Araştırma Makalesi

Transport Inequality in Today's Cities at the Intersection of Mobility and Inequality

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Abstract

One aspect of social inequality in today's cities concerns transport inequality. This simply refers to the transport advantages of the rich compared to the poor (Gebresselassie & Sanchez, 2019). The transport inequality intersects with other forms of marginalization as well, based on gender, age, disability, and ethnicity. Yet for the mobile or kinetic elite (Andreotti, Le Gallès, & Moreno-Fuentes, 2013), all places and transport means are readily available. Furthermore, transport-related mega-projects accentuate the existing social inequalities of the neoliberal city. However, urban policy makers have begun to realize the importance of transport inequality and develop inclusive policies, such as "accessibility planning" in the UK (Lucas, 2012). Urban citizens are also forming mobility justice movements to protest against the increasing transport costs, as in Latin America (Díaz Pabón & Palacio Ludeña, 2021) and France. The encompassing mobility research is largely connected to social and environmental sustainability ideals. Hence, this paper will study the relationship between mobility and inequality through a thematic analysis of approximately 100 publications that were selected with certain keywords from the results of Web of Science searches, a few books, institutional reports and other sources. This literature review shows that transport inequalities are a reflection of the capitalist system and one of the main sources of social conflict in contemporary societies. Against the solution suggestions that range from rehabilitating the system to revolution as a process in the related literature, formation of place-based solutions that take into consideration both universal and local conditions is suggested in this study.

Keywords: Social inequality; transport inequality; physical, social, technological, and political-economic dimensions of transport inequality; sustainable mobility; mobility barriers

Hareketlilik ve Eşitsizliğin Kesişiminde Günümüz Kentlerinde Ulaşım Eşitsizliği

Öz

Günümüz kentlerindeki toplumsal eşitsizliklerin bir yönünü ulaşım eşitsizliği oluşturur. Bu, basitçe, varlıklı insanların yoksullar karşısındaki ulaşım üstünlükleri anlamına gelir (Gebresselassie ve Sanchez, 2019). Ulaşım eşitsizliği, cinsiyet, yaş, engellilik ve etnik köken gibi başka ötekileştirme türleriyle de kesişir. Öte yandan, bütün yerler ve ulaşım araçları hareketli ya da kinetik seçkinlerin (Andreotti, Le Gallès ve Moreno-Fuentes, 2013) eli altındadır. Üstelik ulaşımla ilgili mega projeler neoliberal kentin var olan toplumsal eşitsizliklerini daha da belirginleştirirler. Bununla birlikte, kentsel politika yapıcıları ulaşım eşitsizliğinin önemini giderek ayırt etmeye ve İngiltere'deki "erişilebilirlik planlaması" örneğinde olduğu gibi kapsayıcı politikalar geliştirmeye başlamışlardır (Lucas, 2012). Dünya kentlerinin yurttaşları da, Latin Amerika (Díaz Pabón ve Palacio Ludeña, 2021) ve Fransa'daki gibi artan ulaşım giderlerini protesto etmek için, hareketlilik alanında adaleti hedefleyen toplumsal hareketler oluşturmaktadır. Konuyu kapsayan hareketlilik araştırmaları toplumsal ve çevresel sürdürülebilirlik hedefleriyle büyük ölçüde bağlantılıdır. Bu gerekçelerle, bu makalede hareketlilik ve eşitsizlik arasındaki ilişki belirli anahtar sözcüklerle, Web of Science arama sonuçlarından, birkaç kitaptan, kurum raporundan ve başka kaynaklardan seçilen yaklaşık 100 yayının tematik bir çözümlemesi yoluyla incelenecektir. Bu derleme makalesi ulaşım eşitsizliklerinin kapitalist düzenin bir yansıması olarak, günümüz toplumlarındaki başlıca toplumsal çatışma kaynaklarından biri olduğunu göstermektedir. Söz konusu yazındaki, düzeni iyileştirmekten, süreç olarak devrime dek uzanan çözüm önerilerine karşılık, bu çalışmada evrensel ve yerel koşulları birarada gözeten, yer odaklı çözümlerin oluşturulması önerilmektedir.

Anahtar Kelimeler: Toplumsal eşitsizlik; ulaşım eşitsizliği; ulaşım eşitsizliğinin fiziksel, toplumsal, teknolojik ve politik-ekonomik boyutları; sürdürülebilir hareketlilik; hareketlilik engelleri

Transport Inequality in Today's Cities at the Intersection of Mobility and Inequality

Inequality is a major sociological problem with deep historical and structural roots that continues to affect the lives of millions of people around the world. It is systemic in the sense that neoliberal capitalism intensifies the inequalities between people and places in all realms of life. Inequality is defined as unequal opportunities for different individuals and societal groups ("Inequality," 2014). Hamnett (2019) defines it in terms of an uneven distribution and share of resources, such as income and wealth, and life conditions, such as health and education. Ritzer's (2007) Blackwell Encyclopedia of Sociology contains multiple entries on inequality for marriage, the city, gender and wealth. Although they are still general headings, these multiple entries indicate that inequality is indeed a broad issue that has many dimensions. In an Organisation for Economic Co-operation and Development [OECD] (2016) report about inclusive growth of cities, this multi-dimensionality of inequality is also mentioned, and some country examples of how to measure "multi-deprivation" are given for Australia, Italy and the United Kingdom.

The depth of the inequality issue also applies to the perspectives on inequality; different sociological and ideological perspectives conceive social inequality and stratification differently regarding their causes, consequences and societal benefits and harms. Most sociological research, since its beginnings in the eighteenth and nineteenth centuries, has been concerned with studying the causes and consequences of social inequality. Moreover, major sociologists, such as Bourdieu, present in their seminal work how most of these seemingly individual inequalities are socio-structural in the sense that they are transmitted from one generation to the next like an inheritance. Contemporary research on forms of social inequality mostly confirms Bourdieu's intergenerational social privilege or disadvantage thesis. For example, Hamnett (2019, p. 247) claims that "arguably most, if not all, of the forms of inequality are, in fact, manifestations of a small number of deeper, underlying inequalities".

Looking at today's globalized world, it is a stage of history where most urban societies have been living through a mobility era since the 1990s. This is explained in the social sciences literature with the concepts of "mobilities turn" and "new mobilities paradigm" that refer to a more relational and connected understanding of space. Sheller (2017) summarizes how social scientists developed these ideas to understand and interpret the on-going socio-spatial changes since the late twentieth century towards an increasingly mobile social life everywhere. This modern society of flows has not emerged out of nowhere, but was based on economic, political and technological developments, such as the developments in information and communication technology (ICT) or developments in the transport sector. Yet this emerging mobile global society is not without problems, including growing inequality that comes out as "uneven mobilities" (Sheller, 2017, p. 631) due to various historical trajectories of societies, different mobility regimes or "systems of (im)mobility" (Sheller, 2017, p. 627). According to Hamnett (2019), transport is one of those realms, where cities can have distributional inequality problems other than inequalities purely concerning economic resources. Harvey (2022), who underlines the growing social inequalities over the last 30 years and climate change and environmental degradation as two major contradictions of capitalism, provides multiple examples of mass movements from France to Chile, Ecuador, Brazil, and Tehran that were ignited by transport inequality issues.

The OECD (2016) report on inclusive cities picks up on transport issues as one aspect of increasing social inequality. The transport topic is considered under the heading of geographical mechanisms that exist behind what is called the "neighbourhood effect" (OECD, 2016, p. 84) of income inequality. A policy suggestion against socio-spatial segregation and for inclusive urban growth (OECD, 2016) is stated to be mixed neighborhoods, which can be achieved through a combination of factors from housing to transport and beyond. Another policy suggestion is developing an egalitarian transport system that enables people's access to employment and other life chances (OECD, 2016). The report shows that transport is actually one of the highest priorities—first or second—for most OECD city administrations and it is mostly financed by national administrations (OECD, 2016). There is also a special section in the report that sets out what can be done for more accessible, affordable, inclusive, and sustainable urban transport (OECD, 2016), again with country examples—Frankfurt, Bogota and Seoul—of good practices. Another OECD-International Transport Forum [ITF] (2017) report is also based on case studies of countries—the U.S., Santiago, Chile, Mexico City, Indian Cities, Bogota, Colombia and Swedish-French-Finnish cities—and quantitative analyses of data that look into the relationship between income inequality, social inclusion, and mobility.

Mobility inequality as an underlying factor of social inequality has become a major area of research in various social science disciplines, from sociology to geography and beyond. Yet the existing plethora of mobility research reminds one of the parable of the blind men and an elephant, with multiple approaches, themes, and methods, depending on where one gets hold of. In broad brush strokes, one can speak of the existence of a mobility inequality, when a certain group of people have mobility disadvantages, such as access to efficient transport on the one hand, but also, when they are forced to move when they would rather stay put or not move—exercising a right to immobility or place-making. Gebresselassie and Sanchez (2019) understand transport inequality as the advantages of the rich over the poor, who are more affected by negative transport externalities.

In a UK report on transport inequality, Gates, Gogescu, Grollman, Cooper, and Khambhaita (2019) underline three legs of the transport and inequality relationship: people's socio-spatial distribution could perhaps be considered as a departure point, distribution of opportunities as destinations, and the accessibility of transport systems in terms of cost, space-time and reliability as connection between one's departure and arrival points. The authors depict the close relationship between income, transport costs and links, employment and housing options in figures that also reveal the irony of, for example, gentrification-like side-effects of enhanced transport links in urban residential areas (Gates et al., 2019). The OECD-ITF (2017) roundtable report also warns against the land value appreciation effects of transit-led urban renewal in underdeveloped urban areas, and the displacement risk this might entail for the people who already live there. Hence, transport inequality is a complex issue that has to be handled carefully in a way that does not treat transport as a single problem area.

Furthermore, the existing mobility inequalities between people and places are deepened by global crises, such as pandemics, manmade natural disasters linked to climate change, growing fascism and decaying democracy, and country invasions and wars. Ethically and at the basic human rights level, mobility disparities are against movement and accessibility freedoms (Hidayati, Tan, & Yamu, 2021). As Hidayati et al. (2021) show in their comprehensive literature review of the subject, mobility inequality is used interchangeably

with other similar concepts, such as: mobility challenges and barriers (Cervero, 2013; Strohmeier, 2016); mobility inequity (Shirmohammadli, Louen, & Vallée, 2016); mobility injustice (Sheller, 2020); transport disadvantage (Schwanen et al., 2015); transport exclusion (Jaroš, 2017); transport accessibility (Singer, Cohen-Zada, & Martens, 2022); transport inequality (Falchetta, Noussan, & Hammad, 2021), and transport poverty (Pérez-Peña, Jiménez-García, Ruiz-Chico, & Peña-Sánchez, 2021).

Lucas (2018) defines the twin concept of transport poverty as the situation where a person has to undergo at least one of the following to satisfy her/his daily needs: unavailability of suitable transport options for her/his capabilities; inadequacy of the existing transport options; high cost of transport; excessive travel time, and unsafe transport. In another work, Lucas (2012) also depicts the relationship between transport, society, and surrounding social structures in the diagram below, which reveals the complexity of the issue.
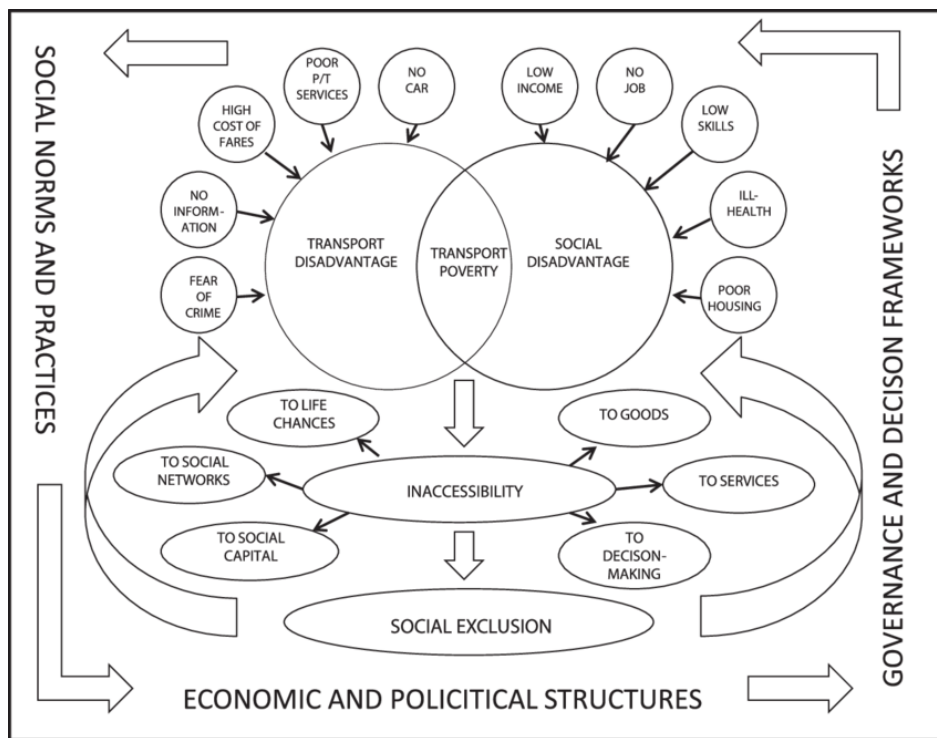

Figure 1. Karen Lucas' diagram for the link between transport and social exclusion (Lucas, 2012, p. 107)

2. Method

In this paper, the issue of transport inequality which is caused by a limited access to transport for various reasons, including supply and demand factors ("What inequality means for transport," 2018) is elaborated upon first by describing its multiple dimensions, from physical to social, economic, political, and technological. This literature review is based on a comprehensive search of the Web of Science database with the following keywords: mobility barriers, mobility disadvantage, sustainable mobility (highly cited papers only), sustainable transport (highly cited papers only), transport equity, transport inequality, transport poverty, and transportation and social exclusion. Eighty-three journal articles were selected based on their relevance, number of citations, and thematic variety for this review. In addition, a few institutional reports on transport inequality, books, book chapters and other sources were also included. Altogether approximately 100 items were included in the review (see Table 1). In Table 1, the literature items are written in chronological order and in case an item has been

used in multiple categories, it was indicated only once in the most relevant place. In addition, some items had to be relocated to different themes or subthemes after writing. The resulting detailed and analytical description of the transport inequality issue is followed by a discussion of its significance and repercussions for contemporary societies, and solution suggestions offered in the summarized literature. This paper does not require ethics committee approval because of the nature of the study as a literature review.

3. Thematic Findings of the Review

The issue of transport inequality is explained in this section in detail based on the thematic analysis of the selected literature under the categories of physical, social, technological, and political-economic dimensions.

3.1. Physical Dimensions of Transport Inequality

What is meant here by physical dimensions of transport inequality comprises anything related to either physical materials, such as transport infrastructure, or topics concerning various types of transport modes, including cars, bicycles, public transit, and even the physicality of walking, as well as resulting travel modes and behaviors. In addition, the physicality of the city is included within this subtheme; for example, how suburbs are influenced by transport inequality is a consequence of the socio-spatial organization of cities.

To start with cars, which represent motorized transport and are the target of change towards a sustainable mobility transition that is expected to be equalitarian as well, Jain and Guiver (2001) first underline the car's social embeddedness. It has been so much taken for granted as part of daily life. On the other hand, there are people, who consciously choose a life without a car (Jain & Guiver, 2001). They analyze car travel in terms of its global and local environmental and social impacts, both direct and indirect. The environmental impacts are obvious: global warming due to carbon-dioxide emissions; pressure over scarce energy sources; unequal global impacts of climate change; "temporal inequality" (Jain & Guiver, 2001, pp. 571-572), i.e. the effect on future generations; and local environmental damage. Socially, car travel directly affects people's health and communities, creates traffic problems such as noise and accidents, and deters other land uses. It also shapes the city in a car-prone way, and defines the priorities—such as speed or "time-space compression" (Jain & Guiver, 2001, p. 576)—that are reflected in car-less people as time poverty and other transport limitations accordingly. It cuts drivers' connection with the environment. Jain and Guiver (2001) also underline that individual and collective interests regarding car travel might not converge, because the individual solution to one's mobility problems does not remove the collective ones and even exacerbates them. Nonetheless, car mobility has to be questioned collectively for transport equity, and disincentives for commuting by car should be developed for sustainable urban mobility (Basu & Ferreira, 2021).

Despite all this negativity about cars, they continue to be an object of desire for many people not only for their convenience, but also for their psychological comfort. Wells and Xenias (2015, p. 116) emphasize this "cocooning" effect of a private car for its owner as a place for refuge from the crowds. Because of this continued cultural importance of a private car for people, the authors expect a time lag in people's adopting the idea of a post-automobility society. This evolving meaning of a car against the changing surrounding circumstances also becomes apparent in other personal environments, such as one's house and workplace. Wells

Table 1. The Reviewed Literature Categorized under the Study Themes

Themes	Subthemes	Dictionary and Encyclopedia Entries, Digital Sources, and Talks (n=11)	Institutional Reports (n=3)	Books and Book Chapters (n=6)	Journal Articles and Book Reviews (n=83)
Inequality and transport inequality	Definitions	2007 Ritzer; 2014 Inequality; 2018 What inequality means for transport	2016 OECD; 2019 Gates et a	2019 Hamnett	2012 Lucas; 2018 Lucas; 2019 Gebresselassie & Sanchez
	Concepts			2020 Sheller	2015 Schwanen et al.; 2016 Shirmohammadliet al.; 2017 Jaroś; Sheller; 2021 Falchetta et al.; Hidayati et al.; Pérez-Peña et al.; 2022 Singer et al.
	Comparative cases		2017 OECD-IT		
Physical dimension	Cars				2001 Jain & Guiver; 2015 Wells & Xenias; 2021 Basu & Ferreira; Díaz Pabón & Palacio Ludeña
	Bicycles				2021 Tortosa et al.; 2022 Ledsham et al.
	Public transit	2022 Aveline-Dubacl			2017 Lubitow et al.; Qamhaieh & Chakravarty; 2020 Tirachini & Cats; 2021 Yousefzadeh Barri et al.
Social dimension	Social class and mobility	2018 Celis et al.		2021 Işık & Pınarcıoğlu	1996 Adams; 2013 Andreotti et al.; 2015 Jahanshahi et al.; 2019 McArthur et al.
	Age and mobility				2013 Tsai et al.; 2015 Chen et al.; 2016 Strohmeier; 2019 Ryan et al.; 2020 Portegijs et al.; 2021 Fiocco et al.
	People with disabilities and mobility	2022 A brief history of the disability rights movement			2007 Casas; 2020 Sánchez-Ávila et al.; 2021 Martin-Fuentes et al.; Schwartz et al.
	Immigrants and mobility				2017 Buhr & McGarrigle; 2018 Kerzhner et al.; 2021 Özkazanç
	Gender and mobil	2015 Graham-Harrisc			2020 Boterman; Jirón et al.; Montoya-Robledo & Escovar-Alvarez; 2021 Nosal Hoy & Puławska-Obiedowska
	Pandemic, climate change mobility	2022 Tonetta & Semi			2018 Sheller; 2020 Beck et al.; 2022 Cirianni et al.

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Table 1 (continued). The Reviewed Literature Categorized under the Study Themes

Themes	Subthemes	Dictionary and Encyclopedia Entries, Digital Sources, and Talks (n=11)	Institutional Reports (n=3)	Books and Book Chapters (n=6)	Journal Articles and Book Reviews (n=83)
Technological dimension	Shared mobility				2017 Campbell & Brakewood; 2019 Jin et al.; Tirachini & del Río; 2020 Tirachini; 2021 Hjorteset et al.; Turoń
	Smart mobility				2019 Groth; 2020 Zhang et al.; 2021 Liu et al.
	Vehicle technology e.g. autonomous vehicles (AVs)				2012 Wells; 2021 Dianin et al.; 2022 Harb et al.
	Urban regeneration and transport				2017 Mahieux & Mejia-Dorantes
	Change in the number of travel options in time				2013 Diaz Olvera et al.
Political-economic dimension	British examples of changing transport policy and practices	2020 Luscher			2006 Lucas; 2016 Pooley; 2021 Aldred et al.; Pamucar et al.
	Sustainable mobility transition			1993 Massey (?)	2000 Baeten; 2008 Boschmann & Kwan; 2010 Farla et al.; 2015 Sheller; 2021 Anastasiadou et al.
	Staying put			2018 Florida; 2022 Harvey	2017 Özkazanç & Özdemir Sönmez; 2019 Kębłowski et al.
	Changing behaviors	2019 How reforming fossil fuel subsidies can go wrong			2021 Allen & Farber; 2021 Acheampong et al.
Outcomes and solutions	Changing attitudes	2017 Eliasson			2018 Nikitas et al.; 2019 Millonig; 2020 Faber & van Lierop
	Technological solutions				2003 Tiwari; 2007 McCray & Brais; 2013 Cervero; 2016 Utsunomiya
	Transport infrastructure				2017 Pojani et al.; 2021 Badji et al.; 2022 Parsha & Martens; Sancho-Reinoso et al.

and Xenias (2015) claim that against the growing volatilities of the outside world, people seek comfort in their personal spaces, including the car, even if temporarily, and despite the fact that the increasing cost of oil is making it harder for people to postpone their emotional disengagement with their cars. Transport costs also trigger many protests around the world, including the Yellow Vests Movement or mobility justice movements in Latin America (Díaz Pabón & Palacio Ludeña, 2021).

Unlike cars, bicycles are a transport mode promoted for both its social and environmental benefits. However, cycling is still not at its targeted levels for most countries, including developed countries that invest heavily in cycling infrastructure in their cities. Furthermore, there are socio-spatial differences in cycling or "cycling equity" (Tortosa, Lovelace, Heinen, & Mann, 2021, p. 694) problems within individual cities as well. Hence, many researchers work on the reasons for these differences in cycling patterns in cities. One such study is Ledsham, Zhang, Farber, and Hess' (2022, pp. 1-2) study of "suburban cycling" in Toronto's suburb, Scarborough, which has little cycling infrastructure. In this article, similar to other cycling research, cycling is categorized into utilitarian and recreational cycling. One could say that the usual aim of planners and city administrations is to increase the utilitarian cycling that is for daily commuting and commercial activities to meet their sustainability goals, as cycling for commuting is a more indispensable and frequent kind of bicycle use in place of motorized transport. According to this Toronto study, the factors that increased the likelihood of utilitarian cycling were recreational cycling frequency, having a bicycle and a circle of cyclists (Ledsham et al., 2022). Therefore, recreational cycling had a positive impact on utilitarian cycling, but not vice versa. Socio-economic status also influenced people's attitude to cycling, as people with lower incomes gave more importance to the cost and theft issues as opposed to higher income groups, who cared more about the health and safety issues (Ledsham et al., 2022, p. 9 and p. 12).

Ledsham et al. (2022, p. 13) suggests that developing cycling infrastructure in the low-income areas should be backed up with "community bicycle programs" to spread utilitarian cycling to wider sections of the society and the city. Although Tortosa et al. (2021) argue the same, that cycling infrastructure is not enough to promote cycling to people, and people living in deprived areas cycle less, their findings (in England) disagree in the sense that deprived areas have more cycling infrastructure there. They explain this contradiction with the tendency of deprived areas being in the central city areas where there are more infrastructures for cycling and traffic calming measures (Tortosa et al., 2021). Both these studies show that promoting cycling among various segments of the urban population requires going beyond the provision of physical conditions, such as cycling infrastructure.

Public transit provides an in-between collective travel option with respect to the individual, but sustainable, bicycle and the unsustainable private car. It has many social benefits, including: affordability; facilitation of people's social activity, social inclusion and participation, and their access to services; and being more environmentally friendly than the individual car. On the other hand, public transit can have its own handicaps, such as creating a fiscal burden on public administrations (Aveline-Dubach, 2022); inadequacy in terms of spatial coverage, frequency and timeliness; and related lack of comfort and safety issues, especially concerning women. To these, negative notions, such as "transit dependency" (Lubitow, Rainer, & Bassett, 2017, p. 925) and "transit-captive populations" (Yousefzadeh Barri et al., 2021, p. 1), can be added.

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In the U.S. context, transit dependency is defined in relation to not having a car, being young or old, and having low income (Lubitow et al., 2017). Yousefzadeh Barri et al. (2021) define transit dependent or captive populations of the disadvantaged communities in relation to choice riders, who have the socio-economic means to choose from different transport options. According to Lubitow et al. (2017, pp. 925-926), these transit-dependent populations usually have negative transit experiences, because public transport and infrastructure planning is in some ways blind to them, and centered on the needs of "the ideal user", who is an able-bodied, white, male worker with a stable income. This causes transport inequity for more vulnerable populations, including women with or without children, older people, minorities, and the homeless. Other issues concerning public transport include safety concerns for women (Jirón, Carrasco, & Rebolledo, 2020), discrimination against refugees (Özkazanç, 2021), status anxieties and stigma (Qamhaieh & Chakravarty, 2017), and health anxieties that have decreased confidence in public transit (Basu & Ferreira, 2021) and its use (Tirachini & Cats, 2020). The latter resulted in fiscal deficits in the aftermath of the COVID-19 pandemic.

3.2. Social and Technological Dimensions of Transport Inequality

When one talks about the transport disadvantaged or transport poor, one is at the same time talking about the mobile or kinetic elite (Andreotti et al., 2013) for whom all places and transport means are readily available. Hamnett (2019, p. 247) names the same category of people as "the international rich", who are attracted to global cities or "superstar cities" (Florida, 2018, p. 23), such as Hong Kong, London, and New York, with large social inequalities. For Florida (2018, p. 160), it is these cities' contradictory qualities: being creative, productive, dense in technology, having talented human capital with liberal political tendencies, and a wide public transport network, but being most fierce in economic inequality and segregation at the same time. Andreotti et al. (2013, pp. 45-47) label this social dichotomy of major metropolises in terms of transnationalism versus rootedness, as in being rooted in a place, but also argue that they can exist together, as in the "mobile rooted" social ideal type that they identify with respect to the contemporary experiences of the European upper-middle classes.

Looking at the other side of the coin, one realizes that the transport poor are usually disadvantaged in multiple ways, related to their age, gender, education, ethnicity, housing, income, physical and mental health, and transport. Hamnett (2019) underlines that these social and urban inequalities reinforce each other. This connotes a more severe poverty level than "poverty in turns" (Işık & Pınarcıoğlu, 2021) that still contains a possibility of social upward mobility for people, who hand in their life in poverty to the newly arriving immigrants at the city. Furthermore, these deep social divisions, centering on mobility, could be happening very close to each other; Adams (1996, p. 13) comments that "the mobile wealthy and the immobile poor" live very separately from each other, even if they live together in the same place. In this section, age, disability, ethnicity, gender, homelessness, and the work dynamics of transport inequality will be touched on briefly.

The literature on older people's transport inequality problem either studies the mobility barriers that older people face or searches for the possibility of technological help to overcome these barriers. These mobility barriers could be related to various things: outdoor physical barriers, emotional barriers, financial limitations, and housing and living arrangements. As older people have reduced capability of mobility, the urban physical

environment can pose them problems when they go out for various activities, just as it does for disabled people or people with small children. Chen, Matsuoka, and Tsai (2015) searched for these outdoor mobility barriers at a public housing community in Tainan in Taiwan. They designated four barriers as: "parked motor scooters, potted plants, the rubber tiles of the play areas, and a set of steps in one area of the community" (Chen et al., 2015, p. 294) and they observed an improvement in walkability in their quantitative test, where they removed these barriers hypothetically. In a similar study by Portegijs et al. (2020) in central Finland, an interactive mapping technique was used, and the elderly study participants marked on a map the destinations that facilitated their mobility in addition to the outdoor barriers that hindered it. They found that while outdoor barriers close to one's home negatively influenced the participant's physical activity more, in terms of the destinations, it was the far away ones that motivated people's physical activity more. These findings have important implications for urban design and planning for creating suitable environments that enable outside mobility for the elderly (Portegijs et al., 2020).

Ryan, Wretstrand, and Schmidt (2019) take one step further, and look through a capability lens into the differences between old people in major Swedish cities with respect to the issue of transport inequality. In their view, a person's resources, capabilities, functioning, and well-being are interconnected. They suggest that some old people are more disadvantaged then the others (Ryan et al., 2019). Hence, they emphasize the need for finer analyses that take into consideration intersectionality of factors behind transport disadvantage and differences within social groups to better inform transport equity measures. To this, other authors add other things to consider, including: financial (Fiocco et al., 2021) and emotional (Strohmeier, 2016) barriers, and older people's living arrangements (Tsai et al., 2013). Single dwellers have different mobility problems than those who live together with others. Strohmeier (2016) makes a comprehensive list of all kinds of barriers, including emotional barriers, such as safety and security, based on her data.

Mobility barriers for people with disabilities are another important transport inequality problem in urban built environments, although many improvements have been made in this field. Leading social movements can be exemplified by the Disability Rights Movement that developed back in the 1960s-1970s in the U.S. and whose demands also included equality in public transport accessibility ("A brief history of the disability rights movement," 2022). Casas' (2007) study based on the study participants' one-day travel diaries in New York's Buffalo-Niagara region underlines that accessibility for disabled people and social inclusion or exclusion is also related to factors such as: her/his age, gender, and lifecycle stage; household characteristics; and having a driver's license and a job. Her study findings reinforce the relationship between accessibility and social exclusion.

Although the issue of transport accessibility for disabled people has multiple aspects, Schwartz, Buliung, and Wilson (2021) look at it from the angle of food access for disabled adults in Toronto. They conducted mobile interviews with disabled adults to comprehend how food access could become a disabling experience (Schwartz et al., 2021). They reveal that disability does not come from a person's physical characteristics per se, but it is more about her/his socioeconomic situation and the physical environment, starting from one's own home and continuing with the conditions of the outside environment—streets, neighborhoods, supermarkets, hotels (Martin-Fuentes, Mostafa-Shaalan, & Mellinas, 2021), etc., including the transport services. In this line of research, one also sees technological approaches to finding

ways, such as by using Twitter data, to detect the disabling mobility barriers and enhancing mobility (Sánchez-Ávila, Mouriño-García, Fisteus, & Sánchez-Fernández, 2020).

Other research looks at transport inequalities arising from double or multiple disadvantages such as gender and ethnicity, and work or housing conditions and refugee status. In such a study, Kerzhner, Kaplan, and Silverman (2018) examine through in-depth interviews and focus groups Palestinian women's mobility and transport exclusion in Jerusalem. They reveal different tactics that these women have to develop against the fear-based barriers to their use of public transport. Hence, there are again emotional barriers at stake here that are built over the ethnicity and gender dynamics of Jerusalem as a contested city. Likewise, Özkazanç (2021) depicts the negative transport experiences of Syrian refugees, who are concentrated in Ankara's Altındağ district. Here again, Syrian refugees' transport experiences are impacted by combined disadvantages, related to income, gender, language, and housing, transport, and employment options, and they result in "multi-layered inaccessibility/transport deprivation" (Özkazanç, 2021, p. 11) and a lack of social integration. Buhr and McGarrigle (2017) contribute to this thread of research on migrants' urban mobility by showing that migrants, such as Guinean migrants in Lisbon, employ both mobility and place-making in their new living environments, where they also need to learn how to "do mobility". All three studies are good examples of the socio-cultural element of urban mobility.

Gender is another source of people's differential mobility, mostly because women are assigned additional care roles by society, and yet transport policies are developed either according to the needs of the male commuter or in a gender-blind manner, that is, by providing a standard service to everyone. Yet just as much as women have different transport needs than men—e.g. 25- to 29-year-old women walk and take public transport more than men, who drive more (Nosal Hoy & Puławska-Obiedowska, 2021)—there are also differences between women, depending on their age, work and health conditions, income, and care responsibilities, etc. in terms of their transport needs. However, there are common issues, such as public transport safety, that concern most women in any country. Unfortunately, women as inner-city or intercity transport passengers are more vulnerable to public assaults, including sexual harassment and violence. Özgecan Aslan was just one such victim of violence—rape and murder—while using 'dolmuş' (a type of paratransit) in south-eastern Turkey. There are numerous others who have been sexually harassed during their day or night travel in intercity buses or who have been attacked by so-called 'conservative' men because of their open and modern outfits. Yet one can also hear reciprocal cases from developed countries, where foreign men with beards or dark skin can be discriminated against on public transport.

Considering all these potential and actual threats, women try to develop everyday strategies so that they can avoid these risks in their travels as much as possible. However, Jirón et al. (2020) argue that these gendered mobility strategies are never individual, but are dependent on mediating factors, such as time, space, money, gender, age, and ethnicity. There are also continuing structural prejudices with deep patriarchal roots and immense pressures against women riding bicycles or driving cars, as in some Middle Eastern countries. There is still another kind of pejorative stigmatization towards male or female cargo bike riders in the Netherlands (Boterman, 2020). On the other hand, other countries, such as Japan and the UK, make positive discriminatory attempts, such as pink carriages on trains that are designated only for women's use to prevent sexual harassment. Yet women are divided about the benefits

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of such measures that appear to be protecting women by isolating them in a vacuum (Graham-Harrison, 2015).

Gender and social class dynamics come into play in the case of transport inequality problems that are faced by working women. Montoya-Robledo and Escovar-Álvarez (2020) analyze this topic through qualitative and quantitative methods in their work on the commutes of domestic workers in Bogotá. In their analysis, which represents the issue from demand and supply sides, the authors also summarize the changes in the transport habits of these female workers over time. While they used to live in the house of their employers—like in the Mexican movie, Roma (Celis, Cuarón, & Rodriguez, 2018)—until the 1960s-80s, after that period, they began to live outside and make long daily commutes to their workplaces. Nevertheless, urban planners are reported to fail to make any accommodating changes for these women's increased commutes in the city. Regarding the impact of work on people's mobility, the shifts in the labor force are another thing to consider in developing equitable transport policies. Jahanshahi, Jin, and Williams' (2015) UK study underlines a shifting trend towards increased employment of women and part-time workers. Similarly, McArthur, Robin, and Smeds (2019, p. 433) analyze the transport strategies for London's night-time economy in terms of "the spatiotemporal dimensions of equity", and they emphasize that the night-time economy leads to its own mobility barriers for its workers that need to be tackled by transport planners.

The COVID-19 pandemic showed how much people depend on the services of essential workers on a daily basis. These workers created the exception by continuing to commute (Beck, Hensher, & Wei, 2020) during the pandemic, when other white-collar people had the chance to work from home. Pandemic mobility was limited to essential workers (Cirianni, Comi, & Luongo, 2022)—a forced mobility—and the kinetic elites—a mobility of choice—to some extent. Regarding the mobility or immobility trends of the ultra-rich, on the other hand, it is possible to see that they are taking precautions against the already happening or near future effects of climate change for which they are more responsible than the global poor. Sheller (2018) states that kinetic elites are taking control of the scarce natural resources at the global level. For example, they buy chalets in the Swiss, French and Italian Alps, where they can have access to clean water, and cool, clean air without being disturbed by the presence of others during crises like the pandemic (Tonetta & Semi, 2022) and eventually leading to alpine gentrification. Yet the Achilles' heel of this private escapism from the pandemic or climate change is these elites' continued dependency on the services of (essential) workers, who are displaced from these enriched areas, and who start to commute long distances for work.

The technologically focused work on transport (in)equality can be separated into the themes of: shared mobility, smart mobility, and vehicle technology, and particularly autonomous vehicles (AVs). There are different forms of shared mobility, including ride-hailing services such as Uber and Lyft, ride sharing, car sharing or carpooling, and bike sharing or even the traditional hitchhiking. All of these forms of mobility commons aim to combine solving people's mobility needs, with reducing the number of cars in the traffic, and thus, environmental harm, plus increasing active travel modes, such as cycling, without the obligation of ownership of a car or a bicycle. Most related research examines to what extent this system of shared mobility works as intended in different city contexts, and if it substitutes or complements other modes of travel such as public transit or cars.

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Campbell and Brakewood (2017) find in their experimental study on New York that bike-sharing, based on the availability of bike-sharing infrastructure, and bus use do indeed influence each other. Tirachini and del Río (2019) find the same inverse influence of ride-hailing on public transport and taxis in Santiago de Chile. There are ambivalences then, in the expected environmental benefits of car sharing and ride-hailing, as it can actually lead to having more cars on the streets rather than less as intended (Tirachini, 2020). Moreover, the sharing riders usually belong to certain segments of city populations, including the young (Tirachini & del Río, 2019) or middle-income if not affluent groups (Hjorteset, Böcker, Røe, & Wessel, 2021), and also to certain city areas—there are, for example, fewer Uber pickups in low-income neighborhoods (Jin, Kong, & Sui, 2019)—which also makes the social transport equity benefits questionable. In that sense, however environmentally-friendly and economical the option of shared mobility might be, it still has areas for development in terms of overcoming transport-led social exclusion (Turoń, 2021).

Smart mobility, on the other hand, is more concerned with the use of smart technology, such as smartphones, in accessing transport services. Yet it has similar issues to shared mobility with respect to social exclusion. For Groth (2019), smart mobility is about a situation where information and communication technologies enable people's switching between various transport modes easily. It is therefore, associated with multimodality in people's transport behavior. However, as underlined by Groth, there are also increasing concerns about a "multimodal divide" (Groth, 2019, p. 56) between the transport-poor and others, such as younger people with higher levels of education and income who may have better access to ICTs needed for smart mobility and multiple transport options. It is a digital divide that leaves the transport poor behind. Therefore, Groth (2019, p. 68) argues that smart mobility reproduces "monooptionalities/nonoptionalities". Zhang, Zhao, and Qiao (2020) add the knowledge factor into the scene by stating that some groups, such as manual workers, women, and the elderly in Chinese cities might have less knowledge about how to use location-based services and/or they might have privacy concerns. Liu, An, Liu, Ying, and Zhao (2021) acknowledge the intensifying effect of smart mobility on existing social inequalities in China under the pandemic conditions.

Wells (2012) underlines the same concern about social equity in relation to electrical vehicles. He foresees major regional and local inequalities in terms of access to electrical vehicles, although there have been more egalitarian schemes, such as The Paris Autolib, launched in 2011. Nonetheless, Wells (2012) considers electric bicycles more sustainable and equitable than electric cars. Dianin, Ravazzoli, and Hauger (2021) analyze four scenarios of accessibility impacts of autonomous vehicles (AVs). Harb, Malik, Circella, and Walker (2022, pp. 504-505) also looked into the effects of personally owned AVs through a life simulation study, and warned against the possible rise in "zero-occupancy vehicle" or "ghost" trips, and negative influences on active travel modes and public transport.

3.3. Political-Economic Dimensions of Transport Inequality

The efficiency of transport policies and their links to urban regeneration and sustainability goals can be assessed to understand the political-economic infrastructure behind transport equity. It is not uncommon to see that governments increasingly resort to transport-led regeneration projects to upgrade areas declining due to deindustrialization and depopulation. In these projects, it is assumed that bringing transport to a remote area will increase mobility

and economic activity there, and also create positive influences (Mahieux & Mejia-Dorantes, 2017) from neighboring areas. Mahieux and Mejia-Dorantes (2017) study, through focus groups with related parties, including "the mismatched residents"—spatial and transport-wise—the mobility patterns of an old mining region, Nord-Pas-de-Calais in France. They underline the regional problems as a lack of mobility or bicycle culture, the organization of public transport, and the closure of shops and other facilities. Against these problems, the authors' suggestions contain urban regeneration policies that can improve transport and socio-economic problems together, as they are very much aware that the success of a public transport initiative depends on the availability of other simultaneous measures (Mahieux & Mejia-Dorantes, 2017).

There are also historical studies on transport, such as that of Pooley (2016), who looks at the transport history of Britain in terms of transport-related social inclusion. By studying British transport history from before the 1850s, when railway networks began to expand, until the current century of heightened mobility (Pooley, 2016), he points to the dilemma of increased mobility and social exclusion. He argues that multiplication of travel options throughout history have heightened people's expectations of fast and convenient travel, but also led to more disappointments and social exclusion, when these expectations were not so easily met. On the other hand, Diaz Olvera, Plat, and Pochet's (2013) analyses of six travel surveys and semi-structured interviews from western and central African cities indicate the opposite situation, where lack or illusion of available transport options (Diaz Olvera et al., 2013) compared with the option of being "captive walkers" (Diaz Olvera et al., 2013, p. 58) reduce especially poor people's outdoor activities, and keep social inequalities intact.

On the other hand, Lucas (2006) focuses on the current transport policies in the UK that are trying to alleviate transport accessibility and exclusion issues. She provides some numbers to explain the problem: "between 1991 and 1999, the number of households living more than a 27-min walk from a shopping centre doubled from around 40% to 90% of all households. Similarly, in 1991, approximately 72% of households lived within a 27-min walk of a doctor's surgery, whereas this had dropped to 40% by 1999" (Lucas, 2006, p. 802). She claims that the degradation in transport, local economy and physical environment creates a vicious circle for the transport vulnerable populations. These diagnoses present quite a different picture than the recently popular "15-minute city" (Luscher, 2020) plans of local governments, with an emphasis on the provision of services within short distances of people's living environments. Hence, transport plans in the UK have begun to put forth the idea of "accessibility planning" (Lucas, 2006, p. 804), which also locates transport in a wider policy context.

Because of the growing awareness of the importance of accessibility and its inclusion in the transport planning agenda in the UK, there are many studies on British examples of changing transport policy and practices. Aldred, Verlinghieri, Sharkey, Itova, and Goodman (2021) look into the equity in the implementation of London's low traffic neighborhoods that were a product of the Covid-19 pandemic. These neighborhoods are considered part of the "new active travel infrastructure" (Aldred et al., 2021, p. 1) and yet there are concerns regarding their provision in an equitable manner (Aldred et al., 2021). Although the implementation of low traffic neighborhoods (LTNs) is found to be equitable at the city and micro levels, Aldred et al. (2021) claim that it is not as equitable at the district level, where there are discrepancies in the development of such active travel infrastructure. For example, they underline that the

most car-dependent districts of London that correspond to a third of the city districts were devoid of any LTNs (Aldred et al., 2021). This case shows that even the solutions to transport inequality and sustainability problems can become part of the problem themselves, depending on their implementation.

Regarding zero-carbon city policies, such as that of London for 2050, Pamucar, Deveci, Canıtez, Paksoy, and Lukovac (2021) suggest an incremental implementation approach or "prioritization" through which these measures can be applied, first, in selected zones as a test ground. London's aim of reducing carbon emissions rests on the Climate Change Bill adopted in 2008. The more specific goal of the Mayor's Transport Strategy is to convert 80% of all trips in the city to active modes, including walking, cycling and public transport. Based on technical analysis, and considering the contextual uncertainties, the authors propose that "introducing zero emission zones, supporting the transition to low emission vehicles through adequate electrical infrastructure, and optimizing the rail efficiency" (Pamucar et al., 2021, p. 1110) are the steps to prioritize in case of London for its target of becoming a sustainable city.

Another issue that occupies transport and mobility researchers is the achievement of sustainable mobility in cities around the world. They try to decipher the limits to sustainable mobility transition (Sheller, 2015) or barriers to sustainable transport and mobility (Anastasiadou, Gavanas, Pyrgidis, & Pitsiava-Latinopoulou, 2021; Farla, Alkemade, & Suurs, 2010). Baeten (2000) even develops a critique of the sustainable transport concept itself, whereas Boschmann and Kwan (2008) look into the connection of urban transport and social sustainability. Baeten (2000) claims that the idea of sustainable transport does not resonate socially, because it maintains the asymmetric "power geometry" (Massey, 1993) between different social classes, such as the marginalized and the technocratic elite. He points to the irony of "the hegemonic sustainability discourse", which neglects the deep contestations in the planning and development of transport infrastructures that result in winners and losers between groups with different mobility interests (Baeten, 2000, p. 70). He reveals that the sustainability discourse actually hides the socio-political conflicts behind any transport decision (Baeten, 2000). For Baeten, sustainability helps to unite the irreconcilable capitalism, ecology, and sustainable transport functions along the same line. He pursues the postmodern roots of "the ecological turn of capitalism" (Baeten, 2000, p. 73), and concludes by asking, "Sustainability for whom?" and remarking that the real problem is that of transport inequality rather than sustainability.

Baeten's critique of the concept of sustainability was perhaps well to the point, as researchers have begun to add the social element into their definitions of sustainability, which is more often interpreted in a limited fashion as just environmental and economic sustainability. For example, Boschmann and Kwan (2008) review the socially sustainable urban transportation literature with the aim of understanding the link between urban transportation and social sustainability in city areas. Arguing that environmental sustainability has shadowed the equally important social and economic sustainability (Boschmann & Kwan, 2008), they carve out from the related literature the impacts of city transport on people's social inclusion or exclusion, equity and life quality, and they point to possible areas of research with respect to the issue.

Sheller (2015) places a similar emphasis on the socio-cultural environment in her case study of Philadelphia's sustainable mobility transition. She examines Philadelphia's transition to

sustainable mobility in the context of the racial characteristics of the city, and names the resulting mobility "radicalized mobilities" to point to the limits or "cultural frame" of this sustainability transition (Sheller, 2015, p. 70). These limiting urban developments are the gentrification at the city center versus the concentration of poor people in the suburbs, and their resulting transport access problems. Sheller (2015) also lays out the elements of a mobility regime: people's mobility; infrastructures of transport and communication; technology, and regional agglomerations.

Sheller (2015) then returns to the debate of "peak car", that is, the fact that there is a decline in car use among Americans, similar to that in France and other developed countries, and yet she warns against neglecting the local differences around this trend. She argues that the roots of the transport inequalities, which are not resolved with the "post-car culture" (Sheller, 2015, p. 75), but are reproduced, reside in the long-term land use patterns and racial structures of American society. Hence, she argues that the promoters of sustainable mobility should take into consideration the racial inequalities that reflect onto urban transport and space (Sheller, 2015). She gives the example of the association of the public transit system with poverty, race and ethnicity in the general American sentiment.

Farla et al. (2010) look more pragmatically at the barriers to sustainable transport transition in the Netherlands, which is considering different technological routes for this purpose. For them, these barriers are related to technology and vehicles, fuel infrastructures, and the institutional infrastructure (Farla et al., 2010). They underline that the defined transition routes towards the target of reducing gas emissions by 66% by 2035 (Farla et al., 2010) are mutually exclusive in the sense that they compete for the same resources for investment. For the first barrier regarding technology and vehicles, Farla et al. (2010) underline the foreign dependency of the Netherlands that diminishes the country's self-control. Regarding the infrastructural barriers, the irreversibility of infrastructure that requires huge investment creates a problem. The third institutional barrier concerns the lack of exchange and sharing of institutional elements between different transition routes. This hinders any possibility of cooperation against the dominant mobility regime. Therefore, the authors suggest taking up a more systemic approach to sustainable transportation transition planning.

In a similar study on barriers to sustainable urban mobility, Anastasiadou et al. (2021, p. 1) enumerate these barriers as: "political, institutional, organizational, technological, infrastructural, and socio-economic barriers as well as unforeseeable (e.g., COVID-19) conditions". These local barriers hinder the successful implementation of guidelines, such as the 2013 Sustainable Urban Mobility Plan (SUMP) in Europe. Here, the authors develop a technique to identify and prioritize these barriers for specific locations to support the task of urban policy makers in their endeavor to achieve sustainable urban mobility. They carried out a pilot study to test their tool in Thessaloniki in Greece. In this way, they tried to facilitate different cities' smooth transition to sustainable urban mobility that they consider timely, because of the pressing issues of climate change, the COVID-19 pandemic, and considering the developments of the fourth industrial revolution and digitalization. Such guidance efforts are valuable in the sense that more local solutions can be created to global transport issues that negatively affect everywhere.

4. Repercussions

Transport inequality literature is also as diverse in its suggested solutions to this issue as in its analyses. Yet a couple of common themes emerge along these lines. These solutions to the transport inequality problem could be either short term or more long term. The solutions that suggest improvements in the existing situation are an example for the former, and those that require a habitus change, such as sustainable mobility transition or giving up cars as "a protective cocoon" (Wells & Xenias, 2015, p. 107) need more time, determination, and investment.

To start with the easier ones, many authors underline the fact that poverty is suburbanized in contemporary cities, whose centers similarly undergo transitions, such as gentrification, regeneration, and commercialization, and this creates transport inequality problems for the low-income populations that increasingly live in the poorly-connected suburbs. Therefore, one quick fix is to find ways in terms of urban planning and land use for in-situ regeneration, to avoid displacing these low-income groups into suburbs (Allen & Farber, 2021). Kębłowski, Van Criekingen, and Bassens (2019) underline the significance of acknowledging people's right not to move or stay put against a notion of perpetual and unavoidable mobility.

Other researchers point to the social integration problems that result from transport inequalities due to the socio-spatial segregation of cities, where the most vulnerable groups, such as refugees, tend to occupy the peripheral areas (Özkazanç & Özdemir Sönmez, 2017; Özkazanç, 2021). Jain and Guiver (2001) similarly state that the separation of urban residents is an indirect social outcome of motorized mobility by saying that the car technology with an emphasis on speed and transport policies disconnected people from their natural and social environments without showing any respect for their senses of place.

A second type of suggestion in the literature is promoting people's use of active transport modes more than private motor vehicles in pursuit of socially and environmentally sustainable transport goals that would result in "post-automobility societies" (Wells & Xenias, 2015, p. 106). Younger generations are more open to flexible and multimodal travel options than the elderly, who grew up surrounded by an automobile habitus, although they might now have difficulty in using the car in old age. However, this tendency of the youth could be further supported by educational efforts, not only in developed countries, where the sustainable mobility transition is already under way, but also in developing country contexts, such as Abu Dhabi, that still depend to a large extent on motorized transport, because of natural, social and economic dispositions (Qamhaieh & Chakravarty, 2017).

There are also things that can be done to change the attitudes of the elderly, who are usually more environmentally sensitive anyway. In a Bristol study on the public acceptability of road pricing as an environmental mobility measure, Nikitas, Avineri, and Parkhurst (2018) propose developing pro-sociality measures to facilitate elderly people's acceptance of road pricing. This proposition is similar to that of Eliasson's (2017) regarding the fairness of "congestion pricing", for which a consumer and a citizen perspective might require quite different attitudes. In the Bristol study, Nikitas et al. (2018) state that the opinions of the elderly matter the most, as their number is increasing not only in England, but all Europe, and they are one of the populations most vulnerable to transport exclusion. That is the reason why a lot of research on transport inequality studies the topic from the perspective of the elderly, and focuses on issues such as: outdoor mobility barriers (Chen et al., 2015; Portegijs et al., 2020);

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financial barriers (Fiocco et al., 2021); emotional barriers (Strohmeier, 2016); living arrangements (Tsai et al., 2013); their "capabilities in travel" (Ryan et al., 2019); and whether advanced technology, such as virtual tourism (Fiocco et al., 2021) or autonomous vehicles, can be used to ameliorate older people's reduced mobility (Faber & van Lierop, 2020; Millonig, 2019).

Yet regarding the technological solutions to transport inequality, there are still quite a number of unresolved points to consider before being able to confirm their social and environmental benefits. These technological developments could be grouped under shared mobility (bike sharing, car sharing, and ride-hailing, such as Uber, etc.), smart mobility (based on the guidance of smart phones), and other developments related to vehicle technology (prominently, autonomous cars). These kinds of technological solutions to transport inequalities are quite suited to today's zeitgeist, considering all the developments in smart technologies and ambitions towards a sustainable future. Researchers discuss the possibilities of these smart technologies, helping to overcome the mobility barriers for the elderly and other populations that have mobility impairments (Dianin et al., 2021; Harb et al., 2022). They also analyze the utility of smart phones in facilitating people's travel planning, and their benefiting from "multimodality" (Groth, 2019, p. 57) in extraordinary situations, such as the pandemic (Liu et al., 2021). Shared mobility is usually shown as a sustainable and environmentally-friendly option for transport. Yet all these expectations of technology-based advancements in transport are contingent on the availability of certain environmental standards and regulations, and target people's willingness and ability to use these technologies.

Finally, building new transport infrastructure and developing what exists could be one important measure against transport inequality. For example, local administrations could develop public transit lines to include suburban areas and thus, enhance the ability of residents of remote urban areas to access public services, such as healthcare (Badji, Badland, Rachele, & Petrie, 2021). The availability of public transport in the suburbs also creates beneficial effects in terms of increasing these people's social participation and inclusion by increasing their activity levels and social networks. Hence, Utsunomiya (2016) underlines the importance of local public transport beyond its common functional and social benefits, despite its non-profitability. However, many researchers share the opinion that bringing transport infrastructure to peripheral or poor urban areas is not enough to bring about a mobility shift. There are other structural factors, such as societal gender norms (McCray & Brais, 2007; Nosal Hoy & Puławska-Obiedowska, 2021; Parsha & Martens, 2022; Pojani, Boussauw, & Pojani, 2017; Qamhaieh & Chakravarty, 2017), that create particular forms of "gendered mobility" (Jirón et al., 2020), inter- and intra-regional inequalities (Cervero, 2013; Diaz Olvera et al., 2013; Sancho-Reinoso et al., 2022; Tiwari, 2003; Wells, 2012), and behavioral and socio-demographic factors (Acheampong, Cugurullo, Gueriau, & Dusparic, 2021) to consider in planning the right transport measures and policies for transport equity.

5. Conclusion

The capitalist system's unsustainable contradictions between growing production and profits on the one hand, and diminishing returns for the working populations in terms of wages and services on the other, are reflected in the urban transport sector just as much as in housing and other realms. The socio-structural inequalities that are created by an economic system that is

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based on a principle of compound growth (Harvey, 2022) influence people's mobility in an increasingly mobile society and vice versa. This is because urban transport is not isolated from a wider urban planning and policy-making endeavor that is itself not separate from the larger political-economic system. Hence, the fields of transport and mobility have much deeper and more context-dependent aspects than being a simple matter of traveling from one place to another.

Because societies are now living in the mobility era, transport-related social problems have also gained more weight in the political field. Social movements arising from transport inequality issues are beginning to represent a significant share of the newly emerging urban social movements. Harvey (2022) points to some of them under the heading of "global unrest" in his recent book. These are urban social movements against transport inequalities that have emerged in various places, ranging from Chile to Ecuador, Paris, Tehran and São Paulo. It is interesting to see what all these recent uprisings around the world have in common: inequalities in the transport field. This is true, whether it is a student protest against the rise in the cost of subway or bus tickets, as in Chile and São Paulo, the hike in fuel prices as in the Yellow Vests Movement in Paris's suburbs or the reduction in fossil fuel subsidies in Ecuador ("How reforming fossil fuel subsidies can go wrong: A lesson from Ecuador," 2019). In the light of these, one can argue that transport inequalities come forward as a primary source of social conflict in contemporary society.

However, the fundamental solution suggestions differ depending on how one defines the problem in the first place. Is it a simple malfunction of the system, or its failure? Well-known thinkers such as Richard Florida and David Harvey take different paths in explaining these increasing social inequalities. Florida (2018) recognizes the intensity of the social inequality problem and yet argues that a more sustainable and egalitarian capitalism is still possible without giving up on the growth ideal. On the other hand, Harvey (2022) clearly states that the actual problem lies in the compound growth dependency of the capitalistic system itself, rather than a malfunctioning of its neoliberal stage. Hence, his suggested solution is a revolution rather than a reform of the current form of vulgar capitalism, but it is a revolution as a process rather than a momentary incident or event in Deleuze's sense.

More pragmatically, the issue of transport inequality requires context-specific solutions that are suitable for particular urban areas, cities, and regions. Yet at the same time, these place-specific solutions should take into consideration other socio-cultural, economic, political and environmental factors, besides transport to approach the matter. Moreover, they shouldn't lose sight of the common and universal goal of sustainability, which can be environmental, social, and economic all at the same time. Hence, it is a big challenge for transport policy makers around the world to deal with in a balanced fashion by both following good practices in such a way as to adapt them to their local contexts and creating new ones directly from their own particular circumstances. In terms of research, there is scope for more research on regional inequalities, interconnections between transport and other forms of inequality, and conflicts of interest in contested transport infrastructure projects.

Ethics Committee Approval Statement

Ethical committee approval is not required, as the study did not collect data from human or animal participants.

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References

A brief history of the disability rights movement. (2022, March). *ADL Education*. Retrieved from https://www.adl.org/education/resources/backgrounders/disability-rights-movement

Acheampong, R. A., Cugurullo, F., Gueriau, M., & Dusparic, I. (2021). Can autonomous vehicles enable sustainable mobility in future cities? Insights and policy challenges from user preferences over different urban transport options. *Cities*, *112*, 1–32. doi:10.1016/j.cities.2021.103134

Adams, J. (1996). Can technology save us? *World Transport Policy & Practice*, *2*(3), 4–17.

Aldred, R., Verlinghieri, E., Sharkey, M., Itova, I., & Goodman, A. (2021). Equity in new active travel infrastructure: A spatial analysis of London's new Low Traffic Neighbourhoods. *Journal of Transport Geography*, *96*, 1–22. doi:10.1016/j.jtrangeo.2021.103194

Allen, J., & Farber, S. (2021). Suburbanization of transport poverty. *Annals of the American Association of Geographers*, *111*(6), 1833–1850. doi:10.1080/24694452.2020.1859981

Anastasiadou, K., Gavanas, N., Pyrgidis, C., & Pitsiava-Latinopoulou, M. (2021). Identifying and prioritizing sustainable urban mobility barriers through a modified Delphi-AHP approach. *Sustainability*, *13*(18), 1–18. doi:10.3390/su131810386

Andreotti, A., Le Gallès, P., & Moreno-Fuentes, F. J. (2013). Transnational mobility and rootedness: The upper middle classes in European cities. *Global Networks*, *13*(1), 41–59. doi:10.1111/j.1471-0374.2012.00365.x

Aveline-Dubach, N. (2022, July). Institutional perspectives: looking for anticipations and new governance devices for a faster pace of change in mobility spaces. In A. Borthagaray (Chair), *Public spaces of mobility in Paris, Tokyo and Buenos Aires Design, management, and governance for a social and post-pandemic transition*. Symposium conducted at the meeting of the FFJ-Michelin Foundation, Paris.

Badji, S., Badland, H., Rachele, J. N., & Petrie, D. (2021). Public transport availability and healthcare use for Australian adults aged 18–60 years, with and without disabilities. *Journal of Transport & Health*, *20*, 1–8. doi:10.1016/j.jth.2020.101001

Baeten, G. (2000). The tragedy of the highway: Empowerment, disempowerment and the politics of sustainability discourses and practices. *European Planning Studies*, *8*(1), 69–86. doi:10.1080/096543100110938

Basu, R., & Ferreira, J. (2021). Sustainable mobility in auto-dominated Metro Boston: Challenges and opportunities post-COVID-19. *Transport Policy*, *103*, 197–210. doi:10.1016/j.tranpol.2021.01.006

Beck, M. J., Hensher, D. A., & Wei, E. (2020). Slowly coming out of COVID-19 restrictions in Australia: Implications for working from home and commuting trips by car and public transport. *Journal of Transport Geography*, *88*, 1–17. doi:10.1016/j.jtrangeo.2020.102846

Boschmann, E. E., & Kwan, M.-P. (2008). Toward socially sustainable urban transportation: Progress and potentials. *International Journal of Sustainable Transportation*, *2*(3), 138–157. doi:10.1080/15568310701517265

Boterman, W. R. (2020). Carrying class and gender: Cargo bikes as symbolic markers of egalitarian gender roles of urban middle classes in Dutch inner cities. *Social & Cultural Geography*, *21*(2), 245–264. doi:10.1080/14649365.2018.1489975

Buhr, F., & McGarrigle, J. (2017). Navigating urban life in Lisbon: A study of migrants' mobilities and use of space. *Social Inclusion*, *5*(4), 226–234. doi:10.17645/si.v5i4.1105

Campbell, K. B., & Brakewood, C. (2017). Sharing riders: How bikesharing impacts bus ridership in New York City. *Transportation Research Part A: Policy and Practice*, *100*, 264–282. doi:10.1016/j.tra.2017.04.017

Casas, I. (2007). Social exclusion and the disabled: An accessibility approach. *The Professional Geographer*, *59*(4), 463–477. doi:10.1111/j.1467-9272.2007.00635.x

Celis, N., Cuarón, A., & Rodriguez, G. (Producers), & Cuarón, A. (Director). (2018). *Roma* [Motion picture]. Mexico and USA: Esperanto Filmoj and Participant Media.

Cervero, R. (2013). Linking urban transport and land use in developing countries. *The Journal of Transport and Land Use*, *6*(1), 7–24. doi:10.5198/jtlu.v6i1.425

Chen, Y.-J., Matsuoka, R. H., & Tsai, K.-C. (2015). Spatial measurement of mobility barriers: Improving the environment of community-dwelling older adults in Taiwan. *Journal of Aging and Physical Activity*, *23*(2), 286–297. doi:10.1123/japa.2014-0004

Cirianni, F. M. M., Comi, A., & Luongo, A.S. (2022). A sustainable approach for planning of urban pedestrian routes and footpaths in a pandemic scenario. *TeMA - Journal of Land Use, Mobility and Environment*, *15*(1), 125–140. doi:10.6093/1970-9870/8629

Dianin, A., Ravazzoli, E., & Hauger, G. (2021). Implications of autonomous vehicles for accessibility and transport equity: A framework based on literature. *Sustainability*, *13*(8), 1–17. doi:10.3390/su13084448

Diaz Olvera, L., Plat, D., & Pochet, P. (2013). The puzzle of mobility and access to the city in Sub-Saharan Africa. *Journal of Transport Geography*, *32*, 56–64. doi:10.1016/j.jtrangeo.2013.08.009

Díaz Pabón, F. A., & Palacio Ludeña, M. G. (2021). Inequality and the socioeconomic dimensions of mobility in protests: The cases of Quito and Santiago. *Global Policy*, *12*(S2), 78-90. doi:10.1111/1758-5899.12944

Eliasson, J. (2017). Is congestion pricing fair? Consumer and citizen perspectives on equity effects. In OECD-ITF (Ed.), *Income Inequality, Social Inclusion and Mobility* (Roundtable Report No. 164, pp. 165-192). Paris Cedex: International Transport Forum.

Faber, K., & van Lierop, D. (2020). How will older adults use automated vehicles? Assessing the role of AVs in overcoming perceived mobility barriers. *Transportation Research Part A: Policy and Practice*, *133*, 353–363. doi:10.1016/j.tra.2020.01.022

TUAD

Trafik ve Ulaşım Araştırmaları Dergisi

Falchetta, G., Noussan, M., & Hammad, A.T. (2021). Comparing paratransit in seven major African cities: An accessibility and network analysis. *Journal of Transport Geography*, *94*, 1–12. doi:10.1016/j.jtrangeo.2021.103131

Farla, J., Alkemade, F., & Suurs, R. A. A. (2010). Analysis of barriers in the transition toward sustainable mobility in the Netherlands. *Technological Forecasting and Social Change*, *77*(8), 1260–1269. doi:10.1016/j.techfore.2010.03.014

Fiocco, A. J., Millett, G., D'Amico, D., Krieger, L., Sivashankar, Y., Lee, S. H., & Lachman, R. (2021). Virtual tourism for older adults living in residential care: A mixed-methods study. *PLoS ONE*, *16*(5): 1–15. doi:10.1371/journal.pone.0250761

Florida, R. (2018). *Soylulaştırma, eşitsizlik ve seçkinler şehri ile gelen yeni kentsel kriz* [The New Urban Crisis: How Our Cities Are Increasing Inequality, Deepening Segregation, and Failing the Middle Class-and What We Can Do About It] (D. Nükhet Özer, Trans.). Istanbul: Doğan Kitap. (Original work published 2017)

Gates, S., Gogescu, F., Grollman, C., Cooper, E., & Khambhaita, P. (2019). *Transport and inequality: An evidence review for the Department for Transport*. London: NatCen Social Research.

Gebresselassie, M., & Sanchez, T. W. (2019, September 5). Banister: Inequality in transport [Review of the book Inequality in Transport, by D. Banister]. *Journal of the American Planning Association*, *85*(4), 593-594. doi:10.1080/01944363.2019.1641385

Graham-Harrison, E. (2015, August 26). Women-only carriages around the world: Do they work? *The Guardian*. Retrieved from https://www.theguardian.com/world/2015/aug/26/women-only-train-carriages-around-the-world-jeremy-corbyn

Groth, S. (2019). Multimodal divide: Reproduction of transport poverty in smart mobility trends. *Transportation Research Part A: Policy and Practice*, *125*, 56–71. doi:10.1016/j.tra.2019.04.018

Hamnett, C. (2019). Urban Inequality. In T. Schwanen & R. van Kempen (Eds.), *Handbook of Urban Geography* (pp. 242-254). Cheltenham, UK and Northampton, MA, USA: Edward Elgar Publishing.

Harb, M., Malik, J., Circella, G., & Walker, J. (2022). Glimpse of the future: Simulating life with personally owned autonomous vehicles and their implications on travel behaviors. *Transportation Research Record*, *2676*(3), 492–506. doi:10.1177/03611981211052543

Harvey, D. (2022). *Anti-Kapitalist Günlükler* [The Anti-Capitalist Chronicles] (U. Özmakas, Trans.). Istanbul: Sel Yayıncılık. (Original work published 2020)

Hidayati, I., Tan, W., & Yamu, C. (2021). Conceptualizing mobility inequality: Mobility and accessibility for the marginalized. *Journal of Planning Literature*, *36*(4), 492–507. doi:10.1177/08854122211012898

Hjorteset, M. A., Böcker, L., Røe, P. G., & Wessel, T. (2021). Intraurban geographies of car sharing supply and demand in Greater Oslo, Norway. *Transportation Research Part D: Transport and Environment*, *101*, 1–13. doi:10.1016/j.trd.2021.103089

How reforming fossil fuel subsidies can go wrong: A lesson from Ecuador. (2019, October). *International Institute for Sustainable Development (IISD).* Retrieved from https://www.iisd.org/articles/lesson-ecuador-fossil-fuel-subsidies

Inequality (social inequality). (2014). In J. Scott (Ed.), *Oxford Dictionary of Sociology* (4th ed., p. 352). Oxford University Press.

Işık, O., & Pınarcıoğlu, M. M. (2021). *Nöbetleşe Yoksulluk. Gecekondulaşma ve Kent Yoksulları: Sultanbeyli Örneği* [Poverty in Turns. Squatting and the Urban Poor: the Case of Sultanbeyli] (13th ed.). Istanbul: İletişim Yayınları.

Jain, J., & Guiver, J. (2001). Turning the car inside out: Transport, equity and environment. *Social Policy & Administration*, *35*(5), 569–586. doi:10.1111/1467-9515.t01-1-00254

Jahanshahi, K., Jin, Y., & Williams, I. (2015). Direct and indirect influences on employed adults' travel in the UK: New insights from the National Travel Survey data 2002–2010. *Transportation Research Part A: Policy and Practice*, *80*, 288–306. doi:10.1016/j.tra.2015.08.007

Jaroš, V. (2017). Social and transport exclusion. *Geographia Polonica*, *90*(3), 247–263. doi:10.7163/GPol.0099

Jin, S. T., Kong, H., & Sui, D. Z. (2019). Uber, public transit, and urban transportation equity: A case study in New York City. *The Professional Geographer*, *71*(2), 315–330. doi:10.1080/00330124.2018.1531038

Jirón, P., Carrasco, J.-A., & Rebolledo, M. (2020). Observing gendered interdependent mobility barriers using an ethnographic and time use approach. *Transportation Research Part A: Policy and Practice*, *140*, 204–214. doi:10.1016/j.tra.2020.08.018

Kębłowski, W., Van Criekingen, M., & Bassens, D. (2019). Moving past the sustainable perspectives on transport: An attempt to mobilise critical urban transport studies with the right to the city. *Transport Policy*, *81*, 24–34. doi:10.1016/j.tranpol.2019.05.012

Kerzhner, T., Kaplan, S., & Silverman, E. (2018). Physical walls, invisible barriers: Palestinian women's mobility in Jerusalem. *Regional Science Policy and Practice*, *10*(4), 299–314. doi:10.1111/rsp3.12162

Ledsham, T., Zhang, Y., Farber, S., & Hess, P. (2022). Beyond downtown: Factors influencing utilitarian and recreational cycling in a low-income suburb. *International Journal of Sustainable Transportation*, 1–22. doi:10.1080/15568318.2022.2091496

Liu, Q., An, Z., Liu, Y., Ying, W., & Zhao, P. (2021). Smartphone-based services, perceived accessibility, and transport inequity during the COVID-19 pandemic: A cross-lagged panel study. *Transportation Research Part D: Transport and Environment*, *97*, 1–14. doi:10.1016/j.trd.2021.102941

Lubitow, A., Rainer, J., & Bassett, S. (2017). Exclusion and vulnerability on public transit: Experiences of transit dependent riders in Portland, Oregon. *Mobilities*, *12*(6), 924–937. doi:10.1080/17450101.2016.1253816

Lucas, K. (2006). Providing transport for social inclusion within a framework for environmental justice in the UK. *Transportation Research Part A: Policy and Practice*, *40*(10), 801–809. doi:10.1016/j.tra.2005.12.005

Lucas, K. (2012). Transport and social exclusion: Where are we now? *Transport Policy*, *20*, 105–113. doi:10.1016/j.tranpol.2012.01.013

Lucas, K. (2018). Editorial for special issue of European transport research review: Transport poverty and inequalities. *European Transport Research Review*, *10*, 1–3. doi:10.1007/s12544-018-0288-6

Luscher, D. (2020, July 13). Access, not mobility: It's not about how fast you can go [Web log post]. Retrieved from https://www.15minutecity.com/blog/access

Mahieux, A., & Mejia-Dorantes, L. (2017). Regeneration strategies and transport improvement in a deprived area: What can be learnt from Northern France? *Regional Studies*, *51*(5), 800–813. doi:10.1080/00343404.2016.1177174

Martin-Fuentes, E., Mostafa-Shaalan, S., & Mellinas, J. P. (2021). Accessibility in inclusive tourism? Hotels distributed through online channels. *Societies*, *11*(34), 1–12. doi:10.3390/soc11020034

Massey, D. (1993). Power-geometry and a progressive sense of place. In J. Bird, B. Curtis, T. Putnam, G. Robertson, & L. Tickner (Eds.), *Mapping the futures: Local Cultures, Global Change* (pp. 59–69). London: Routledge.

McArthur, J., Robin, E., & Smeds, E. (2019). Socio-spatial and temporal dimensions of transport equity for London's night time economy. *Transportation Research Part A: Policy and Practice*, *121*, 433–443. doi:10.1016/j.tra.2019.01.024

McCray, T., & Brais, N. (2007). Exploring the role of transportation in fostering social exclusion: The use of GIS to support qualitative data. *Networks and Spatial Economics*, *7*, 397–412. doi:10.1007/s11067-007-9031-x

Millonig, A. (2019). Connected and automated vehicles: Chances for elderly travellers. *Gerontology*, *65*, 571–578. doi:10.1159/000498908

Montoya-Robledo, V. & Escovar-Álvarez, G. (2020). Domestic workers' commutes in Bogotá: Transportation, gender and social exclusion. *Transportation Research Part A: Policy and Practice*, *139*, 400–411. doi:10.1016/j.tra.2020.07.019

Nikitas, A., Avineri, E., & Parkhurst, G. (2018). Understanding the public acceptability of road pricing and the roles of older age, social norms, pro-social values and trust for urban policy-making: The case of Bristol. *Cities*, *79*, 78–91. doi:10.1016/j.cities.2018.02.024

Nosal Hoy, K., & Puławska-Obiedowska, S. (2021). The travel behaviour of Polish women and adaptation of transport systems to their needs. *Sustainability*, *13*(5-2693), 1–27. doi:10.3390/su13052693

TU\D

Trafik ve Ulaşım Araştırmaları Dergisi

OECD. (2016). *Making Cities Work for All: Data and Actions for Inclusive Growth*. Retrieved from https://read.oecd-ilibrary.org/urban-rural-and-regional-development/making-cities-work-for-all_9789264263260-en#page4

OECD-ITF. (2017). *Income Inequality, Social Inclusion and Mobility* (Roundtable Report No. 164). Retrieved from https://www.itf-oecd.org/sites/default/files/docs/income-inequality-social-inclusion-mobility.pdf

Özkazanç, S., & Özdemir Sönmez, F. N. (2017). Spatial analysis of social exclusion from a transportation perspective: A case study of Ankara metropolitan area. *Cities*, *67*, 74–84. doi:10.1016/j.cities.2017.04.013

Özkazanç, S. (2021). Transportation experiences of Syrian refugees under the clampdown of poverty, social exclusion and spatial segregation. *Cities*, *112*, 1–12. doi:10.1016/j.cities.2021.103117

Pamucar, D., Deveci, M., Canıtez, F., Paksoy, T., & Lukovac, V. (2021). A novel methodology for prioritizing zero-carbon measures for sustainable transport. *Sustainable Production and Consumption*, *27*, 1093–1112. doi:10.1016/j.spc.2021.02.016

Parsha, A., & Martens, K. (2022). Social identity and cycling among women: The case of Tel-Aviv-Jaffa. *Transportation Research Part F: Traffic Psychology and Behaviour*, *89*, 1–15. doi:10.1016/j.trf.2022.05.023

Pérez-Peña, M.d.C., Jiménez-García, M., Ruiz-Chico, J., & Peña-Sánchez, A.R. (2021). Transport poverty with special reference to sustainability: A systematic review of the literature. *Sustainability*, *13*(3-1451), 1–13. doi:10.3390/su13031451

Pojani, E., Boussauw, K., & Pojani, D. (2017). Reexamining transport poverty, job access, and gender issues in Central and Eastern Europe. *Gender, Place & Culture*, *24*(9), 1323–1345. doi:10.1080/0966369X.2017.1372382

Pooley, C. (2016). Mobility, transport and social inclusion: Lessons from history. *Transport Policy and Social Inclusion*, *4*(3), 100–109. doi:10.17645/si.v4i3.461

Portegijs, E., Keskinen, K.E., Eronen, J., Saajanaho, M., Rantakokko, M., & Rantanen, T. (2020). Older adults' physical activity and the relevance of distances to neighborhood destinations and barriers to outdoor mobility. *Frontiers in Public Health*, *8*(335), 1–11. doi:10.3389/fpubh.2020.00335

Qamhaieh, A., & Chakravarty, S. (2017). Global cities, public transportation, and social exclusion: A study of the bus system in Abu Dhabi. *Mobilities*, *12*(3), 462–478. doi:10.1080/17450101.2016.1139805

Ritzer, G. (Ed.). (2007). *The Blackwell Encyclopedia of Sociology*. USA, UK, and Australia: Blackwell Publishing Ltd.

Ryan, J., Wretstrand, A., & Schmidt, S. M. (2019). Disparities in mobility among older people: Findings from a capability-based travel survey. *Transport Policy*, *79*, 177–192. doi:10.1016/j.tranpol.2019.04.016

Sánchez-Ávila, M., Mouriño-García, M. A., Fisteus, J. A., & Sánchez-Fernández, L. (2020). Detection of barriers to mobility in the smart city using Twitter. *IEEE Access*, *8*, 168429-168438. doi:10.1109/ACCESS.2020.3022834

Sancho-Reinoso, A., Saxinger, G., Fink, C., Povoroznyuk, O., Wentzel, S. I., Illmeier, G., Schweitzer, P., Krasnoshtanova, N., & Kuklina, V. (2022). Mapping hierarchies of mobility in the Baikal Amur Mainline region: A quantitative account of needs and expectations relating to railroad usage. *Polar Geography*, *45*(3), 157–176. doi:10.1080/1088937X.2022.2046195

Schwanen, T., Lucas, K., Akyelken, N., Solsona, D. C., Carrasco, J.-A., & Neutens, T. (2015). Rethinking the links between social exclusion and transport disadvantage through the lens of social capital. *Transportation Research Part A: Policy and Practice*, *74*, 123–135. doi:10.1016/j.tra.2015.02.012

Schwartz, N., Buliung, R., & Wilson, K. (2021). Experiences of food access among disabled adults in Toronto, Canada. *Disability & Society*, 1–25. doi:10.1080/09687599.2021.1949265

Sheller, M. (2015). Racialized mobility transitions in Philadelphia: Connecting urban sustainability and transport justice. *City & Society*, *27*(1), 70–91. doi:10.1111/ciso.12049

Sheller, M. (2017). From spatial turn to mobilities turn. *Current Sociology*, *65*(4), 623–639. doi:10.1177/0011392117697463

Sheller, M. (2018). Theorising mobility justice. *Tempo Social, revista de sociologia da USP*, *30*(2), 17-34. doi:10.11606/0103-2070.ts.2018.142763

Sheller, M. (2020). Mobility justice. In M. Büscher, M. Freudendal-Pedersen, S. Kesselring, & N. Grauslund Kristensen (Eds.), *Handbook of Research Methods and Applications for Mobilities* (pp. 11–20). UK and US: Edward Elgar Publishing.

Shirmohammadli, A., Louen, C., & Vallée, D. (2016). Exploring mobility equity in a society undergoing changes in travel behavior: A case study of Aachen, Germany. *Transport Policy*, *46*, 32–39. doi:10.1016/j.tranpol.2015.11.006

Singer, M. E., Cohen-Zada, A. L., & Martens, K. (2022). Core versus periphery: Examining the spatial patterns of insufficient accessibility in U.S. metropolitan areas. *Journal of Transport Geography*, *100*, 1–16. doi:10.1016/j.jtrangeo.2022.103321

Strohmeier, F. (2016). Barriers and their influence on the mobility behavior of elder pedestrians in urban areas: Challenges and best practice for walkability in the city of Vienna. *Transportation Research Procedia*, *14*, 1134–1143. doi:10.1016/j.trpro.2016.05.184

Tirachini, A., & del Río, M. (2019). Ride-hailing in Santiago de Chile: Users' characterisation and effects on travel behaviour. *Transport Policy*, *82*, 46–57. doi:10.1016/j.tranpol.2019.07.008

Tirachini, A. (2020). Ride-hailing, travel behaviour and sustainable mobility: An international review. *Transportation*, *47*, 2011–2047. doi:10.1007/s11116-019-10070-2

Tirachini, A., & Cats, O. (2020). COVID-19 and public transportation: Current assessment, prospects, and research needs. *Journal of Public Transportation*, *22*(1), 1–21. doi:10.5038/2375-0901.22.1.1

Tiwari, G. (2003). Transport and land-use policies in Delhi. *Bulletin of the World Health Organization*, *81*(6), 444–450.

Tonetta, M., & Semi, G. (2022, August). *Going up! Real estate market and the pandemic Alps*. Paper presented at the meeting of the RC21, Athens.

Tortosa, E. V., Lovelace, R., Heinen, E., & Mann R. P. (2021). Infrastructure is not enough: Interactions between the environment, socioeconomic disadvantage, and cycling participation in England. *Journal of Transport and Land Use*, *14*(1), 693–714. doi:10.5198/jtlu.2021.1781

Tsai, L.-T., Rantakokko, M., Portegijs, E., Viljanen, A., Saajanaho, M., Eronen, J., & Rantanen, T. (2013). Environmental mobility barriers and walking for errands among older people who live alone vs. with others. *BMC Public Health*, *13*(1054), 1–8. doi:10.1186/1471-2458-13-1054

Turoń, K. (2021). Social barriers and transportation social exclusion issues in creating sustainable car-sharing systems. *Entrepreneurship and Sustainability Issues*, *9*(1), 10–22. doi:10.9770/jesi.2021.9.1(1)

Utsunomiya, K. (2016). Social capital and local public transportation in Japan. *Research in Transportation Economics*, *59*, 434–440. doi:10.1016/j.retrec.2016.02.001

Wells, P. (2012). Converging transport policy, industrial policy and environmental policy: The implications for localities and social equity. *Local Economy*, *27*(7) 749–763. doi:10.1177/0269094212455018

Wells, P., & Xenias, D. (2015). From 'freedom of the open road' to 'cocooning': Understanding resistance to change in personal private automobility. *Environmental Innovation and Societal Transitions*, *16*, 106–119. doi:10.1016/j.eist.2015.02.001

What inequality means for transport. (2018). *Built Environment*. Retrieved from https://inequalityintransport.org.uk/exploring-transport-inequality/what-inequality-means-transport

Yousefzadeh Barri, E., Farber, S., Kramer, A., Jahanshahi, H., Allen, J., & Beyazit, E. (2021). Can transit investments in low-income neighbourhoods increase transit use? Exploring the nexus of income, car-ownership, and transit accessibility in Toronto. *Transportation Research Part D: Transport and Environment*, *95*, 1–15. doi:10.1016/j.trd.2021.102849

Zhang, M., Zhao, P., & Qiao, S. (2020). Smartness-induced transport inequality: Privacy concern, lacking knowledge of smartphone use and unequal access to transport information. *Transport Policy*, *99*, 175–185. doi:10.1016/j.tranpol.2020.08.016