


The MOBIS/COVID-19 project

Mobility research in Switzerland

Other Conference Item**Author(s):**

Axhausen, Kay W. 

Publication date:

2020-10-30

Permanent link:

<https://doi.org/10.3929/ethz-b-000448812>

Rights / license:

In Copyright - Non-Commercial Use Permitted

Preferred citation style

Axhausen, K.W. (2020) The MOBIS/COVID-19 project: Mobility research in Switzerland, *2020 International T²M & THNS Conference*, zoom, October 2020.

The MOBIS/COVID-19 project: Mobility research in Switzerland

KW Axhausen

IVT

ETH

Zürich

October 2020

 *Institut für Verkehrsplanung und Transportsysteme*
Institute for Transport Planning and Systems

ETH

Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Acknowledgements

Response analysis

- B Schmid

Previous long duration and panel studies

- R Schlich, A König, S Schönfelder
- R Schlich
- M Löchl, U Buhl, P Widmer
- H Becker, D Reck
- B Schmid
- A Meister, C Winkler, B Schmid

Acknowledgements for the current studies

MOBIS/COVID19 GPS tracking study

- J Molloy
- C Tchervakov
- T Schatzmann
- Prof. B Hintermann, WWZ, Universität Basel
- B Schoeman, WWZ, Universität Basel

TimeUse+ including GPS tracking

- A Meister
- C Winkler

Facets of study

Facets of study

- Number of activities
- Sequency of activities
 - Number and type of visitors
- Start time
- Duration
 - Location
 - Party
 - Division of activity expenditures
 - Vehicle
 - Party
 - Division of vehicle expenditures
 - Access/egress location
 - Route
 - Search for parking location
 - Division of parking/toll/fare expenditures

Current data sources

Current behavioural data sources

Surveys

- Administrative
- Personal and voluntary

“Big data”

- Without person-linkage
 - Counts and measurements
- With possible person linkage
 - CCTV and video streams
 - GSM traces
 - GPS traces
 - Bluetooth traces
 - Creditcard bills

Challenges of personal and voluntary surveys

Challenges

The survey has to

- Win the trust of the respondents and engage them
- Maintain it to the last answer
- Pitch the questions at the correct level of complexity
- Balance the respondent burden with the motivation and incentive of the respondents/participants

A tragedy of the commons: Willingness to participate

through

- Overuse by too many small studies (rare power calculations)
- Misuse to sell products or services
- Misuse for political advertisements

Resulting in

- Low participation rates and mistrust
- High incentives with unwanted self-selection of the purely financially motivated
- In a shift to longer duration surveys of the willing
- Shift to admin records, e.g. GSM, GPS

Why (not) panels or long-duration studies?

Causal identification and parsimony

Statistical reasons:

- Causal identification by keeping the actors fixed
- Reduction of behavioural/setting variance and resulting smaller required sample sizes
- Still lower marginal value of each observation due to their similarity
- And concern about possible self-selection bias of the volunteers

Financial reasons:

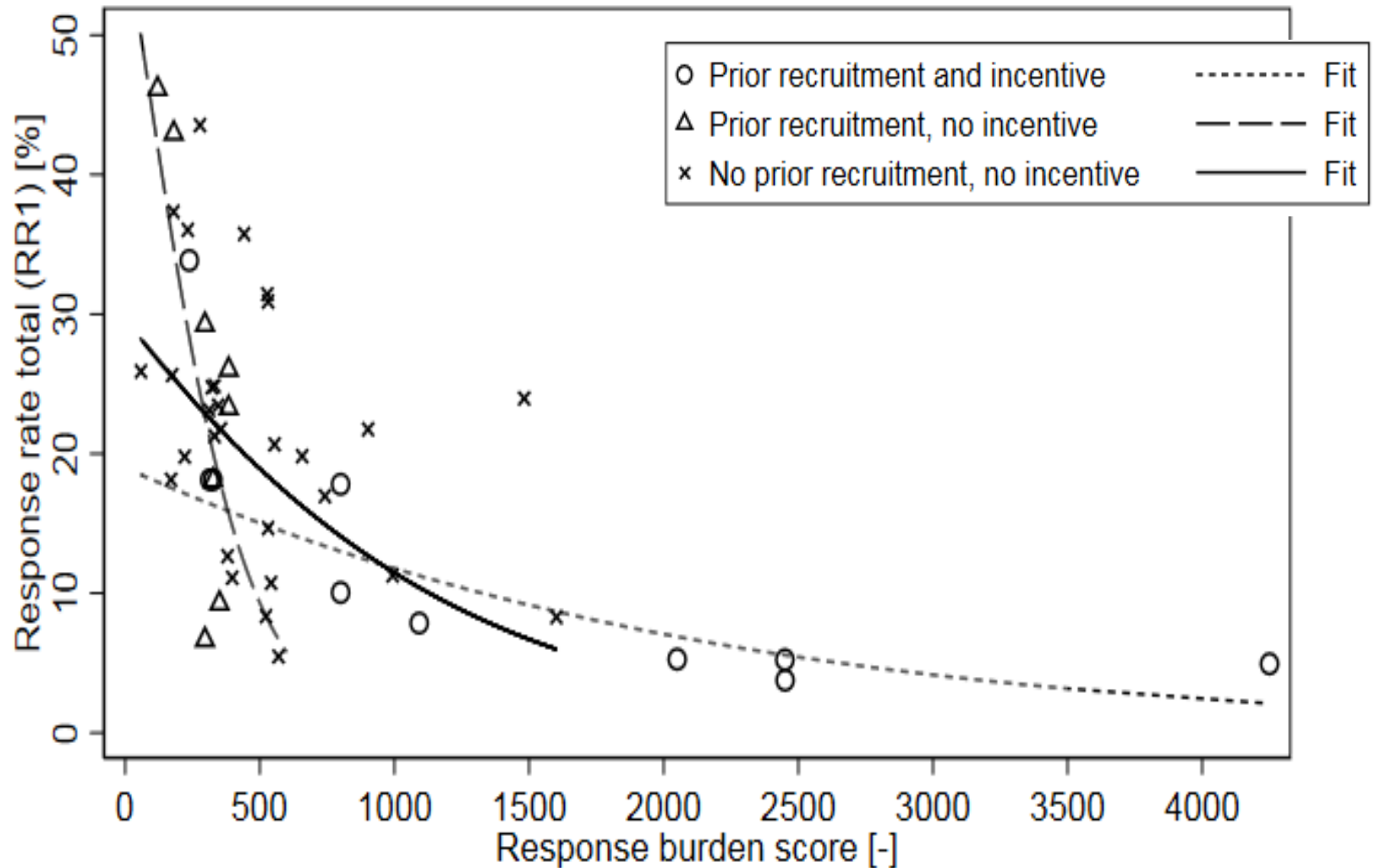
- High recruitment costs per person/household for longer studies
- Lower costs per daily observations

Practical concerns

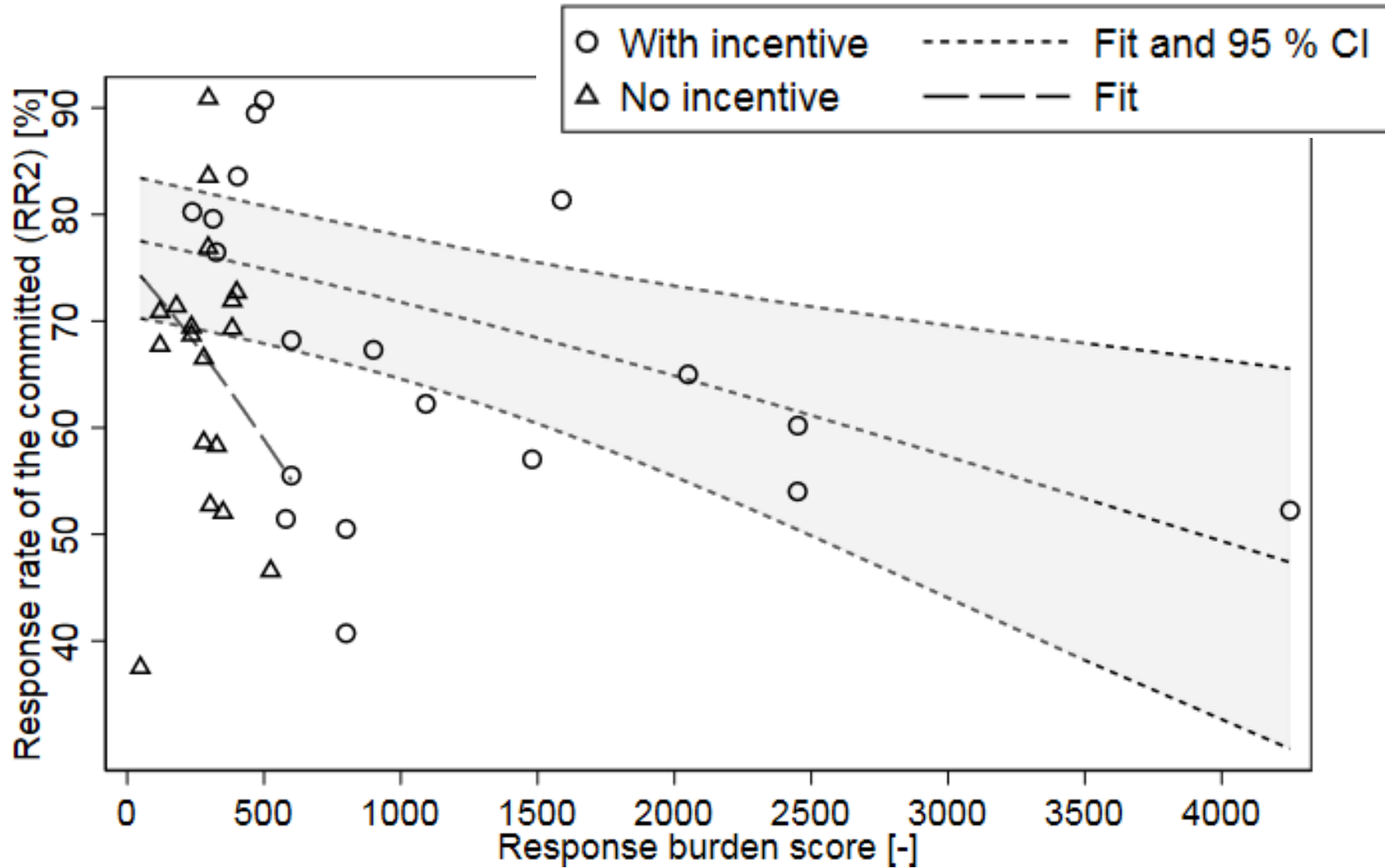
- Natural panel attrition
- Cost of panel maintenance
- Staff continuity and respondent/study trust
- Behavioural adjustments given the survey experience, especially for virtual policy experiments (information provision, pricing, etc.)

Response behaviour @ IVT since 2000

Response behaviour: Raw



Response behaviour: Committed



Trends and new challenges at IVT

Long duration and panel surveys

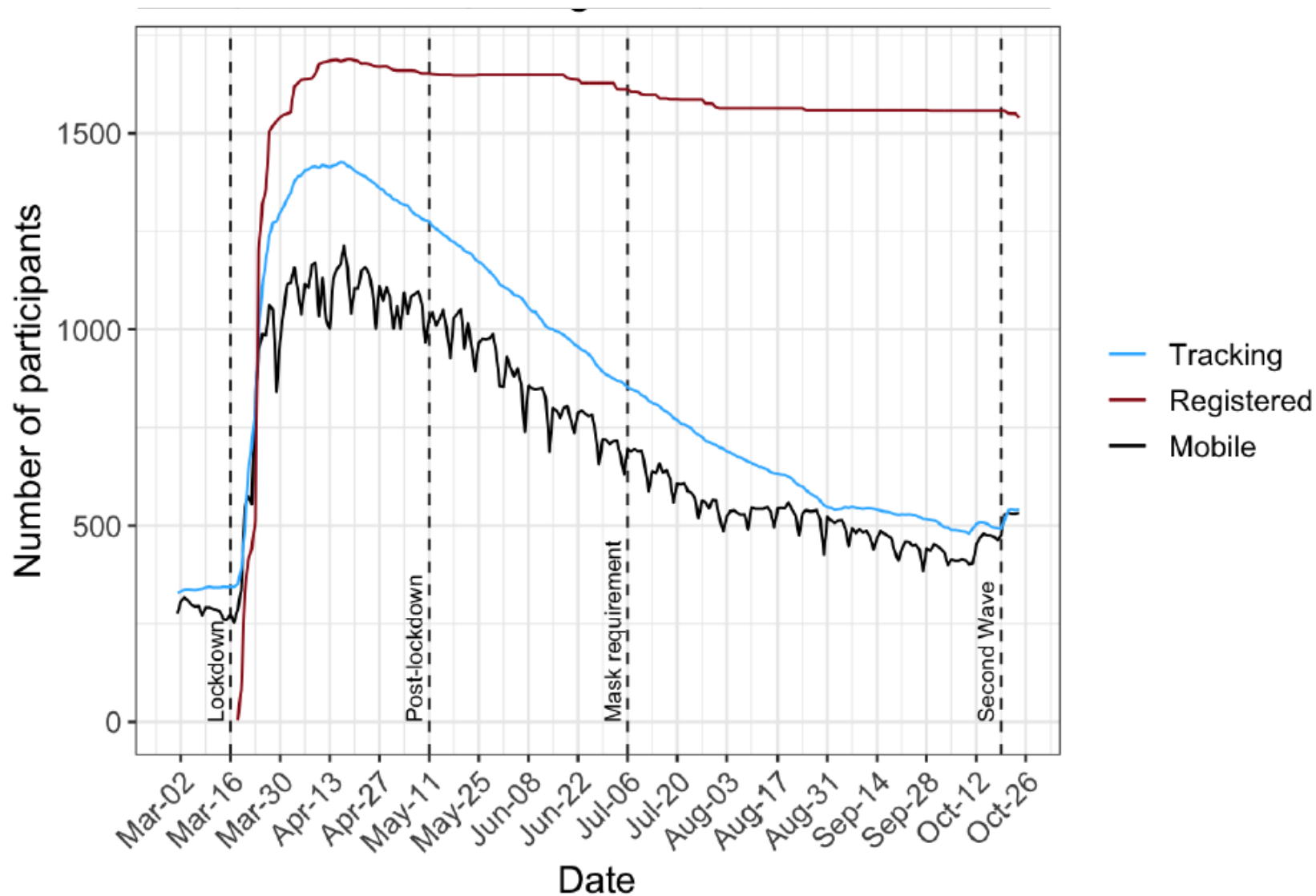
- [1995-1997 **MEST** (8 week long distance travel survey)]
- 1999-2000 **MobiDrive** (6 week travel diary)
- 2003 Time use and partial **leisure travel diary** (12 week)
- 2005 **Thurgau** (6 week diary)
- 2015-2016 **PostCarWorld** (1-2 week travel and expenditures diary)
- (2015-2017 **MAED** (1 week week travel and expenditures diary))
- 2016-2020 **Basel** 4-wave panel (inc. 1 week tracking study)
- 2018-2020 **Geneva** 2-wave panel (inc. 1 week tracking study)
- 2019 **MOBIS** (inc. 8 week tracking study)
- 2020 **MOBIS/COVID19** (inc. open ended tracking study)
- 2021-2022 **TimeUse+** (4-week time use and expenditure app-based study inc. GPS tracking)
- 2021-2025 **Swiss Mobility Panel** (attitudes and one-off diaries)

MOBIS COVID Sample

MOBIS COVID Sample

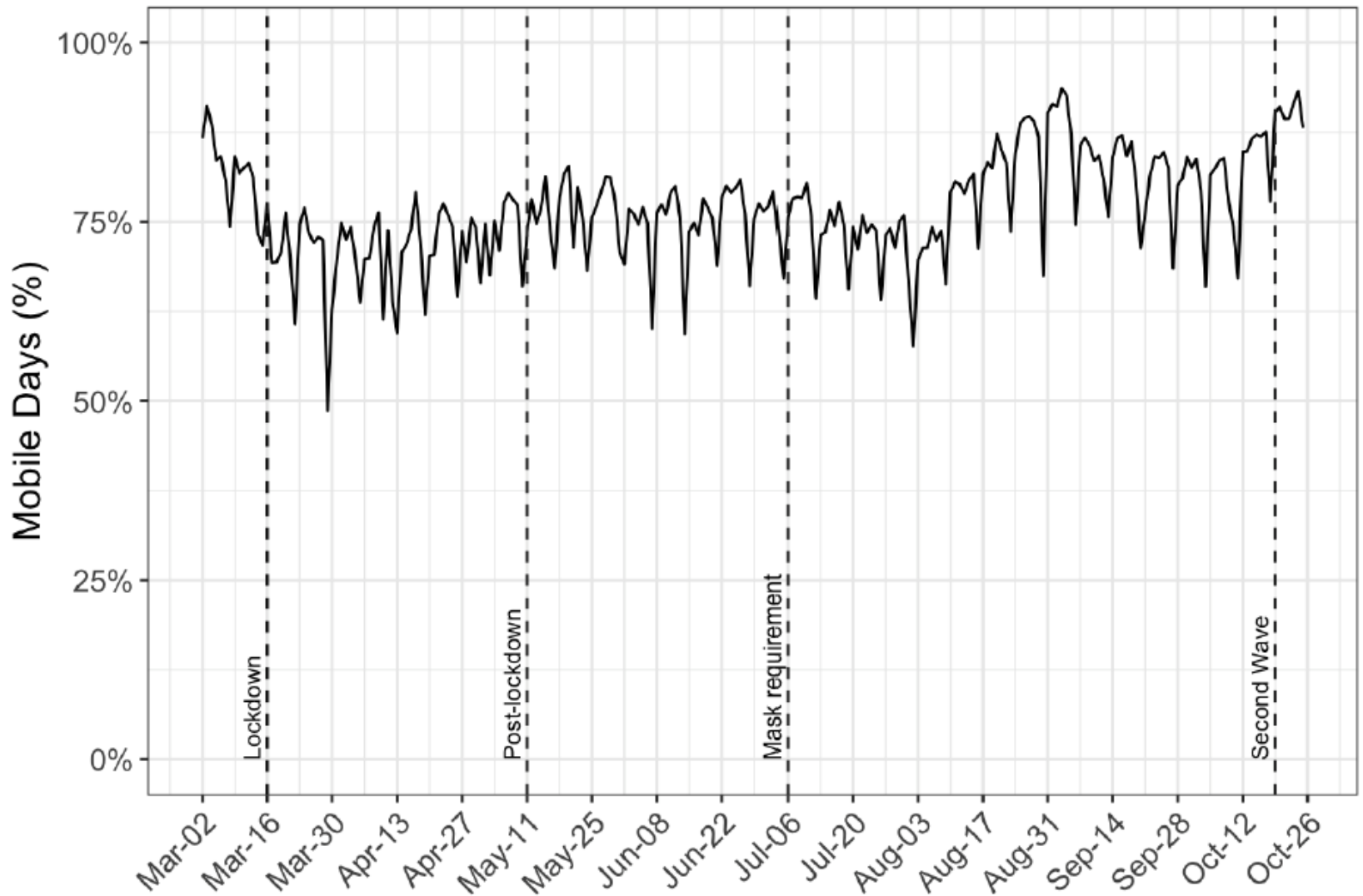
- Earlier virtual mobility pricing study of car and transit users
- French and German speaking Switzerland
- 1100+ started out of 3700 original ones
- No incentives for COVID19 phase
- Catch-a-day app (motion-tag, Berlin)

MOBIS COVID sample evolution



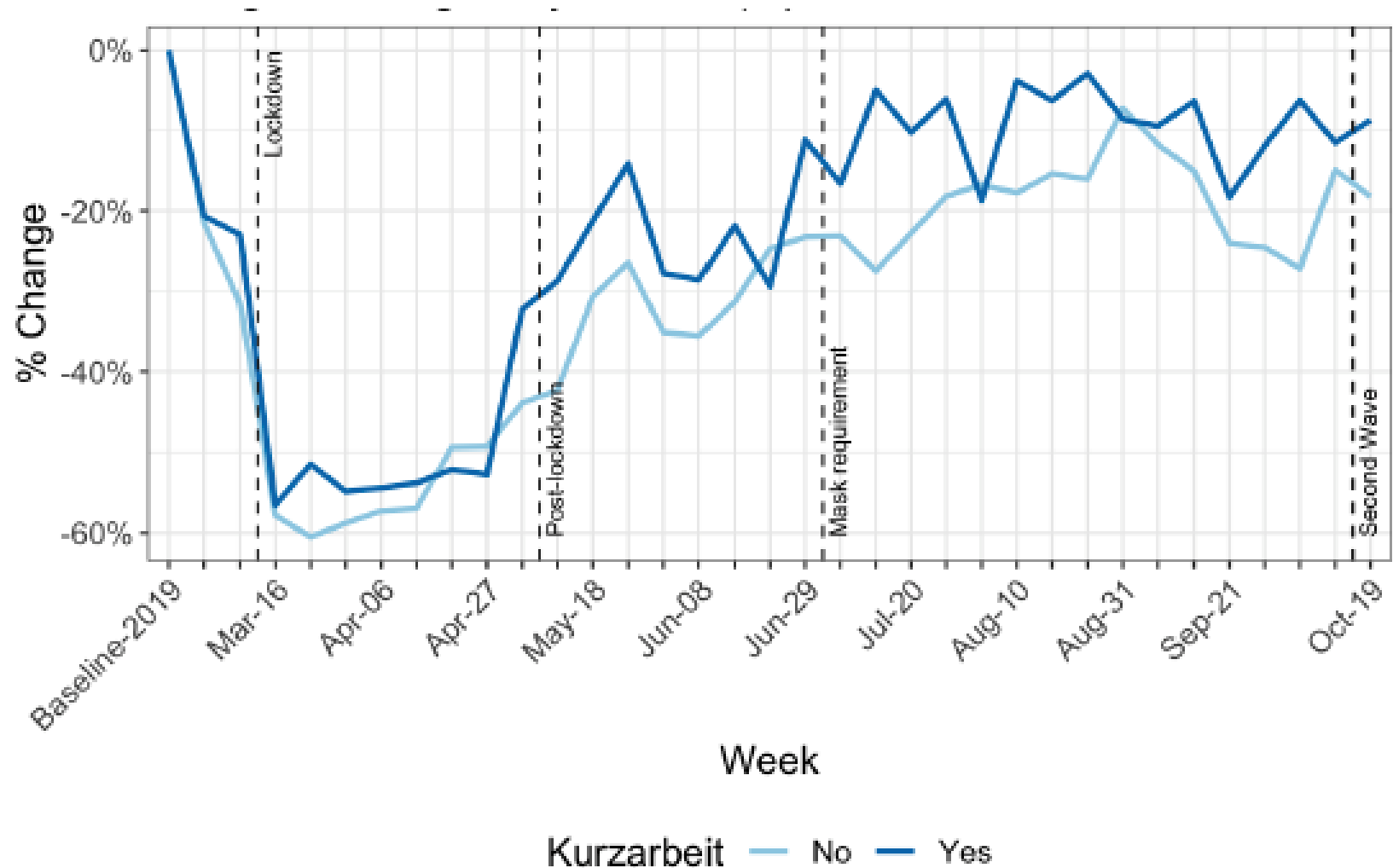
MOBIS COVID trajectory of out-of-home activities

Mobile persons per day

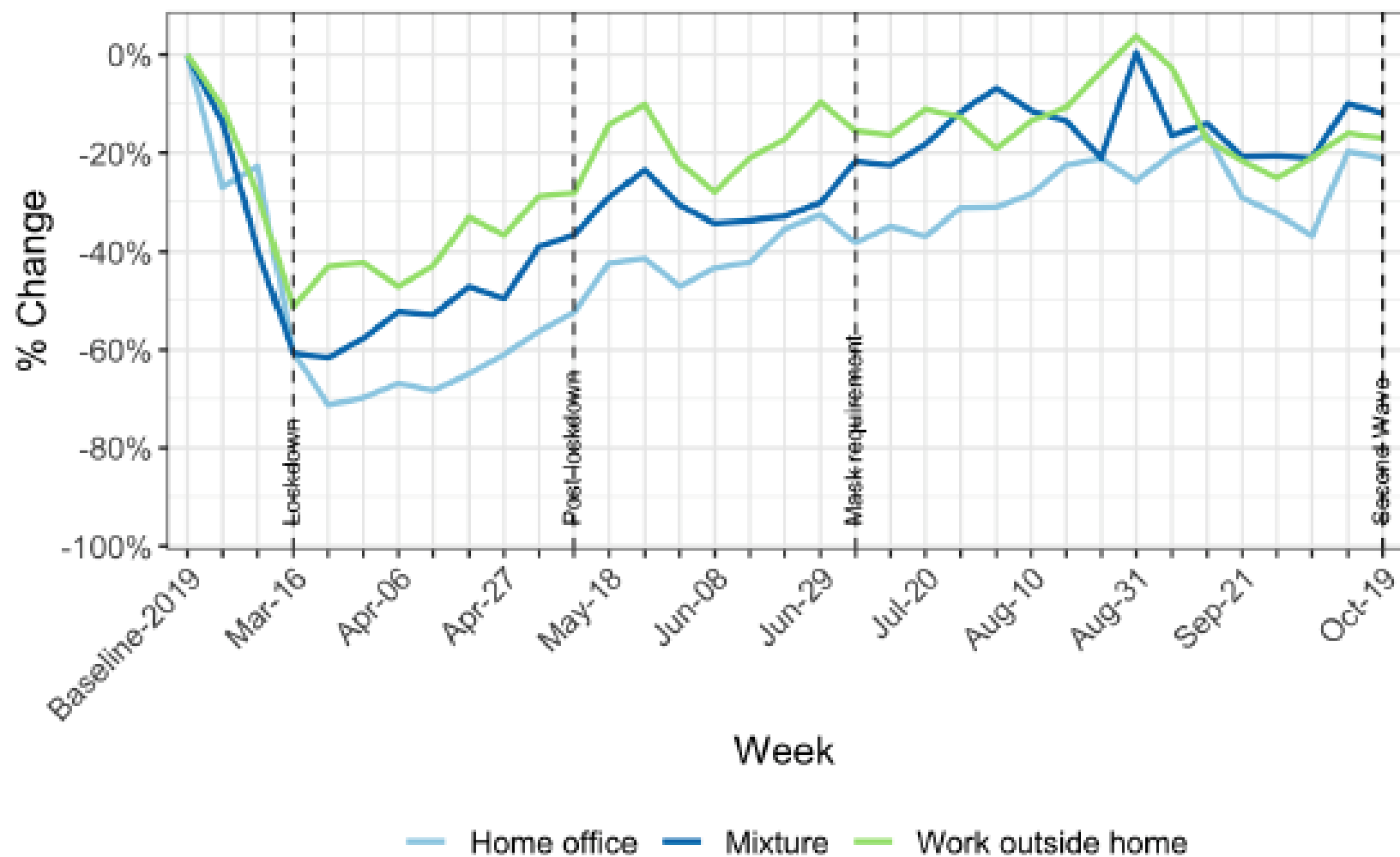


MOBIS COVID PKm, trips and activity space trajectory

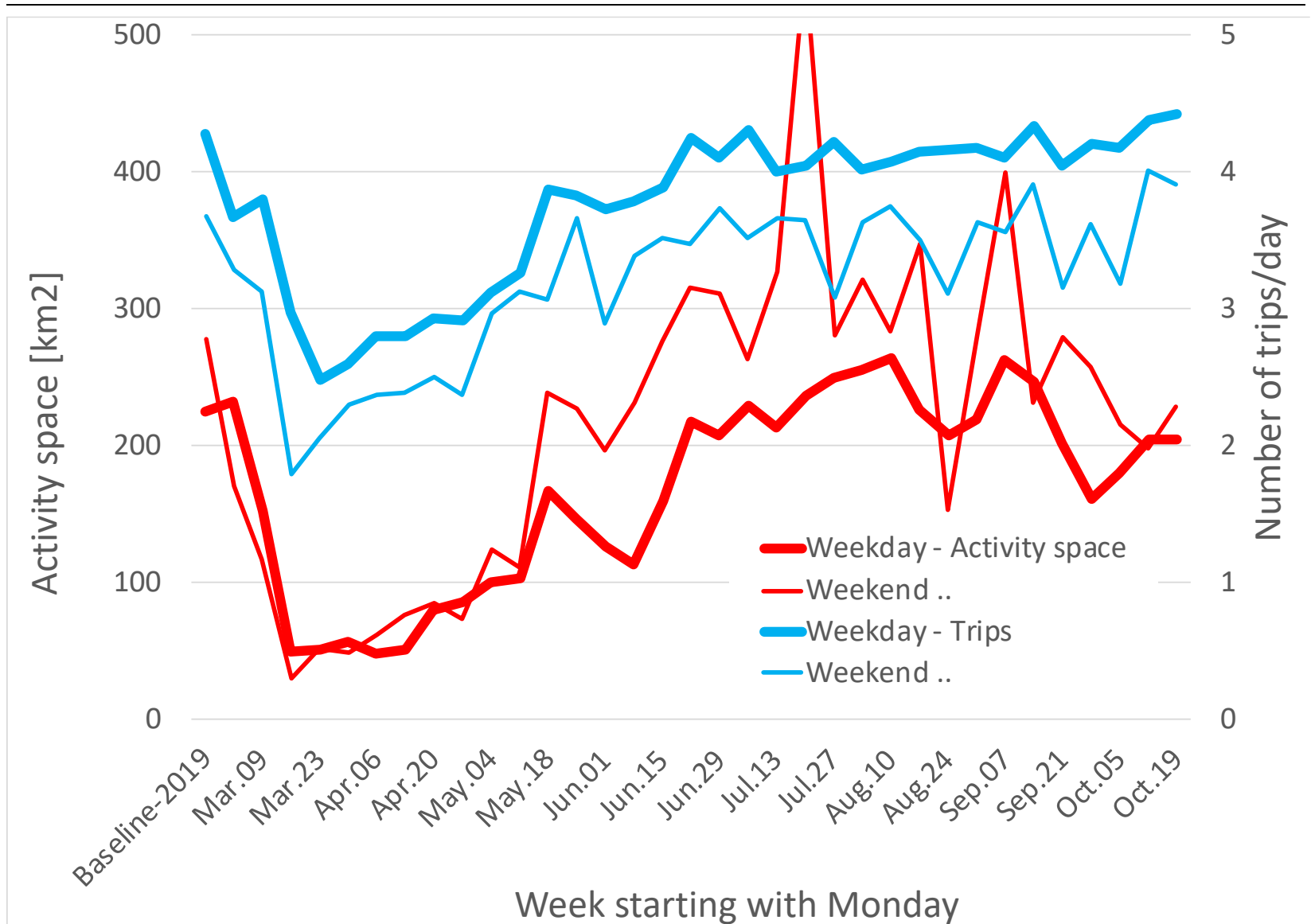
$\Delta\%$ of PKm by work arrangement: “Kurzarbeit”



$\Delta\%$ of PKm by work arrangement: “WFH”

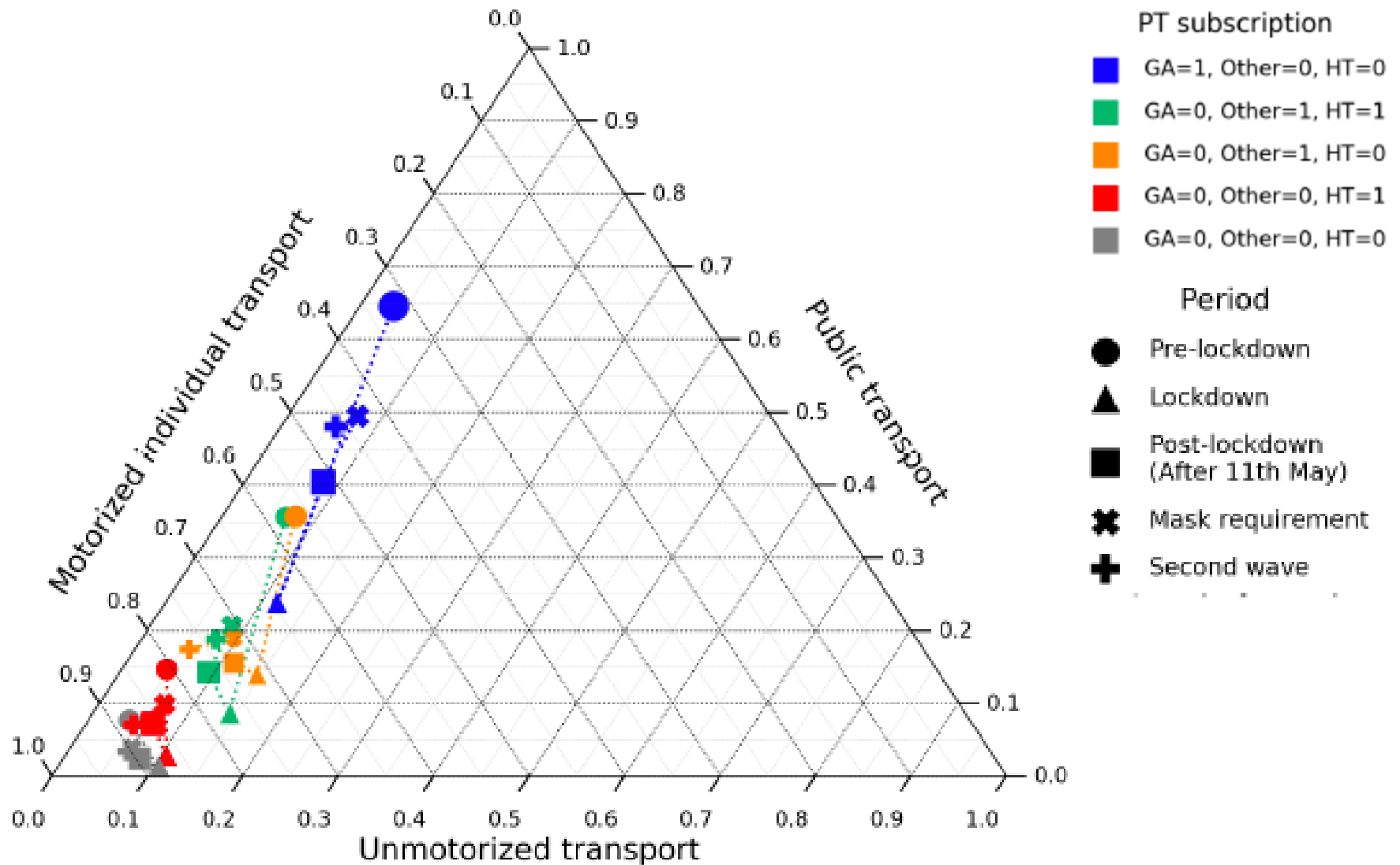


$\Delta\%$ of trips and activity spaces



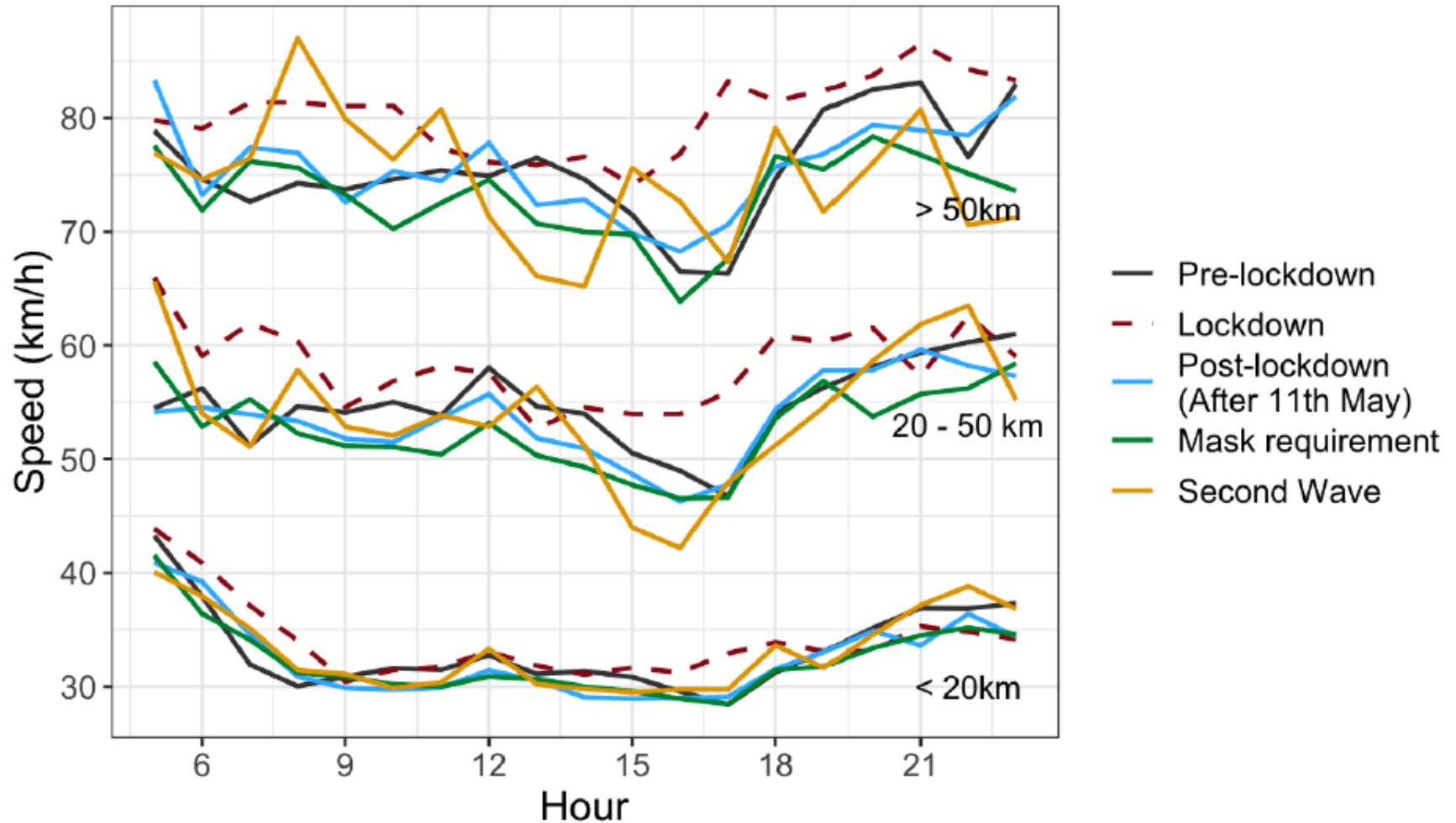
MOBIS COVID mode usage trajectory

PKm before,: Weekdays

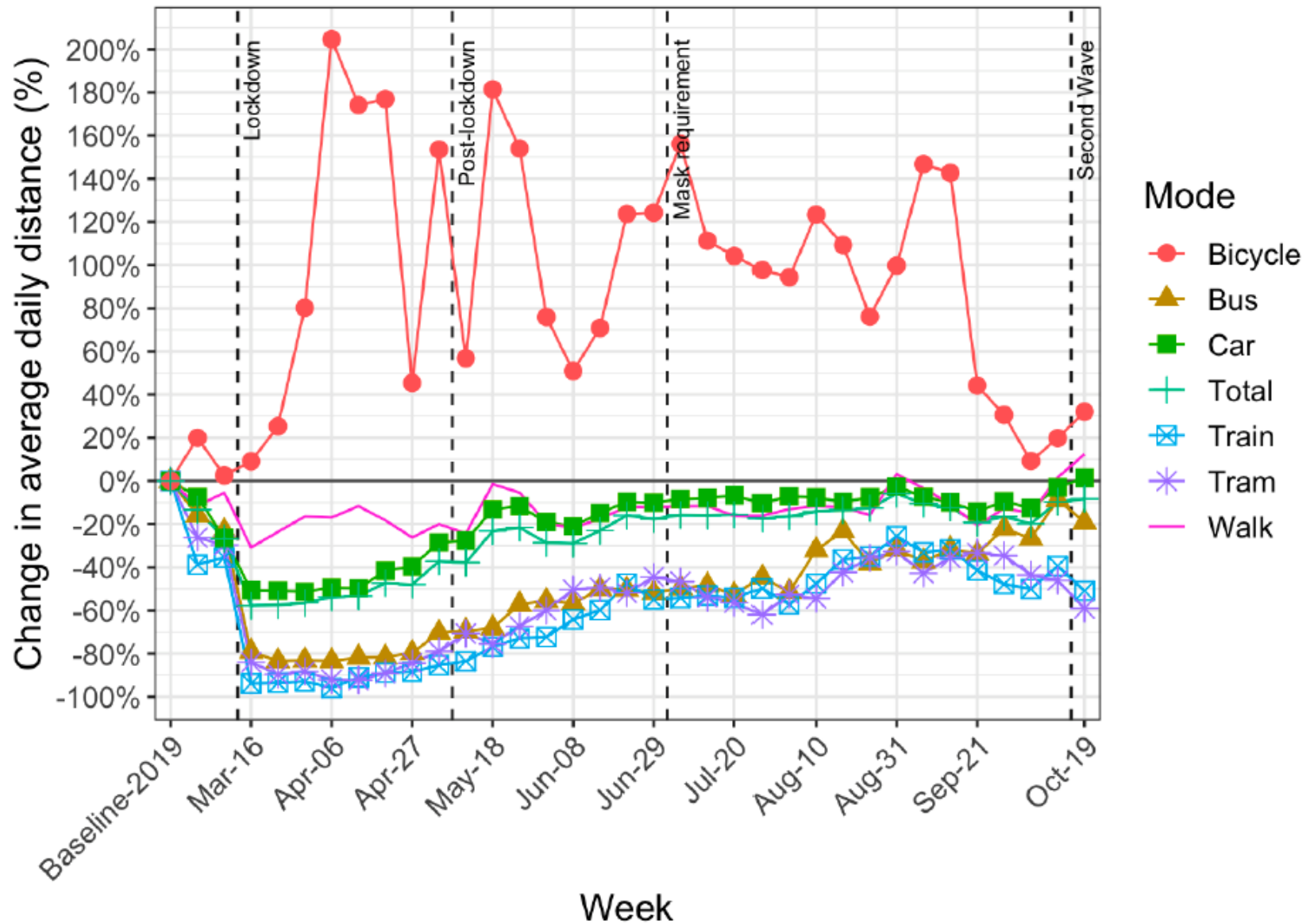


Speed issues

COVID19 impacts: Door to door speeds



COVID19 impacts: Supressed demand in PKm



Next steps

New equilibrium ?

- Productivity ~ accessibility ~ speeds & lived density
- Share of work from "home" – end of the office ?
 - Cost allocation for the work place (*free lancing/putting out/generalised gig economy*)
 - Resilience of such an economy (health care, retirement)
- Use of large pooled vehicles (bus, tram, train)
- Redistribution of road space (pedestrians, cyclists, cars, big vehicles)
- Desired/enforced speed levels
 - Crowding pricing for all vehicle sizes/services
 - Parking pricing
- Crowding control in the city

New equilibrium for surveys ?

- Travel behaviour model demand information about:
 - Travel
 - Time use
 - Expenditure
 - Social networks
 - Attitudes
- Larger set of non-chosen alternatives
- Division of labour:
 - Very large scale GSM/open or hidden GPS tracking
 - Substantial time use and expenditure surveys (with tracking)
 - Substantial attitude, mileage and mobility tool panels
 - (Substantial long-distance travel panels)

Questions ?

www.ivtmobis.ethz.ch/mobis/covid19

www.ivt.ethz.ch