

TRANSPORT FINDINGS

A Public Transport Ticket that Moved a Country: Assessing the Value of the German 9-Euro-Ticket as a Socio-Technical Experiment

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Findings

This paper examines the German 9-Euro-Ticket from summer 2022 as a socio-technical experiment. Based on a systematic literature review of evaluations and accompanying research, three categories of learning processes are distinguished. The results suggest that the 9-Euro-Ticket enabled technological, social and institutional learning. Thus, the study provides a new perspective on this temporary policy and underscores the value of experimentation as a governance tool for the transition to sustainable mobility. This value goes beyond the direct traffic-related impact: The contribution of the 9-Euro-Ticket to a new stable configuration, the 'Germany ticket', is identified as the main output.

1. Questions

From June to August 2022, the *9-Euro-Ticket* allowed passengers to use public transport across Germany for nine euros per month (Loder et al. 2023). This temporary policy aimed to reduce cost of living in view of Russia's war in Ukraine as well as carbon emissions (Dietl and Reinhold 2022). It can further be seen in the context of the Covid-19 pandemic (Nobis and Kolarova 2022).

The 9-Euro-Ticket represented a disruptive shift and dominated public debates (Hille and Gather 2022). Accordingly, it is considered the 'largest field *experiment* in the mobility sector' (Krämer and Korbutt 2022). Regarding the term 'experiment', a natural science and a socio-technical understanding can be distinguished. Within the latter, alternative solutions promote technological, social and institutional learning. They are 'seeds of change' for new stable configurations to fulfill societal functions such as mobility (Sengers, Wieczorek, and Raven 2019).

Many research projects examined the 9-Euro-Ticket, at least partly, from a natural science perspective. They assessed impacts on traffic volume, mode choice, air quality, and the economy (Dietl and Reinhold 2022; Engler and Rusche 2023; Gohl and Schrauth 2022). However, the informative value may be limited by pre-post analyses, the short duration of the experiment, lack of previously defined evaluation criteria, and a parallel fuel tax reduction (Becker, Ortmanms, and Bissel 2023; Krämer, Wilger, and Bongaerts 2022).

Notably, the 9-Euro-Ticket also fits well with the socio-technical understanding of experimentation, especially with the concept of 'sustainability experiments' (Sengers, Wieczorek, and Raven 2019). Thus, by

investigating the learnings from the 9-Euro-Ticket, this study takes an alternative approach and examines the value of the ticket as a socio-technical experiment rather than its impact as a policy.

2. Methods

This study builds on a review of research on the 9-Euro-Ticket. A systematic search to ensure comprehensiveness and transparency (Snyder 2019) was combined with a qualitative narrative synthesis (Popay et al. 2006).

The databases Scopus and Web of Science as well as Google Scholar were consulted. The latter is deemed particularly important to identify grey literature (Haddaway et al. 2015). Overall, the search returned $n = 350$ records. Entries were screened based on pre-specified criteria (see [Figure 1](#)). Finally, 18 documents remained. A review protocol can be found in Supplemental Information I.

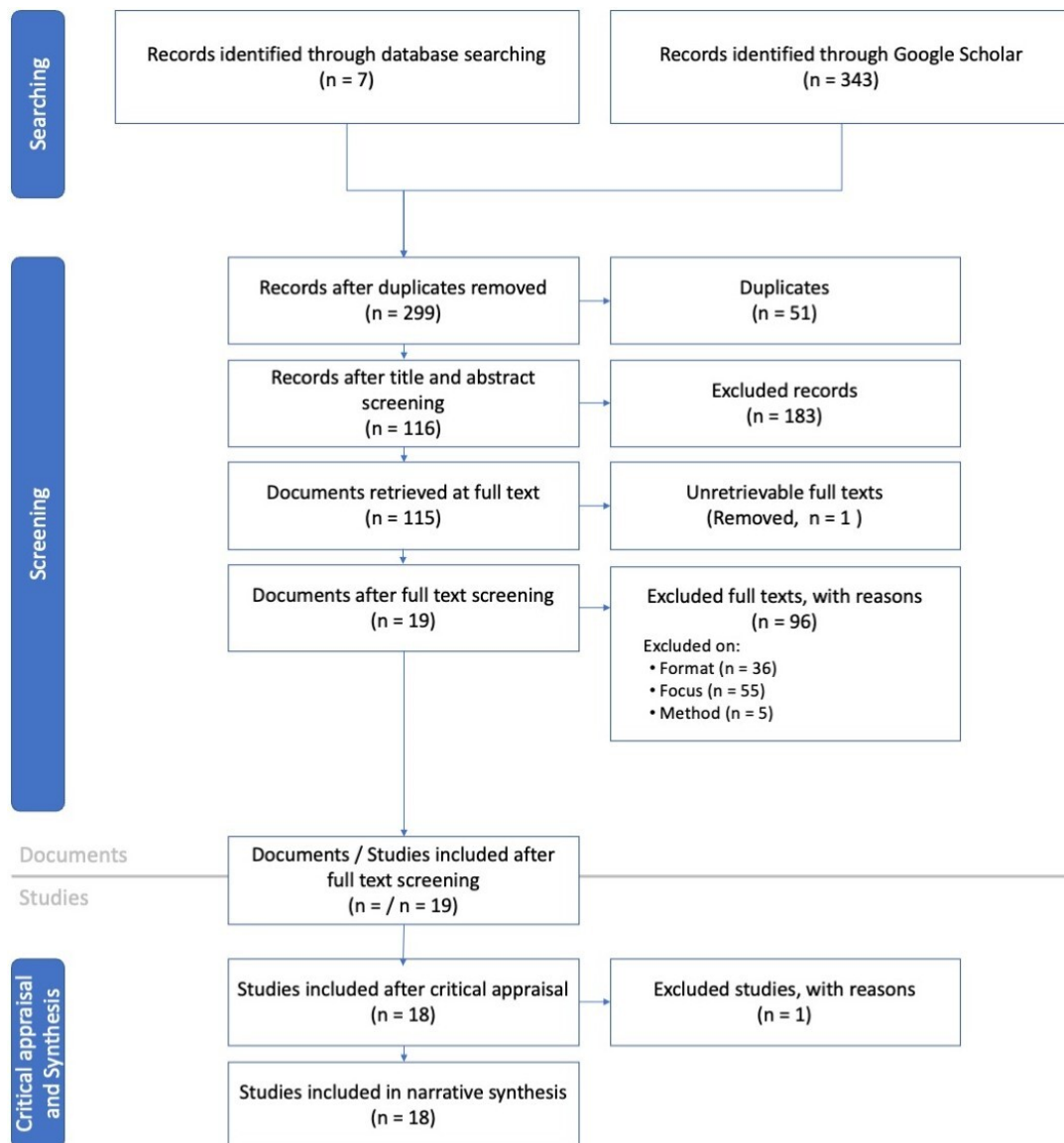


Figure 1. ROSES flow diagram of literature review

3. Findings

The included studies are characterized by a variety of objectives and methods (see Supplemental Information II). Their results can be broadly categorized into technological, social and institutional learning (Figure 2).

	Technological Learning	Social Learning	Institutional Learning
Description	Learning processes regarding public transport provision and strengths and weaknesses of different fare systems (incl. acceptance as well as user structure and behavior).	Learning of the general public regarding fairness of the transport system as well as its impact on different societal groups.	Learning of individual institutions regarding public transport and sustainable mobility as well as its impact on the own organization.
Main studies	Krämer, Wilger, and Bongaerts 2022 Loder et al. 2023 VDV, Deutsche Bahn AG, and DB Regio AG 2022	Aberle et al. 2022 Hille and Gather 2022 Laser 2023 Milner and Wolff 2023	Becker, Ortmanns, and Bissel 2023 Pfundstein et al. 2022

Figure 2. Overview of learning processes

Synthesis

First, the ticket enabled *technological learning* in terms of insights regarding public transport provision. Besides the low price, simplicity and nationwide validity were identified as success factors (Krämer, Wilger, and Bongaerts 2022; Nobis and Kolarova 2022; VDV, Deutsche Bahn AG, and DB Regio AG 2022). As a result, more than 30 million people (including existing subscribers) used the 9-Euro-Ticket each month. 70 to 80% rated it as attractive (VDV, Deutsche Bahn AG, and DB Regio AG 2022) while 10% disagreed (Loder et al. 2023). While the ticket reached the middle of society (Nobis and Kolarova 2022), popularity was higher among young people, low-income citizens, and residents of larger cities (Gaus, Murray, and Link 2023; Krämer 2022; Loder et al. 2023; VDV, Deutsche Bahn AG, and DB Regio AG 2022). Some studies suggest greater use for leisure activities (Dietl and Reinhold 2022; Loder et al. 2023; Nobis and Kolarova 2022). Others emphasize commuting and daily travel (Krämer, Wilger, and Bongaerts 2022; VDV, Deutsche Bahn AG, and DB Regio AG 2022). Indications of willingness to pay range from 20-30 euros (Aberle et al. 2022; Gaus, Murray, and Link 2023; Hille and Gather 2022; Klosterkamp, Papendieck, and Francke 2022) to 50-60 euros in some (sub)samples (Krämer, Wilger, and Bongaerts 2022; Loder et al. 2023; Nobis 2022).

Second, in terms of *social learning*, the 9-Euro-Ticket shaped perceptions of public transport, stimulated discussions about its societal role, and improved social inclusion (Krämer, Wilger, and Bongaerts 2022). Research indicates that attitudes towards and trust in public transport increased (VDV, Deutsche Bahn AG, and DB Regio AG 2022). An analysis of Twitter posts reveals a lively political debate, including fundamental issues such as fairness of transport

subsidies. For example, whether the 9-Euro-Ticket represents a ‘freebie mentality’ (Laser 2023). In parallel, a discourse analysis based on 9-Euro-Ticket memes highlights discussions about the societal role of public transport as well as social status and mobility (Milner and Wolff 2023). Regarding status, two research projects focused on low-income households and stress access to the transport system as a prerequisite for social inclusion. The studies found positive effects of the ticket on quality of life driven by increased freedom and autonomy, access to essential elements of social life and reduced bureaucracy. The participants used the ticket for basic needs such as grocery shopping and medical appointments and also increased leisure activities. Moreover, the ticket improved the mobility of children and adolescents (Aberle et al. 2022; Hille and Gather 2022).

Third, the 9-Euro-Ticket was an opportunity for *institutional learning*, including but not limited to public transport operators (Krämer and Korbitt 2022). For instance, the shared mobility provider Moia evaluated the impact of the 9-Euro-Ticket on its services and found no lasting negative impact on demand. This resulted in reflections on stronger integration of its services with public transport (Pfundstein et al. 2022). Also, driven by the 9-Euro-Ticket, the TU Berlin conducted a study to investigate commuting of employees and to understand mobility-related needs and barriers. Besides learnings relating to public transport (e.g., barriers regarding job tickets), overarching institutional measures to promote sustainable mobility were identified. This also includes potential measures to promote other transport modes such as secure bicycle storing (Becker, Ortmanns, and Bissel 2023).

Conclusion

In summary, the 9-Euro-Ticket enabled far-reaching learning processes. While the experiment may not have shifted all car trips to public transport (Loder et al. 2023) and may not have directly led to lasting changes in mobility behavior (Gaus, Murray, and Link 2023), it may indeed represent a ‘seed of change’. The study thus supports the view that the experiment has ‘moved’ Germany (Hille and Gather 2022) on its path towards a mobility transition (Krämer, Wilger, and Bongaerts 2022). The 9-Euro-Ticket can be seen as a successful socio-technical experiment with the 49-euro ‘Germany ticket’ as a new stable configuration (Krämer, Wilger, and Bongaerts 2022).

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SUPPLEMENTARY MATERIALS

Supplemental Information 1: Review Protocol

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Supplemental Information 2: Screening Details

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