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Transport Justice for Istanbul's Urban Mobility: Equity, Accessibility, and Policy Challenges

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ABSTRACT

Transport justice is a critical dimension of urban mobility, ensuring that access to urban mobility is equitable across different socioeconomic groups. The concept goes beyond mere infrastructure development to consider fairness in accessibility, affordability, and participation in transport planning. In Istanbul, a megacity of over 16 million people, mobility is shaped by a complex interplay of geographic, economic, and social factors. While the city boasts an extensive public transport network, including buses, ferries, metro lines, and tramways, many residents face barriers to mobility due to income disparities, gender dynamics, and infrastructural inefficiencies. Istanbul's rapid urbanization and complex transport landscape have created significant disparities in mobility access. This paper explores Istanbul's urban mobility through the lens of transport justice, focusing on equity, accessibility, and policy challenges, and proposes policies that contribute to more equitable and sustainable urban mobility. Drawing on theoretical frameworks such as distributive justice, mobility justice, and Rawlsian equity, this study highlights how socioeconomic status, gender, disability, and geography influence mobility experiences. The paper presents an evaluation of Istanbul's public transport policies in promoting sustainable and inclusive mobility. The findings suggest that while recent transport infrastructure developments aim to improve accessibility, existing inequalities persist, particularly for marginalized groups.

1. Introduction

Transport justice refers to the fair distribution of transportation benefits and burdens among different social groups [1]. It intersects with sustainable mobility, which aims to reduce environmental impacts while ensuring equitable access to transport [2]. However, transportation systems worldwide remain deeply unequal with marginalised communities often experiencing limited mobility, poor infrastructure, and exposure to environmental harm [3]. Access to

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transportation is essential for participation in economic, social, and civic life, yet disparities persist based on income, race, gender, and geography.

Istanbul, Turkey's largest metropolitan area, is a critical hub for commerce, tourism, and culture. However, its unequal urban mobility landscape disproportionately affects low-income communities, women, and people with disabilities. The city's high reliance on private cars, limited pedestrian-friendly spaces, and inadequate integration of public transport pose significant challenges to transport justice. This paper explores how transport systems in Istanbul contribute to urban inequalities and proposes solutions for a more just and inclusive mobility future.

Transport justice is grounded in three key principles: distributive justice, procedural justice, and recognition justice. Istanbul's urban mobility presents examples of issues with regards to these three key principles. Distributive justice concerns the fair allocation of transport resources, including infrastructure, services, and public funding [4]. In Istanbul, transport infrastructure is unevenly distributed, with wealthier districts benefiting from better connectivity while peripheral and lower-income areas struggle with accessibility. Procedural justice focuses on inclusive decision-making in transport planning [5]. In Istanbul, public participation in transport policy is often limited, with large-scale projects—such as the construction of new highways or metro lines—being designed with minimal input from marginalised communities. Recognition justice highlights the diverse needs of urban populations, ensuring that transport policies address the mobility barriers faced by women, the elderly, people with disabilities, and low-income groups [6]. In Istanbul, gender-based mobility differences and accessibility challenges for disabled individuals remain significant concerns.

This paper explores transport justice in Istanbul through a social justice lens, examining accessibility, affordability, and environmental impacts. The paper is framed around three key research questions around transport justice in Istanbul's urban mobility: i) how do income, gender, and geography shape transport accessibility in Istanbul ii) to what extent do Istanbul's urban mobility policies address transport justice iii) what policy recommendations can improve equitable mobility in the city. The second section of the study provides a theoretical framework for transport justice. The third section provides examples from the academic literature focusing on empirical research on transport justice. The fourth section gives an overview of Istanbul's mobility challenges with a focus on transport justice including socioeconomic inequalities in mobility access, gender disparities in transport use, and accessibility for people with disabilities as well as actions to address these issues. The fifth section provides policy approaches and recommendations to promote sustainable and inclusive mobility in Istanbul. Finally, the last section concludes the paper with future directions for just urban mobility in Istanbul.

2. Theoretical Frameworks

The concept of justice in transportation draws from broader theories of social justice. Three key frameworks are particularly relevant in this context: distributive justice (Rawls), capabilities approach (Sen, Nussbaum), and spatial and social justice (Harvey, Lefebvre).

John Rawls' theory of justice as fairness suggests that resources, including transport, should be distributed to benefit the least advantaged in society. In relation to this principle, every person should have an equal right to the most extensive set of basic liberties for others such as freedom of speech and political rights (i.e. equal basic liberties). Social and economic inequalities are permissible only if they benefit the least advantaged member of society and are attached to positions open to all under conditions of fair equality of opportunity [7]. This is all imagined behind a 'veil of ignorance', where individuals design the rules of society without knowing their future position (rich/poor, healthy/disabled, urban/rural, etc.). From behind the veil of ignorance, a transport system can be designed not knowing who is a car owner or non-car owner, urban or rural dweller, able-bodied or

disabled, rich or poor. This implies that a just transport system would be one that works well even for the least disadvantaged [8]. Transport inequalities (e.g. faster highways for the wealthy, poor public transport for the low-income) would only be justifiable if they somehow improve the situation of the worst-off [9]. For example, highways might be justified if they reduce delivery costs and lower food prices for everyone, including the poor. If they just speed up commutes for the wealthy while isolating poor neighbourhoods or displacing communities, they would be unjust by Rawlsian standards. Practical implications of Rawlsian understanding of transport justice include prioritising investment in public transport and active mobility (walking, cycling, micromobility) accessible to the poor and disabled, avoiding transport policies that disproportionately burden vulnerable groups (e.g. excessive tolls, gentrification caused by new infrastructures), and ensuring that transport deserts (areas with poor or no transport access) are addressed.

The capabilities approach as developed by Amartya Sen and Martha Nussbaum emphasises individuals' ability to use transport to access essential services and opportunities [10]. According to this approach, transport justice should be evaluated not just by infrastructure investments but by how well transport enables people to participate in society [11]. In this framework, a just transport system is one that enables real mobility capabilities – the freedom to access essential activities like work, education, healthcare, and social life – not just physical mobility (e.g. kilometres travelled) [12, 13]. In other words, it is not enough to have a bus stop nearby if one cannot afford the ticket or if the bus schedule does not match one's working hours. A transport system would be unjust if it fails to give people the real capability to participate in society. A capability-based transport justice approach would focus on improving accessibility (not just mobility), prioritise the needs of disadvantaged groups (e.g. the elderly, low-income, rural, women, disabled people, etc.), and promote minimum standards of access whereby everyone should have the real capability to reach work, services, and social activities. Compared to Rawlsian distributive justice, the capabilities approach gives a more flexible and people-centred view of transport justice as it focuses on real freedoms, not just formal equality and highlights the diverse needs of people. The capabilities approach also allows for more practical transport policies aimed at improving people's actual lives, not just infrastructure statistics. Martens [12] extended this approach to propose a needs-based approach to transport justice, advocating for prioritising access for disadvantaged groups rather than maximising system efficiency.

Transport justice also draws from spatial and social justice theories, emphasising how transport infrastructure shapes urban inequalities. Harvey [14, 15] argues that urban development, including transport infrastructure, is often structured to serve economic elites, leading to unequal access to mobility. In the 'Right to the City', Lefebvre critiques how transport systems reinforce exclusion, calling for democratic control over urban mobility planning [16]. Soja [17] expands on spatial justice, arguing that transport networks influence socio-economic mobility, reinforcing patterns of segregation and inequality. Recent scholars have framed transport justice as mobility justice, integrating issues of race, gender, and climate justice. Sheller [18] argues that mobility is a fundamental right and that transport systems should be analysed through the lens of historical injustices, migration, and racial discrimination. Lucas [19] highlights how transport policies often neglect low-income and minority communities, leading to mobility poverty and reinforcing economic disadvantages. Creswell [20] introduces the concept of 'kinetic elite', referring to privileged groups who benefit from fast and efficient transport, while marginalised populations experience transport precarity. He shows how enhanced mobility serves as a form of capital, conferring social, economic, and cultural advantages, and thereby reinforcing broader patterns of inequality.

3. Empirical Research on Transport Justice

Empirical research in transport justice focuses on assessing how transportation systems affect different groups within society, especially marginalised communities. To measure accessibility and equity, researchers use Geographic Information Systems (GIS) to map transit routes, travel times, and service areas. This helps identify 'transport deserts' where access to jobs, healthcare, or education is limited. Empirical studies frequently involve surveys of commuters and interviews with residents to gather insights on personal experiences, barriers to mobility, and perceptions of fairness. Unequal access to transport affects low-income communities, rural areas, and people with disabilities. In many cities, public transit systems prioritise affluent urban centres, leaving peripheral neighbourhoods underserved. This limits job access and social inclusion. A number of studies measure and examine socio-economic inequalities in transport access in various cities across the world. Karner and Niemeier [21] show that the highway investments in the USA have disproportionately benefited suburban commuters while displacing low-income urban residents. Lucas [22] argues that transport policies in the UK systematically disadvantage low-income groups, reducing their access to employment and education. Pereira *et al.,* [23] analyse accessibility gaps in Latin America, demonstrating that public transport networks often fail to connect peripheral neighbourhoods to economic centres.

Environmental justice research highlights the unequal exposure to transport-related pollution, focusing on how transportation infrastructure (e.g. roads, highways, transit systems) can create environmental burdens such as air pollution, noise, and greenhouse gas emissions that tend to impact low-income neighbourhoods and communities of colour more severely. Historically, highway construction in the U.S. displaced black and low-income communities, exacerbating mobility inequalities. Recent efforts, such as expanding urban rail networks and fare subsidies, aim to address these injustices. Bullard and Johnson [24] document how highway developments and high-traffic roads disproportionately expose African American communities in the USA to air pollution. Martens and Lucas [25] argue that emissions reduction policies, such as congestion charging, must be designed with equity considerations to avoid burdening low-income populations. Schwanen [26] explores the intersections between climate change and transport justice, calling for just transitions in sustainable mobility policies.

Gender disparities in mobility patterns have also been widely studied, exploring how transportation systems, travel behaviour and urban design differentially impact different genders. This field draws on insights from urban planning, sociology, gender studies, and transport economics to highlight and address inequalities in mobility. Roy *et al.*, [27] explore the barriers affecting women's mobility, in the first- and last-mile stretches, in low- and middle-income countries and their consequences on accessibility, availability, affordability, and acceptability of public transport. Levy [28] argues that transport policies often neglect the mobility needs of women, leading to "gendered mobility gaps" in access to jobs and services. Cresswell and Uteng [29] argue that transport justice must consider how gender intersects with race and class to shape mobility inequalities. Pedestrian and cycling infrastructure is often neglected in lower-income areas, leading to higher accident rates. Women and marginalised groups also face heightened safety risks in public transport due to inadequate security measures. Lubitow *et al.*, [30] explore the challenges such as harassment, discrimination, and violence gender minorities face to their routine mobility on public transit. Blumenberg *et al.*, [31] discuss gendered disparities in transportation policy, showing how women's mobility needs are overlooked.

The empirical literature also includes studies that propose policy responses and best practices in addressing transport justice. To address transport injustices, scholars propose equity-based transport planning approaches. Martens [12] argues for transport funding models that prioritise undeserved

communities rather than economically efficient projects. Litman [32] advocates for integrating equity impact assessments into transport decision-making. Banister [33] calls for 'decide-and-provide' models instead of traditional 'predict-and-provide' approaches to prevent transport-induced displacement. Policymakers have tested various strategies to improve transport justice. Bogotá's TransMilenio BRT system is an example of an equitable transport intervention, though critics note service disparities between wealthier and poorer districts [34]. It provides high-speed, affordable transit to millions, particularly benefiting lower-income populations. However, overcrowding remains an issue, highlighting the need for continuous investment. London's congestion pricing successfully reduced emissions, but studies highlight concerns about its impact on lower-income drivers [35]. London implemented a congestion charge to reduce traffic and improve public transport funding. While it has reduced emissions and improved bus services, critics argue it disproportionately impacts lower-income drivers. Paris' 15-minute city concept integrates transport justice by ensuring that essential services are accessible within a short distance [36].

4. Challenges and Actions for Achieving a Just Urban Mobility in Istanbul

Istanbul's transport system is characterised by a mix of public and private transport modes. Key components of Istanbul's transport system include public transport, road network, private transport, and non-motorised transport. Istanbul's public transport network consists of metro lines, buses, minibuses (dolmuş), ferries, and trams [37]. The Istanbul Metropolitan Municipality (IMM) operates much of the transport infrastructure, but issues such as overcrowding, delays, and affordability remain. Traffic congestion is a persistent and chronic problem with long commute times negatively impacting productivity and quality of life. Pedestrian and cycling infrastructure is limited, discouraging sustainable mobility choices. Despite efforts to expand metro and bus rapid transit (BRT) lines, lower-income districts, particularly in the outskirts, still lack efficient connectivity. Meanwhile, ferry services, a vital mode of transport in this transcontinental city, remain underutilised due to irregular schedules and limited accessibility.

Transport justice in Istanbul faces a range of challenges that stem from the city's rapid urbanisation, socio-economic disparities, unique geography, and complex governance structure. Despite significant transport investments in recent decades [38], spatial and socio-economic inequalities persist due to uneven distribution of infrastructure [39]. Rapid urban growth has led to the expansion of informal or under-served neighbourhoods where residents often have limited access to safe and reliable transport options. Many modern transport investments are concentrated in central and affluent areas, while peripheral neighbourhoods suffer from inadequate transport service. This uneven distribution limits access to essential services like healthcare, education, and employment for marginalised communities [40]. Low-income residents in Istanbul often live in peripheral districts with poor public transport links. High commuting costs further exacerbate transport inequity, forcing many to rely on inefficient and overcrowded transport options.

Istanbul's unique position, straddling two continents, creates inherent challenges in connectivity. The Bosporus, while bridged by ferries, bridges, and tunnels, still represents a significant barrier, complicating the integration of a unified transport network [41]. The city's historical areas, concentrated in the historical peninsula, Kadikoy, Besiktas, and Uskudar districts, feature narrow streets and an urban layout that can conflict with modern transportation needs, making infrastructure upgrades or the introduction of new services particularly challenging. High traffic volumes and outdated vehicle fleets contribute to severe congestion and air quality issues [42]. These environmental burdens disproportionately affect residents in densely populated or poorly serviced areas, concentrated in particular districts such as Bagcilar, Esenler, and Esenyurt, exacerbating health risks. Alongside air quality, noise from heavy traffic and inadequate urban planning further diminishes

the quality of life for residents in affected neighbourhoods. The lack of reliable and accurate data regarding air quality and noise makes it difficult to measure and monitor the impact of unsustainable transport systems.

Women and other vulnerable groups often face safety concerns when using public transport, especially during off-peak hours or in poorly lit areas [43, 44]. This can discourage their use of available services and limit their mobility. Many women alter their commuting behaviour—such as avoiding night travel or choosing longer, costlier routes—to ensure personal safety. Istanbul has been addressing mobility inequality for women through various initiatives. For example, the Maltepe district has implemented a "Women-Friendly City Commitment," focusing on improving public transit and sustainable transport options for women and marginalised groups. This includes better lighting, wider sidewalks, and safer public spaces [45]. Additionally, projects like the Women Accessing Public Transportation (TOPUK) initiative aims to make public transit safer and more inclusive by addressing issues such as sexist norms and unsafe conditions [46]. This project involves participatory workshops and design solutions to improve accessibility. However, challenges remain, especially for female domestic workers who face precarious mobility conditions due to gender, class, and labour dynamics. Some have organised shuttle services to navigate these challenges, but these solutions can also reinforce inequalities [47].

The current transport design sometimes overlooks the needs of users who require secure, accessible, and family-friendly environments. Efforts to address these challenges include expanding rail systems, promoting pedestrian and bicycle transport, and integrating sustainable urban mobility practices. Istanbul is actively working on transport design to address mobility challenges and promote transport justice. The city's vision for 2050 includes creating an integrated transport system that prioritises public transit, pedestrian, and bicycle modes [48]. These initiatives aim to reduce congestion, improve accessibility, and ensure that all residents, regardless of socioeconomic status, can benefit from efficient and affordable transportation. However, conflicting policy priorities and fragmented governance structures complicate the implementation of consistent urban mobility strategies as transport planning in Istanbul is managed by multiple municipal and governmental bodies [49].

The absence of robust community engagement in transport planning in Istanbul means that the voices of marginalised groups are often underrepresented in policy discussions, perpetuating inequities in service provision. Recently, there have been efforts to address this issue. For instance, the Istanbul Metropolitan Municipality developed the city's first Sustainable Urban Mobility Plan (SUMP), which emphasises public engagement in urban transport planning [50]. This plan represents a shift from traditional infrastructure-heavy approaches to more inclusive and sustainable solutions. Additionally, initiatives like the Mobility Lab at Dudullu Metro station aim to involve citizens directly in the co-design of transportation schemes [51]. However, achieving meaningful engagement remains a challenge due to factors like fragmented governance and the complexity of addressing diverse community needs.

As cities increasingly rely on digital tools for route planning and real-time transit information, segments of the population without adequate digital access or literacy can find themselves further marginalised. The digital divide in Istanbul's transport system highlights disparities in access to technology and digital tools. Factors contributing to the divide include socioeconomic inequalities, regional disparities, and limited digital infrastructure in certain areas. For example, rural and less-developed regions in Istanbul often face lower internet speeds and limited access to digital tools compared to urban centres [52]. While initiatives like AI-enabled analytics platforms have been introduced to optimise traffic management and public transport, challenges persist in ensuring equitable access to these technologies [53].

Despite improvements, Istanbul's transport system remains largely inaccessible for people with disabilities [54]. Many metro and bus stations lack ramps or elevators, while minibuses and ferries provide inadequate accommodations. The city's hilly terrain, cobblestone streets, and crowded public transport during peak hours can pose difficulties for people with disabilities. To address these challenges, Istanbul has taken some actions in improving accessibility for people with disabilities. IETT, the main public bus provider in Istanbul, has implemented actions such as displaying information in braille alphabet at bus stops and offered the 'Where is my Bus?' application, that provides information for visually impaired passengers [55]. The Istanbul Metro and tram systems have wheelchair-accessible stations equipped with elevators, ramps, and tactile ground indicators for visually impaired passengers [56]. Major tram lines, like the T1 route, connect key tourist attractions and are designed to accommodate wheelchair users. Both Istanbul Airport (IST) and Sabiha Gökçen Airport (SAW) are wheelchair-friendly, offering services like accessible shuttles and assistance for travellers with disabilities.

Heavy reliance on private cars and outdated diesel buses contributes to air pollution and public health risks. Istanbul's urban sprawl has led to car-dependent lifestyles, increasing CO_2 emissions and worsening climate resilience. The city faces challenges like heavy traffic, environmental degradation, and high energy consumption. About 16% of daily trips in Istanbul are made by privately-owned cars, contributing to congestion and making the city less liveable [50]. The number of registered motor vehicles and cars in Istanbul has increased rapidly since 2005. In 2020, 4.3 million motor vehicles were registered in Istanbul, of which almost 3 million were cars [50]. Car ownership in Istanbul was 191 cars per 1,000 persons in 2020. It is estimated that car ownership will increase by 39% between by 2040 and, if effective policy measures are not implemented to curb car use, traffic congestion problems will persist [50]. According to 2024 Inrix traffic congestion rankings, Istanbul is ranked the most congested city in the world with 105 hours per driver annually lost through congestion [57]. Prolonged traffic congestion leads to increased emissions, including harmful particles from brakes, tires, and exhaust systems. This creates a "heat island effect," where urban areas experience higher temperatures and worsened air quality.

5. Policy Recommendations to Promote Sustainable and Just Urban Mobility in Istanbul

Promoting sustainable and just urban mobility in Istanbul requires a multifaceted approach. Based on research and existing frameworks as well as the discussion of the challenges elaborated in the previous sections, some policy recommendations can be articulated. First of all, expanding public transport infrastructure in Istanbul can be a game-changer for the city's mobility and sustainability. Increasing the number of metro, tram and light rail lines to cover underserved areas will better ensure accessibility and connectivity across districts and help reduce traffic congestion. Introducing more express and feeder bus routes to complement the metro system would make public transport more accessible and efficient. Transport projects need to be prioritised in underserved areas to bridge the gap between affluent and less affluent neighbourhoods. For example, expanding equitable transport accessibility can be ensured by improving transit coverage, particularly bus services, in underserved neighbourhoods like Esenyurt and Gaziosmanpasa. Ferry services, often neglected by the policy makers and planners, need to be improved, particularly over Bosphorus and Golden Horn crossings, and integrated seamlessly with other transport modes to encourage its use. Istanbul's multimodal transport system needs further upgrading of the intermodal hubs so as to create efficient transfer points between metros, buses, trams, and ferries, ensuring a smooth and user-friendly transit experience. This physical integration needs to be complemented with a digital integration whereby apps for real-time transit updates, payment systems, and route planning need to be developed to make public transport more convenient for commuters. These measures and policies

can help build a more comprehensive and reliable urban public transport system for Istanbul, reducing car dependency and improving air quality.

Encouraging active mobility in Istanbul could play a vital role in creating a healthier, more sustainable urban environment. Developing infrastructure for walking and cycling, such as dedicated bike lanes and pedestrian-friendly zones across the city would connect residential areas to key destinations like schools, workplaces, and shopping centres. Creating bike parking and storage facilities at metro stations, ferry terminals, and bus stops to support multi-modal trips would ensure integration with public transport. Bike-sharing initiatives and pedestrianisation projects in districts like Beyoglu promote sustainable mobility, but cycling remains unsafe in many parts of the city due to inadequate infrastructure [58]. Implementing and expanding affordable bike-sharing systems, integrated with other public transport modes for a seamless city-wide mobility, would encourage active mobility, hence sustainable and just urban mobility in Istanbul. Walking is often neglected by the city management to the detriment of active mobility and upgrading and maintaining pedestrian pathways to make them accessible, well-lit, and safe, especially in high-traffic or less-developed areas would make walking an appealing transport mode. Expanding car-free areas and pedestrian-only streets, especially in busy districts and historic neighbourhoods, will make walking a more appealing option. Infrastructural improvements need to be complemented with educational and awareness campaigns to highlight the benefits of active mobility for health, the environment, and reducing congestion. Financial incentives such as subsidies for bicycles and walking, or tax benefits for commuters who choose active mobility modes need to be considered.

Implementing congestion pricing in Istanbul could significantly reduce traffic congestion and improve air quality. Some pilot areas, such as Eminönü and Kadıköy, can be selected as initial zones for congestion pricing. Vehicles entering these areas would pay a fee, encouraging people to use public transport or active mobility options. Like in London, congestion pricing can be complemented with low or zero-emission zones whereby additional fees could be charged for vehicles that pollute more, while eco-friendly vehicles benefit from lower tariffs. These schemes can help decrease traffic density during peak hours. Cities like London, Stockholm, and Milan have successfully implemented these schemes, reducing congestion by up to 40% and increasing public transport usage [59]. Green transport initiatives and low-emission zones can prioritise areas disproportionately affected by traffic emissions. Transparent sharing of pilot project results and consulting public opinion is crucial for gaining support. Congestion pricing schemes have the potential to transform Istanbul's urban mobility and environmental sustainability considerably.

Enhancing accessibility in Istanbul is crucial for creating an inclusive and equitable urban environment. Creating a barrier-free public transport can be a general policy aim in this regard. For this purpose, all buses, trams, metros, and ferries should have ramps, lifts, and designated spaces for wheelchairs and strollers. Regular maintenance is also essential to keep these features operational. Upgrading all transit stations with elevators, tactile paving for the visually impaired, and clear signage in multiple languages to assist diverse users, including tourists would improve the accessibility of stations for all vulnerable users. Adopting urban design principles including wide sidewalks, properly sloped curbs, and resting spots with benches would accommodate people of all ages and abilities. Leveraging smart technology like GPS-enabled apps would offer real-time updates about transport accessibility features, routes, and schedules for users with disabilities. However, these digital solutions may not be fully accessible to all socioeconomic groups, such as the elderly; therefore, technology should not be seen as the only means to enhance accessibility. These infrastructural and technological improvements need to be complemented with training programmes to educate transit staff about assisting vulnerable passengers to ensure a respectful and helpful experience. Inclusive

policies in collaboration with advocacy groups and individuals with disabilities need to be adopted to identify pain points and develop solutions that genuinely address their needs.

Introducing affordable fare structures such as income-based transit subsidies in Istanbul can make public transport more accessible and encourage its use among residents. In this regard, monthly and annual passes as well as discounts for students and older citizens, which is widely used by residents in Istanbul, offer discounted rates for frequent users through subscription-based passes, making daily commuting more economical. This can be complemented by introducing lower fares during non-peak hours to spread out travel demand and make public transport more affordable for flexible schedules. Running seasonal promotions or free trial periods to encourage people to try and adopt public transport can help shift some of the car users to use sustainable mobility modes. Ensuring government subsidies, both from the local and national government, is crucial to subsidise public transport services, reducing ticket prices without compromising service quality. Affordable fare structures can increase ridership, alleviate traffic congestion, and improve the overall sustainability and equity of Istanbul's transport system.

Gender-inclusive mobility policies in Istanbul can significantly improve equitable access to transport. Increasing the availability of well-lit, monitored, and safe public transport options, especially during late hours can help address safety concerns for women and gender minorities. Designing transit systems and public spaces to meet diverse needs, such as secure waiting areas and improved accessibility for caregivers traveling with children can also be helpful to have a gender-inclusive mobility system. On-demand minibus services for caregivers, for example, can help increase flexible mobility options. Conducting awareness initiatives to promote respectful behaviour among passengers and reduce gender-based harassment on public transit is crucial to provide a mobility system safe for all users. Developing emergency reporting tools, such as mobile apps or helplines, would enable passengers to report harassment or safety issues quickly and effectively. Ensuring representation in decision-making is one area that is open to improvement. Involving women and gender minority groups in transport policy discussions to incorporate their perspectives and needs is key to ensure fair and equitable representation. Finally, regularly collecting and analysing gender-disaggregated data on mobility patterns, harassment reports, and service satisfaction to guide policy improvements can help create a transport system that is not only functional but also equitable and inclusive.

6. Conclusions and Future Research Directions

Istanbul's transport system has made strides in expanding public transit and smart mobility solutions in recent decades, yet persistent equity gaps remain. A just transport system requires policies that address socioeconomic disparities, gender-specific mobility needs, and accessibility for disabled individuals. By adopting inclusive and sustainable transport policies, Istanbul can move towards a fairer and more equitable urban mobility future. Addressing transport justice in Istanbul requires comprehensive strategies that tackle both physical infrastructure and the underlying social inequities. Policymakers need to focus on equitable investment in transport services, foster integrated planning across diverse urban areas, and actively involve local communities in decision-making processes. Only through a multi-faceted, inclusive approach can Istanbul move towards a transport system that provides fair access to mobility for all its residents.

However, Istanbul faces several transport governance challenges primarily due to its fragmented and complex institutional structure that prevent a smooth transition to a just and equitable mobility future. This fragmentation also makes is difficult to develop a long-term, consistent, bi-partisan and sustainable transport policy. Multiple agencies and authorities oversee different aspects of urban transport, leading to a lack of coordination and inefficiency in decision-making. Establishing a

Metropolitan Transport Authority has been proposed to centralise governance, but progress has been slow [49]. Limited involvement of local communities in transport planning has led to mismatches between policies and residents' needs. The city has also experienced tensions between the Istanbul Metropolitan Municipality, currently led by opposition parties, and the central government. Political disagreements often affect the allocation of funds for transport infrastructure, with opposition-led municipalities sometimes facing budget constraints. These conflicts can delay or complicate transport projects and policies. These conflicts can also shift the focus away from long-term transport planning in Istanbul, required for shifting to a sustainable and just mobility, and have the risk to turn the policy makers and practitioners to short-term solutions. These political dynamics underscore the need for collaborative governance to address Istanbul's transport challenges effectively.

Despite growing interest in transport justice, several research gaps remain. More empirical research is needed on how transport injustices in Istanbul vary across gender, disability, and socioeconomic status, addressing the intersectionality in transport justice. Future studies should explore how sustainable transport policies can be designed to avoid reinforcing existing inequalities. As cities adopt AI-driven transport systems, scholars should investigate whether these technologies reduce or exacerbate mobility injustices in Istanbul.

The literature on transport justice highlights the deep-rooted inequalities in mobility systems worldwide. While traditional transport planning has prioritised efficiency and economic growth, justice-oriented approaches emphasise accessibility, fairness, and social inclusion. Future research and policy must integrate distributive, spatial, and environmental justice principles to create transport systems that serve all members of society equitably. By embracing transport justice principles, Istanbul can move toward a future where mobility systems serve all communities equitably, fostering greater economic and social inclusion.

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