


How to recruit participants for GPS tracking?

Presentation**Author(s):**

Axhausen, Kay W. 

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Acknowledgements MOBIS

- ETH Zürich
 - H Becker
 - J Molloy
 - T Schatzmann
 - C Tchervenkov
- University of Basel
 - B Hintermann
 - J Roth
 - B Shoeman

How to recruit participants for GPS tracking studies ?

KW Axhausen

IVT

ETH

Zürich

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 Institut für Verkehrsplanung und Transportsysteme
Institute for Transport Planning and Systems

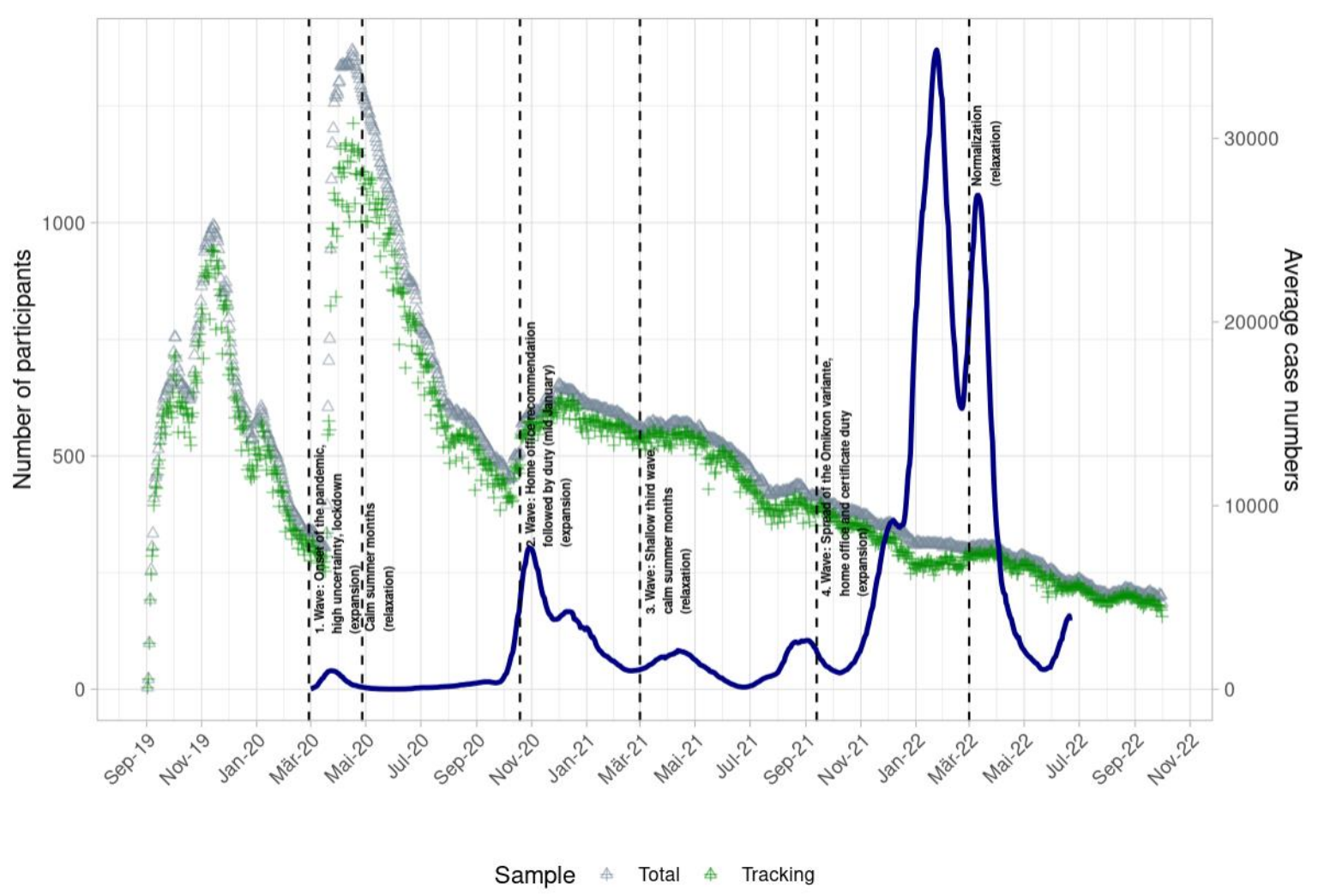
ETH

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

MOBIS: Approach

- Random control trial of mobility pricing (road, PT)
- Recruitment survey (CH BfS registry, commercial data dealer)
- Qualified forwarded with a personalised app download link
- 4 week control
- Random division into 3 treatments
 - Control
 - Information
 - Information & pricing (with budget based on control + 20%)
- Weekly emails with MATSim model-estimated externalities (delays, noise, CO₂, health)
- Debriefing survey with check question
- Payment of remaining budget & 100 sFr

MOBIS/COVID19 participation



MOBIS: Sum of estimated externalities pricing group

	Virtual budget	Remaining balance	Incurred costs
Mean	173.82	45.45	132.89
Std. dev.	101.63	48.53	81.66
Min	50.00	0.00	0.00
25%	100.00	7.00	75.72
50%	150.00	31.44	115.37
75%	230.00	68.53	172.72
Max	745.00	432.68	616.08

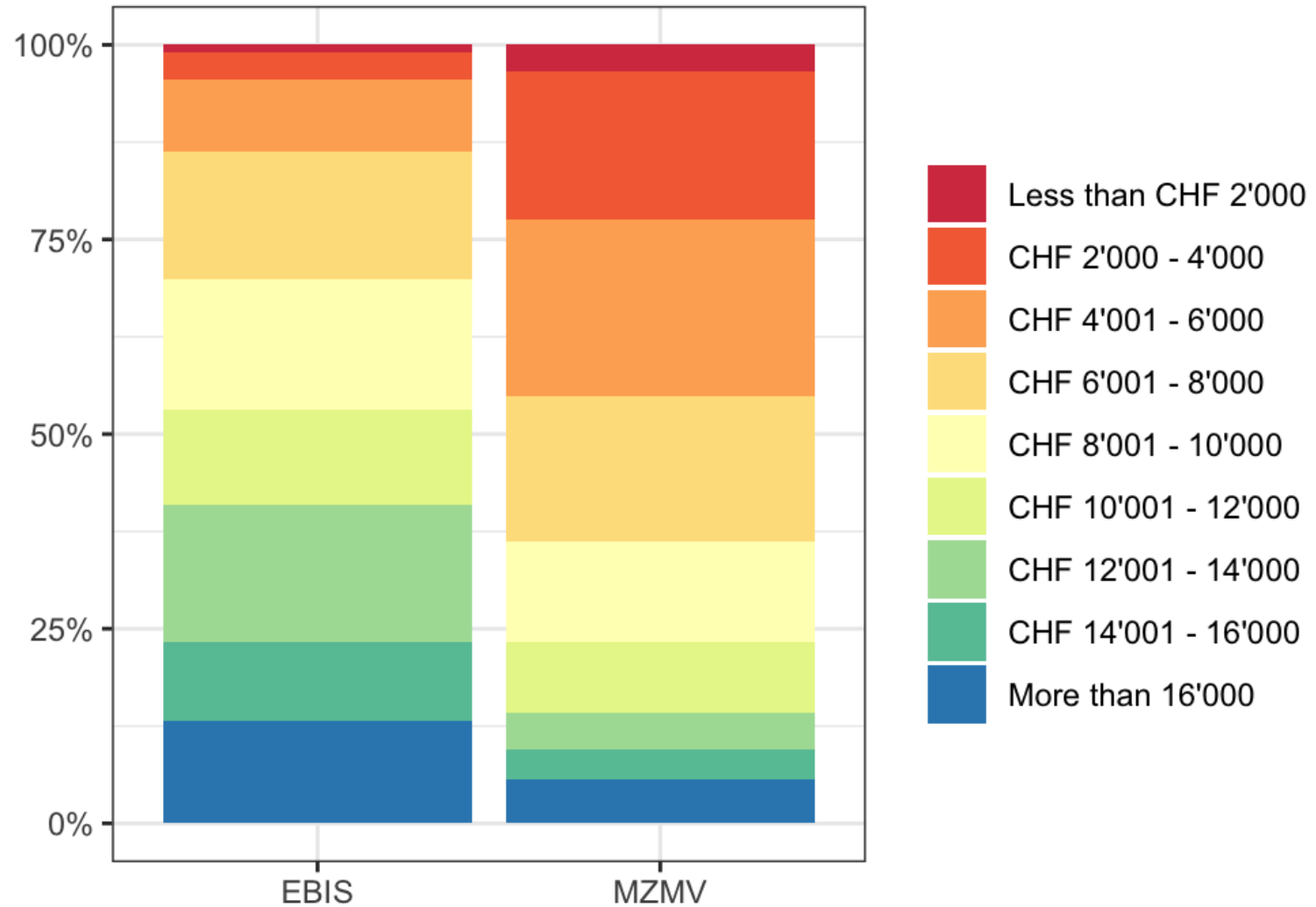
Acknowledgements EBIS

- University of Basel
 - B Hintermann
 - J Roth
 - B Shoeman
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- ETH Zürich
 - L Meyer de Freitas
 - A.G.H Meister
 - S. Heinonen

EBIS

- Random control trial of mobility pricing (road, PT)
- Recruitment survey (official registries, but many others)
- Qualified forwarded with a personalised app download link
- 4 week control
- But additional subsamples for
- Weekly emails with MATSim model-estimated externalities (delays, noise, CO₂, health)
- Debriefing survey with check question
- Payment of remaining budget & varying amounts

Income EBIS vs Microzensus 2015

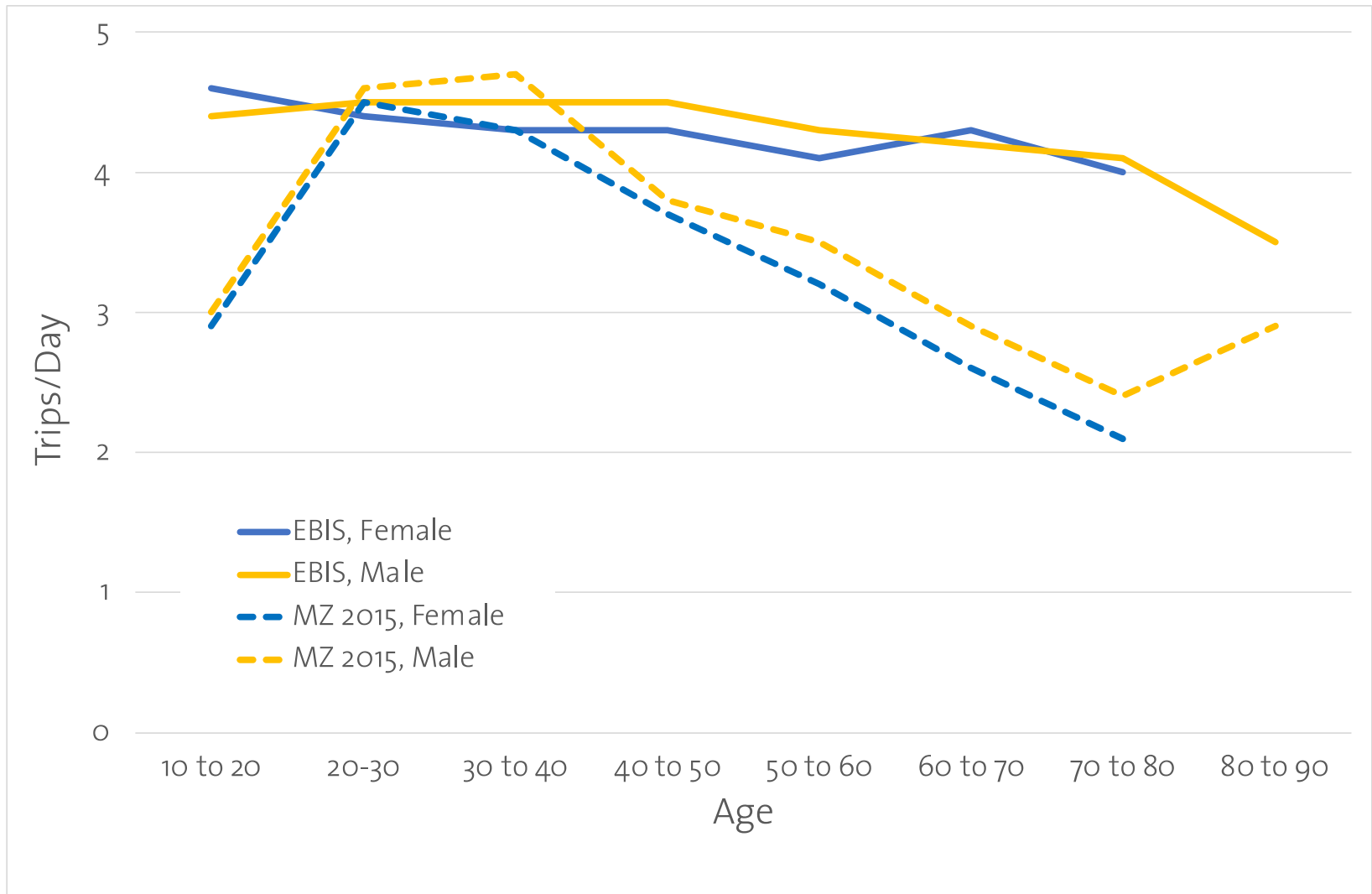


Trips and stages by mobility tool ownership

Ownership	EBIS			MZ 2015		
	Daily trips	Daily stages	Stages/ Trip	Daily trips	Daily stages	Stages/ Trip
GA	4.2	11.7	2.79	3.6	7.6	2.11
Halbtax	4.3	9.2	2.14	3.5	5.2	1.49
Regional travelcard	4.3	11.1	2.58	3.7	7.6	2.05
Car owner	4.4	9.2	2.09	3.5	4.5	1.29
Bicycle owner	4.3	9.6	2.23	3.5	5.1	1.46
Ebike25 owner	4.3	9.3	2.16	NA	NA	
Ebike45 owner	4.4	9.2	2.09	NA	NA	
All	4.3	9.5	2.21	3.4	4.9	1.44

EBIS: ungewichtete Zahlen; MZ 2015 gewichtete Zahlen für vergleichbare Befragte

Daily trips by gender and age (EBIS, MZ 2015)



Acknowledgements YouMove

- ETH Zürich IKG
 - M Raubal
 - H Martin
- ETH Zürich IVT
 - D. Reck

YouMove: Bringing all the data together

Source: Hettinger, T. (2023) CSFM Seminar

data sources

SBB MyWay APP

- travel diaries
- 24h GPS-Tracking
- Triplegs and Staypoints



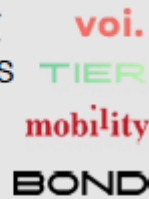
Yumuv APP

- App-usage
- Bookings
- Routing requests / alternatives



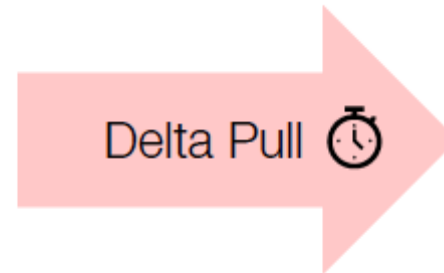
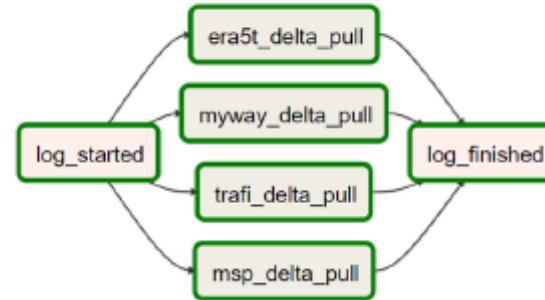
Mobility Service Provider

- locations / battery levels
- availability
- *No personal data*



Weather ERA5T

- Temperature, wind, Percipitation
- hourly, 30km Grid



Survey ETHZ

- Survey treatment group & control group
- Personal attributes



Database for research project

IVT experiences and recommended protocol

Protocol of recent IVT studies

- Recruitment: Letter plus QR-code to screening survey
 - Among «members»
 - Official registry
 - Address dealers
- Download and installation, if eligible
- Tracking
- Motion-tag processing (stages, purpose, mode)
- Validation (and additional questions in TimeUse+)
- Feedback about behaviour (longer studies)
- Exclusion of not fully participating actors
- Completion
- Debrief survey
- Incentive payment

Necessities

- Download and installation, if eligible
 - FAQ leaflet
 - Strong help desk (ready for peak loads, therefore waves are better for the study)
 - Standard answers with blanks for the queries
- Validation
 - Second imputation for later analysis
- Feedback about behaviour (longer studies)
 - Dashboard for continuous observation
 - Pipeline for participant feedbacks
- Debrief survey
 - Questions to check, if they understood the idea tested
- Incentive payment
 - Batch payment, if possible for your finance department

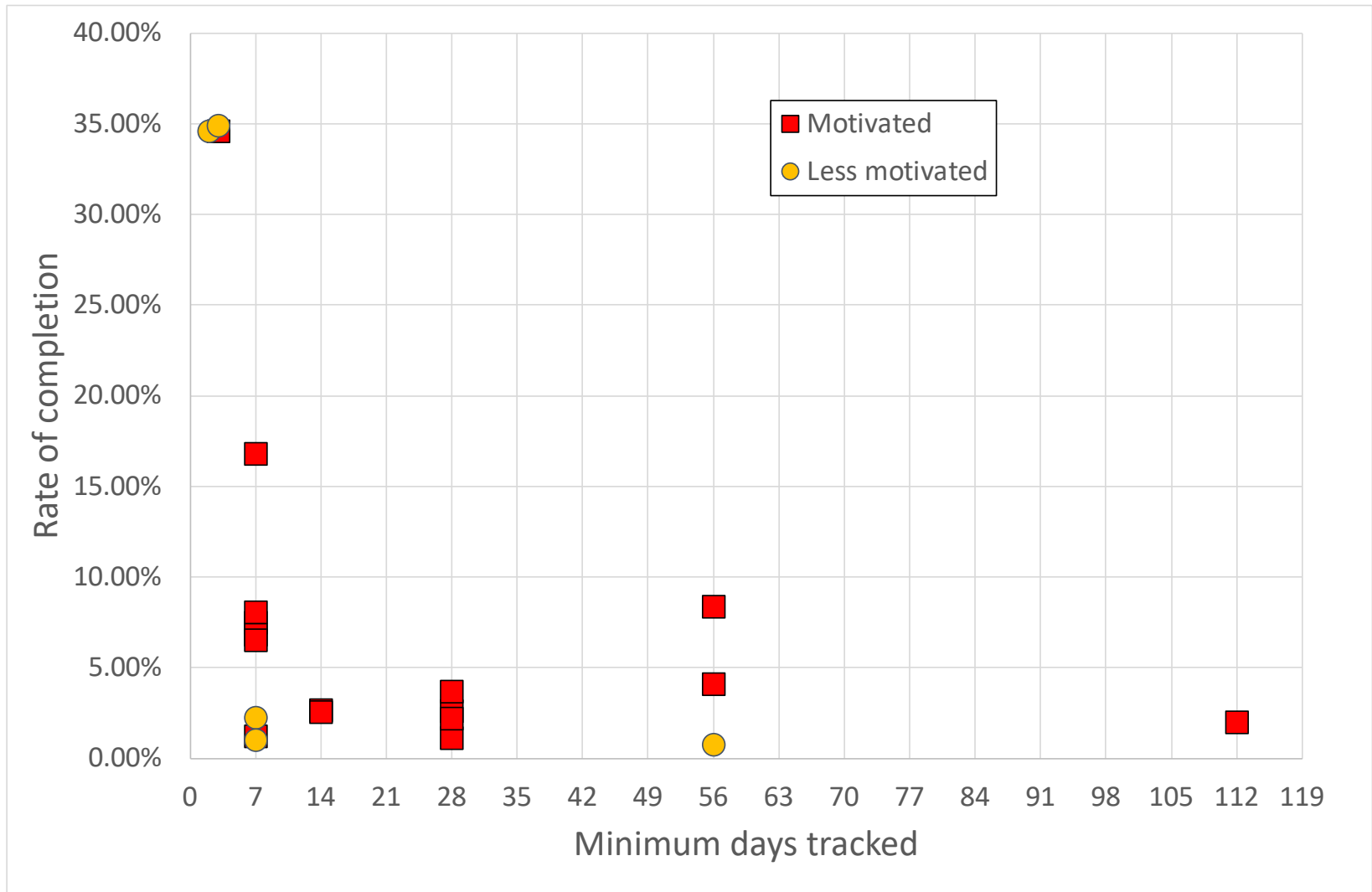
Participation rates: EBIS 2022

	Number	Share [%]			
	Contacted	Started/ contacted	Qualified/ started	Tracked/ qualified	Tracked/ contacted
cycleweek	435	23%	50%	82%	9.4%
provelo	7827	44%	49%	72%	15.5%
website	#N/A	#N/A	37%	68%	#N/A
BS	1800	14%	36%	69%	3.4%
veloplus	180000	0%	36%	78%	0.0%
AG	2000	19%	33%	65%	4.0%
weblink	#N/A	#N/A	31%	66%	#N/A
provelo_v2	6153	13%	30%	50%	2.0%
Social network	#N/A	#N/A	29%	70%	#N/A
vcs	#N/A	#N/A	27%	68%	#N/A
link	#N/A	#N/A	25%	50%	#N/A
other	#N/A	#N/A	23%	61%	#N/A
flyer	#N/A	#N/A	15%	100%	#N/A
ego_movement	#N/A	#N/A	0%	#N/A	#N/A
Total	#N/A	#N/A	36%	67%	

TimeUse+ 2021 – Pre-test

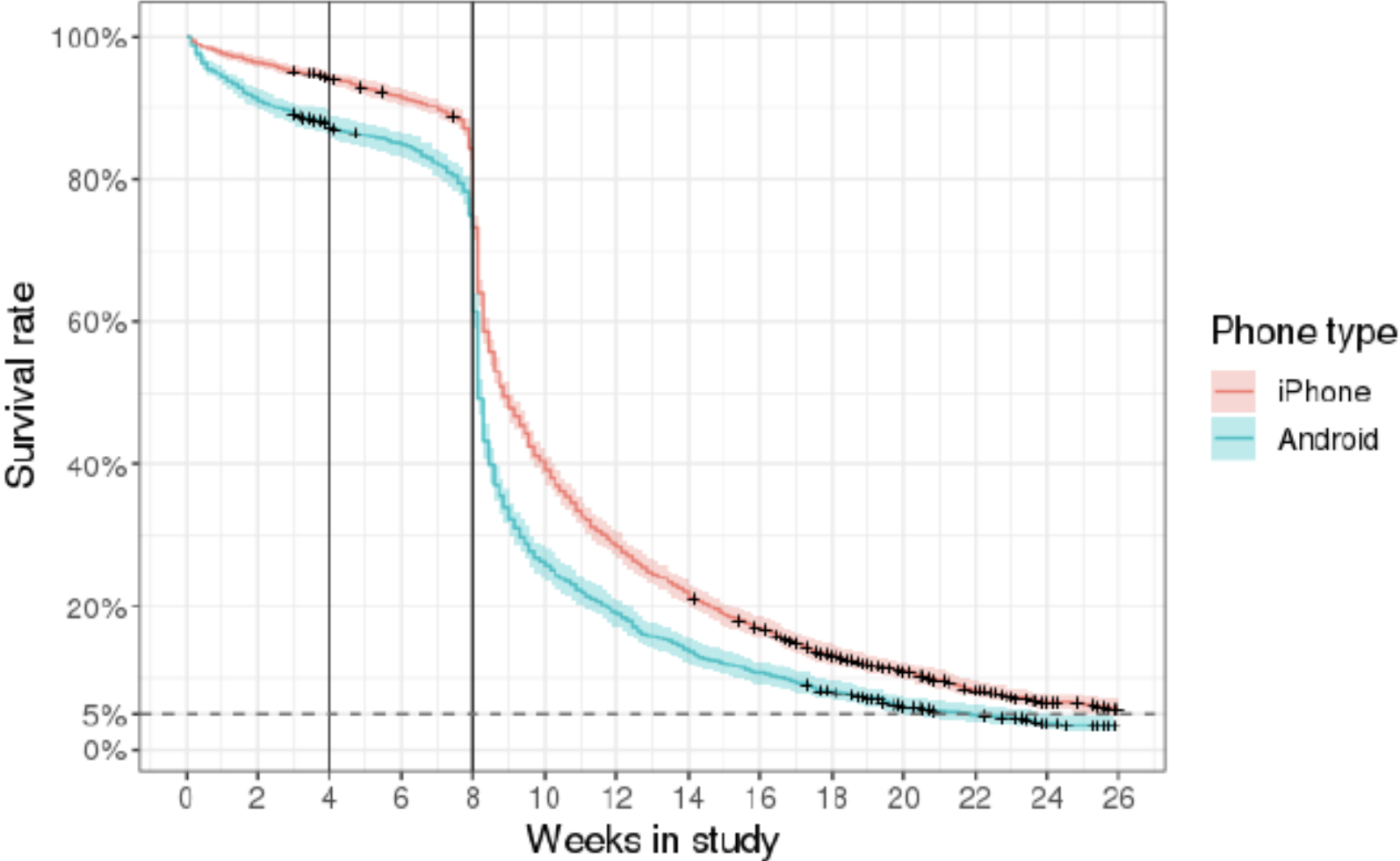
Incentive	Level of detail	Days to track	Contacted	Completed/ Contacted
50	Low	14	122	2.53%
50	Low	28	92	2.20%
50	High	14	124	2.67%
50	High	28	126	2.60%
100	High	28	157	3.67%

Completion rate by minimum days tracked and «motivation»

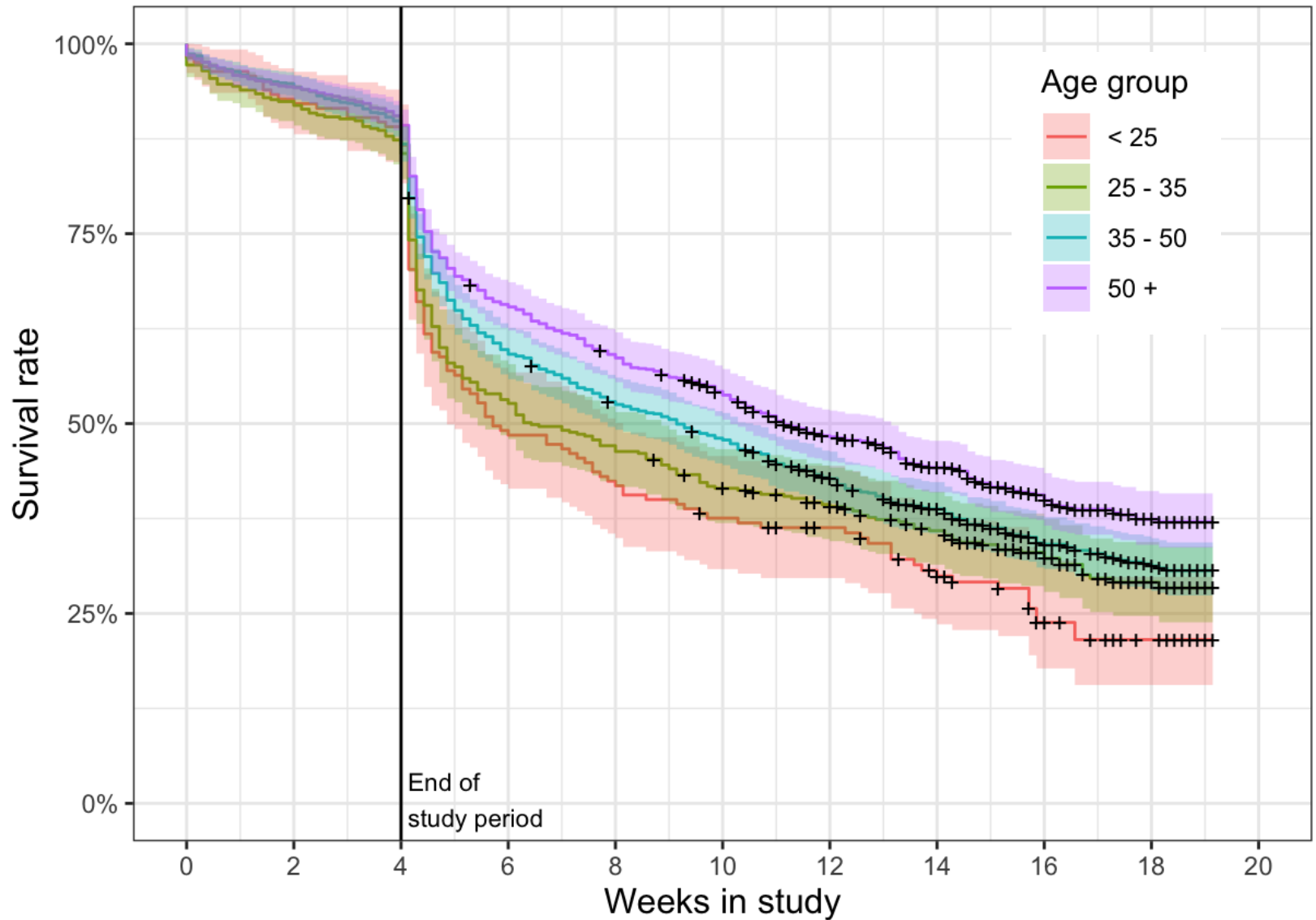


Methodological issues

Speed of drop out – MOBIS by OS



EBIS: Drop out by age for groups B and C



Summary

- Motivation and duration trade off
 - Incentive
 - Inherent self-selection
- Invest in the user interface
- Beware the form factor of the phones
- Maintain motivation
 - Individual feed back
 - Project web-site
 - Interaction with respondents via help-desk; seminars; publications

Questions?

- www.ivt.ethz.ch/en/
- ebikecity.baug.ethz.ch/en/
- ebis.ethz.ch/en/
- www.ivt.ethz.ch/en/research/mobis.html

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