Tracking the pandemic in Switzerland: Transport impacts

KW Axhausen

IVT
ETH
Zürich

November 2020
Acknowledgements

ETH Zürich

• J Molloy
• C Tchervenkov
• T Schatzmann

• A Loder

WWZ, Universität Basel

• B Hintermann
• B Schoeman
Excess death in Switzerland since 2010

AUM 20/11
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 trajectory of out-of-home activities
MOBIS COVID PKm, trips and activity space trajectory
Δ% of PKm by work arrangement: “Kurzarbeit”
Δ% of PKm by work arrangement: “WFH”
Δ% of trips and activity spaces

Week starting with Monday

Activity space [km²]

Number of trips/day

Weekday - Activity space
Weekend...
Weekday - Trips
Weekend...
MOBIS COVID mode usage trajectory
PKm before, ....: Weekdays by mode
MOBIS COVID problems in the fall?
COVID19 impacts: Door to door speeds

[Graph showing door to door speed variations under different conditions: Pre-lockdown, Lockdown, Post-lockdown (After 11th May), Mask requirement, Second Wave, for distances > 50km, 20 - 50 km, < 20km, with speed in km/h and hour as axes.]
COVID19 impacts: Supressed demand in PKm

Change in average daily distance (%)

Week

Mode
- Bicycle
- Bus
- Car
- Total
- Train
- Tram
- Walk


AUM 20/11
Dilemma of transport policy with the pandemic
Dilemma of transport policy

Accessibility ~ Productivity ~ Social welfare

Car accessibility ~ Car ownership ~ 1/Commitment to transit use

Accessibility ~ VMT ~ CO$_2$ emission for current fleet technology

Accessibility ~ Sprawl ~ VMT
Challenge of COVID19 for spatial policy making

Pandemic threat ~ Sprawl ~ VMT

Pandemic threat ~ WFH ~ VMT without control (reorganisation of time)

Pandemic threat ~ WFH ~ 1/productivity without household reallocation of tasks

Sprawl and WFH ~ 1/commitment to transit use ~ congestion

Sprawl ~ 1/spatial equity
New equilibrium?

- 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
- Pricing of technical services on green field sites
Questions?

ivtmobis.ethz.ch/mobis/covid19/

www.ivt.ethz.ch