



Review

A Critical Review of Social Justice Theories in Public Transit Planning

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Abstract: One of the most common areas in public transit planning that has been under investigation is the inclusion of “social justice”. In its simplest form, social justice demands more equitable access for all residents to resources that are provided by a city. However, public transit plans are typically guided by maximising tangible measures such as economic growth and efficiency. Concerns about discriminatory geographies which have led to low-income neighbourhoods with higher unemployment rates, social exclusion, lower political engagement, and participation in urban activities have brought attention to the re-assessment of transit planning. Limitations of the current methods and frameworks make it difficult to measure the outcomes of transit planning strategies and policies with respect to social justice, and to determine if the policies will produce a just transit system. This review provides a critical examination of transit policies in relation to social justice. It gives a summary of key transportation just theories, and their limitations in evaluating a transit system. A social justice framework, which incorporates just theories, is provided to assess a transit system’s accessibility for disadvantaged (low-income) population groups. The framework enhances the sustainable relationship between the accessibility a commuter requires and services provided by the transit system. The review concludes with knowledge gaps and directions for future research.



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1. Introduction

The right to the city is a prerequisite for cities to embrace concepts of democracy and diversity, and to overcome the capitalist production of space and its allocation of resources at the expense of wider social benefits [1–3]. In the context of transportation, the right to the city means all people in a city have the right to physically access, occupy, and use urban space for opportunities a city provides and to participate in urban life [4–6]. However, the transport system itself can become part of the problem by providing poor accessibility with low levels of mobility [7] and spatial barriers [8]. Low-income households, when spatially segregated, face transport disadvantages. Inaccessibility of essential goods and services, along with being “locked out” from planning and decision-making processes, can result in social exclusion, giving rise to further social and transport inequalities [9].

Most well-intentioned planners and engineers follow professionally accepted procedures to analyse the state of public transit systems [7] and to develop solutions to issues such as road congestion, air pollution, increasing costs, or poor service levels. The way in which these solutions work out for different people, and the often systematic way in which they affect different population groups, are routinely ignored in the practice of transportation planning [10]. It is by no means clear how transportation planning should take this inevitable spatial dimension of justice into account. There is a lack of clear definition, in practice or theory, of what constitutes a fair distribution of benefits from public transit investments [11]. The inevitable consequence is a restriction on urban planners’ and

designers' ability to develop policies and implement practical interventions to achieve a more just transit system.

While studies [12–15] have attempted to bring the idea of social justice to transportation, they are not focused on public transit planning. It is only recently that social justice theories have been applied solely to public transit systems [11,16]. This is critical as the level of complexity demands a new justice framework and other transportation frameworks cannot be readily implemented in transit systems. In order to develop a social justice framework for transit planning, it is necessary to understand the policy context and issues that have been most widely discussed on equity in public transit planning.

The main contribution of this paper is a critical review of transit system planning from a social justice perspective and identifying knowledge gaps for future research. It includes: a summary of key justice theories in Section 2 and discusses limitations of their application to transit system in Section 3. A discussion on the limitation of current evaluation methods is in Section 4. A review of recent studies which have examined transit accessibility with a focus on social justice and the limitations of the studies is given in Section 5. The paper provides a summary of a proposed social justice framework for transit accessibility evaluation in Section 5.1 and concludes by identifying knowledge gaps for future work in Section 6.

2. Social Justice Theories: A Review, Influence on Transport Policies, and Limitations

Social justice in transportation has been influenced by the political philosophy of justice, namely utilitarianism, libertarianism, egalitarianism, sufficientarianism, the right to the city, and spatial justice theories. In this section, some of the contributions and limitations of these theories regarding distributive justice in transportation policy and plans are explored.

2.1. Utilitarianism

Utilitarianism is the most influential theory of justice and provides the ethical foundation of cost–benefit analysis [17]. Under a utilitarianism framework, the right action is the one that maximises the utility that satisfies as many informed preferences as possible. Therefore, it is expected that some people's preferences will go unsatisfied if their preferences conflict with what maximises utility overall.

In the context of transport planning, the utilitarian perspective is not concerned with accessibility, instead, the utility which people derive from actual trips is the main interest. Therefore, transport policies that provide maximum accessibility can provide greater instrumental value and maximise utility. Transport plans with a higher benefit to cost ratio of saved travel time consequently put more value on trips that are usually taken by people with a higher income and hence a higher value of time [18]. Under this theory, a transport project that improves the accessibility of the majority at the cost of limiting accessibility for minority and low-income areas can be justified because overall it improves the total accessibility. This means the strict consequentialism espoused by utilitarians can violate the rights of minorities. This issue brings criticism of social justice under the utilitarian framework because the net effects of everyday operations and decision making tend to consistently favour the high-income population [19]. Therefore, the utilitarian perspective fails to provide convincing arguments for settling the difficult trade-offs that are inevitable in transportation planning [20]. This and other criticisms of utilitarian reasoning in traditional transport planning have been raised by critics of cost–benefit analysis [18,21,22].

2.2. Libertarianism

Libertarianism upholds liberty as a core principle and favours a reduction or elimination of the state. Libertarians seek to maximise political autonomy, and the idea of self-ownership is at the heart of the libertarian conception of justice as presented by Nozick [23]. Hayek, in "The Mirage of Social Justice" [24], argues that "no system of rules of just

individual conduct, and therefore no free action of the individuals could produce results satisfying any principle of distributive justice" (p. 69). Under this theory, all individuals equally share rights to their own life and choices without interference by the government; therefore, the free market is inherently just. Any state interventions result in a suboptimal distribution of social wealth and should be limited as they distort market functioning [25].

In the context of transportation planning, the libertarian approach, similar to the utilitarian approach, is not interested in accessibility being provided by transportation modes, nor in its distribution, but for a different reason. Libertarianism gives priority to individual rights rather than well-being, which separates it from utilitarianism. Under libertarianism, whatever distribution of accessibility is provided in a free market is fair because the free market is the best mechanism to provide accessibility and satisfy consenting adults' transport needs and choices.

2.3. Egalitarianism

Egalitarianism prioritises equality for all people through advocating the decentralisation of power. People, in this view, should be treated as equals and have the same political, economic, social, and civil rights because people are equal in fundamental worth or moral status. The development of a comprehensive liberal democratic theory of justice reached a major milestone with Rawls' theory of justice [26]. The first principle of justice is mainly concerned with the distribution of rights and liberties, whereas the second principle emphasises the importance of individual freedom of choice. In a society where morally arbitrary factors, such as one's family, do not determine one's opportunities, inequalities are legitimate because they are the results of their choices and efforts [25]. However, that level of inequality is inevitable because a person's abilities cannot be completely separated from their social condition. This issue is a crucial problem in empowering policies that do not distinguish between choices or circumstances. Therefore, Rawls in "the difference principle" argues that inequalities can actually be just, as long as they benefit the least well off to mitigate the existing inequalities of opportunities [21].

In the context of transport planning, Rawlsian egalitarianism is concerned about accessibility in two ways. First, people are free to move from place to place as this is their crucial liberty. Similarly to other policies, those that improve people's accessibility should be exercised concerning an individual's fundamental rights. Therefore, transport projects that violate such rights cannot be progressed even if they improve the level of accessibility. Moreover, Rawls included goods and services provided by the government as primary goods [27], therefore transit accessibility can be understood as a public good [21,28] and should target the least well off by using the difference principle [27]. The distribution of accessibility, therefore, is only just when the least well off enjoy greater accessibility than others.

2.4. Sufficientarianism

Sufficientarianism, similar to Rawlsian egalitarianism, is concerned with distributive justice; however, instead of focusing on inequalities and prioritising the least well off, sufficientarian justice aims at making sure that each of us have enough to cover our basic needs. Harry Frankfurt, in "Equality as a moral ideal" [29], states that "*With respect to the distribution of economic assets, what is important from the point of view of morality is not that everyone should have the same but that each should have enough*" (p. 21). Unlike the egalitarianism view which aims to reduce the relevant inequalities, the sufficientarianism view aims to improve the situation for the least well off even at the cost of larger inequalities [29–31]. One of the key theories comes from Amartya Sen and his idea of "human capability" [32–34]. For Sen [34], human needs and preferences are so diverse that a focus on the distribution of resources cannot address that.

In the context of transportation, various authors have argued that mobility in the sense of being able to move should be considered as a basic capability because of its central role in enabling people to satisfy basic needs (e.g., [18,35–38]). While mobility is instrumental

in the development of other human capabilities, the idea of accessibility is a combination of mobility capability and environmental factors, which puts it in the combined capability category. The value of accessibility helps individuals to achieve their objectives. Therefore, similar accessibility means different things to different people because the capability of people to utilise accessibility is different. From a moral point of view, the distribution of resources is dependent on people's capacity to convert those resources into their desired ends and preferences. In this sense, the capability approach shares both egalitarian and sufficientarian concerns. One of the main criticisms of sufficientarianism is that it sets a low threshold and ignores inequalities beyond that. Unless these thresholds are set reasonably high, sufficientarianism will not achieve its intended objectives.

2.5. Right to the City

The egalitarianism and sufficientarianism understanding of justice aims to address the issue of justice under the liberal school of thought. However, Marxists deny that genuine progress toward justice can be made under capitalism [10] because net effects of everyday operations and decision making tend to lead consistently to the redistribution of real income in favour of the rich [19]. Harvey [19,39] relies mostly on Lefebvre's [40] notion of the right to the city in their criticism of justice.

From the transportation perspective, the right to appropriation, which includes the right of inhabitants to physically access, occupy, and use urban space, is embedded in the right to the city [4–6,41,42]. Since the transit system is a means to provide access to public space, it should be available to everyone as a precondition for participation in urban life. Interestingly, the right to the city and sufficientarianism approaches reach somewhat similar conclusions in transportation justice, though from totally different perspectives.

2.6. Spatial Justice

Transportation justice theories tend to undermine the intrinsic spatiality of human life [19,43,44]. Soja in seeking spatial justice [19], expands the social justice theory by adding a spatial dimension. "Spatial justice is not a substitute or alternative to social, economic, or other forms of justice but rather a way of looking at justice from a critical spatial perspective" [19]. While Soja links his views of spatial justice to Lefebvre's notion of the right to the city, the concept of spatial justice can be applied to egalitarian and sufficientarian views of justice.

In the context of transport planning, the spatiality of the distribution of accessibility is crucial when investigating social justice in transit systems. The discrimination in meeting transit needs of the poor, in Soja's view, is rooted in a larger pattern of discriminatory investment that shaped the geography and built environment. Since transit accessibility is intrinsically spatial, its distribution cannot be equal as the geography is not equal. While some may argue that inequality is acceptable and even necessary for economic growth [45–48], at least after passing a certain level of tolerance, it can be seen as a fundamental violation of urban-based civil rights and a systematic discrimination [19,49]. The theories of justice, therefore, become meaningful in transportation planning as planners need to address and manage the inevitable inequalities.

3. A Summary of the Three Key Justice Theories in Transportation

For most conservative thinkers, the concept of distributive justice is seen almost by definition as sacrificing too many individual rights and liberties. Justice in this sense is considered too social, if not socialist. In recent years, some scholars have attempted to define social justice in the context of transportation planning (see Table 1). However, the focus of the theories is on transportation as a whole and they do not focus on social justice in the domain of public transit.

Table 1. Summary of the work by key scholars in social justice in transportation planning.

Key References	Egalitarianism	Sufficientarianism	the Right to the City	Spatial Justice
Lucas, 2004 Lucas, 2012	Low-income people should not bear the burden	Transportation should not deny low-income people	Low-income people should participate in the decision-making process	Spatial impact of decisions should be available
Martens, 2011 Martens, 2012 Martens, 2016		The range below the threshold of sufficient accessibility is the domain of justice	Interventions are only acceptable if they do not increase the suffering from insufficient accessibility	
Pereira et al., 2017	Transport policy is fair if it distributes transport investments and services in ways that reduce inequality of opportunity	Minimum standards of accessibility should be set for key destinations	Individuals' basic rights and liberties should never be violated	

3.1. Egalitarianism and the Right to the City Adaptation in Transit Planning

The notions of “environmental justice” and “social exclusion” have influenced the work of Karen Lucas and her understanding of social justice in transportation. For Lucas, environmental justice is “policies and programs to address unequal impact of development on minority and low-income communities” and “social exclusion” is “the inability to fully participate in the economic and social activities that are necessary to maintaining a reasonable quality of life” [13]. The lack of adequate transport, in Lucas’s view, “locks out” minorities in low-income communities, keeping them away from activities that enable a decent quality of life (p. 291). This “travel poverty” then reduces people’s life chances because they cannot properly access opportunities such as education, employment, healthcare, and other amenities.

Lucas puts people on low incomes as a priority for improvement in transit services under the social exclusion agenda for public and private agencies. Despite many cases that Lucas correctly refers to as examples of such an unjust distribution of transport accessibility, the causal relationship between environmental justice and social exclusion is not clear. Social exclusion can potentially happen in a neighbourhood with a well-connected transit system because (a) transit systems do not connect people to their jobs, (b) the services are too infrequent, or (c) the services can be too expensive. Lucas promotes a legislative framework for civil rights as a last resort to bring lawsuits against the providers of transport services if they feel they are being unjustly treated but recognises this will shift the burden onto the plaintiff to prove discrimination. Her transport justice theory can be seen as a combination of the right to the city and sufficientarianism theories, although she does not directly refer to these. Lucas developed four general guidelines for low-income communities to consider (in)justice in the domain of transportation:

- Transportation should not disproportionately deny low-income people the benefits of public resources;
- Low-income people should not disproportionately bear the burden of environmental degradation;
- Information to understand the impact of decisions should be accessible;
- Low-income people should fully and fairly participate in the decision-making process.

Pereira’s transport justice theory is a combination of Rawlsian egalitarianism and the human capability approach (CA). Based on a review of the strengths and limitations of the social theories and their application in transportation, he concludes that the studies addressing the distributive issues in transportation equity can benefit from a dialogue built between Rawls’ egalitarianism and the human capability approach (CA). He argues that accessibility as a combined capability should be the main focus of distributive justice for

transport planners. The moral principles of the distribution of transport accessibility, in Pereira's view, should first satisfy some minimum level of access to key destinations as a basic provision for people. Moreover, the concept of accessibility brings in the spatial dimension that is concerned with moral concerns over the equality of opportunities, which is lacking in Rawls' proposal for distributive justice. In this sense, accessibility is a necessary condition for promoting equality of opportunity. Periera has developed four general guidelines to consider (in)justice in the domain of transportation:

- Individuals' basic rights and liberties should never be violated or sacrificed on the grounds of improving the accessibility levels of others;
- Transport policy is fair if it distributes transport investments and services in ways that reduce inequality of opportunity;
- Minimum standards of accessibility should be set for key destinations, which should be guaranteed by the government through social or transport policies if necessary; and concerning.
- The highest levels of accessibility for social groups and transport modes can only be limited when a marginal improvement of accessibility at the upper levels would harm those groups at the bottom.

3.2. Sufficientarianism Adaptation in Transit Planning

Dworkin's theory of equality of resources [50] provides the foundation for Martens's transport justice theory [51]. Based on a review of transportation planning, policy, and practice over the past five decades, he argues that alternative transportation planning based on sustainability and accessibility, similar to the traditional approach in transportation planning, has failed to provide a convincing account of justice. Dworkin suggests that fair distribution of transport accessibility is when "all members of society should be guaranteed a sufficient level of accessibility under most, but not all, circumstances" which puts it in the scope of sufficientarianism. Martens rejects transcendental theories of justice such as Rawlsian egalitarianism and instead recommends Sen's view, where the comparison is of crucial practical importance in order to advance justice in a society. Martens suggested a comparative approach, where the focus is on ranking alternative societal arrangements in terms of being "less just" or "more just", is more important than defining the perfectly just "end state". While accessibility is ensured for all to protect the use of the transportation system and to cover its costs, a fair society may also feature a dominant transportation system that is not fully inclusive and thus cannot be used by all. For those people who cannot access the transportation system, an alternative transportation service should be provided that guarantees a sufficient level of accessibility at a similar cost.

In this context, the main question is "what is a sufficient level of accessibility?". Martens has developed four general guidelines for low-income communities to consider (in)justice in the domain of transportation:

- The range below the threshold of sufficient accessibility is the domain of justice.
- A sufficient level of accessibility should be provided for everyone through various insurance schemes.
- Proceeds of the above insurance schemes should be used to address the insufficient accessibility experienced by citizens.
- The only interventions in transport systems that are acceptable do not increase the number of people suffering from insufficient accessibility.

4. Limitations of Current Methods for Evaluating Social Justice in Transit

Several organisations have reflected the "social justice" concepts in high-level policy settings (see, for example [52,53]). When evaluating options, it is usual practice to undertake a cost-benefit analysis (CBA) of each alternative to understand whether the benefits of each option for transport users and society, in general, are likely to outweigh the costs. While this is not the only factor for selecting a preferred option, it is essential—after all, projects with a low benefit-cost ratio (BCR) have little chance of being approved. This is mainly a

challenge for transit projects with social justice policies because they tend to yield a lower BCR due to underestimating the effects of the reduced social costs of the parking supply and the benefits of reduced car ownership costs for households. Transport investment decisions mainly depend on the modelling of demand, supply, and activities in predefined transport zones that include aggregate information. The cost–benefit analysis of transport projects does not consider the social impacts of the project at a disaggregate level. This, in turn, disregards the individual diversities, the actual needs and wants of the members of the society, and the distributional effects of transport and thus tends to favour those who are already mobile in the market.

In order to meet the social and broader economic aspects of projects, evaluations and appraisal methods, such as CBA, have been developed to form social CBA (SCBA) and multi-criteria analysis (MCA) [54]. Appraisal methods such as social impact assessment have also found grounds for use in transport research. Still, the distributional issues of weights and aggregation, which emerge from discussions in the social justice literature, are lacking in the content of current evaluation and appraisal tools that mainly rely on the ratio of general costs and benefits.

5. Rationale for Proposing a Social Justice Framework for Transit Accessibility

Despite the glut of philosophical debates about social justice and the presence of ideas of social justice in transit plans, it has not been explicitly and systematically addressed in the domain of transit planning. Scholars of social justice have sometimes included transportation as a sideline [55–61]. It is only recently that well-established distributive justice theories [1,19,26,34,56,62,63] have been commonly adopted by transport planners [12–15] to develop a socially just transport system. However, their application to transit systems is still under-developed. This lack of clarity makes it difficult for transit planner to include and track social justice objectives in transit plans and to obtain insights that could inform policy decisions.

During the last decade, a burgeoning body of research has addressed the issue of social indicators and transit accessibility (for a review of measures see: [64–66]). These studies are limited to the technical part of the analyses and do not encompass the process of transportation planning based on principles of justice. They tend to identify accessibility shortfalls in their case study cities without providing solutions, which requires an in-depth analysis of the causes of accessibility shortfalls.

Pan, Geertman, and Deal [67] and Pan, Chen, Gao, Deal, and Liu [68], in their review of informatic technologies for urban planners, present new accessibility models that help planners integrate land use and transportation planning. These new models have been used in the context of social justice and transportation. For example, Farber and Fu [69] adopted these models to develop a new data object, termed the public transit travel time cube, which can be used to evaluate how different types of changes to the public transit network impact a variety of travel time characteristics in a region. In another case study, Foth, Manaugh, and El-Geneidy [70] utilise these models to examine the social aspects of transit accessibility in Toronto. The findings showed that the most socially disadvantaged neighbourhoods have statistically significantly better accessibility and lower transit travel times relative to the rest of the region. They concluded that Toronto has a generally equitable transit system that benefits those in social need, who are likely to gain the most from transit. However, it is not clearly stated that their views of social justice are based on egalitarian theories of justice.

In another case study, Ben-Elia and Benenson [71] estimate equity based on public transit travel times for the Tel Aviv metropolitan area. They applied the Gini index and the absolute and normalised accessibility lost to evaluate the equity effects related to changes in the transit service. The findings show the spatial distribution of changes in accessibility after the 2011 bus line reform. While accessibility is measured spatially, the measures used for evaluation are not spatial. Moreover, the justice evaluation is based on an egalitarian understanding of social justice, which was not specifically mentioned.

In most of these studies, the positions of the advantaged and disadvantaged groups tended to go hand in hand with high levels of income and wealth and the spatial segregation was associated with the spatial mismatch between jobs and residents. Lojkine [72], for example, argues that urban policies tend to increase distances between working-class jobs and housing, an issue potentially compounded by inequitable access to transportation systems. Harvey [62] mentioned transport facilities as a need in terms of reaching other services, and more importantly, the job market. Ihlanfeldt et al. [73] argue that history shows that minority population groups are most affected by job and housing discrimination. From a social justice perspective, the provision of access to jobs is the primary function of transit.

These aforementioned studies and many more similar studies attempt to evaluate the public transit system from a social justice perspective using the new models based on information technologies, however, they are all limited in their approach to a robust theory of justice in their accessibility analysis. On the other end of the spectrum, Martens [14] evaluates Amsterdam's public transit system based on his transportation justice theory, however, he falls short of adopting the new models. There is a knowledge gap in the current literature on how to successfully integrate advanced technologies with robust theories of justice in public transit planning. The limited understanding of what justice means for public transit planning makes it difficult to inform policy decisions.

5.1. Summary of a Proposed Social Justice Framework and Its Contribution to Transit Planning

A recent study by Adli et al. [11] proposed a framework to evaluate transit accessibility from a social justice perspective. Following Soja's spatial justice theory, the study evaluates the spatial distribution of transit accessibility but uses a liberal view of justice. The proposed framework is built upon Sen's [74] extension of Rawlsian justice theory, changing its transcendental theory into a comparative approach. The focus of the transit justice theory is "on ranking the distribution of transit services for being less or more just rather than defining the perfect just arrangements" [11].

While the Rawlsian difference principle can provide a solid normative foundation for the transit justice framework, the capability approach allows for an evaluation of the spatial distribution of transit accessibility and also of what this transit accessibility means and does to specific individuals. Having these safeguards of social justice in transit planning contributes to cementing the relevance of public deliberation when limited feasible alternatives undermine social justice objectives in transit plans.

Prioritising economically disadvantaged and transit-deprived areas by the difference principle cannot be the sole scope of planning and detecting individuals with limited transit accessibility capabilities cannot be the sole focus of planners. The relational conditions between these two cannot concretely expand the freedoms or improve the lives of citizens. The proposed transit justice framework, therefore, further enquiries into the political theory of justice and adds Lefebvre's notion of the right to the city and Soja's ideas of spatial justice to this mix to improve the evaluation practice. Aiming for transit accessibility as a "right" allows intervention by the judiciary systems to prevent discriminatory outcomes when former safeguards fail. Moreover, the spatiality of justice protects the evaluations from discriminatory geographies. By formulating measures for evaluation, the proposed framework enhances the sustainable relational conditions between the accessibility a citizen requires and what a city provides in its transit system. This contribution is significant, as building a tangible and practical synergy among sufficiency, priority, spatiality, and the rights of transit accessibility means moving beyond established disciplinary boundaries in transit planning and policy. This means the proposed framework has succeeded in shifting from justice in transit planning to planning for transit justice.

Figure 1 provides a comparison between accessibility and income under the different justice theoretical frameworks. The straight dashed line represents ideal equality where everyone has high accessibility. The sufficientarianism perspective is the solid grey line where the focus is only on the provision of a minimum level of accessibility. The dashed curved line shows egalitarianism views where those with low income received better accessibility.

The solid black line shows the proposed combined egalitarianism and sufficientarianism views (the proposed framework's concept).

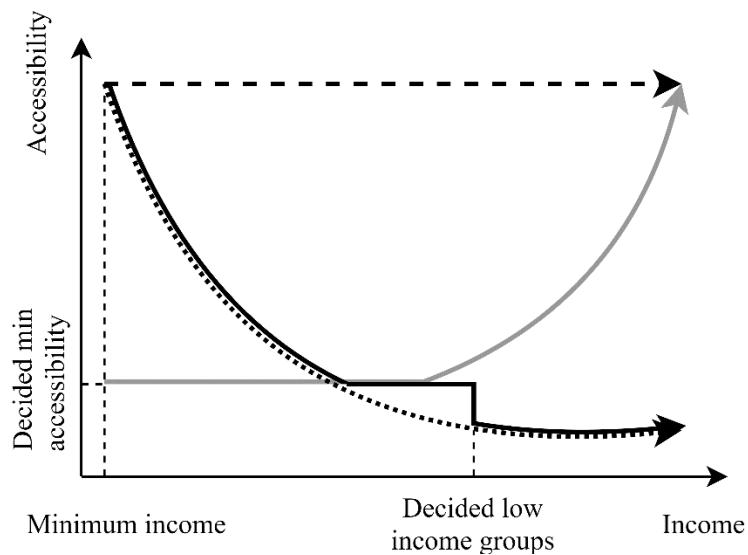


Figure 1. Comparing the relationship between accessibility and income under different frameworks.

The proposed framework expands the existing literature in two related areas. First, accessibility in public transit is redefined to highlight the unique differences between scheduled transit accessibility and other modes of accessibility such as walking, cycling, and driving. Second, the framework focuses on public transit, which has not been previously addressed. A set of principles of justice are collected into a framework specifically designed for transit planning. The framework proposed in this study is a straightforward adjunct to the policy frameworks currently used to evaluate transit investments in many jurisdictions. The systematic adoption and application of a justice framework thus seem to be an appropriate step in jurisdictions where there is policy support for measures that seek social justice.

6. Knowledge Gaps and Future Research Direction

The idea of social justice for transit planning and policy is discussed by drawing on contemporary political theories of justice. The main purpose is to bridge the two well-known domains—social justice and transit planning—to find a practical solution. The proposed transit justice framework is not, however, without limitations and does not answer all relevant concerns about social justice in the transit system. One of the main limitations was restricting the scope of the research to transit outcomes and not processes. The framework very briefly addresses the process of decision-making and thus does not define in any detailed manner how planners and others should arrive at decisions in a fair way. The main reason for avoiding the procedural process of decision making in transit planning was because this is a topic of its own. General democratic planning procedures, which have been comprehensively discussed in planning theory (e.g., [75–77]), are with limitations. For example, mobility among the social group can be improved with community-based participatory actions [78,79]. Residential areas with a high proportion of poverty, such as ghettos and slums, are segregated from opportunities due to reduced links among communities.

Future research is required to incorporate participatory action strategies into the proposed justice framework to alleviate restrictions on social capital.

As such, future research on social justice and transit planning should target two main areas. First, further exploration of the compatibility and trade-offs between egalitarianism and sufficientarianism is required. An independent application of this framework on the evaluation of transit systems in the case study cities and on transit projects in different

spatial contexts, from the regional to the local level, could help to identify and rectify weaknesses and further strengthen the framework's foundations. Further research is also required to better define the future role of the public transit system and the accessibility it provides. This is important because a fair transit system is defined by the way society understands the nature and role of transit accessibility. Ideas such as on-demand mobility and transit systems with flexible routes can change the concept of transit accessibility.

Second, transit accessibility relative to other modes of transport, such as driving, can add a new dimension to social justice in transit, particularly with emerging technology of autonomous vehicles. In this context, justice in the existence and quality of transit services cannot be decided unless the other modes of accessibility are taken into account. In situations such as a low-density scattered urban form, a park and ride facility can potentially achieve better justice objectives than providing many expensive local connector transit services.

7. Conclusions

This paper provides a critical review of transit system planning from a social justice perspective. A key knowledge gap that was identified is that there is a limited number of evaluation methods which address social justice in transit planning. Planners and decision makers have a limited understanding, in practice and theory, of what constitutes a fair distribution of benefits from public transit investments. This produces inequitable access to transit facilities, particularly for low-income transport-disadvantaged groups.

A social justice framework is proposed, with an application. The social character of transit systems is often perceived as a secondary element in the everyday practices of transportation planning, globally, mainly due to the lack of a robust framework for evaluation. Given the limitations of the theories reviewed in this paper, the proposed transit justice framework combines egalitarian and sufficientarian views to develop an evaluation framework for social justice in public transit planning, while it rejects the libertarian and utilitarian perspectives of social justice. It also further contributes by adding Lefebvre's notion of the right to the city and Soja's ideas of spatial justice to improve the evaluation practice. Aiming for transit accessibility as a "right" allows intervention by the judiciary systems to prevent discriminatory outcomes. Moreover, the spatiality of justice protects the evaluations from discriminatory geographies.

By formulating measures for evaluation, the proposed framework enhances the sustainable relational conditions between the accessibility a citizen requires and what a city provides in its transit system. This contribution is significant, as building a tangible and practical synergy among sufficiency, priority, spatiality, and the rights of transit accessibility mean moving beyond established disciplinary boundaries in transit planning and policy. The proposed framework has limitations. As such, two main areas of future research are recommended:

First, knowledge of how participatory action strategies can be incorporated into the proposed justice framework is required, with the aim to alleviate restrictions on social capital for areas with high poverty and those isolated from essential resources. Second, with emerging new technologies related to autonomous vehicles, transit accessibility relative to other modes of transport can add a new dimension to social justice in transit.

Decisions made in transit plans impact people and urban forms for generations. Social justice demands more equitable access for all residents to resources that are provided by a city. In this sense, the impact of the transit system cannot be underestimated as it is a fundamental requirement for people to access and participate in urban life.

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