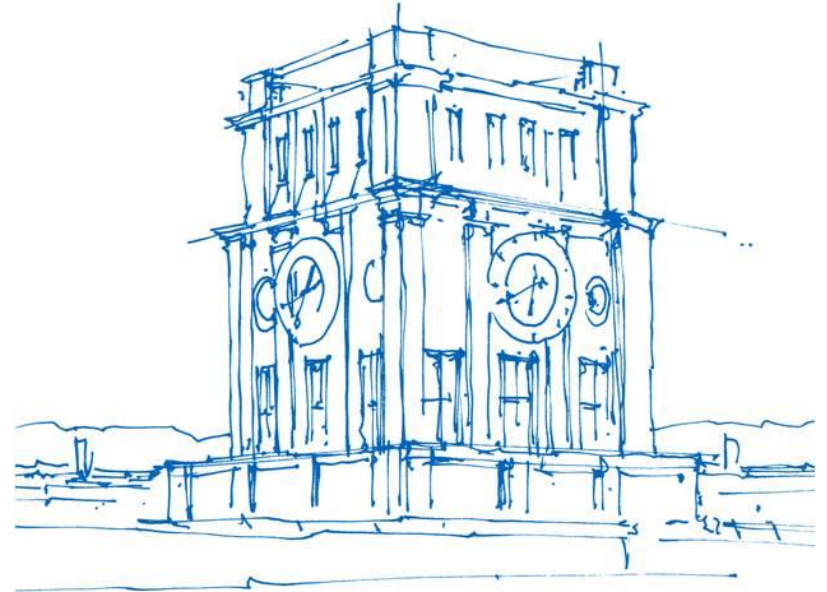


The (4)9-Euro revolution in Germany's public transport system

Allister Loder

NSL Colloquium ETH Zurich

Zurich, 7 December 2023



Uhrenturm der TUM

The German response to the 2022 cost-of-living crisis: temporary transport policies in June, July, and August

Fuel tax cut

0.3€/l gasoline and
0.15€/l diesel



0€/l

9-Euro-Ticket

Almost fare-free
public transport

~55€/month
and district



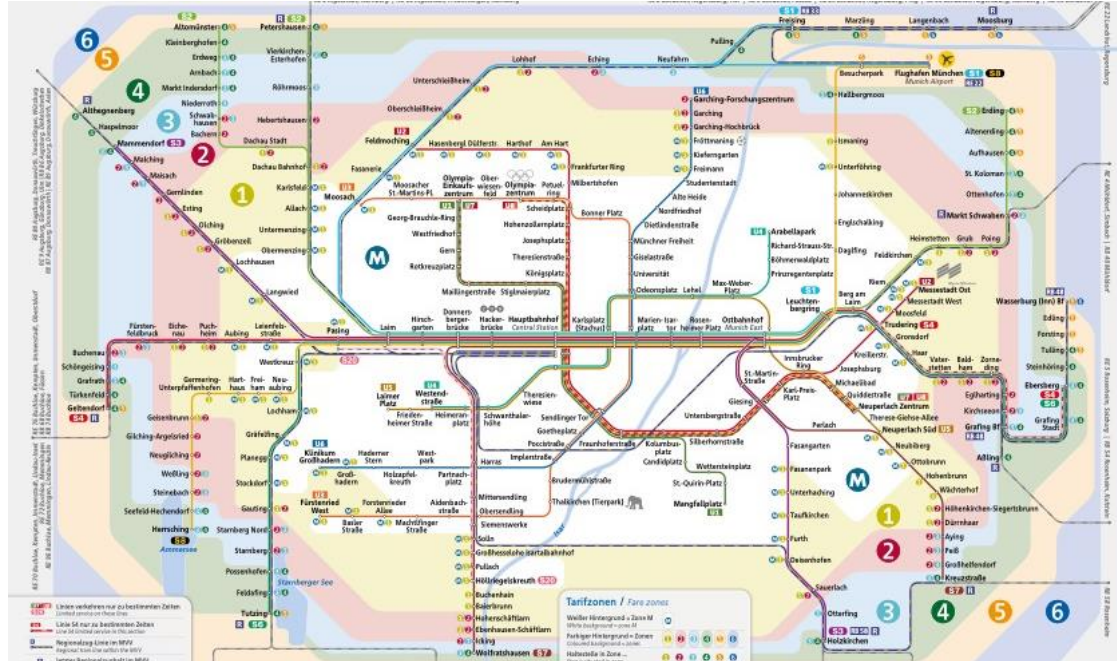
9€/month
entire nation

70 transit districts
become one



Karte der Landkreise: TUBS, CC BY-SA 3.0 Verkehrsverbünde: Maximilian Dörbbecker (Chumwa), NJ Giggle, [CC BY-SA 4.0](#), [CC BY-SA 2.5](#), via Wikimedia Commons

A fare innovation



PREISE FÜR BEFAHRENE ZONEN IN €								
Fares for your zones in €								
M	1	1-2	M-1	M-2	M-3	M-4	M-5	M-6
1	2	3	4	5	6			
20,20	20,20	20,20	32,60	40,40	50,50	59,40	68,60	77,80
63,20	63,20	63,20	101,80	126,20	157,60	185,50	214,20	242,70

German public transport in the intl. media, not the Swiss!

The New York Times

Germany's €9 Monthly Train Pass Has Proved Popular (and a Pleasant Surprise)

To help offset inflation, Germany's government has subsidized cheap train passes this summer. While many feared chaos and overcrowding on an overburdened system, it has been a relatively smooth ride.

<https://www.nytimes.com/2022/08/15/world/europe/germanys-trains-9euro-pass.html>

Way to go: why Germany's €9 travel pass is a big step in the right direction

Melissa Bruntlett and Chris Bruntlett

The
Guardian

Cheap fares alone are not enough. Dutch-style investment, together with price cuts, could be the real game changer



<https://www.theguardian.com/world/2022/jul/14/germany-9-euro-travel-pass-cheap-fares>

A successor to the 9-Euro-Ticket was quickly demanded

- Called “Deutschlandticket”
- 49 Euro per month
- Available as a subscription and only in digital form

Germany gives green light to €49-a-month public transport ticket

The Guardian

Plan for ticket covering regional rail, metro, trams and buses across country follows success of €9 scheme last year



📍 A hydrogen train near Frankfurt, Germany. The €49 ticket scheme is aimed at getting passengers to switch to greener forms of transport. Photograph: Michael Probst/AP

Philip Oltermann in Berlin

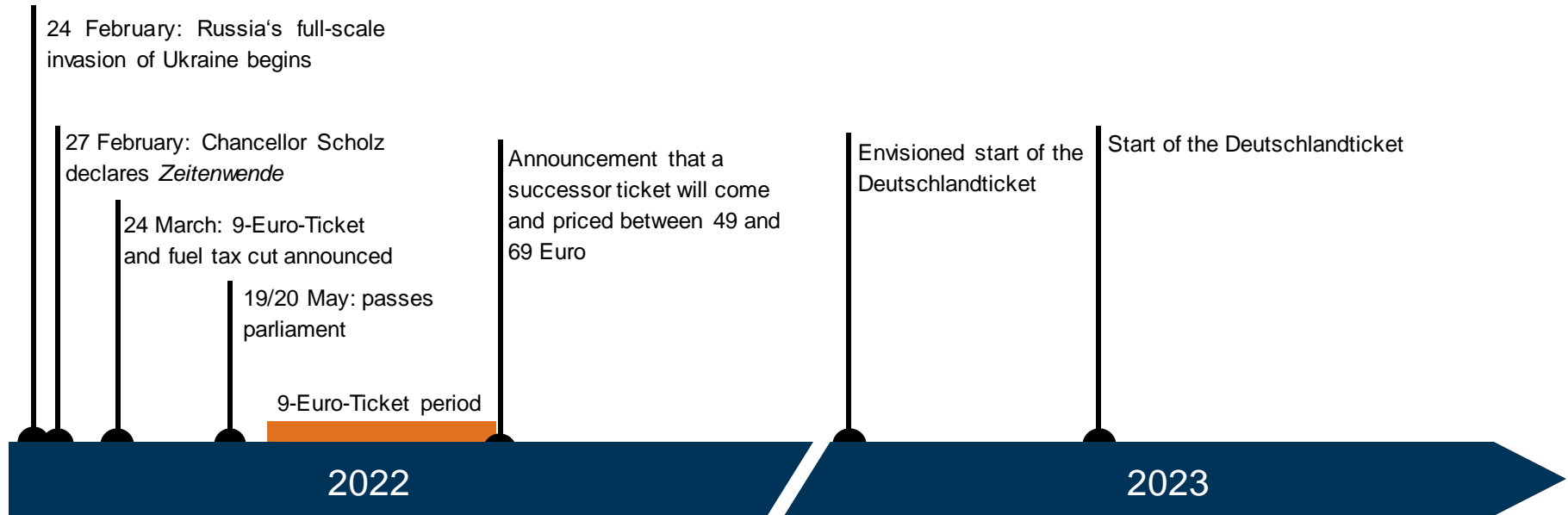
🐦 @philipoltermann

Fri 17 Mar 2023 13:43 CET



A follow-up to Germany’s immensely popular €9 (£7.90) monthly public transport ticket scheme has been given the green light in the Bundestag, in a move aimed at getting passengers to switch to greener forms of transport.

Timeline of the fare innovation



Hypotheses



The changes in travel costs of car and public transport are expected to change travelers' mode choice



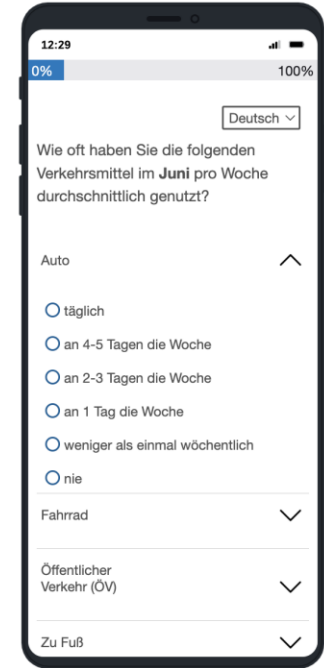
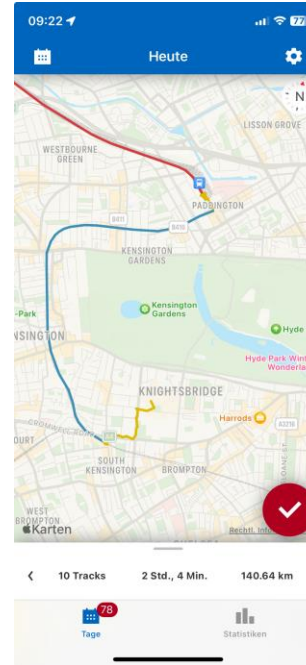
The reduction in travel costs across transit district borders increases travel by public transport across these



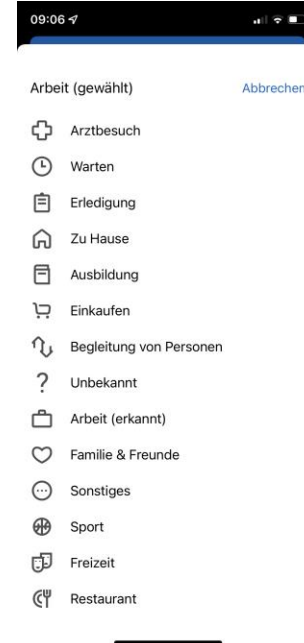
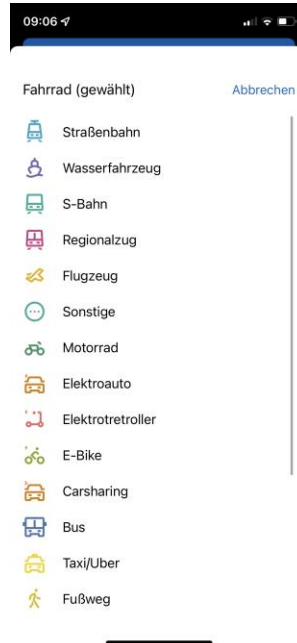
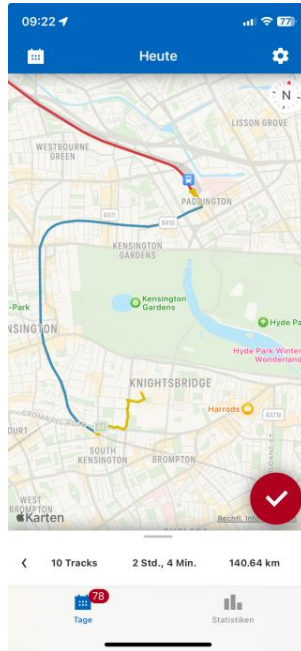
The reduction in travel costs is further expected to increase overall individual mobility

Mobilität.Leben

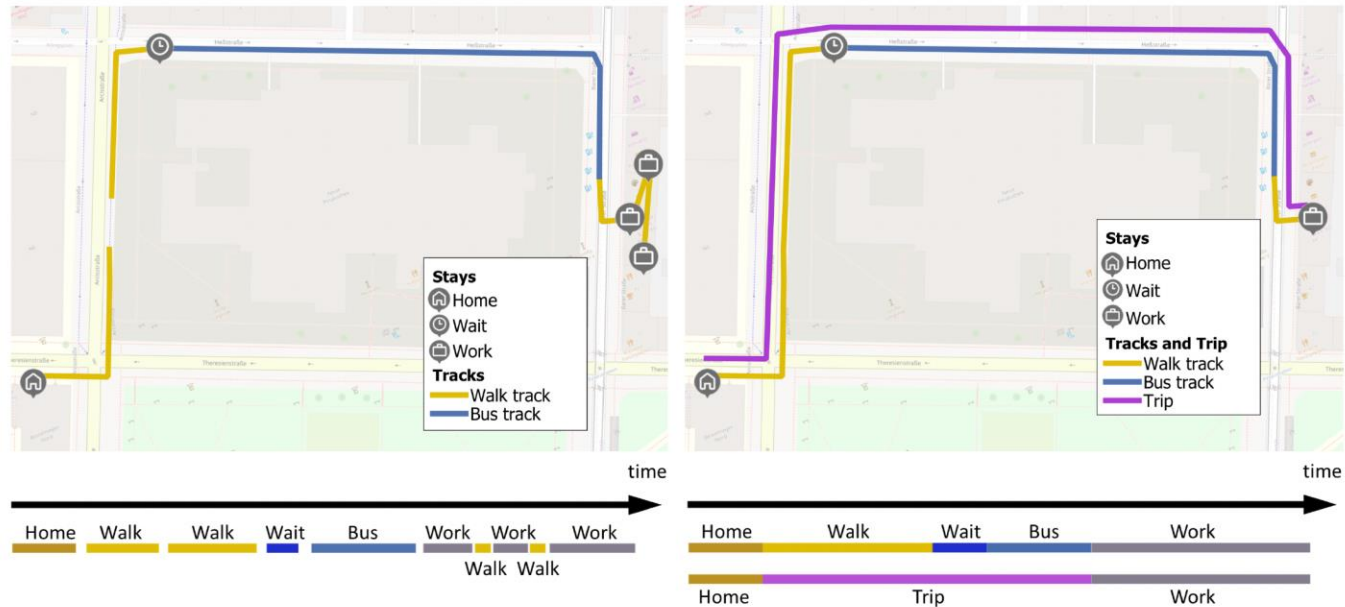
- Study from May 2022 to May 2023 (...July 2023)
- App for semi-passive travel diary generation and household surveys
- All digital for quick and scalable distribution
- Similar designs
 - MOBIS/COVID (ETHZ 2019-2022)
 - Tsoleridis, Choudhury and Hess (2022)



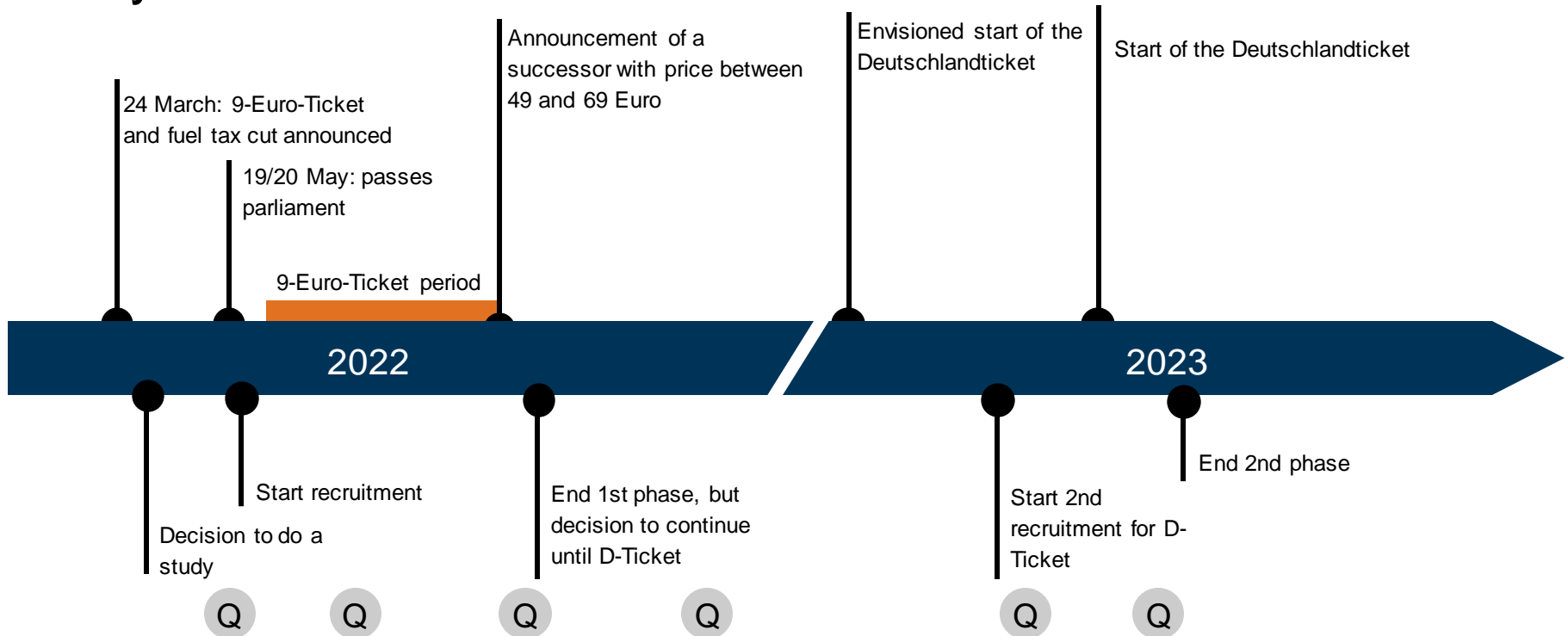
Mobilität.Leben-App: Little to no user input



Issue of trip identification

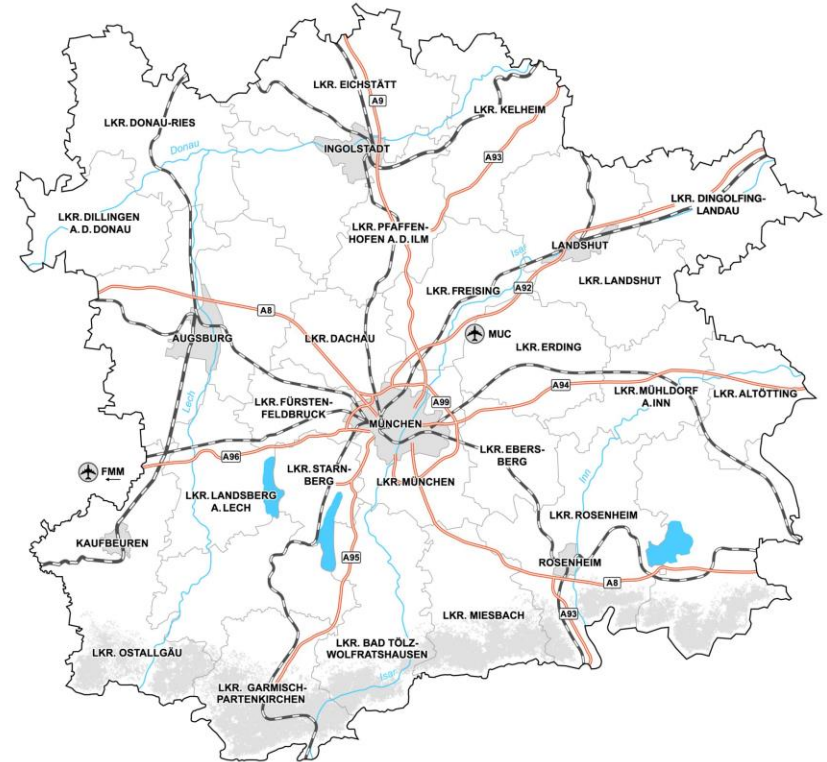


Study timeline



Recruiting

- Media campaign in the Munich metropolitan area for survey + app (30 Euro compensation if tracking until September)
- Nationwide online panel for survey only (as backup, representative, ~10 Euro compensation through company)



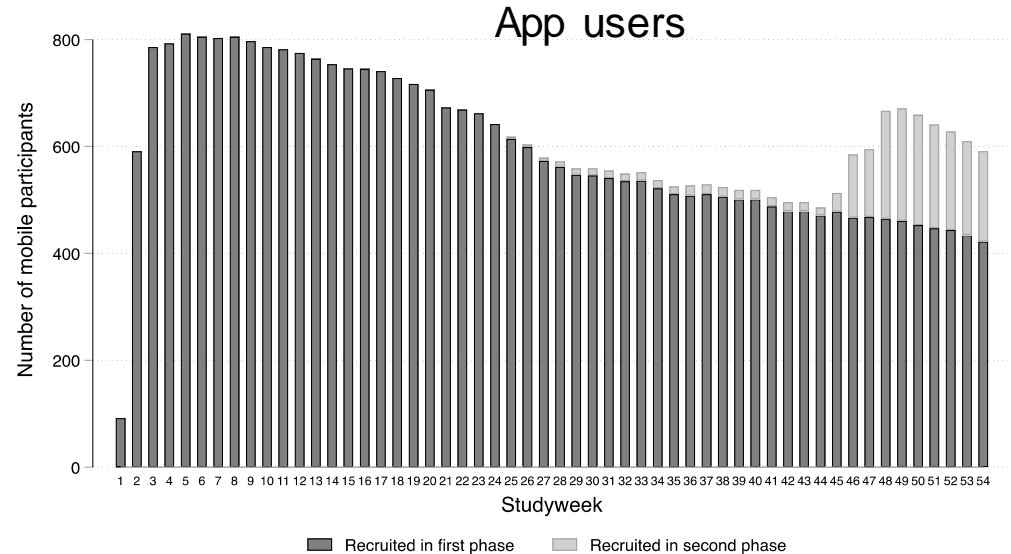
Recruitment and participation

9-Euro-Ticket

- 2,316 participants
- 918 in the nationwide panel
- 927 activated the smartphone app
- 1,417 completed all questionnaires
- 690 completed questionnaires and provided tracking data

Deutschlandticket

- 1010 respondents
- 439 from the nationwide panel
- 406 app users since May 2022 + 165 app users since March 2023



Many observed the 9-Euro-Ticket

App+Survey

- Mobilität.Leben (panel: initial N=2000, N=1,400 survey only, N=650 for app+survey with at least 2 weeks tracking per month)
- DIW / Intervista (panel: initial N=4,800, N=1200 for survey, N=850 for app+survey with at 2 weeks of tracking)

Survey only

- VDV-study ("Main study") on market research (cross-sectional/pseudo-panel, N= 100,000)
- Further university studies, e.g., Kassel, TU Dresden, UniBW (smaller, local, some were panel)
- Further consultancy studies, e.g., OpinionTRAIN (cross-sectional, N=2400)

Other

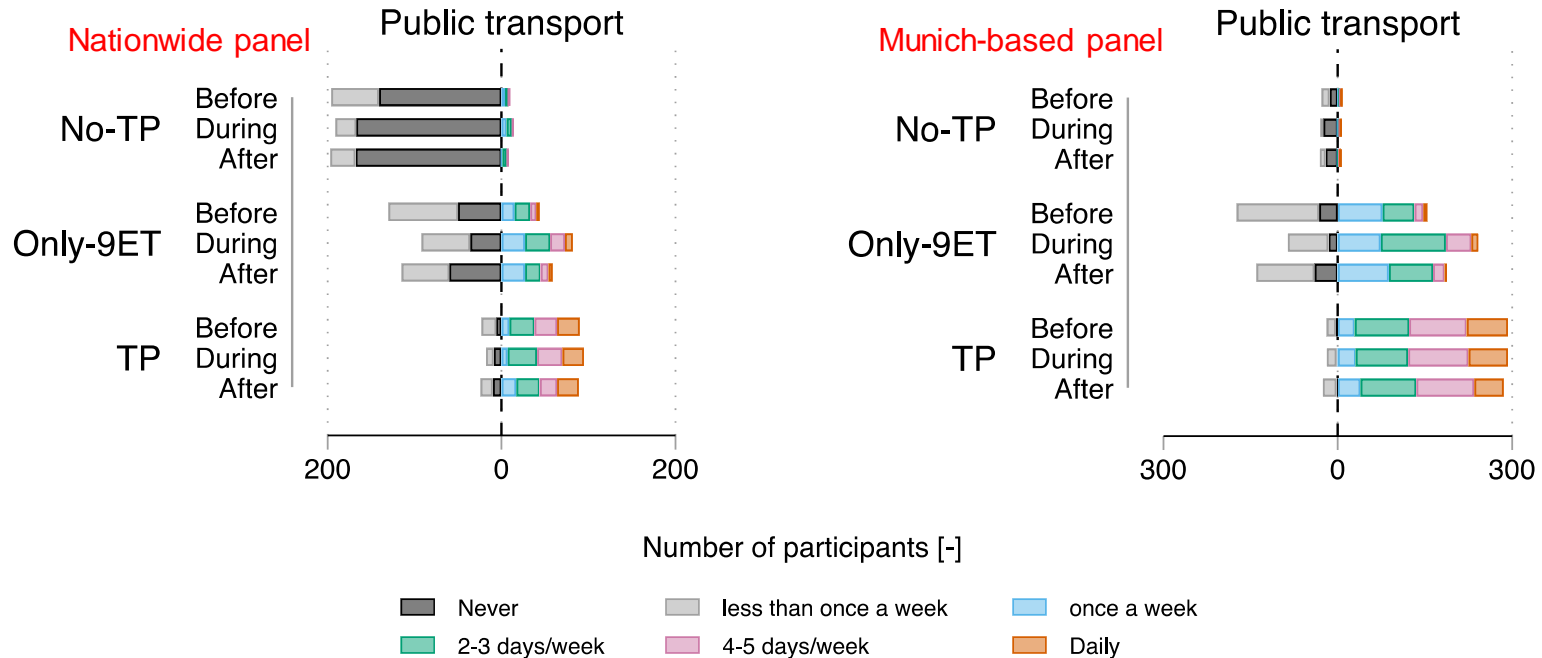
- Federal office of statistics / federal government: mobile phone data

Findings

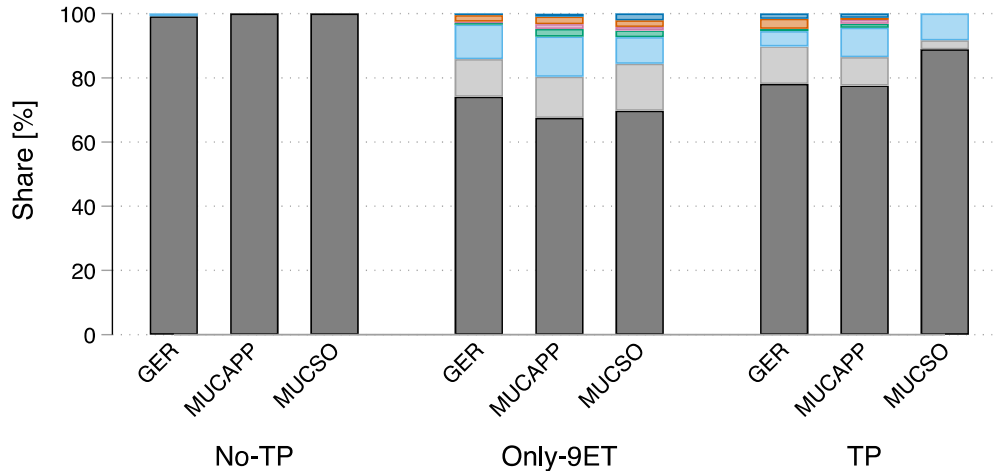
9-Euro-Ticket ownership in our sample

- In the nationwide panel (matches nationwide data)
 - Existing travel pass owners ~23%
 - 9-Euro-Ticket owners ~36%
- In the Munich-focused panels (biased sample)
 - Existing travel pass owners ~45%
 - 9-Euro-Ticket owners ~48%

9-Euro-Ticket: Frequency of use of public transport (survey)



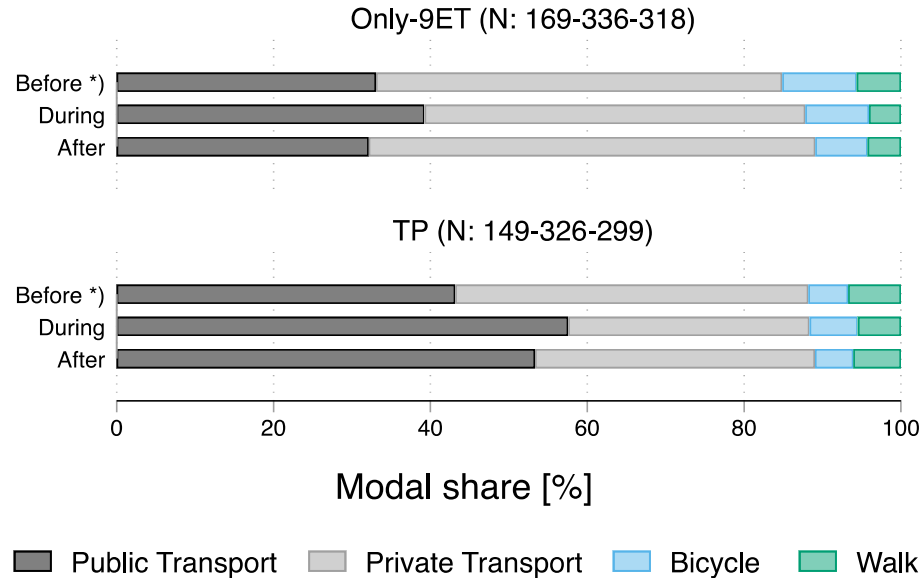
9-Euro-Ticket: Substitution patterns (survey)



- all other cases
- d: PT+ C= | a: PT= C=
- d: PT+ C= | a: PT+ C=
- d: PT+ C= | a: PT+ C-
- d: PT+ C- | a: PT= C=
- d: PT+ C- | a: PT+ C=
- d: PT+ C- | a: PT+ C-

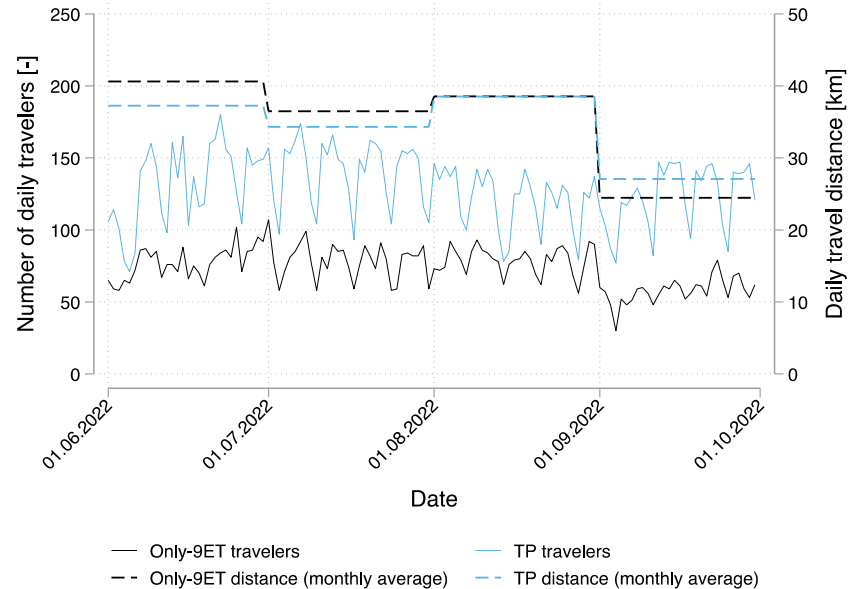
- d during
- a after
- PT+ public transport increased compared to May
- PT= public transport unchanged compared to May
- C= car unchanged compared to May
- C- car reduced compared to May

9-Euro-Ticket: Modal share changes (app)



*) limited validity due to ongoing recruitment

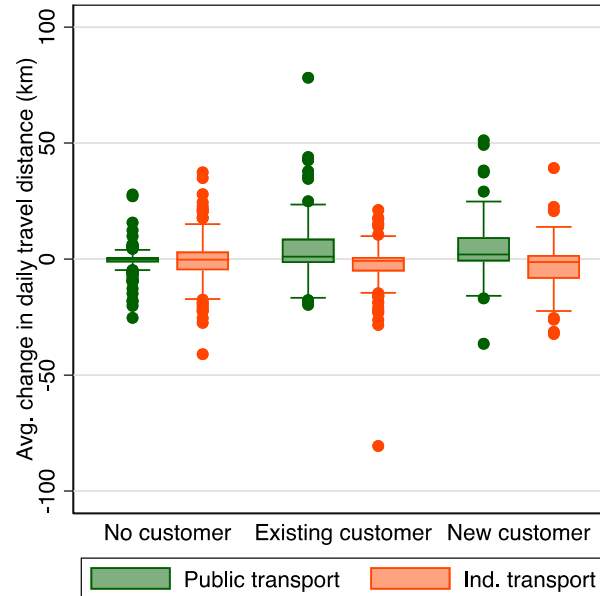
9-Euro-Ticket: number of travelers and travel distance (app)



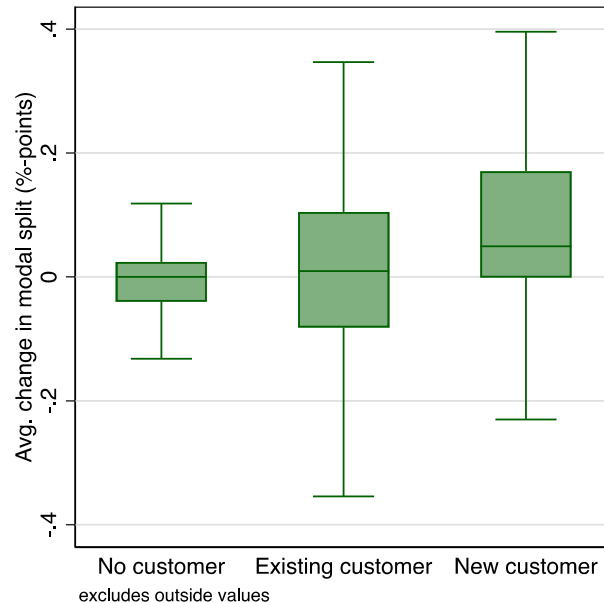
Deutschlandticket

- In our sample
 - 25.5% are existing customers
 - 11.7% are new customers
- “Official” figures
 - Around 14% in summer (VDV)
 - Around 16% in October (infratest dimap)

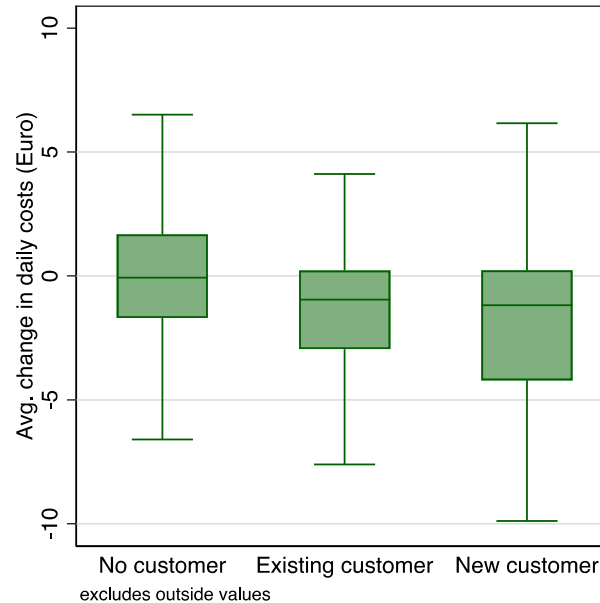
Deutschlandticket: changes in travel distance (app)



Deutschlandticket: changes in modal share (app)



Deutschlandticket: changes in generalized travel cost (app)



Environmental impact

Carbon savings: difficult to estimate

9-Euro-Ticket

- the VDV calculated savings of around 1,6 million tons for the three months
- Other obtained more moderate estimates of about 1,2 to 1,5 million tons (Krämer, Huld)

Deutschlandticket

- In our sample, first estimates are around 40g CO₂ per day for existing customers and 150g CO₂ for new customers

Summary

General findings

- People used more public transport, especially new customers. People travelled more, in particular for leisure in June and August 2022.
- This shock was also an incentive for public transport companies to innovate, e.g., selling upgrades to the Deutschlandticket.
- For the 9-Euro-Ticket, causal inference almost impossible (fuel tax cut, 9-Euro-Ticket, COVID-19 recovery, Oktoberfest) + sample bias + ongoing app onboarding at the start of the 9-Euro-Ticket; looks better for Deutschlandticket

Lessons learnt

- Politics was not particularly interested in travel behavior research, only market research; the public showed interested in our research, but not at the COVID-19 level
- Survey method with the app is promising, but requires a lot of work and preparation just for the operations; first findings suggest that paying an incentive increases participation and data quality

Thank you very much for your attention!

Questions?