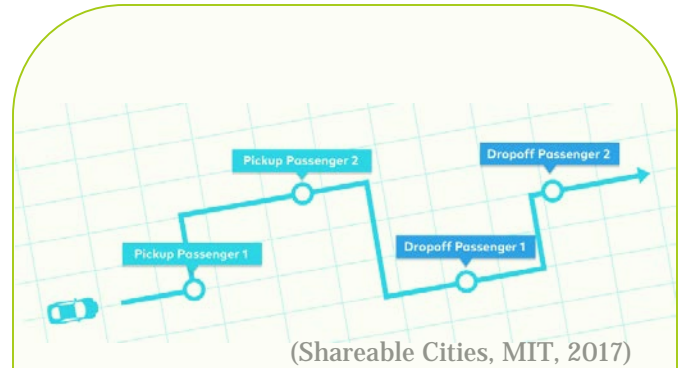
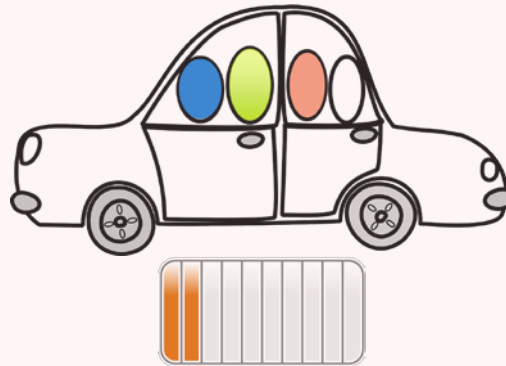
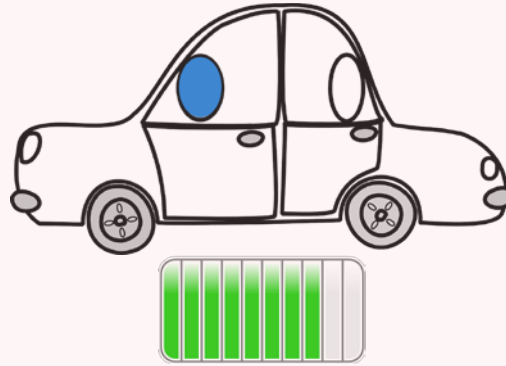


Willingness to Share Rides in On-demand Services for Different Market Segments

María J. Alonso González,
Oded Cats, Niels van Oort, Sascha
Hoogendoorn-Lanser and Serge Hoogendoorn





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



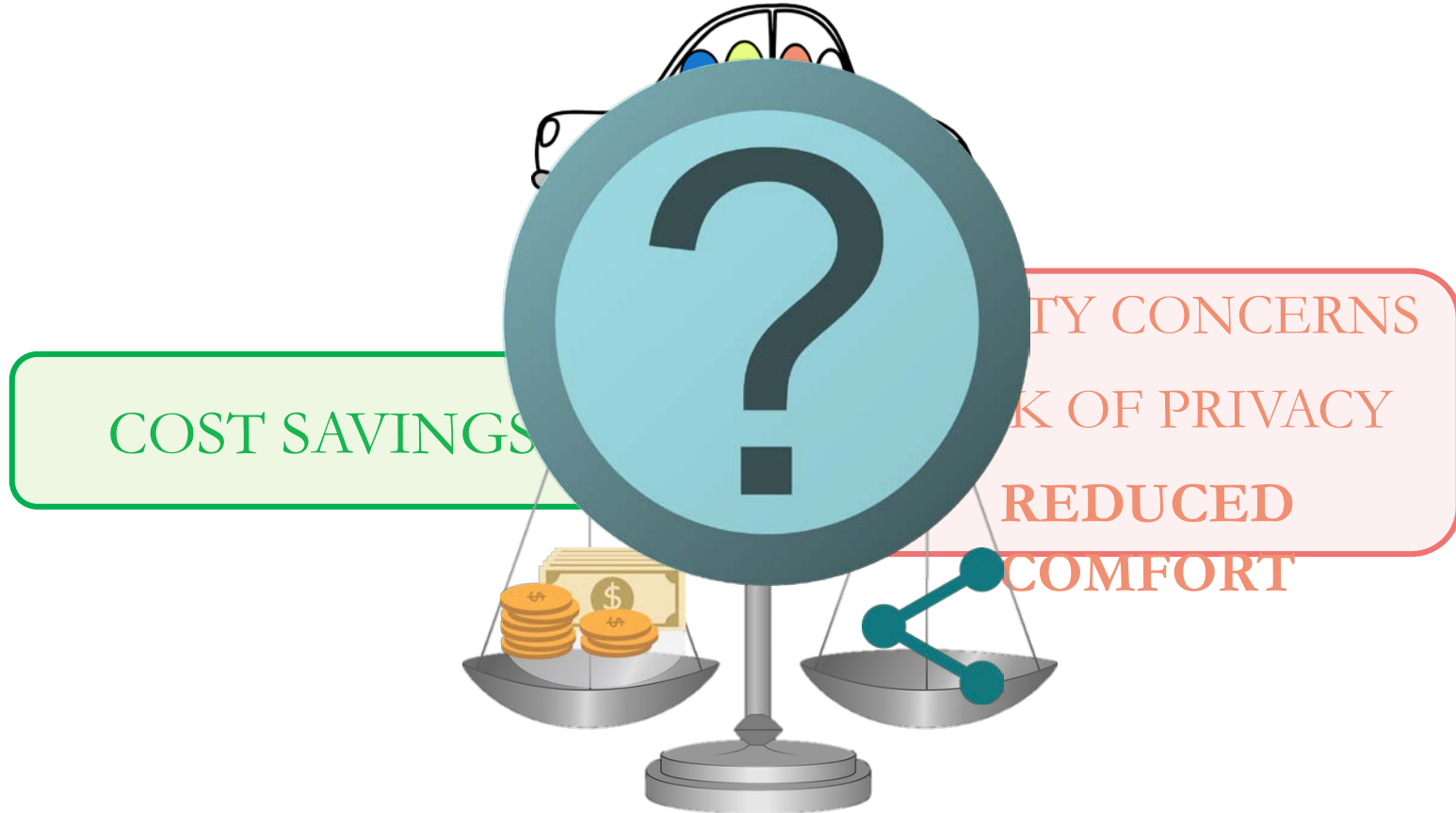
SAFETY CONCERNS

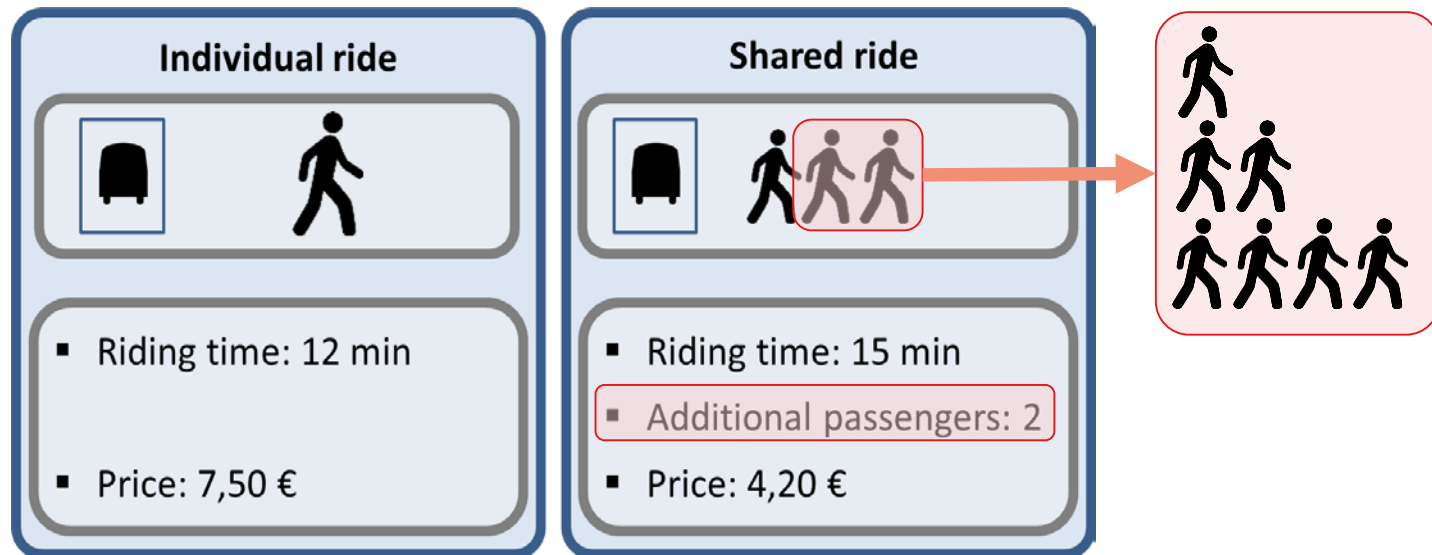
LACK OF PRIVACY

**REDUCED
COMFORT**



What is the monetary disutility of sharing an on-demand ride?







1006 valid
respondents

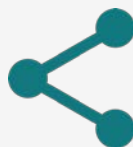
308



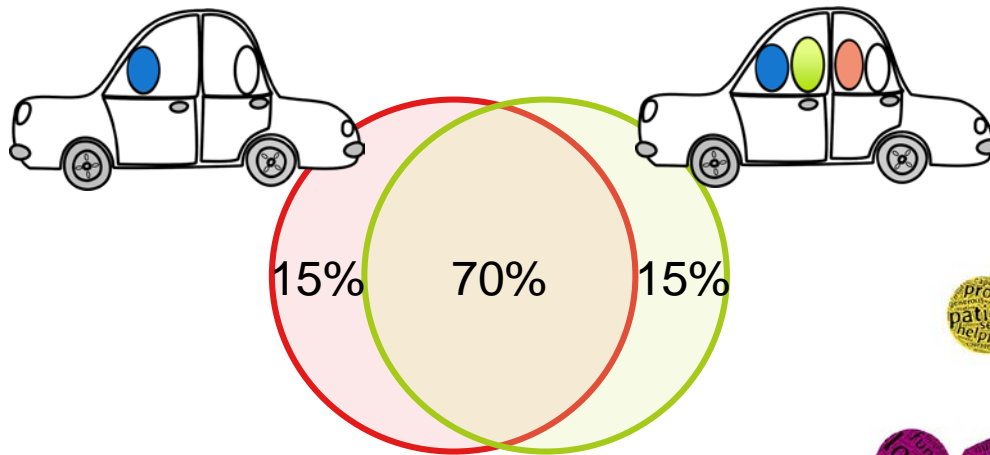
698



- Non-working individuals: 12.00 €/h
- Working individuals: 14.50 €/h



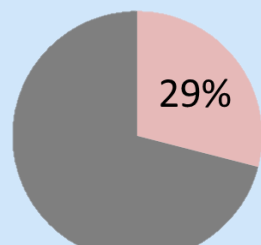
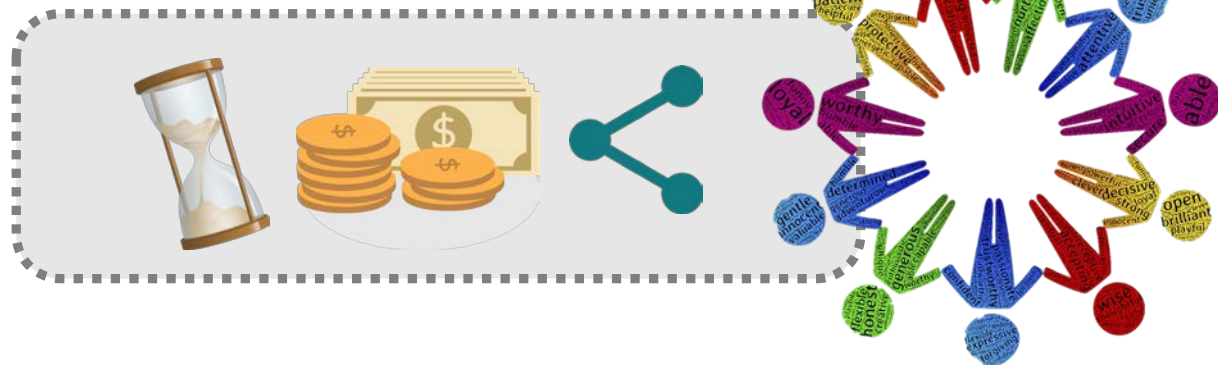
- 1 add. pax: 0.44 €/trip
- 2 add. pax: 0.44 €/trip
- 4 add. pax: 2.40 €/h



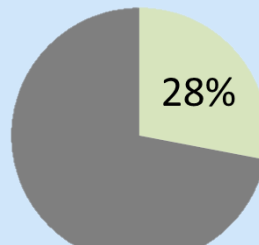
DIFFERENCES IN ATTITUDES

- Privacy
- Cost
- Time

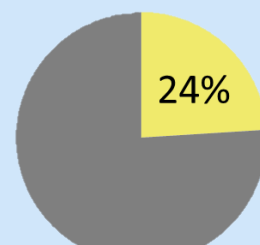




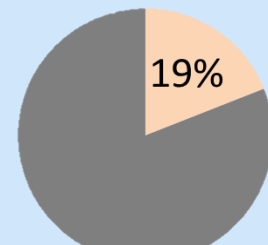
“It’s my
ride”



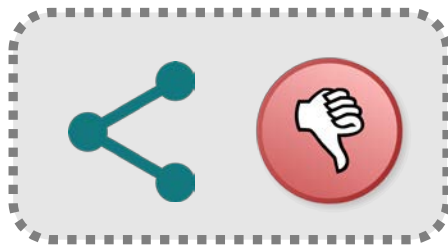
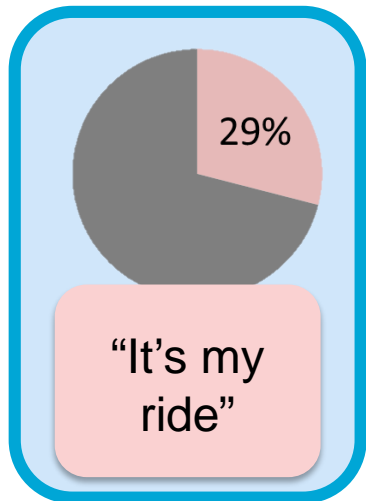
“Sharing
is saving”



“Time is gold”

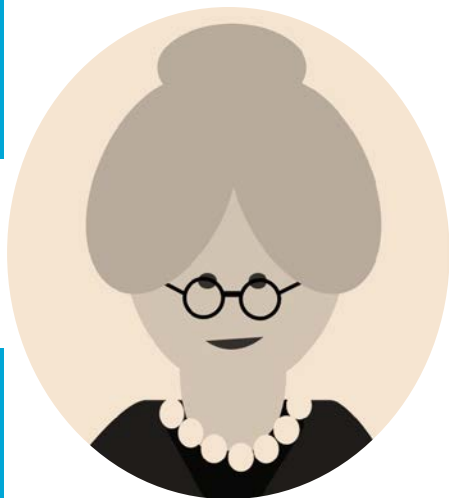
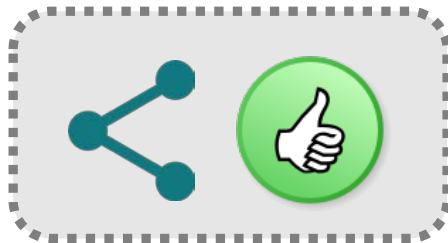
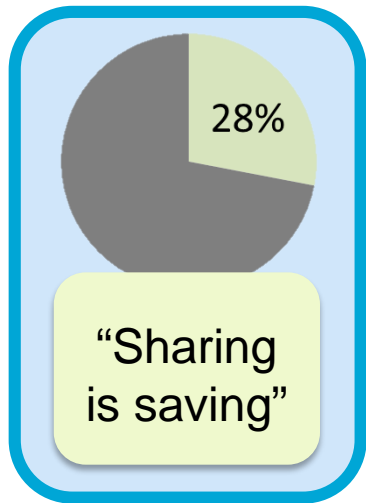



“Cheap and half empty, please”

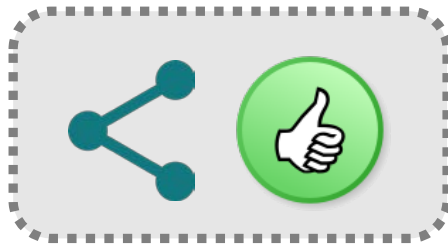
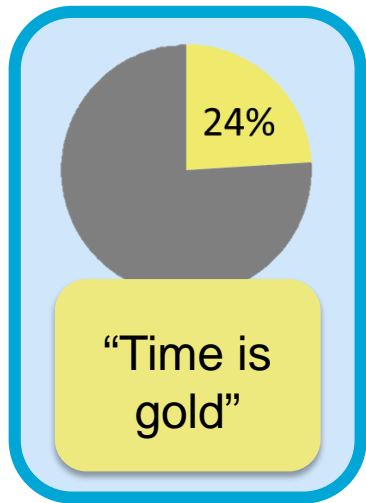


- Male
- Middle aged (35-64)
- High personal income



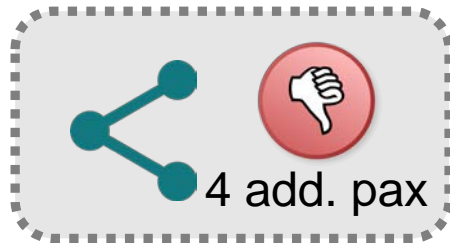


- Female
 - ≥ 65 years old
 - Not working
- 



- Female
- Young (18-34)
- High educated

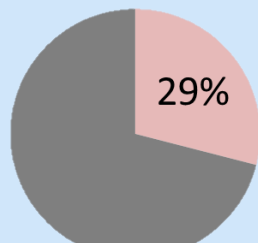




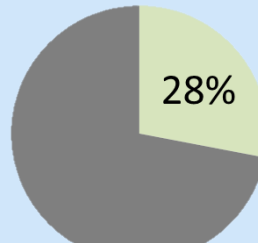
- Male
- Equally likely for all age groups
- Middle educated



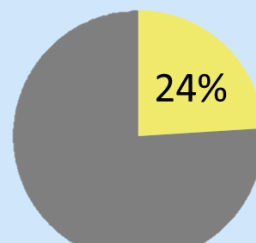
R E C A P



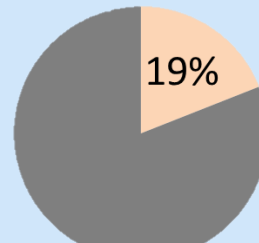
"It's my ride"



"Sharing is saving"



"Time is gold"

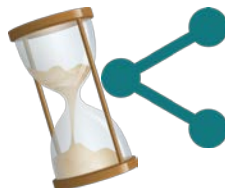


"Cheap and half empty, please"

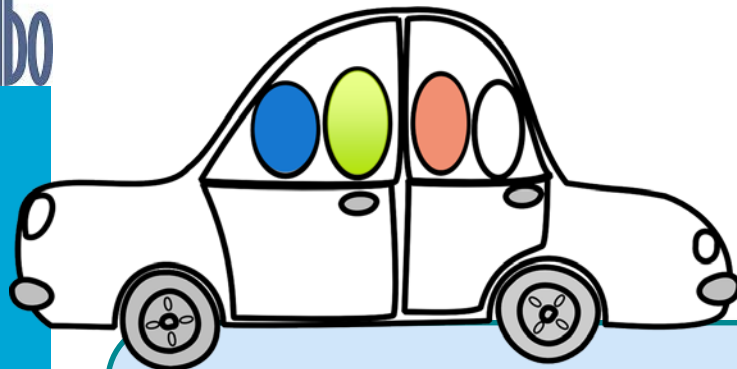


4 add. pax

Most important attribute



(4 add. pax) ¹⁴



Potential of 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
- Car-centred individuals less likely to share

Contact details:

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 m.j.alonsogonzalez@tudelft.nl

<http://smartptlab.tudelft.nl/>



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

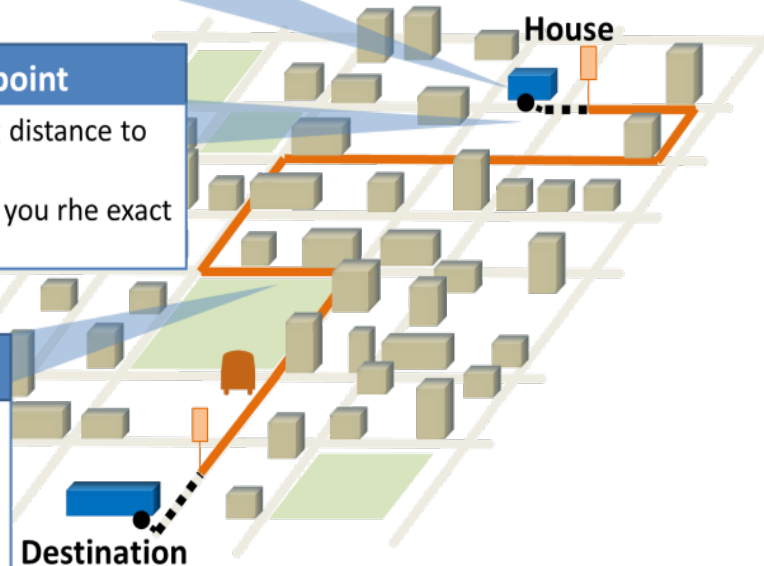
- Your current location is **1 minute walking** distance to the pick-up point.
- A map in your smartphone/tablet shows you the exact pick-up point.



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



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 ²	46,9%	48,2%	23,3%
	1500-2500 inhab./km ²	53,1%	51,8%	25,1%

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

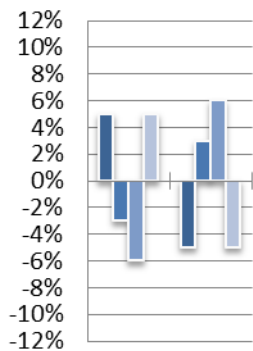
Attitudinal indicators

Attitudinal statement (and source where applicable)	EFA loadings (pattern matrix)	Mean (sd) of total sample	Mean (sd) of "individual-only"/ "trading"/ "pooled-only" respondents	t-test signif. (2-tailed)
Privacy attitude				
It makes me uncomfortable to ride with strangers on public transport (modified from (Rubin, 2011))	0.622	2.31 (0.90)	2.67/2.26/2.13 (0.98/0.88/0.84)	** ()
I think the public transport is not so clean or decent	0.571	3.06 (0.93)	3.31/3.06/2.86 (0.96/0.91/0.94)	** (+)
I like the privacy in the car or bike (modified from (Spears et al., 2013))	0.438	3.76 (0.87)	4.07/3.74/3.53 (0.79/0.85/0.97)	** (+)
People like me only use their own bike and/or car	0.407	3.08 (1.13)	3.41/3.03/3.01 (1.12/1.12/1.13)	** ()
Cost sensitivity and multimodal mind-set				
I would use the car less if there would be a cheaper alternative	0.602	3.29 (1.05)	2.95/3.31/3.53 (1.06/1.03/1.00)	** (+)
I choose to travel with public transport or to share rides to reduce my trip costs	0.583	3.30 (0.98)	2.64/3.37/3.61 (1.03/0.91/0.93)	** (++)
I am willing to try new ways to travel	0.534	3.46 (0.83)	3.14/3.51/3.55 (0.99/0.79/0.83)	** ()
I often compare different travel options and transport modes before choosing how to travel (modified from (Atasoy et al., 2010))	0.500	2.78 (1.04)	2.56/2.81/2.88 (1.12/1.03/0.99)	* ()
I do not mind which transport mode I use, as long as it suits my trip needs	0.401	3.44 (1.01)	3.14/3.48/3.53 (1.15/0.98/0.94)	** ()
In-vehicle time flexibility attitude				
I would not mind if other travellers get in or off the FLEXI vehicle during my ride (reversed) (modified from (Al-Ayyash et al., 2016))	0.674	2.50 (0.96)	3.13/2.43/2.23 (1.07/0.89/0.89)	** (+)
I would find it annoying that FLEXI does not drive the fastest route (e.g., FLEXI's route is 18 minutes instead of 15 minutes) (modified from (Al-	0.578	2.91 (0.96)	3.27/2.88/2.66 (1.08/0.91/0.98)	** (++)

VOT and WTS

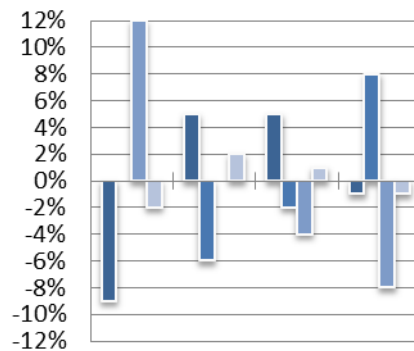
<i>VOT and WTS values</i>	ML model		1LC: “It’s my ride”	2LC: “Sharing is saving”	3LC: “Time is gold”	4LC: “Cheap and half empty, please”
VOT (Eur/h)	N/A		16.98	14.02	26.25	7.78
VOT (non-working individuals) (Eur/h)	12.00		N/A	N/A	N/A	N/A
VOT (working individuals) (Eur/h)	14.50		N/A	N/A	N/A	N/A
ASC_pooled_alternative/beta_cost	N/A		2.52	-1.88	-1.01	N/A
WTS 1 additional pax (Eur/trip)	0.44		N/A	N/A	N/A	0.08
WTS 2 additional pax (Eur/trip)	0.44		0.55	0.33	0.12	0.44
WTS 4 additional pax (Eur/trip)	N/A		N/A	0.59	0.66	6.47
WTS 4 additional pax (Eur/h)	2.40		4.87	N/A	N/A	N/A

Class profiles - socioeconomics



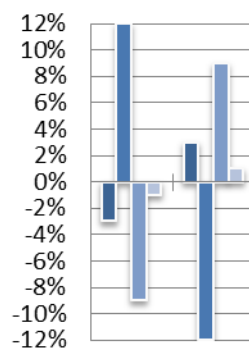
Male Female

Gender



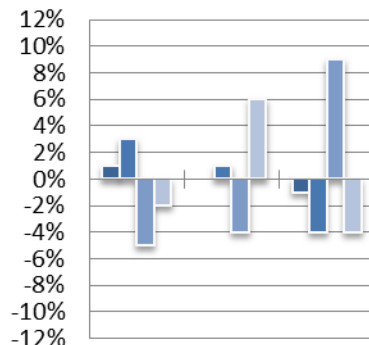
18-34 35-49 50-64 ≥65

Age



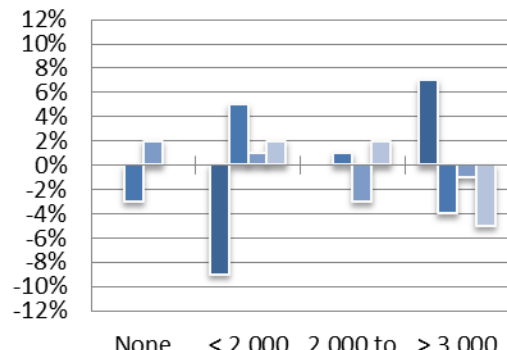
No Yes

Working or not



Low Medium High

Education



None < 2,000 2,000 to 3,000 > 3,000

Monthly personal net income (Euros)

Class profiles – mode usage

