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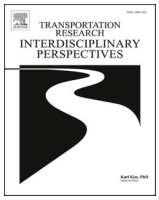

Re-examining fare-free public transport for greater inclusivity

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ABSTRACT

Fare-free public transport (FFPT) schemes – in which public transport costs are paid through means other than individual ride fare – are gaining traction in improving public transport efficiency and accessibility. However, there is a lack of research about how these programs impact socio-economic, sexual orientation, and gender identity perspectives. While many studies collect demographic or economic data about public transport riders, they often fail to effectively utilize the data to its potential for research. A review of 146 studies reveals significant intellectual gaps, including a lack of consideration for demographic characteristics of transport users, missed opportunities to incorporate socio-economic and sexual orientation and gender identity perspectives, and geographical imbalances in research. The review suggests the need for more comprehensive, equitable approaches to FFPT research that supports the development of inclusive public transport policies.

1. Introduction

Public transport provides access and mobility to citizens, residents, and visitors anywhere it is available, and public transport also contributes to economic prosperity in its host communities. Public transport also plays a pivotal role in improving social equity by mitigating barriers that limit certain groups' ability to participate in everyday life (Allen and Farber 2020). A well-functioning public transport system is thus essential for vulnerable groups who are dependent on it for access and mobility. Enhancing accessibility to various places by public transport can reduce vulnerability for these groups and mitigate transport-induced social exclusion (Lucas et al. 2016). Consequently, research should focus on equity in the distribution of public transport benefits to minimalize gaps in accessibility levels among various socio-economic, racial, and ethnic groups to foster more inclusive societies (Foth et al., 2013; Sträuli and Kębłowski 2022).

Unsurprisingly, policymakers and managers of public transport systems continually reinvent public transport to improve its efficiency and cost-effectiveness and its ability to provide high-quality access and mobility for the traveling public. One particular reform—sometimes viewed controversially—gaining renewed traction in recent years (Kębłowski 2020) is the establishment of fare-free public transport (FFPT) schemes in which passengers do not pay cash fares to ride public transport vehicles; in lieu of cash fares, public transport services is funded through other means. We explore in this article how FFPT research addresses socio-economic and demographic characteristics of riders who may (or may not) benefit from fare-free public transport to provide more light on how FFPT challenges social exclusion.

Our interest in this topic emanates from the growing attention on FFPT among scholars and transport practitioners, since the list of municipalities and public transport systems implementing fare-free schemes is expanding globally. Currently there are more than 300 localities[3] that have launched full-coverage FFPT[4] compared to 27 FFPT programs identified prior to 2000 (Kębłowski 2020). Geographically, the fare-free public transport schemes are not limited only to North America and Western Europe, as the most rapid development of new programs is currently happening in Brazil (Pereira et al. 2023) and Poland (Štraub et al. 2023), suggesting that FFPT is not limited to wealthy societies.

Scholarly research about FFPT covers diverse topics, from financial impacts (Perone 2002; Tomeš et al. 2022; Zakaria et al. 2024) and

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[3] A global repository of FFPT programs can be found at https://freepublictransport.net/.

[4] Kębłowski (2020, 2810) provide a definition of full FFPT: a public transport system composed of at least three routes, fare-free access is available on "the vast majority of […] services provided within a given […] network, available to the vast majority of its users, most of the time, and for a period of at least 12 months.".

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political motivations (Carr and Hesse 2020; van Goeverden et al. 2006; Kębłowski et al., 2019; Prince 2018; Schein 2011) to practical aims like improving mobility, reducing automobile use or generating public transport ridership (Brand 2008; Cats et al. 2017; Cool et al. 2016; Dai et al. 2021; Fiedeń and Štraub 2023; Storchmann 2003; Štraub 2020; Štraub 2023b; Volinski 2012). The body of research, however, lacks a unified consensus about optimal implementation contexts. Most studies focus on single localities, with few comparative analyses (Delevoye 2022; Kębłowski et al. 2023; Pereira et al. 2023; Štraub et al. 2023). Additionally, many studies emphasize policy outcomes without fully exploring the context of policy establishment (Marsden and Reardon 2017; Dudley and Richardson 2000; Siren and Sørensen 2015). Recent work by Kębłowski (2023a) and KEbLowski KE6 (Kębłowski, 2023b) suggests new approaches to understand where and under which conditions FFPT programs could thrive

While this study focuses on socio-economic and demographic aspects of FFPT programs, we recognize FFPT's role in addressing transport externalities from automobile use – those negative impacts that vehicle users impose on others without bearing the costs, such as pollution, congestion, and accidents. Štraub and Jaroš (2019) and Fearnley (2013) identify FFPT as one of several instruments for reducing externalities, though Fearnley notes that despite substantial ridership increases, effects on automobile traffic are often marginal with short-term duration (see also Cats et al. 2014, 2017). This aligns with Cavallaro et al.'s (2024) observation that increased travel demand can actually worsen certain externalities, particularly congestion and accident costs, even as others like air pollution may decrease. Strommer et al. (2023) suggests that public transport itself creates negative externalities through passenger crowding causing a discomfort that complicates the setting of fares and public transport subsidy rates that should reflect reduced automobile use and potential discomfort from crowding. Yang et al. (2022) find that information provision influences mode choice behavior, impacting FFPT's ability to leverage positive externalities. These findings suggest FFPT may be most effective when implemented within a comprehensive transport policy framework including both supportive and restrictive measures (Štraub and Jaroš, 2019; Kębłowski, 2020).

Although there is a rich body of research that reveals how FFPT affects public transport ridership, automobile use, and individual mobility strategies, there is a scarcity of research addressing the effects of applying various socio-economic and sex or gender perspective despite the consensus that FFPT is critical for helping vulnerable members of society in their ability to reach important destinations for daily life. In this literature review, we address this gap by providing a comprehensive review of how gender- and socio-economic-inclusive lenses are infused in the research agenda of fare-free public policy. Our aim is to critically examine the current state of FFPT research through socio-economic and gender-inclusive perspectives. Specifically, we address these questions: (1) How thoroughly do existing FFPT studies incorporate the perspectives of vulnerable and marginalized societal groups? (2) What gaps exists in our understanding of how FFPT affects different socio-economic and gender groups? (3) To what extent do current research approaches reveal the potential of FFPT to mitigate social exclusion and improve mobility for marginalized populations? Addressing these questions allows us to explore, in a systematic way, how non-dominant groups are accommodated in FFPT and how the experience of non-dominant groups in alternative fare payment schemes is captured in scholarly research. In doing so, we hope to further, in helpful ways, an understanding of the synergy between research and practice and advance research about FFPT.

In the next section, we explain how we execute the literature review reported in this article. Following that, we present the results of our thorough analysis of published literature, and we focus on the inclusion of non-dominant groups in FFPT studies. Finally, we present concluding insights from our research and we emphasize missed opportunities for inclusion of non-dominant groups, leading to a discussion of avenues for further research.

2. Research method

The FFPT topic has gained traction especially during last two decades (1973–2000: 21 articles versus 2001–2024: 124 articles) which goes in hand with an increasing number of municipalities and public transport systems that opt for fare abolition. Although FFPT has been systematically studied since the 1970 s, the topic still represents a niche field of transport research. Most studies tend to focus on individual FFPT programs, with only a handful of studies and reports that summarize FFPT from various viewpoints combining research and practice (Baum 1973; Scheiner and Starling 1974; Perone 2002; Fearnley 2013; Kębłowski 2020; King and Taylor 2023) and no reviews provide an overview of existing knowledge and trends in FFPT studies.

We address this gap in FFPT research by undertaking a narrative literature review. This approach allows us to generate a qualitative summary of relevant literature, allowing flexibility in terms of selected studies that adopt various methodologies or address various research questions (Baumeister, 2013; Gregory and Denniss, 2018; Pautasso, 2013; Pautasso, 2019). Our aim is to explore how fare-free public transport policy research incorporates gender and socioeconomic factors, and we believe that a narrative literature review is the most suitable method for this purpose due to its flexibility. Unlike systematic reviews, which emphasize methodological consistency and strict inclusion criteria, a narrative literature review allows us to capture the complex intersectional perspectives related to gender and socioeconomic issues within the multifaceted and interdisciplinary nature of FFPT research.

To arrive at the final list of studies included in this review, several steps are performed. First, using key search terms ('FFPT', 'fare-free' AND 'public transport',[5] 'zero fares' AND 'public transport', 'fare free' AND 'public transport', 'free fare' AND 'public transport', 'pre-paid fares' AND 'public transport'), we access three important databases: Scopus, Web of Science, and TRID databases. The search returned 580 studies in total, distributed as follows: Scopus (126), Web of Science (249), TRID (205). Second, to ensure that only relevant studies are included, we omitted duplicates, non-English publications, and articles not related to transport, geography, or social science (e.g., medical studies). After this step, 113 publications remain for further assessment. Third, we supplement this group with relevant studies that match the selection criteria and are based on our own experiences with FFPT literature but are not indexed in the databases. The literature selection is not restricted to a specific period of time. We include all relevant studies from the earliest published FFPT research in the 1970 s through October 2024. We did so intentionally so that we could capture the widest number of relevant studies in the life of FFPT programs worldwide.

In the end, 146 publications are identified for our study, in which we explore how non-dominant groups are included in FFPT programs and whether the researchers that evaluated FFPT programs paid special attention to how non-dominant groups use FFPT services and how FFPT programs achieve their stated outcomes. These works can be divided into three categories: (1) case studies that investigate in detail specific FFPT schemes from various perspectives (104) (e.g., Brand 2008; Bočková 2023; Börjesson et al. 2015; Cats 2014; De Witte et al. 2006; Hakala et al. 2023; Sträuli 2024); (2) overview studies that demonstrate the broader context of FFPT policy (22) (e.g., Fearnley 2013; Kębłowski 2020; Tomanek 2017); (3) articles using fare-free policy as a specific context for modelling diverse transport development scenarios (20) (e.g., Brie 2012; Cools et al. 2016; Dydkowski and Gnap 2019; Fielbaum 2024; Hebel et al. 2019; Wang et al. 2019). Of the 146 identified studies, only 63 publications specifically address non-dominant groups as shown in Table A1 in Appendix. The studies we review for this research are presented in Table A1 in Appendix, and the works are organized by the non-dominant group(s) addressed in the study at hand. Although the

[5] We searched both 'public transport' and 'public transportation.'.

approach to inclusion of non-dominant groups in FFPT programs (and research about non-dominant groups) is our focus, for each study in Table A1 we detail the research method utilized and program and research outcomes.

Our study has several limitations. First, the selection is restricted to three major databases, possibly overlooking other sources. Second, we focus only on English-language publications. Relying on English-language articles, we are still able to capture research about FFPT programs in the Global South (e.g., Brazil) and countries where scholarly articles are often published in native languages and not translated to English (e.g., France and Poland). Third, we omit research related to people with disabilities (e.g., physical, cognitive, emotional), as public transport agencies have concession programs for these individuals, and we focus on fare payment schemes that reduce fares to zero for *all* riders.

3. Overview of FFPT research agendas in published scholarship

The majority of FFPT studies are situated in Europe and North America (Delevoye 2022; Fearnley 2013; Kębłowski 2020; Kębłowski et al. 2023; Štraub et al. 2023), while only a small share of studies evaluates FFPT programs in Asia (Kębłowski 2018; Kiruthika and Ravi 2022; Liu et al. 2023; Sukor et al. 2021; Zakaria et al. 2024) or South America, where scholars' interest in FFPT began to emerge only recently (Larrabure 2016; Pereira et al. 2023). In this way, scholarship representing analyses of FFPT program in the Global South is noticeably underrepresented in the body of literature. Approximately 42 percent of studies examine partial FFPT programs, such as off-peak FFPT schemes and its effects on ridership (e.g., Currie 2010; Lovrić et al. 2016; Scheiner 1975; Studenmund 1979; Yang and Long Lim 2017) or temporary FFPT experiments (Dai et al. 2021; Pereira et al. 2023), 29 percent examine full FFPT (e.g., Galey 2014; Hess 2017; Ruud 2023) programs and about 29 percent are overview articles or hypothetical studies that do not explore specific ongoing (or terminated) FFPT programs (e.g., Arrilaga 1978; Giannopoulos 1980; Larrabure 2016; Sloboda 2016; Voronin and Yatskiv 2022; Zakowska et al. 2016).

As mentioned above, scholars have researched FFPT steadily since 1970, but a surge in FFPT research began after 2000, since 85 percent of studies were published since then. This observation is undoubtedly linked to the general growth of FFPT systems globally as documented by Kębłowski (2020) in an inventory of various FFPT experiments, with recent studies confirming that FFPT continues to gain momentum (Delevoye 2022; Goldberg 2021; Kębłowski et al. 2023; Kozina 2024; Pereira et al. 2023; Sukor et al. 2021; Štraub et al. 2023). The earliest published FFPT research explores selected experiments in Germany (Baum 1973), fiscal dimensions, policy analyses, and political overviews (Bly and Oldfield 1986; Giannopoulous 1980; Scheiner and Starling 1974), effects on transit ridership (Bachman and Katzev 1982; Capo and Messmer 1987; Dommachs and Hollinger 1979; Scheiner 1975; Studenmund 1979; Studenmund and Conor 1982; Train 1981), modal split development (Doxsay and Spear 1981) and price elasticities (Doxsay 1980) of partial FFPT schemes limited to off-peak hours or selected lines. Similarly, studies of full coverage FFPT programs focus on modal split (Escheverria-Jadraque and Guerrero-Garcia 1994; Hodge et al. 1994; Singell and Schifferli 1983) or retail sales in central business districts (Atherton and Eder 1982). Fares are also the subject of modelling studies aimed at predicting passengers' response to zero-fares (Lago et al. 1980; Stoner et al. 1980). Later, when the number of FFPT programs and experiments increased—influenced by the mobility turn (Sheller and Urry 2006; Urry 2000) or development of new information and communication technologies—the motivations for FFPT research are manifold as we demonstrate in the remaining sections of this article.

During the previous two decades, the pace of FFPT research quickened and the scope broadened. Several studies emerge from policy analyses of FFPT programs, including how a new FFPT law resulted from a political movement (Larrabure 2016) and how FFPT is part of a menu of policies that can address traffic congestion (Börjesson et al. 2015; Gebaldón-Estevan et al. 2019; Liu et al. 2023; Multiganda et al. 2023), improve the image of public transport (Dai et al. 2021), and challenge the socio-political status quo (Shen and Zen 2015; Štraub 2023b). Other studies compare the objectives of FFPT programs with outcomes (operational, economic, political) (Brand 2008; D'Alessandro 2008; Jansson 2008; Sexton 2012; Štraub and Jaroš 2019; Pereira et al. 2023). Policy design and plausible outcomes are examined in studies that discuss potential implementation of FFPT, such as in Athens (Giannopoulos 1980), Žilina (Sloboda 2016), Kraków (Zakowska 2016), and Riga (Voronin and Yatskiv 2022). One of the largest FFPT programs—in Tallinn, Estonia—has been the subject of study to better understand the policy-related motivations for establishing the program (Galey 2014; Hess 2017; Kębłowski et al. 2019); similar attention is drawn to Luxembourg with its nationwide FFPT scheme (Carr and Hesse 2020; Maciejewska et al. 2023; Ruud 2023).

Most commonly, researchers aim to explain the effect of public transport subsidies on travel behavior (De Witte et al. 2008; Doxsey and Spear 1981; Fadyushin 2021; Fiedeń and Štraub 2023; Scheiner 1975; Train 1981; Voss 2015; Willstrand et al. 2018), customers' willingness to pay (Drevs et al. 2014), and ridership shift from peak travel to off peak travel (Currie 2010; Lovrić et al. 2016; Studenmund 1979; Yang and Lim 2017). For example, Bočková (2023) compares ridership outcomes for selected groups entitled to participate in FFPT between Slovakia (since 2014) and Czechia (2019–2022); Pereira et al. (2023) explore how zero fares impact voter turnout during 2022 national elections in Brazil; and Jones et al. (2012) examine the connection between bus travel and wellbeing of young people in London. Other studies explore user perceptions about the quality and frequency of public transport for participants of FFPT programs (Hunecke et al. 2001; Štraub 2020; Zakaria et al. 2024) or the experience of employees receiving employer-paid free transit (Ruud 2023). Modeling studies assess how FFPT could hypothetically affect travel and other behaviors (Blättler et al. 2024; Cools et al. 2016; Driliciak et al., 2020; Lago et al. 1981; Lee and Yeh 2019; Metaxatos and Dirks 2012; Stoner et al. 1980; Tang et al. 2020; Uchida et al. 2006), crowding, and public transport stops (Lu et al. 2024). Some researchers stage experiments to explain the outcomes of FFPT (Fujii and Kitamura 2003), perform experimental studies of automobile driver behavior and willingness to change travel modes (Thøgersen and Møller 2008), and conduct experimental studies of (hypothetical) psychological motivations of FFPT users, especially travel mode change from driving to public transport (Friman et al. 2019).

Other studies assess the economic dimensions of FFPT, as fare abolition may lead to revenue decreases, which, combined with changes in ridership and expectations about public transport quality, can cause financial instability (Fearnley 2013; Nuworsoo et al. 2009; Singer and Schiffer 1983; Storchamnn, 2003; Tomeš et al. 2022). Scholars argue that FFPT could lead to alternate financing schemes beyond traditional fare-box revenue (De Witte et al. 2006; Goeverden et al. 2006; Rye and Carreno 2003; Zolnik, 2007). This opens up debate about how public transport operators might benefit from FFPT subsidies and the effectiveness of various funding models, such as private sector partnerships, residential tax-based systems, or discounted pre-paid services. In addition, FFPT can aid in public transport development by attracting more users and stimulating public opinion toward support for public transport (Basnak and Giesen 2023; Dragan et al. 2020; Huang et al. 2016).

Special attention is drawn to the impact of FFPT on our natural environment, which mainly refers to the ability of FFPT to attract automobile drivers and reduce the negative externalities of automobility. Here, although FFPT can significantly increase public transport ridership, evidence of modal shifts from private automobiles to public transport is uncertain (Cats et al. 2017; Fadyushi and Zakharow 2022; Praus and Tuisk 2020). This does not mean, however, that there is no effect on disrupting prevailing mobility patterns of automobile riders, but it instead shows that the price of ridership is not the deciding factor. If the goal of a municipality is to improve the environmental effects of its transportation system, zeroing fares on public transport should be

implemented along with other instruments of urban and transport planning (Brand 2008; Börjesson et al. 2015; Štraub and Jaroš 2019).

As mentioned in the introduction, FFPT is also frequently explored by researchers from a social perspective since FFPT is aimed at creating a more inclusive society by providing free unlimited access to transport for everyone. Consequently, FFPT is positioned to challenge transport-related inequalities (Asplund and Pyddok 2022; Intrurri et al. 2020; Mujcic, Frijters 2020; Schein 2011; Tansawat 2015). FFPT should be considered not only as a transport instrument, but also as a political force when it acts as a tool for advancing social justice and challenging the current status quo of inequitable public transport provision (Enright 2019; Shen and Zeng 2015; Štraub 2023b).

3.1. Positioning non-dominant groups in FFPT research

We next turn our attention to exploring the position of non-dominant (or non-majority) groups to understand the equity dimensions of FFPT both in practice and in scholarly research related to FFPT. We define non-dominant belonging in a straightforward manner: it refers to a group of people, smaller in number than the majority group, that shares a common characteristic (or characteristics) related to language, race, sexual orientation, gender identity, or other aspect of the human condition and/or social relationships. A non-dominant group usually experiences oppression or disempowerment related to the majority. Further, we define inclusivity in public transport as practices that facilitate ease of movement and access for all people, regardless of age, ability, socioeconomic status, sexual orientation and gender identity, and other characteristics.[6] A consideration for inclusivity can aid public transport systems in providing equitable access to opportunities and services. With an emphasis on inclusion, mobility and transport should facilitate (not hinder) access to opportunities (Liu 2024). By focusing on equity, those who design and operate transport systems seek to ensure that diverse populations have reasonable access to and benefit from transport possibilities (Liu 2024) and that costs and benefits of transport systems are distributed in a morally proper fashion (Boucher and Kelly 1998).[7] It is important to mention inequities in opposition to equity; inequities occur when groups of people experience differential levels of access to mobility and the transport system, and these inequalities can be narrowed when planners pursue equity (Bruzzone et al. 2023).

We expect public transport systems to be inclusive—because they offer access and mobility to all visitors, citizen, and residents—but inequities may prevent all groups of people from experiencing fair access to public transport service. Various studies highlighted in this article demonstrate that FFPT can enhance equity in access to public transport. Despite this essential principle of inclusivity, Börjesson et al. (2015) argue that addressing social equity is a key function of FFPT programs. In a study of service, operations, and outcomes of fare policies for a number of public transport systems, Rambaldini-Gooding et al. (2023) (77) argue that 'distribution and mobility' should be one of the key aims of FFPT: 'free public transport benefits less well-off groups of the population, like women, elderly, students and low-income households, and provide them with greater mobility,' and other studies supports these claims (Brough et al. 2022; Cats et al. 2014; Rozynek 2023; Tan et al. 2021). However, there appears to be a significant disconnect between this theoretical understanding and actual practice. Not only do FFPT programs rarely implement specific measures to include people from non-dominant groups, but non-dominant group are not mentioned in the majority of studies reviewed for this research (Bly and Oldfield 1986; Fearnley 2013; Kębłowski 2023; Perone 2002), either as a specific target group of an FFPT program or as a subject of research about FFPT programs. In fact, we found that only 25 percent of published research gives special consideration to non-dominant groups in studies of FFPT programs.

3.1.1. Sexual orientation and gender identity

We now turn to the sexual orientation and gender identity characteristics of FFPT participants or research subjects. SOGI characteristics are the 'gold standard' for defining sexual orientation and gender identity in social science research. However, we find that SOGI characteristics are rarely if ever included in FFPT research (or even through simpler survey categories such as sex defined as 'male and 'female'). Sometimes, gender identity is explored indirectly, such as a study of the FFPT program in Tallinn, Estonia (Sträuli 2024) finding that people without automobile access who care for others in their households—the carers are usually women—have an expanded activity space for carrying out household duties when public transport fares are erased.

One of the largest (partial) FFPT programs provides government-subsidized pre-paid fares to women and transgender individuals in four states in India—Delhi, Karnataka, Punjab, and Tamil Nadu (some of the programs also cover students and people with disabilities) (Dhillon 2023; Kiruthika and Ravid 2022; Sanjay 2023; Singh and Raj 2023). The FFPT programs, aimed successfully, as Kiruthika and Ravid (2022) argued, at women's empowerment, enhance independent and mobility for women and increase their labour force participation. Fare-free rides apply on non-premium public transport services operated by cities and towns. However, FFPT for women in India has experienced operation challenges: bus riders have refused to stop the vehicle to collect waiting women (Falor 2023), reinforcing long-standing discrimination and harassment for women on public transport in India (Valan 2020). Outside of India, Busch-Geertsema et al. (2021) found in an investigation of a partial FFPT scheme for employees at Goethe University in Frankfurt (Germany) that women are more likely to use public transport and thus FFPT improves their personal mobility.

3.1.2. Socio-economic status including low-income groups

The income level of public transport riders or potential riders has long been used to isolate submarkets of interest in public transport. In isolating particular submarkets of people identifying with non-dominant groups, we are acutely aware that a full FFPT program would offer everyone in a given locale—regardless any person characteristics—unlimited and free (also via pre-paid fares) ride on public transport, making FFPT a 'non-discriminatory benefit' (Hammadou et al. 2014, 22) unattached to minority status or other instance of discrimination or oppression (Cats et al. 2014; Cats et al. 2017). Nevertheless, FFPT can offer significant benefits for low-income individuals and households because it reduces or eliminates user fares for public transport, thereby enhancing mobility.

Several researchers argue that FFPT programs promote mobility and social participation for low-income people (Adnan et al. 2020; Hunt and Czerwinski 2004; Larrabure 2016; Rozynek 2024; Tansawat et al. 2015;), provides them with social and economic benefits (Brough et al. 2022; Tan et al. 2021) and that low-income groups benefit more from FFPT programs than do non-low income groups (Buchs-Geersema et al. 2021; Capo and Mesmer 1987; Kębłowski et al. 2019). Likewise, Fearnley (2013) notes that FFPT is advantageous to people who have fixed incomes. While enhancing mobility for low-income people—especially youths—FFPT programs can enhance access to opportunities for education (Larrabure 2016). Börjesson et al. (2015) explore public opinion (via surveys) about strategies to address traffic congestion, and findings support a belief among participants that FFPT can help improve equity between low-income and high-income groups.

Concerns for equity, along with concerns for the environment, are

[6] A more narrow definition of inclusivity refers to the design and operation of transport systems 'to provide equal opportunities to as many people as possible without the need for specialized design or adaptation' (Yonghun et al., 2016, 571). This definition gives consideration to people with disabilities (learning, cognitive, physical, emotional) and focuses on the physical aspects of transport systems.

[7] Bruzzone et al. (2023) offer various conceptualizations and definitions of equity.

part of the foundation of FFPT programs. Kębłowski et al. (2019) reports that low-income people benefit more from FFPT in Tallinn, Estonia than do non-low-income people (determined through expert interviews). However, some studies conclude otherwise (Doxsey 1980; Maciejewska et al. 2023). Similarly to Bull et al. (2021) who agree that FFPT is successful in increasing ridership, but it is rather explained by substitution from non-motorized mode of transport, as noticed also Storchmann (2003), accessibility and distance to public transport stop, rather than income level. Such a discrepancy is like to be explained by local specific of FFPT scheme where the research was conducted.

Recent research has explored the potential of fare-free schemes to increase labor-force participation and reduce income inequality. While this engages various groups related to income, ethnicity, or education, it falls short of deeply exploring the most vulnerable populations (Ofosu-Kwabe et al. 2024). Similarly, a study of fare-free train usage confirms higher frequency among low-income individuals. However, despite having access to respondents' socio-demographic data, the researchers fail to reflect these personal characteristics in their results (Tansawat et al. 2015). These examples highlight a recurring pattern in FFPT research where available demographic data is underutilized, limiting potential insights about how these programs impact diverse societal groups.

3.1.3. Language spoken

Non-dominant groups can be defined by their spoken language, and often immigrant groups do not speak the mother tongue or dominant language of their adopted location. Kębłowski et al. (2019) report that ethnicity and language spoken are related to equitable access to public transport in the dual ethnic context of Tallinn, Estonia, home to one of the largest FFPT programs. Consequently, the authors conclude (determined through expert interviews) that Russian-speaking people benefit more from FFPT in Tallinn, Estonia than do dominant groups, and this is related to general exclusion of the Russian-speaking population in Estonia. Kębłowski et al. (2019) also mention that low-income groups benefit more from FFPT than the middle- and high-income groups (but their research does not explore sex or gender or other demographic characteristics of public transport riders and potential riders). The only other FFPT study we found that considered language was a study of public transport subsidies in Belgium that differentiated university students between French-speaking and Flemish-speaking institutions (De Witte et al. 2006).

3.1.4. Race and ethnicity

While FFPT programs limiting participation based on race and ethnicity are non-existent, we identify several articles that consider race and ethnicity while assessing FFPT. This is the case of the aforementioned Russian ethnicity in Tallinn, Estonia, where the Russian-speaking people benefit more from FFPT (Cats et al. 2016; Kębłowski et al. 2019). Brought et al. (2022), in a randomized controlled trial, evaluated effects of subsidized fares on travel behavior and found that while there is little evidence of significant differences in treatment effects across race or age groups, there are slight variations for Hispanic individuals (slightly lower treatment effect) and Black individuals (slightly higher treatment effect). In addition, Mujcic and Frijters (2021) conducted field experiment in which researchers randomly assigned test customers of different races to board public buses lacking cash to pay their fare, allowing bus drivers to decide whether to offer free rides. Findings suggest that 'white customers are twice more likely than black customers to be extended such a favour, with the black–white acceptance gap being as wide as 100 % (or 45 percentage points) in the baseline treatment. Indian customers also receive substantially fewer favours, but that effect becomes marginally insignificant after we control for other observables and tester random effects. On the other hand, Asian customers are just as likely to be rewarded as whites' (Mujcic and Frijters 2021, p. 994). These results reveal a stark and deeply troubling pattern of racial discrimination in public transport service provision, highlighting the pervasive nature of systemic racism and an urgent need for interventions to address such inequities in everyday interactions.

3.1.5. Age

Various FFPT programs segment the rider and potential ridership populations by age and prioritize youth and university-age young adults and older adults (age 60 or more years) as target groups for fare-free or pre-paid public transport fares (Hebel et al. 2019). An assumption is that working-age adults are the least in need of deeply discounted public transport fares, and available resources for subsidies should be reserved for the groups most in need as it mitigates specific transport-related barriers to social inclusion (Jones et al. 2013). For example, the FFPT program in Tallinn, Estonia had little effect on modal shift for commuters but increased travel opportunities for younger and older people (Sträuli 2024).

Older Adults. Various FFPT programs establish fare-free, heavily subsidized or pre-paid public transport for people aged 60 years and above, and researchers have examined outcomes of these programs including bus riding patterns and reasons for riding the bus (Dommasch and Hollinger 1979; Andrews et al. 2011); the shift from driving automobiles to riding public transport (Urbanek 2021); and exploring FFPT usage and how it affects the physical, mental and social well-being of users (Rambaldini-Gooding et al. 2023). Synthesized research attempts to determine whether or not such subsidies are worthwhile (Rye and Carreno 2008). Willstrand et al. (2018) estimate how public transport subsidies affect the public transport riding behavior of older adults in Sweden. In Seoul, South Korea, Shin (2021) performs an outcomes assessment of mobility and public transport usage of older adults eligible for free public transport cards and Yun (2023) study various fare policies and mode preferences of South Korea's elderly population. Hojski et al. (2022) explore the FFPT effect on travel behavior for entire population of seniors in Slovenia. These studies emphasize the significant impact of FFPT programs on the mobility and quality of life of older adults. They highlight the potential of such initiatives to promote social inclusion and active aging. However, these studies also accentuate the need for more comprehensive, cross-cultural research to fully understand the long-term societal benefits and potential drawbacks of FFPT across diverse urban and rural contexts.

University students. Various FFPT programs are aimed at university students, and scholars have evaluated the outcomes of these programs to better understand the behavior and preferences of students (Brown et al. 2001, 2003; Boyd et al. 2003; Grzelec et al. 2023; Sukor et al. 2021) and the effects of an FFTP program on public transport ridership (Grzelec and Jagiełło 2020). FFPT can first and foremost provide access via public transport to schools, colleges, and universities, thereby enhancing mobility for learners and reducing the cost of education (Larrabure 2016). Two studies (Brown et al. 2001; Miller 2001) perform macro-level comparative evaluations of FFTP programs at universities, focusing on public transport ridership outcomes. Other studies evaluate not only public transport ridership change resulting from FFTP programs but also complementary travel via automobile (Brown et al. 2003; Hakala et al. 2023; Hess et al. 2014; Urbanek 2021; Williams and Petrait 1993). Hess et al. (2004) evaluate travel time savings for university students in an FFPT program (when other bus service—not part of the FFPT program—is available) and Voss (2015) constructs a model of students' residential choice locations vis-à-vis their participation in subsidized public transport. Another study evaluates the public transport ridership outcomes of an FFPT program by comparing the travel behavior of participants with a control group (De Witte et al. 2006; Garcia-Munoz and Sandoval, 2022) study the impact of FFPT on public transport ridership and school attendance and Jones et al. (2012) focus on the relationship between health and FFPT.

Many of the studies about FFPT programs for university students—especially in North America (Boyd et al. 2003; Domachs and Hollinger 1979; Krueger and Murray 2008; Perone and Volinski 2003; Saphores et al. 2020; Volinski 2012)—are situated within literature

about transport policy for university campuses and how to reduce automobile trips to university campuses and make campuses more ecologically sustainable (Gabaldón-Estevan et al. 2019; Shoup 2018) and supportive of social equity (Butler and Sweet 2020). FFPT programs have been established for institutions of higher education and college/university towns to aid in management of campus parking supplies, especially when campuses are land-locked and space for new parking lots is unavailable (or an expansion of the parking supply is not desired) (Bond and Steiner 2007). Consequently, some studies of FFPT for university students examine the effects of deeply discounted fares on transit riding behavior, while some studies assess complementary travel behavior (driving automobiles), and some studies assess both public transport riding behavior and driving. In Catania, Italy, researchers employed a survey of students enrolled in an FFPT program to gauge their public transport riding behavior and to assess their satisfaction with and perception of public transport service (Inturri et al. 2020).

3.2. *Intersection of non-dominant groups*

When intersectionality is considered, people who identify with more than one non-dominant group may experience discrimination or oppression along more than one vector and their experience of non-belonging can be compounded. Various studies explore one dimension of belonging to a non-dominant group—such as age or sex—but few studies account for intersectionality of belonging to more than one dominant group (Marsiglia et al. 2021). We found two exceptions. The first exception is a study recounting how pressure from a political movement in Brazil resulted in the adoption of a law guaranteeing subsidized rides on public transport to specific groups. Larrabure (2016, 188) reports that 'the law—passed unanimously on 17 September 2013—gives free public transport to students from low-income families in 63 municipalities in the state.' The second is a study of Atlanta residents (via survey) about whether or not research subjects received employer-subsidized public transport passes (Lachapelle 2018). The author intersects demographic characteristics of survey respondents [income, race (non-White or White, a binary choice) and sex] and finds that low-income people are least likely to receive employer-subsidized public transport passes but most likely to desire public transport passes. Findings related to the race and sex variables are not reported in the study.

In some instances, FFPT programs were envisioned to support subsidized public transport fares for people who identify with non-dominant groups, but when FFPT programs are actually implemented a specific non-dominant group or groups could not be fully accommodated. For example, an evaluation of an FFPT program for university students reports that an earlier version of a law requiring subsidized fare included additional non-dominant groups such as 'the unemployed, and oppressed groups (indigenous communities and slave-descendent black communities or 'quilombolas')' (Grzelec and Jagiełło 2020 187). These studies reveal a significant shortcoming in current FFPT research and implementation: inadequate attention is given to intersectionality and the nuanced experiences of individuals belonging to multiple non-dominant groups. This gap not only limits our understanding of the potential impact of FFPT but also risks perpetuating existing inequalities in transportation access. Future FFPT studies and programs must prioritize intersectional approaches to ensure truly inclusive and equitable public transport policies that address the multifaceted experiences of diverse populations.

4. Conclusion: Realizing the potential for studying demographic characteristics of FFPT participants

Fare-free public transport has been the subject of extensive research producing a diverse array of studies exploring its impact on ridership levels, individual mobility strategies, transport planning, and urban policy studies. Despite the rich body of work, there is a scarcity of literature reviews that consider socio-economic and SOGI perspectives to frame FFPT problematics. This review addresses this gap and unequivocally finds that there is a scarcity of research that examines the outcomes and effects of FFPT program (response to research question 1) through the lens of SOGI identities and socio-economic characteristics (response to research question 2).

We believe that such an ideological change in FFPT research would be fruitful for FFPT debate as many studies of FFPT programs collect rudimentary demographic data but fail to utilize it meaningfully in analyses (response to research question 3). Neglecting the demographic factors in the interpretation of results is symptomatic of many FFPT studies (Currie 2010; Dai et al. 2021; Lovrić et al. 2016; Tan et al. 2021; Yun 2023). For example, Thøgersen and Møller (2008) recruit automobile drivers to participate in a study but do not collect demographic information about participants, a pattern observed in other studies (e.g.: Bond and Steiner 2006; Dai et al. 2021; Intrurri et al. 2021; Studenmund et al. 1979; Thøgersen 2009). In these and other studies we find that although researchers had access to socio-economic and demographic characteristics of participants of FFPT program and were not limited in the way that certain studies were—c.f. Jones et al. (2012) and Tomeš et al. (2022) and studies lacking detailed socio-demographic data—the interpretation of research results often lacks insights that might further broaden our understanding of FFPT.

In our concluding statements, we highlight what we perceive to be missed opportunities in this body of research (further response to research question 3) and in so doing we seek to illuminate a pathway for further research for a more comprehensive and equitable approach to FFPT studies in the future. We summarize our findings to produce three key takeaway messages as follows.

- **For the most part, demographic measures—including socio-economic SOGI characteristics—of public transport riders and FFPT users are not accounted for in scholarly research about FFPT**. While there are numerous studies focused on university-aged students or young adult in which participants' age was studied as a factor in outcomes of FFPT programs, other demographic characteristics such as SOGI characteristics were not addressed (Andrews and Parkhurst 2008; Bond and Steiner 2007; Boyd et al. 2003; Brown et al. 2001; Brown et al. 2003; Butler and Sweet 2020; D'Alessandro and Des 2008; De Witte et al. 2006; Hunecke et al. 2001; Inturri et al. 2020, 2021; Studenmund 1979; Voss 2015). For example, Fuji and Kitamura (2003) recruit students into experimental and control groups; none of the demographic variables (age, income, sex (binary male or female only) are statistically significant in models, and consequently the authors devote little attention to discussing demographic differences. Cats et al. (2017), as another example, prepare a dataset by weighting survey responses by various demographic characteristics (age, ethnicity, gender, and others) for participants in the large FFPT program in Tallinn, Estonia, and then report ridership outcomes by income level, educational attainments, labour force participation, and other measures, but notably not gender. Even when researchers have access to comprehensive demographic data, they often overlook opportunities to provide deeper insight.
- **Certain studies could potentially have incorporated socio-economic and SOGI characteristics but fell short, thereby limiting the potential insights of outcomes of FFPT for non-dominant groups**. While some studies collect users' socioeconomic and SOGI characteristics, they frequently omit findings stratified by these important factors (Hojski et al. 2022; Katzev and Bachman 1982; Metaxatos 2013; Studenmun, Coor 1982; Thögersen 2009). For example, Cools et al. (2016) conducted a stated preference survey in Flanders, Belgium to test the hypothetical effects of FFPT; the research team collects information about the subjects' gender (male/female binary choice only), age, housing (live alone versus live with others), net monthly income, and education level.

Friman et al. (2019), in a hypothetical study of FFPT using stated preference surveys, collect information about the subjects' 'gender' (male or female binary choice), age, and income; the researchers intended to track mode shift and reduction in the price of public transport, however the demographic analysis does not form a large part of the study. While results suggest that men (more than women) are more likely to choose bicycle mode for shopping and recreation trips, the researchers pay little attention to the demographic variables available in the study. Fiedeń and Štraub (2023) study users' preferences about public transport, comparing those with access to paid versus fare-free public transport, but miss an opportunity to analyze these preferences through a socio-economic or SOGI lens. Similarly, Yang and Lim (2017) and Zakaria et al. (2024) explore satisfaction levels with public transport under FFPT schemes but fail to contextualize findings within broader socio-demographic frameworks, thus limiting the potential insights into how FFPT impacts various non-dominant groups.

Our review uncovers studies where researchers consider gender distribution but fail to achieve gender parity among research subjects. For example, in a study of the outcomes of an FFPT program in Poland targeting students, Grzelec et al. (2023) recruit a control group comprised of only 5 percent women and an experimental group of only 9 percent women. The researchers do not provide outcomes by male/female groups, even though the researchers reported the sex distribution of their sampled groups and significantly under sampled women. Various studies, including research by Urbanek (2019), treat a public transport rider as a public transport rider and a survey participant as a survey participant, regardless of sexual orientation or gender identity. In other words, researchers tend to reduce public transport riders to featureless individuals in order to understand people's travel behavior vis-à-vis FFPT (or people's perceptions for FFPT programs or public transport service) and also aggregate individuals to larger groups of riders (ignoring demographic characteristics of those riders). It seems to us that it would have been relatively straightforward to collect and analyze data that considers the sexual orientation and gender identity of study subjects to provide insights about the effects of FFPT on transport equity. Another study of the effects of FFPT on ridership (especially students) neglects the sexual orientation and gender identity of research subject and fails to compare research subjects with other age or socioeconomic groups (Thøgersen and Møller 2008).

- **FFPT research is not distributed evenly (geographically) around the globe, and further insights into the outcomes of FFPT for non-dominant groups are needed from under-researched places including the Global South**. Besides investigating the various socioeconomic and sex and gender perspective in FFPT research, we isolate the geographical hotspots of FFPT exploration. While there is a dominance of FFPT studies in North America and Europe, we encourage more research on FFPT in the Global South, especially research that explores how FFPT can improve equity in cities and countries in the Global South. For example, there is little scholarly research to date on how FFPT programs can help achieve social and economic gains for women in the countries of South Asia, especially India.

This point underscores the notion that FFPT program are strongly related to the urban contexts and cultures within which they are situated. Public transport systems and the populations they serve are different from city to city and from country to country. In the same way, customs, policies, and laws protecting non-dominant groups vary by place. Consequently, the possibilities are limited for generalizing findings from the various studies of FFPT reported in this article. Despite context-dependent differences, public transport systems worldwide share the fundamental goal of providing high-quality access and mobility for their populations. This commonality suggests that while implementation details must be tailored to local conditions, the underlying principle of designing FFPT programs with explicit consideration for non-dominant groups has universal applicability.

Our findings suggest that FFPT should not be viewed as an isolated policy but rather integrated within broader urban planning, land use, and social policy frameworks (as suggested by Kębłowski (2020) and Štraub (2023a)). The SOGI gaps identified in this review suggest a need for policymakers to approach FFPT as an interdisciplinary tool that intersects with housing policy, educational access, healthcare, employment opportunities, and other societal concerns. Such integration requires recognizing (not only) public transport users as diverse individuals with unique needs rather than homogeneous 'passengers'. When considering how to align SOGI factors with broader equity principles in FFPT implementation, policymakers must balance tailored approaches to specific non-dominant groups with universal FFPT design. For example, while programs like India's FFPT initiatives for women and transgender individuals (Kiruthika and Ravid 2022) successfully address gender-specific mobility constraints, universal FFPT programs can achieve similar equity outcomes without creating separate systems that might inadvertently reinforce social divisions. This more nuanced and comprehensive policy approach better addresses the needs of non-dominant groups and enhances the equity of fare abolition while potentially increasing the effectiveness of FFPT programs as a whole.

Our review suggests that greater attention toward socio-economic, sexual orientation, and gender identity considerations in FFPT programs is strongly aligned with core equity principles inherent in public transport. We do not expect enhanced focus on non-dominant groups to privilege non-dominant groups over dominant groups in public transport policy, since public transport at its core should be inclusive and available to all riders and potential riders. FFPT is inherently a 'non-discriminatory benefit' available to everyone in a given locality. The benefits for non-dominant groups stem not from preferential treatment but from removing financial barriers that disproportionately affect vulnerable populations. When an access barrier removed for one group removes the barrier for everyone, access is universally enhanced.

In summary, this review unveils significant gaps in FFPT research, particularly concerning the inclusion of socio-economic and SOGI perspectives. The frequent oversight of demographic factors in the interpretation of research findings, the underutilization of available data, and the geographical imbalance in FFPT studies all point to missed opportunities for a more comprehensive understanding of FFPT's impacts. Moving forward, we strongly advocate for a paradigm shift in FFPT research. Future studies should prioritize the collection and meaningful analysis of detailed demographic data, including SOGI characteristics, to provide nuanced insights into how FFPT affects various societal groups. Additionally, expanding research to underrepresented regions, especially in the Global South, is crucial for a more holistic understanding of FFPT's potential to promote equity in diverse urban contexts and inclusively across the entire population. By addressing these gaps, future FFPT research can contribute more effectively to the development of inclusive, equitable public transport policies that authentically serves the needs of all members of society, regardless of their socio-economic status, gender identity, or geographic location.

CRediT authorship contribution statement

Daniel Štraub: Writing – review & editing, Writing – original draft, Validation, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Daniel Baldwin Hess:** Writing – review & editing, Writing – original draft, Validation, Supervision, Investigation, Formal analysis, Data curation, Conceptualization.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence

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Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.trip.2025.101454.

Data availability

No data was used for the research described in the article.

References

Adnan, M., Biran, B.-H., Baburajan, V., Basak, K., Ben-Akiva, M., 2020. Examining Impacts of Time-Based Pricing Strategies in Public Transportation: A Study of Singapore. *Transportation Research Part a: Policy and Practice* 140 (October), 127–141. https://doi.org/10.1016/j.tra.2020.08.010.

Allen, J., Farber, S., 2020. Planning Transport for Social Inclusion: An Accessibility-Activity Participation Approach. *Transportation Research Part d: Transport and Environment* 78 (January), 102212. https://doi.org/10.1016/j.trd.2019.102212.

Andrews, Geoffrey, Graham Parkhurst, Jon Shaw, and Yusak Susilo. 2011. "The Grey Escape: How and Why Are Older People Really Using Their Free Bus Pass?" 2011. https://uwe-repository.worktribe.com/output/966644.

Arrilaga, B., 1978. TRANSPORTATION PRICING PROGRAM OF THE URBAN MASS TRANSPORTATION ADMINISTRATION. Special Report - Transportation Research Board, National Research Council, p. 181.

Asplund, D., Pyddoke, R., 2022. How Does Concern for Low-Income Individuals Affect Optimal Public Transport Policy in a Small City? *Journal of Transport Economics and Policy (JTEP)* 56 (3), 295–322.

Atherton, T.J., Eder, E.S., 1982. IMPACTS of CBD FARE-FREE TRANSIT on RETAIL SALES. *Transportation Research Record* no, 861.

Bachman, W., Katzev, R., 1982. The Effects of Non-Contingent Free Bus Tickets and Personal Commitment on Urban Bus Ridership. *Transportation Research Part a: General* 16 (2), 103–108. https://doi.org/10.1016/0191-2607(82)90002-4.

Basnak, P., Giesen, R., 2023. Assessing Free-Fare Public Transport in Chilean Cities through Optimization Models. *Research in Transportation Economics* 98 (May), 101277. https://doi.org/10.1016/j.retrec.2023.101277.

Baum, H.J., 1973. Free Public Transport. *Journal of Transport Economics and Policy* 7 (1), 3–19. https://www.jstor.org/stable/20052304.

Baumeister, R.F., 2013. Writing a Literature Review. In: Prinstein, M. (Ed.), *The Portable Mentor*. Springer, New York.

Blättler, K., Wallimann, H., von Arx, W., 2024. Free Public Transport to the Destination: A Causal Analysis of Tourists' Travel Mode Choice. *Transportation Research Part a Policy and Practice* 187 (September), 104166. https://doi.org/10.1016/j.tra.2024.104166.

Bly, P.H., Oldfield, R.H., 1986. The Effects of Public Transport Subsidies on Demand and Supply. *Transportation Research Part a: General* 20 (6), 415–427. https://doi.org/10.1016/0191-2607(86)90078-6.

Bočková, N., 2022. Empirical Evidence of the Effect of Fare Subsidies in Transition Economies. *Eastern European Economics* 61 (3), 1–21. https://doi.org/10.1080/00128775.2022.2153698.

Bond, A., Steiner, R., 2006. Sustainable Campus Transportation through Transit Partnership and Transportation Demand Management: A Case Study from the University of Florida. *Berkeley Planning Journal* 19 (1). https://doi.org/10.5070/bp319111492.

Börjesson, M., Hamilton, C.J., Näsman, P., Papaix, C., 2015. Factors Driving Public Support for Road Congestion Reduction Policies: Congestion Charging, Free Public Transport and More Roads in Stockholm, Helsinki and Lyon. *Transportation Research Part a: Policy and Practice* 78 (August), 452–462. https://doi.org/10.1016/j.tra.2015.06.008.

Boucher, D., & Kelly, P. J. (Eds.). (1998). Social justice: From Hume to Walzer. Routledge.

Boyd, B., Chow, M., Johnson, R., Smith, A., 2003. Analysis of Effects of Fare-Free Transit Program on Student Commuting Mode Shares: BruinGo at University of California at Los Angeles. *Transportation Research Record: Journal of the Transportation Research Board* 1835 (1), 101–110. https://doi.org/10.3141/1835-13.

Brand, R., 2008. Co-Evolution of Technical and Social Change in Action: Hasselt's Approach to Urban Mobility. *Built Environment* 34 (2), 182–199.

Brie, M., 2012. Private E-Car vs. Public Transport for Free – Real Dystopia vs. Concrete Utopia. In Just Mobility - Postfossil Conversion and Free Public Rransport, Rosa Luxemburg Foundation https://www.rosalux.de/fileadmin/rls_uploads/pdfs/Analysen/Analyse_Just_Mobility.pdf.

Brough, R., Freedman, M., Phillips, D.C., 2022. Experimental Evidence on the Effects of Means-Tested Public Transportation Subsidies on Travel Behavior. *Regional Science and Urban Economics* 96 (September), 103803. https://doi.org/10.1016/j.regsciurbeco.2022.103803.

Brown, J., Hess, D.B., Shoup, D., 2001. Unlimited Access. *Transportation* 28 (3), 233–267. https://doi.org/10.1023/a:1010307801490.

Brown, J., Hess, D.B., Shoup, D., 2003. Fare-Free Public Transit at Universities. *Journal of Planning Education and Research* 23 (1), 69–82. https://doi.org/10.1177/0739456x03255430.

Bruzzone, F., Cavallaro, F., Nocera, S., 2023. The definition of equity in transport. Transportation Research Procedia 69, 440–447. https://doi.org/10.1016/j.trpro.2023.02.193.

Bull, O., Muñoz, J.C., Silva, H.E., 2021. The Impact of Fare-Free Public Transport on Travel Behavior: Evidence from a Randomized Controlled Trial. *Regional Science and Urban Economics* 86 (January), 103616. https://doi.org/10.1016/j.regsciurbeco.2020.103616.

Busch-Geertsema, Annika, Martin Lanzendorf, and Nora Klinner. 2021. "Making Public Transport Irresistible? The Introduction of a Free Public Transport Ticket for State Employees and Its Effects on Mode Use." *Transport Policy* 106 (April). https://doi.org/10.1016/j.tranpol.2021.04.007.

Butler, A., Sweet, M., 2020. No Free Rides: Winners and Losers of the Proposed Toronto Transit Commission U-Pass Program. *Transport Policy* 96 (September), 15–28. https://doi.org/10.1016/j.tranpol.2020.05.019.

Capo, C.K., Messmer, D.J., 1987. Effects of Disseminating Service Information and Free Ride Coupons on Bus Ridership. *Transportation Research Record* no, 1144.

Carr, C., Hesse, M., 2020. Mobility Policy through the Lens of Policy Mobility: The Post-Political Case of Introducing Free Transit in Luxembourg. *Journal of Transport Geography* 83 (February), 102634. https://doi.org/10.1016/j.jtrangeo.2020.102634.

Cats, O., Reimal, T., Susilo, Y., 2014. Public Transport Pricing Policy. *Transportation Research Record: Journal of the Transportation Research Board* 2415 (1), 89–96. https://doi.org/10.3141/2415-10.

Cats, O., Susilo, Y.O., Reimal, T., 2017. The Prospects of Fare-Free Public Transport: Evidence from Tallinn. *Transportation* 44 (5), 1083–1104. https://doi.org/10.1007/s11116-016-9695-5.

Cavallaro, F., Costa, C., De Biasi, I., Fabio, A., Nocera, S., 2024. Sustainable pathways for mitigating externalities in long-distance terrestrial transport. Transport Policy 154, 207–221. https://doi.org/10.1016/j.tranpol.2024.05.026.

Cools, M., Fabbro, Y., Bellemans, T., 2016. Free Public Transport: A Socio-Cognitive Analysis. *Transportation Research Part a: Policy and Practice* 86 (April), 96–107. https://doi.org/10.1016/j.tra.2016.02.010.

Currie, Graham. 2010. "ENHANCING RAIL CAPACITY USING FREE FARE INCENTIVES to SHIFT DEMAND PEAKS." In *WORLD CONFERENCE on TRANSPORT 2010*.

D'Alessandro, Antonio. 2008a. "Fare-Free Transit -A Strategy for Sustainable Transportation." In *Annual Conference of the Transportation Association of Canada*. http://conf.tac-atc.ca/english/resourcecentre/readingroom/conference/conf2008/docs/j1/dallesandro.pdf.

D'Alessandro, Antonio. 2008b. "Fare-Free Transit – a Strategy for Sustainable Transportation." http://conf.tac-atc.ca/english/resourcecentre/readingroom/conference/conf2008/docs/j1/dallesandro.pdf.

Dai, J., Liu, Z., Li, R., 2021. Improving the Subway Attraction for the Post-COVID-19 Era: The Role of Fare-Free Public Transport Policy. *Transport Policy* 103 (March), 21–30. https://doi.org/10.1016/j.tranpol.2021.01.007.

Witte, D.e., Astrid, C.M., Lannoy, P., Polain, C., Steenberghen, T., Van de Walle, S., 2006. The Impact of 'Free' Public Transport: The Case of Brussels. *Transportation Research Part a: Policy and Practice* 40 (8), 671–689. https://doi.org/10.1016/j.tra.2005.12.008.

Witte, D.e., Astrid, C.M., Mairesse, O., 2008. How Persuasive Is 'Free' Public Transport? *Transport Policy* 15 (4), 216–224. https://doi.org/10.1016/j.tranpol.2008.05.004.

Delevoye, V., Hasiak, S., Huré, M., Javary, C.-M., Passalacqua, A., Poinsot, P., Vaslin, J., 2022. *La Gratuité Des Transports: Une Idée Payante ?* Le bord de l'eau, Lormont.

Dhillon, Amrit. 2023. "Ticket to Freedom: Free Bus Rides for Women Spark Joy for Millions in Karnataka." *The Guardian*, June 26, 2023, sec. World news. https://www.theguardian.com/world/2023/jun/26/ticket-to-freedom-free-bus-rides-for-women-spark-joy-for-millions-in-karnataka?ref=refind.

Dommasch, I.N., Hollinger, R.L., 1979. MERCER COUNTY OFF-PEAK FARE-FREE BUS DEMONSTRATION. *Traffic Quarterly* 33 (3).

Doxsey, L.B., 1980. ELASTICITY MEASURES of BEHAVIORAL RESPONSE to OFF-PEAK FREE-FARE TRANSIT. *Transportation Research Record*, 761 (January).

Doxsey, L.B., Spear, B.D., 1981. FREE-FARE TRANSIT: SOME EMPIRICAL FINDINGS. ABRIDGMENT. *Transportation Research Record* no, 799.

Dragan, Dejan, Abolfazl Keshavarzsaleh, Vlado Popović, Borut Jereb, and Marko Intihar. 2022. "Heuristic-Based Optimisation Approach: Cost-Effective School Transportation." *Proceedings of ICE. Transport/Proceedings of the Institution of Civil Engineers. Transport* 175 (4): 220–37. https://doi.org/10.1680/jtran.18.00151.

Drevs, F., Tscheulin, D.K., Lindenmeier, J., Renner, S., 2014. Crowding-in or Crowding Out: An Empirical Analysis on the Effect of Subsidies on Individual Willingness-To-Pay for Public Transportation. *Transportation Research Part a: Policy and Practice* 59 (January), 250–261. https://doi.org/10.1016/j.tra.2013.10.023.

Driliciak, M., Celko, J., Cingel, M., Jandacka, D., 2020. Traffic Volumes as a Modal Split Parameter. Sustainability 12 (24), 10252. https://doi.org/10.3390/su122410252.
Dudley, G., Richardson, J., 2000. *Why Does Policy Change?* Routledge, London.
Dydkowski, G., Gnap, J., 2019. Premises and Limitations of Free Public Transport Implementation. *Communications - Scientific Letters of the University of Zilina* 21 (4), 13–18. https://doi.org/10.26552/com.c.2019.4.13-18.
Enright, T., 2019. Transit Justice as Spatial Justice: Learning from Activists. *Mobilities* 14 (5), 665–680. https://doi.org/10.1080/17450101.2019.1607156.
Escheverria-Jadraque, D., and M. J. Guerrero-Garcia. 1994. "EXPERIENCES of FREE PUBLIC TRANSPORT in the CITY of CASTELLON de LA PLANA." Trid.trb.org. 1994. https://trid.trb.org/view/425192.
Fadyushin, A., 2021. CHANGES in the STRUCTURE of URBAN MOBILITY with the DEVELOPMENT of PUBLIC TRANSPORT. In: *WIT Transactions on the Built Environment* 204 (august). https://doi.org/10.2495/ut210231.
Fadyushin, A., Zakharov, D., 2022. The Impact of the Cost of Paid Parking for Private Cars and Public Transport Fare on the Structure of Urban Mobility. *International Journal of Transport Development and Integration* 6 (2), 197–207. https://doi.org/10.2495/tdi-v6-n2-197-207.
Falor, Sanskriti. 2023. "'Bus Drivers Do Not Stop for Women Passengers': Delhi CM Kejriwal Lists Free Bus Ride as Reason." Hindustan Times. May 18, 2023. https://www.hindustantimes.com/cities/delhi-news/bus-drivers-do-not-stop-for-women-passengers-delhi-cm-kejriwal-lists-free-bus-ride-as-reason-101684392131668.html.
Fearnley, N., 2013. Free Fares Policies: Impact on Public Transport Mode Share and Other Transport Policy Goals. *International Journal of Transportation* 1 (1), 75–90. https://doi.org/10.14257/ijt.2013.1.1.05.
Fiedeń, Ł., Štraub, D., 2023. The Importance of Ticket Price in Public Transport in Nonmetropolitan Rural Areas in Poland. *Bulletin of Geography. Socio-Economic Series* 59 (February), 57–68. https://doi.org/10.12775/bgss-2023-0004.
Foth, N., Manaugh, K., El-Geneidy, A.M., 2013. Towards Equitable Transit: Examining Transit Accessibility and Social Need in Toronto, Canada, 1996–2006. *Journal of Transport Geography* 29 (May), 1–10. https://doi.org/10.1016/j.jtrangeo.2012.12.008.
Friman, M., Maier, R., Olsson, L.E., 2019. Applying a Motivational Stage-Based Approach in Order to Study a Temporary Free Public Transport Intervention. *Transport Policy* 81 (September), 173–183. https://doi.org/10.1016/j.tranpol.2019.06.012.
Fujii, S., Kitamura, R., 2003. What Does a One-Month Free Bus Ticket Do to Habitual Drivers? An Experimental Analysis of Habit and Attitude Change. *Transportation* 30 (1), 81–95. https://doi.org/10.1023/a:1021234607980.
Gabaldón-Estevan, D., Orru, K., Kaufmann, C., Orru, H., 2019. Broader Impacts of the Fare-Free Public Transportation System in Tallinn. *International Journal of Urban Sustainable Development* 11 (3), 332–345. https://doi.org/10.1080/19463138.2019.1596114.
Galey, D., 2014. License to Ride: Free Public Transportation for Residents of Tallinn. *Critical Planning* 21. https://doi.org/10.5070/cp8211024788.
Garcia-Munoz, E., Sandoval, H.H., 2022. The Impacts of K-12 Students Fare Free Bus Programs on Educational Outcomes. *Journal of Human Capital* 16 (4). https://doi.org/10.1086/721376.
Giannopoulos, G.A., 1980. FARE-FREE PUBLIC TRANSIT POTENTIAL in ATHENS, GREECE. *Traffic Quarterly* 34 (2).
van Goeverden, C., Rietveld, P., Koelemeijer, J., Peeters, P., 2006. Subsidies in Public Transport. *European Transport / Trasporti Europei* no. 35. http://www.openstarts.units.it/dspace/handle/10077/5892.
Goldberg, D., 2021. The New Geography of Fare-Free Public Transport: Examining the Suspension of Fares in the United States during COVID-19. Master Thesis, the Brussels Centre for Urban Studies. Vrije Universiteit Brussels.
Gregory, A.T., Denniss, A.R., 2018. An Introduction to Writing Narrative and Systematic Reviews — Tasks, Tips and Traps for Aspiring Authors. Heart, Lung and Circulation 27 (7), 893–1888. https://doi.org/10.1016/j.hlc.2018.03.027.
Grzelec, K., Hebel, K., Helbin, M., Kołodziejski, H., Wyszomirski, O., 2023. "FREE FARE PUBLIC TRANSPORT as a DETERMINATE on PUPILS TRAVEL BEHAVIOR and PREFERENCES in THEIR DAILY TRAVELS towards SUSTAINABLE MOBILITY – the CASE of GDYNIA (POLAND)." *Scientific Journal of Silesian University of Technology. Series. Transport* 121 (121), 89–106. https://doi.org/10.20858/sjsutst.2023.121.7.
Grzelec, K., Jagiełło, A., 2020. The Effects of the Selective Enlargement of Fare-Free Public Transport. *Sustainability* 12 (16), 6390. https://doi.org/10.3390/su12166390.
Hakala, K., Esmaeilzadeh, S., Hakala, P., Berg, P., Rine, T., Pesola, A.J., 2023. Free-Fare Bus and Private Car Chauffeuring among 10-12-Year-Old Children in Two Finnish Cities. *Journal of Futures Studies* 28 (2), 111–122.
Hammadou, Hakim, Claire Papaix, and Alexandra Hyard. 2014. "Which Policy Tools to Move towards Low Carbon Mobility?" In *Nontechnological Innovations for Sustainable Transport: Four Transport Case Studies*, 5–25. Cham: Springer International Publishing. https://doi.org/10.1007/9783319097916_2.
Hebel, K, M Wołek, and A Jagiełło. 2019. "Trends in Free Fare Transport on the Urban Transport Service Market in Poland." In *Integration as Solution for Advanced Smart Urban Transport Systems. TSTP 2018. Advances in Intelligent Systems and Computing*, edited by G. Sierpiński. Cham: Springer.
Hess, D.B., 2017. Decrypting Fare-Free Public Transport in Tallinn, Estonia. *Case Studies on Transport Policy* 5 (4), 690–1668. https://doi.org/10.1016/j.cstp.2017.10.002.
Hess, D.B., Ray, P., Attard, N., 2014. "Connections beyond campus: An evaluation of the Niagara Frontier Transportation Authority-University at Buffalo pilot transit pass program. University at Buffalo, Regional Institute, Buffalo". New York.
Hess, D., Brown, J., Shoup, D., 2004. Waiting for the Bus. *Journal of Public Transportation* 7 (4), 67–84. https://doi.org/10.5038/2375-0901.7.4.4.
Hodge, D.C., Orrell III, J.D., Strauss, T.R., 1994. "FARE-FREE POLICY: COSTS, IMPACTS on TRANSIT SERVICE, and ATTAINMENT of TRANSIT SYSTEM GOALS. FINAL REPORT." *Trid.trb.org*. https://trid.trb.org/view/387196.
Hojski, D., Hazemali, D., Lep, M., 2022. The Analysis of the Effects of a Fare Free Public Transport Travel Demand Based on E-Ticketing. *Sustainability* 14 (10), 5878. https://doi.org/10.3390/su14105878.
Huang, D.i., Liu, Z., Liu, P., Chen, J., 2016. Optimal Transit Fare and Service Frequency of a Nonlinear Origin-Destination Based Fare Structure. *Transportation Research Part e: Logistics and Transportation Review* 96 (December), 1–19. https://doi.org/10.1016/j.tre.2016.10.004.
Hunecke, M., Blöbaum, A., Matthies, E., Höger, R., 2001. Responsibility and Environment. *Environment and Behavior* 33 (6), 830–852. https://doi.org/10.1177/00139160121973269.
Hunt, K.L., Czerwinski, J., 2004. Regional Transit Program for Welfare to Work in Chicago, Illinois: Three Years Later. *Transportation Research Record: Journal of the Transportation Research Board* 1887 (1), 3–9. https://doi.org/10.3141/1887-01.
Inturri, G., Fiore, S., Ignaccolo, M., Caprì, S., Le Pira, M., 2020. 'You Study, You Travel Free': When Mobility Management Strategies Meet Social Objectives. *Transportation Research Procedia* 45, 193–200. https://doi.org/10.1016/j.trpro.2020.03.007.
Inturri, G., Giuffrida, N., Le Pira, M., Fazio, M., Ignaccolo, M., 2021. Linking Public Transport User Satisfaction with Service Accessibility for Sustainable Mobility Planning. *ISPRS International Journal of Geo-Information* 10 (4), 235. https://doi.org/10.3390/ijgi10040235.
Jansson, J.O., 2008. Public Transport Policy for Central-City Travel in the Light of Recent Experiences of Congestion Charging. *Research in Transportation Economics* 22 (1), 179–187. https://doi.org/10.1016/j.retrec.2008.05.027.
Jones, A., Goodman, A., Roberts, H., Steinbach, R., Green, J., 2013. Entitlement to Concessionary Public Transport and Wellbeing: A Qualitative Study of Young People and Older Citizens in London, UK. *Social Science & Medicine* 91 (August), 202–209. https://doi.org/10.1016/j.socscimed.2012.11.040.
Jones, A., Steinbach, R., Roberts, H., Goodman, A., Green, J., 2012. Rethinking Passive Transport: Bus Fare Exemptions and Young People's Wellbeing. *Health & Place* 18 (3), 605–612. https://doi.org/10.1016/j.healthplace.2012.01.003.
Kębłowski, W. 2018. "Fare-Free Public Transport in Chengdu: Riding for Free in a Chinese Metropolis." In *Free Public Transit: And Why We Don't Pay to Ride Elevators;*, edited by J Prince and J Delheim. Black Rose Books.
Kębłowski, W., 2020. Why (Not) Abolish Fares? Exploring the Global Geography of Fare-Free Public Transport. *Transportation* 47 (March), 2807–2835. https://doi.org/10.1007/s11116-019-09986-6.
Kębłowski, W., 2023a. Degrowth Is Coming to Town: What Can It Learn from Critical Perspectives on Urban Transport? *Urban Studies* 60 (7), 004209802211498. https://doi.org/10.1177/00420980221149825.
Kębłowski, W., 2023b. The Making(S) of an Alternative Urban Policy: What Happens When Free Fares Come to Town? *Antipode* 55 (1). https://doi.org/10.1111/anti.12865.
Kębłowski, W., Goldberg, D., Gillard, M., Maciejewska, M., 2023. Missed Opportunity or Herald of Change? The Sudden Rise of Fare-Free Public Transportation in the United States during the COVID-19 Pandemic. Vrije Universiteit Brussel, Brussels.
Kębłowski, W., Tuvikene, T., Pikner, T., Jauhiainen, J.S., 2019. Towards an Urban Political Geography of Transport: Unpacking the Political and Scalar Dynamics of Fare-Free Public Transport in Tallinn, Estonia. *Environment and Planning c: Politics and Space* 37 (6), 967–984. https://doi.org/10.1177/2399654418821107.
King, Hannah, and Brian D Taylor. 2023. "Considering Fare-Free Transit in the Context of Research on Transit Service and Pricing: A Research Synthesis." UCLA Institute of Transportation Studies.
Kiruthika, S., Ravi, G., 2022. "IMPACT of WOMEN FREE BUS OPERATION INTAMIL NADU STATE TRANSPORT CORPORATION (TNSTC) on TAMILNADU." *International Journal of Early Childhood. Special Education* 15 (5).
Kozina, T., 2024. SUSTAINABILITY of the FREE PUBLIC TRANSPORT MODEL in the REPUBLIC of CROATIA. *Poslovna Izvrsnost* 18 (1), 91–103. https://doi.org/10.22598/pi-be/2024.18.1.91.
Krueger, T., Murray, G., 2008. *Transit Systems in College and University Communities*. Transportation Research Board, Washington, D.C.
Lachapelle, U., 2018. Employer Subsidized Public Transit Pass: Assessing Disparities in Access, Use, and Latent Demand. *Case Studies on Transport Policy* 6 (3), 353–363. https://doi.org/10.1016/j.cstp.2017.08.006.
Lago, Armando M, Patrick D Mayworm, and J Matthew McEnroe. 1981. "FURTHER EVIDENCE on AGGREGATE and DISAGGREGATE TRANSIT FARE ELASTICITIES." *Transportation Research Record*, no. 799 (January).
Larrabure, M., 2016. The Struggle for the New Commons in the Brazilian Free Transit Movement. *Studies in Political Economy* 97 (2), 175–194. https://doi.org/10.1080/07078552.2016.1211135.
Lee, M.-T., Yeh, C.-F., 2019. Causal Effects between Bus Revenue Vehicle-Kilometers and Bus Ridership. *Transportation Research Part a: Policy and Practice* 130 (December), 54–64. https://doi.org/10.1016/j.tra.2019.09.019.
Liu, Q., 2024. The dilemmas of transport equity research in non-Western contexts. Transportation Research Interdisciplinary Perspectives 26, 101157. https://doi.org/10.1016/j.trip.2024.101157.
Liu, Q., Liu, Z., An, Z., Zhao, P., Zhao, D., 2023. A Modal Shift due to a Free Within-Destination Tourist Bus Scheme: Multimodality and Transport Equity Implications. *Research in Transportation Business & Management* 48 (June), 100863. https://doi.org/10.1016/j.rtbm.2022.100863.
Lovrić, M., Raveau, S., Adnan, M., Pereira, F.C., Basak, K., Loganathan, H., Ben-Akiva, M., 2016. Evaluating Off-Peak Pricing Strategies in Public Transportation with an Activity-Based Approach. *Transportation Research Record: Journal of the Transportation Research Board* 2544 (1), 10–19. https://doi.org/10.3141/2544-02.

Lu, Q.-L., Mahajan, V., Lyu, C., Antoniou, C., 2024. Analyzing the Impact of Fare-Free Public Transport Policies on Crowding Patterns at Stations Using Crowdsensing Data. *Transportation Research Part a: Policy and Practice* 179 (January), 103944. https://doi.org/10.1016/j.tra.2023.103944.

Lucas, K., Bates, J., Moore, J., Carrasco, J.A., 2016. Modelling the Relationship between Travel Behaviours and Social Disadvantage. *Transportation Research Part a: Policy and Practice* 85 (March), 157–173. https://doi.org/10.1016/j.tra.2016.01.008.

Maciejewska, M., Boussauw, K., Kębłowski, W., Van Acker, V., 2023. Assessing Public Transport Loyalty in a Car-Dominated Society: The Case of Luxembourg. *Journal of Public Transportation* 25 (January), 100061. https://doi.org/10.1016/j.jpubtr.2023.100061.

Marsden, G., Reardon, L., 2017. Questions of Governance: Rethinking the Study of Transportation Policy. *Transportation Research Part a: Policy and Practice* 101 (July), 238–251. https://doi.org/10.1016/j.tra.2017.05.008.

Marsiglia, F.F., Kulis, S.S., Lechuga-Peña, S., 2021. *Diversity, Oppression, and Change: Culturally Grounded Social Work*. Oxford University Press, New York, Ny.

Metaxatos, P., 2013. Ridership and Revenue Implications of Free Fares for Seniors in Northeastern Illinois. *Journal of Public Transportation* 16 (4), 131–150. https://doi.org/10.5038/2375-0901.16.4.7.

Metaxatos, P., Dirks, L., 2012. Cost Estimation of Fare-Free ADA Complementary Paratransit Service in Illinois. *Journal of Public Transportation* 15 (4), 67–85. https://doi.org/10.5038/2375-0901.15.4.4.

Miller, J.H., 2001. Transportation on College and University Campuses. Transportation Research Board, Washington.

Mujcic, R., Frijters, P., 2020. The Colour of a Free Ride. *The Economic Journal* 131 (634). https://doi.org/10.1093/ej/ueaa090.

Mutiganda, J.C., Skoog, M., Igudia, E., 2023. Understanding the Process of Improving Accessibility and Affordability of Inter-Municipal Bus Transport System. *European Transport Research Review* 15 (1). https://doi.org/10.1186/s12544-023-00598-x.

Nuworsoo, C., Golub, A., Deakin, E., 2009. Analyzing Equity Impacts of Transit Fare Changes: Case Study of Alameda–Contra Costa Transit, California. *Evaluation and Program Planning* 32 (4), 360–1338. https://doi.org/10.1016/j.evalprogplan.2009.06.009.

Ofosu-Kwabe, K., Lim, S.H., Malalgoda, N., 2024. Does Fare-Free Transit Increase Labor-Force Participation and Reduce Income Inequality? *Journal of Public Transportation* 26 (January), 100095. https://doi.org/10.1016/j.jpubtr.2024.100095.

Pautasso, M., 2013. "Ten Simple Rules for Writing a Literature Review." Edited by Philip E. Bourne. *Plos Computational Biology* 9 (7). https://doi.org/10.1371/journal.pcbi.1003149.

"The Structure and Conduct of a Narrative Literature Review." In *A Guide to the Scientific Career: Virtues, Communication, Research and Academic Writing*, edited by M Shoja, A Arynchyna, M Loukas, A. V. D'Antoni, S. M. Buerger, M. Karl, and R. Shane Tubs, 792. Wiley-Blackwell. https://doi.org/10.1002/9781118907283.ch31.

Pereira, R.H.M., Vieira, R.S., Bizzarro, F., Barbosa, R.J., Dahis, R., Ferreira, D.T., 2023a. Free Public Transit and Voter Turnout. *Electoral Studies* 86 (December), 102690. https://doi.org/10.1016/j.electstud.2023.102690.

Pereira, T.F., Vermander, M., Kębłowski, W., 2023b. Motivations and Characteristics of FFPT Policies in Selected Brazilian Municipalities. *Journal of Sustainable Urban Mobility* 3 (1), 122–138. https://doi.org/10.53613/josum.2023.v3.010.

Perone, J.S., and J.M. Volinski. 2003. " Fare, Free, or Something in Between?" Tampa: University of South Florida.

Perone, Jennifer. 2002. "Advantages and Disadvantages of Fare-Free Transit Policy." Tampa, Florida (USA): National Center for Transportation Research. https://doi.org/10.5038/cutr-nctr-rr-2002-17.

Prause, Gunnar, and Tarmo Tuisk. 2020. "Case Study: Free Public Transport as Instrument for Energy Savings and Urban Sustainable Development—the Case of the City of Tallinn." In *Energy Transformation towards Sustainability*, edited by Manuela Tvaronavičienė and Beata Ślusarczyk, 163–77. Elsevier. https://doi.org/10.1016/B9780128176887.000082.

Prince, J., 2018. Jamming Fare Boxes in Montreal. In: Dellheim, J., Prince, J. (Eds.), *Free Public Transit: and Why We Don't Pay to Ride Elevators*. Black Rose Books.

Rambaldini-Gooding, D., Molloy, L., Parrish, A.-M., Strahilevitz, M., Clarke, R., Perez, P., 2022. Free Public Transport and Older People: An Ethnographic Study of an Australian Bus Service. *Australasian Journal on Ageing* 42 (2). https://doi.org/10.1111/ajag.13158.

Rozynek, C., 2024. Imagine the Financial Barrier to Public Transport Use Disappears. The Impact of the 9-Euro-Ticket on the Mobility and Social Participation of Low-Income Households with Children. *Transport Policy* 149 (February), 80–90. https://doi.org/10.1016/j.tranpol.2024.02.003.

Ruud, S.F., 2023. Giving up Control: Devaluation of Railway Work in Luxembourg's Fare-Free Public Transportation System? *Anthropology of Work Review* 44 (2). https://doi.org/10.1111/awr.12259.

Rye, T., Carreno, M., 2008. Concessionary Fares and Bus Operator Reimbursement in Scotland and Wales: No Better or No Worse Off? *Transport Policy* 15 (4), 242–250. https://doi.org/10.1016/j.tranpol.2008.06.003.

Sanjay, Satviki. 2023. "Free Bus Rides Offer Indian Women New Option for Work, and Play." *Bloomberg*, November 6, 2023. https://www.bloomberg.com/news/articles/2023-11-06/india-inside-shakti-the-free-bus-ride-program-for-women-in-karnataka-delhi.

Saphores, J.D., 2020. A Review of Reduced and Free Transit Fare Programs in California. University of California Institute of Transportation Studies, UC Office of the President.

Schein, R., 2011. "Free Transit and Social Movement Infrastructure: Assessing the Political Potential of Toronto." *Alternate Routes: A Journal of Critical. Social Research* 22. http://www.alternateroutes.ca/index.php/ar/article/view/14421.

Scheiner, J.I., 1975. PATRONAGE EFFECTS of FREE-FARE TRANSIT. *Traffic Quarterly* 29 (1).

Scheiner, J.I., Starling, G., 1974. The Political Economy of Free-Fare Transit. *Urban Affairs Quarterly* 10 (2), 170–184. https://doi.org/10.1177/107808747401000204.

Sexton, S.E., 2012. Paying for Pollution? How General Equilibrium Effects Undermine the 'Spare the Air' Program. *Environmental and Resource Economics* 53 (4), 553–575. https://doi.org/10.1007/s10640-012-9577-z.

Sheller, M., Urry, J., 2006. The New Mobilities Paradigm. *Environment and Planning a: Economy and Space* 38 (2), 207–226. https://doi.org/10.1068/a37268.

Shen, J.X., Zeng, S.K., 2015. Fare-Free Public Transit Service: Experience from Gaoping City of China. *Advances in Transportation Studies* 1, 3–12.

Shin, E.J., 2021. Exploring the Causal Impact of Transit Fare Exemptions on Older Adults' Travel Behavior: Evidence from the Seoul Metropolitan Area. *Transportation Research Part a: Policy and Practice* 149 (July), 319–338. https://doi.org/10.1016/j.tra.2021.05.007.

Shoup, D., 2018. The Politics and Economics of Parking on Campus. *Parking and the Cit*. Routledge, New York.

Singell, L.D., Schifferli, E., 1983. DENVER FREE FARE PROJECT as a 'HABIT BREAKER.'. *Transportation Science* 17 (4).

Singh, Vikrant, and Abhishek Raj. 2023. "A Small Step for Women, a Leap for the Nation." The New Indian Express. September 27, 2023. https://www.newindianexpress.com/opinions/2023/Sep/27/a-small-step-for-women-a-leap-for-the-nation-2618790.html.

Siren, A., Sørensen, C.H., 2015. Immense Changes in Traffic – Considerable Stability in Discourses. Road Speed in Danish Parliamentary Documents 1900–2010. *Transport Policy* 40 (May), 1–7. https://doi.org/10.1016/j.tranpol.2015.02.005.

Sloboda, Matus. 2016. "Free Public Transport: The City of Žilina." In *Proceedings of The20th International Conference: Current Trends in Public Sector Research*. Brno: Masaryk University.

Stoner, J.W., Donnelly, R.M., Duker, K.J., 1980. Simple Logit Model Analysis of Transit versus Pedestrian Modal-Split. *Traffic Quarterly* 34 (1).

Storchmann, K., 2003. Externalities by Automobiles and Fare-Free Transit in Germany — a Paradigm Shift? *Journal of Public Transportation* 6 (4), 89–105. https://doi.org/10.5038/2375-0901.6.4.5.

Štraub, D., 2020. The Effects of Fare-Free Public Transport: A Lesson from Frýdek-Místek (Czechia). *Sustainability* 12 (21), 9111. https://doi.org/10.3390/su12219111.

Štraub, Daniel. 2023a. *Is it all about the sustainability? Unpacking the framework of fare-free public transport* (p. 159) [Dissertation]. https://rozprawy-doktorskie.bip.uj.edu.pl/geografia-spoleczno-ekonomiczna-i-gospodarka-przestrzenna/-/journal_content/56_INSTANCE_urZoxhx3TBRf/143381600/155007925.

Štraub, D., 2023. On the Road to a Fare-Free Public Transport Policy: A Case Study of the Wroclaw Anarchist Federation. *Transport Geography Papers of Polish Geographical Society / Prace Komisji Geografii Komunikacji PTG* 26 (1), 40–51. https://doi.org/10.4467/2543859XPKG.23.003.17400.

Štraub, Daniel, and Václav Jaroš. 2019. "Free Fare Policy as a Tool for Sustainable Development of Public Transport Services." *HUMAN GEOGRAPHIES – JOURNAL of STUDIES and RESEARCH in HUMAN GEOGRAPHY* 13 (1): 45–59. https://doi.org/10.5719/hgeo.2019.131.3.

Štraub, D., Kębłowski, W., Maciejewska, M., 2023. From Bełchatów to Żory: Charting Poland's Geography of Fare-Free Public Transport Programmes. *Journal of Transport Geography* 111 (July), 103650. https://doi.org/10.1016/j.jtrangeo.2023.103650.

Sträuli, L., 2024. Fare-Free, Not Carefree: Care Mobilities in a Fare-Free Public Transport System in Tallinn. *Mobilities* 19 (4), 686–703. https://doi.org/10.1080/17450101.2024.2328215.

Sträuli, L., Kębłowski, W., 2022. 'The Gates of Paradise Are Open': Contesting and Producing Publicness in the Brussels Metro through Fare Evasion. *Urban Studies* 60 (15), 004209802211256. https://doi.org/10.1177/00420980221125671.

Strommer, T., Hörcher, D., Munkácsy, A., 2023. Crowding externalities and optimal subsidies in public transport: Revisiting the Parry–Small model. Research in Transportation Economics 100, 101324. https://doi.org/10.1016/j.retrec.2023.101324.

Studenmund, A.H., Swan, S., Connor, D., 1979. INTERIM ANALYSIS of the FREE-FARE TRANSIT EXPERIMENTS. *Transportation Research Record* no, 719.

Studenmund, A.H., Connor, D., 1982. The Free-Fare Transit Experiments. *Transportation Research Part a: General* 16 (4), 261–1229. https://doi.org/10.1016/0191-2607(82)90053-x.

Sukor, N.S., Abdul, S.A., Hassan, S.A., 2021. 'More than a Free Bus Ride'—Exploring Young Adults' Perceptions of Free Bus Services Using a Qualitative Approach: A Case Study of Penang, Malaysia. *Sustainability* 13 (6), 3294. https://doi.org/10.3390/su13063294.

Tan, H., McNeil, N., MacArthur, J., Rodgers, K., 2021. Evaluation of a Transportation Incentive Program for Affordable Housing Residents. *Transportation Research Record: Journal of the Transportation Research Board* 2675 (8), 240–253. https://doi.org/10.1177/0361198121997431.

Tang, Yili, Hai Yang, Bo Wang, Jianling Huang, and Yunyun Bai. 2019. "A Pareto-Improving and Revenue-Neutral Scheme to Manage Mass Transit Congestion with Heterogeneous Commuters." *Transportation Research Part C: Emerging Technologies* 113 (June). https://doi.org/10.1016/j.trc.2019.05.016.

Tansawat, T., Kanitpong, K., Kishi, K., Utainarumol, S., Jiwattanakulpaisarn, P., 2015. The Impact of Public Transport Subsidy on Social Inclusion: The Case of Free Train Policy in Thailand. *Journal of the Eastern Asia Society for Transportation Studies* 11 (January), 2558–2574. https://doi.org/10.11175/easts.11.2558.

Thøgersen, J., 2009. Promoting Public Transport as a Subscription Service: Effects of a Free Month Travel Card. *Transport Policy* 16 (6), 335–343. https://doi.org/10.1016/j.tranpol.2009.10.008.

Thøgersen, J., Møller, B., 2008. Breaking Car Use Habits: The Effectiveness of a Free One-Month Travelcard. *Transportation* 35 (3), 329–345. https://doi.org/10.1007/s11116-008-9160-1.

Tomanek, R., 2018. FREE-FARE PUBLIC TRANSPORT in the CONCEPT of SUSTAINABLE URBAN MOBILITY. *Transport Problems* 12 (SE), 95–105. https://doi.org/10.20858/tp.2017.12.se.8.

Tomeš, Z., Fitzová, H., Pařil, V., Rederer, V., Kordová, Z., Kasa, M., 2022. "Fare Discounts and Free Fares in Long-Distance Public Transport in Central Europe." *Case Studies on. Transport Policy* 10 (1). https://doi.org/10.1016/j.cstp.2022.01.011.

Train, K., 1981. The Salt Lake City Experiment with Short Term Elimination of Transit Fares. *Transportation* 10 (2), 185–199. https://doi.org/10.1007/bf00165265.

Uchida, K., Sumalee, A., Watling, D., Connors, R., 2006. A Study on Network Design Problems for Multi-Modal Networks by Probit-Based Stochastic User Equilibrium. *Networks and Spatial Economics* 7 (3), 213–240. https://doi.org/10.1007/s11067-006-9010-7.

Urbanek, A., 2021. "FareFree Public Transport vs. In: Suchanek, M. (Ed.), Private Cars: Zero Fares as an Instrument of Impact on Public Transport Mode Share?" in *Transport Development Challenges in the 21st Century*. Springer International Publishing, Cham, pp. 215–225.

Urry, J., 2000. *Sociology beyond Societies: Mobilities for the Twenty-First Century*. Routledge, Taylor & Francis Group, London; New York.

Volinski, J., 2012. *Implementation and Outcomes of Fare-Free Transit Systems*. Transportation Research Board, Washington, D.C. https://doi.org/10.17226/22753.

Voronin, Y., Yatskiv, I., 2022. Free Public Transport Policy: Modelling of Implementation in Riga. In: Kabashkin, I., Yatskiv, I., Prentkovskis, O. (Eds.), *Reliability and Statistics in Transportation and Communication*. Springer International Publishing, Cham, pp. 421–431.

Voss, A., 2015. Collective Public-Transport Tickets and Anticipated Majority Choice: A Model of Student Tickets. *Transportation Research Part a: Policy and Practice* 80 (October), 263–276. https://doi.org/10.1016/j.tra.2015.08.005.

Wang, Lumeng, Jun Yu, Di Huang, and Zhiyuan Liu. 2019. "Optimal Time Period of Fare-Free Public Transport Zone Based on Social Equity." *CICTP 2019*, July. https://doi.org/10.1061/9780784482292.113.

Williams, M.E., Petrait, K.L., 1993. U-Pass: A Model Transportation Management Program That Works. *Transportation Research Record*, 1404, 73–81.

Willstrand, T.D., Henriksson, P., Swensson, H., Levin, L., 2018. Evaluation of Free Public Transport for Older People in Sweden. In *Proceedings of the 6th Humanist Conference*.

Yang, N., Lim, Y.L., 2018. Temporary Incentives Change Daily Routines: Evidence from a Field Experiment on Singapore's Subways. *Management Science* 64 (7), 3365–3379. https://doi.org/10.1287/mnsc.2017.2731.

Yang, Y., Han, X., Jiang, R., Jia, B., Gao, Z., 2022. Competition and coordination in public transport: A mode choice experiment. Transportation Research Part C-Emerging Technologies 143, 103858. https://doi.org/10.1016/j.trc.2022.103858.

Yonghun, L., Farnaz, N., Joseph, G., 2016. Beyond Accessible Mobility: Insights into Psychosocial Inclusivity Dimensions in Personal Transport. Studies in Health Technology and Informatics 229. https://doi.org/10.3233/978-1-61499-684-2-571.

Yun, J., 2023. Strategies for Improving the Sustainability of Fare-Free Policy for the Elderly through Preferences by Travel Modes. *Sustainability* 15 (20), 14678. https://doi.org/10.3390/su152014678.

Zakaria, H., Md, M., Rohani, N.N., Ambak, K., Mohd, F., Mohd, A., 2024. "Redefining User Experience: A Study of Free-Fare Buses and Its Service Quality in Johor, Malaysia." *IOP Conference Series. Earth and Environmental Science* 1347 (1), 012055. https://doi.org/10.1088/1755-1315/1347/1/012055.

Zakowska, L., Piwowarczyk, M.A., Aleksandrowicz, J.H., 2016. Considerations on Free Public Transport Implementation - Based on Krakow Case. In: *Libro De Actas CIT2016. XII Congreso De Ingeniería Del Transporte*. https://doi.org/10.4995/cit2016.2016.3523.

Zolnik, E.J., 2007. Cost Attribution in Unlimited Access Transit Programs: Case Study on the UConn Prepaid Fare Program Failure. *The Professional Geographer* 59 (3), 365–377. https://doi.org/10.1111/j.1467-9272.2007.00619.x.