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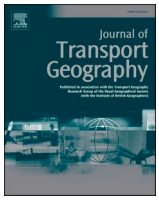

The uneven geography of the accessibility and environmental quality in the global north and south: Introduction to the special issue

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1. Introduction

The advantages of agglomeration propel the growth and prosperity of cities and urban areas. At the same time, cities in developing countries and emerging economies in particular struggle with spatial and social inequities. People, groups of people and regions inevitably lack equal access to destinations, such as shops, jobs, or medical services, and exposure to air pollution, noise or other externalities is not shared evenly. This Virtual Special Issue (VSI) brings together a set of six papers dealing with the methodological issues of measuring spatial inequalities in accessibility and environmental quality, and its linkages, with contributions from Global North and South.The starting point for this VSI was a workshop "Smart Cities - Governing Accessibility, Air Pollution and Equity" organised by the "Accessibility" and "Policy and Environment" clusters of the Network of Communications and Transport Activities Research (NECTAR) and the University of São Paulo, August 24–25, 2017, at the School of Public Health in São Paulo. The workshop brought together experts from the Global North and South in transport, accessibility and environmental analysis, collaboration in different transnational research project on Sustainable Urban Development and funded by Scientific Cooperation Agreement between the São Paulo Research Foundation (FAPESP), São Paulo, Brazil, the UK Economic and Social Research Council (ESRC) and the Netherlands Organization for Scientific Research (NWO). Workshop participants and in addition a few other experts were invited to contribute and the resulting collection of papers provide a global outlook on transportation equity providing analysis from examples from Europe, United States, Latin-America and Asia.

The papers in this special issue contribute to the growing literature that speaks to unequal access and the effects of correlated externalities. This VSI aims to shed light on the complex linkages between accessibility inequalities, housing markets, environmental quality and overlapping inequalities with spatial and modal mismatches in different urban scales. Accessibility-related equity impacts are not often jointly considered with other factors affecting transportation, despite increased recognition that traffic related pollution disproportionately affects low-income communities and communities of color (e.g., see Cakmak et al., 2016; Houston et al., 2004; Su et al., 2012). This Virtual Special Issue (VSI) aims to shed light in this research gap. The collection of papers in this VSI from the Global North and Global South shows the importance of examining the distribution of transportation benefits (aka accessibility) across space and socioeconomic groups together with the distribution of its disadvantages (environmental quality). Moreover, this VSI discusses the relevance for transportation planning, arguing that dynamic interactions between inequities should be incorporated in the policy appraisal process and not compartmentalized as individual metrics. Studies on transport equity in the Global South (e.g. Hickman et al., 2017; Mella Lira, 2019; Pereira et al., 2017) seem to be growing in number but its volume is still small compared to the Global North, so this geographical coverage is another dimension that this VSI invests to address.

Planners have long been interested in improving the conditions

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experienced by disadvantaged population groups. In transportation planning literature and practice, these concerns are most frequently referred to using the phrase "transportation equity" (e.g., Karner et al., 2020; Lucas et al., 2019; Lewis et al., 2021), that concerns the analysis of distributional aspects and but also justice (Martens, 2012, 2017; Di Ciommo and Shiftan, 2017). The contributions in this VSI focus on distributional aspects. Research on justice and fairness, a growing field of research in the Global North, were highlighted by an earlier VSI "Transport and Mobility Justice" published in the Journal of Transport Geography (Verlinghieri and Schwanen, 2020).

Research on the distributional aspects of transport has a long history in transport and urban research. There is a large body of literature focussing on questions of uneven or inequitable access to places and forms of movement (e.g., see for an overview van Wee and Geurs, 2011). Early examples use various measures of physical accessibility as a social indicator of the ease with which citizens may reach different employment and services opportunities (Wachs and Kumagai, 1973). Recently, new literature focussed on defining equity of accessibility to key activities (e.g, see Karner and Marcantonio, 2018; Qian and Jaller, 2020; van Wee and Mouter, 2021); improving how equity can be realized in planning processes (Karner, 2016; Karner, 2018), and addressing questions of how to integrate equity across new mobility options (National Academies of Sciences, Engineering and Medicine, 2021). However, despite much improvement in accessibility and transportation research and modeling over the past decades (e.g. see Geurs and van Wee, 2004; Wu and Levinson, 2020) there are still major challenges in addressing unequal access and the effects of correlated externalities. Papers in this VSI discuss the measurement of spatial inequalities in accessibility (Lou and Zhao, Luo and Zhao, 2021; Smith et al., 2020; Slovic et al., 2019, Jiang et al., 2021), and how these inequalities are linked with urban developments, labour, housing markets (Luo and Zhao, 2021; Smith et al., 2020), household infrastructure restrictions (Slovic et al., 2019) and environmental quality (Heyer et al., 2020; Jiang et al., 2021). Evaluation of transportation planning instruments (Heyer et al., 2020) and the impact of infrastructure projects (Luo and Zhao, 2021) from an accessibility distributional effects lens are also within this VSI. Additionally, the connection between transport and environmental quality goes beyond its intersection with the accessibility dimension diving to a deeper investigation to better disentangle the crossroads between the route choice and pollutants exposure, testing routes in São Paulo, London and Rotterdam with destinations to places with high accessibility to jobs (Brand et al., 2019).

The VSI also includes the discussion of associations between accessibility inequalities and gentrification (Heyer et al., 2020; Jiang et al., 2021; Smith et al., 2020), and provides a linkage to the spatial mismatch literature, also observed in maps from the Global South empirical evidence brought by Slovic et al. (2019) and Luo and Zhao (2021). The VSI may also promote a connection with the modal spatial mismatch approach, presented by Grengs (2010), as it discusses the differences observed in distinct modes (Smith et al., 2020; Heyer et al., 2020; Jiang et al., 2021; Luo and Zhao, 2021).

Inequalities in accessibility are influenced strongly by the population characteristics of areas as well as by location (Wachs and Kumagai, 1973), and papers in this VSI address this issue in complementary perspectives. Beyond the traditional grouping by income, Heyer et al. (2020) considers a poverty line, Smith et al. (2020) and Jiang et al. (2021) depart from socio-occupational classes, and Slovic et al. (2019) include the race category to analyse the job accessibility restrictions and its overlapping inequalities, and uses the Municipal Human Development Index (MHDI), mapping the degree of economic development and quality of life. The use of socio-occupational categories summarizes a range of characteristics related to the labor market that accounts for the position in the occupation, level of qualification, education and social status (Giannotti et al., 2021). Although race was a fundamental category analysed in the origin of spatial mismatch hypothesis (Kain, 1992), and present in the discussion of some transport related studies (Heyer et al., 2020) it has been rarely considered recently in accessibility spatial inequalities studies that incorporate empirical analysis (Bittencourt et al., 2021; Bittencourt and Giannotti, 2021). The strategy to use the poverty line introduces an interesting approach to compare the outcomes from a longitudinal perspective in Heyer et al., 2020, as well as the comparisons through socio-occupational classes explored by Smith et al. (2020).

Moreover papers in the VSI behold different scales, within intra-urban municipal boundaries (Slovic et al., 2019; Jiang et al., 2021; Brand et al., 2019), metropolitan (Smith et al., 2020), and regional (Heyer et al., 2020; Luo and Zhao, 2021) levels, with empirical evidence from distinct areas from the Global South (Slovic et al., 2019; Luo and Zhao, 2021), North (Heyer et al., 2020; Smith et al., 2020; Jiang et al., 2021) or both (Brand et al., 2019).

2. The VSI Contributions

The collective effort for this VSI brings together insights from various aspects related to the uneven geography of the accessibility and environmental quality in the Global North and South. Gentrification and spatial mismatch relationships to transport equity, within distinct empirical evidence from cities in different countries, reinforces the importance of integrated urban and transport planning instruments (Silva et al., 2020), and the need for associated studies to capture the effect of new transport infrastructures, and linkages to environmental quality.

From the gentrification and spatial mismatch related inequities this VSI brings discussions and empirical evidence from Global North and South. In London Smith et al. (2020) estimates spatial inequalities in job accessibility by multiple modes (car, public transport and walking) for workers in different socio-occupational groups and finds evidence of accessibility inequalities with advantages for inner-city higher socio-economic groups (e.g., professional occupation) and disadvantages for lower wocio-economic groups. The results are in line with early accessibility studies on Los Angeles (Wachs and Kumagai, 1973) and later studies on Paris (Korsu and Wenglenski, 2010) and the San Francisco Bay Area (Cervero et al., 1999).

From the United States the VSI counts contributions from Heyer et al. (2020), that examine accessibility, equity and air quality in regional planning in metropolitan regions in California, United States, and observe a change on the suburbs identity that were developed under the assumption of "self-developed excluding enclaves of privilege" and are in fact facing the consequences of a gentrification process. The paper also addresses exclusion and displacement of disadvantaged households from increasingly unaffordable urban areas to suburban and exurban communities over the past few decades.

A trend towards increasing spatial mismatches is also found in other monocentric cities such as Paris (Coulombel, 2018), highlighting the importance to jointly analyse inequalities in the housing market and transport. However, studies to explain location choice, land value and housing prices tend to incorporate transport accessibilities but environmental attributes are often lacking (Du and Mulley, 2012). In this VSI, Jiang et al. (2021) shed light on the role of the housing market in equity in job accessibility, environmental quality and their interactions. Results of this study show that households with limited housing budgets may find it difficult to get higher job accessibility in Greater London, despite the relatively low price of job accessibility for them. At the same time, higher levels of job accessibility are mainly reserved for the higher-price submarkets. From the Global South, the VSI brings the spatial mismatch empirical evidence from São Paulo (Slovic et al., 2019) and China (Luo and Zhao, 2021). Although both articles were not looking to discuss explicitly the spatial mismatch, its patterns clearly arise from the maps on it.

Gentrification and spatial mismatch are issues of great concern, as infrastructure provision may reinforce patterns of sociospatial segregation (Silva et al., 2020) and intensify transport inequity. In São Paulo,

the VSI paper by Slovic et al., 2019 reveals the overlapping inequalities of the worse-off accessibility areas with the precarious household infrastructure conditions (sewage, pavement on street, sidewalks) and services (garbage collection) reinforcing sociospatial segregation patterns (Slovic et al., 2019). The paper also shows, in their contribution to this VSI, that residents living in areas with a low Municipal Human Development Index (MHDI) have lower transit accessibility to jobs, are predominantly non-white, live in the outskirts of the city with precarious urban infrastructure and have a life expectancy on average of five years lower than the high MHDI group.

One interesting aspect arises from the comparison between the modal mismatch related to the low socioeconomic groups from Global North (Heyer et al., 2020) and South (Slovic et al., 2019) contributions to the VSI. While in the first they rely on cars, carrying out the burdens of cost and environmental impact, in the second there is a predominance of the use of public transport to commute, as they cannot afford to have a car. In London, Smith et al. (2020), also show that residents from lower socioeconomic groups priced out of more accessible locations, reducing opportunities for more affordable commutes and likely increasing travel costs, providing a link to the literature on spatial mismatch and its reconceptualising towards modal spatial mismatch (Grengs, 2010).

So, transport planning instruments should carefully consider gentrification, spatial and also modal mismatch process and the VSI elucidate some related aspects. Heyer et al. (2020) observes that, although the United States is one of the few countries with well-established legal and institutional frameworks for conducting transportation equity assessments, there are still many challenges in policy developments related to dealing with the dramatic shifts in socioeconomic organization that many US metropolitan areas have undergone. The authors points out that there are methodological challenges in measuring transport equity to assess the cumulative impacts of transport policies. The authors show in the San Francisco Bay Area the suburbanization of poverty, in combination with an existing automobile-dominated landscape, locks lower income residents into automobile-based travel. As part of the required equity analyses, each Metropolitan Planning Organization (MPO) defines specific equity issues and metrics to assess the impact of their transport plans. These including metrics describing the distribution of (i) accessibility to jobs and amenities, (ii) transport-related health burdens and benefits, (iii) transportation investments, and (iv) the potential for displacement, i.e. how transportation and housing policies change affordability and the ability of disadvantaged communities to continue living in their homes. Heyer et al. (2020) conclude that current metropolitan transport policies equity metrics do not adequately capture the historical and current burdens on disadvantaged people in outer suburban and exurban communities.

Smith et al. (2020) emphasizes that also in London policy measures are sometimes limited to residents in the inner city, excluding suburban and exurban communities as observed by Heyer et al. (2020) in the United States. It should be highlighted though that London has a housing policy with a major role, due to social housing located in high accessibility areas, despite it may be no longer enough with an increasing dominance of Inner London by higher social group classes (Smith et al., 2020). In this direction, Slovic et al. (2019) highlight that accessibility restrictions are not only limited by transport policies, but a set of aspects that accounts for land-use choices, and infrastructure spatial distributions to enhance the living conditions of the most needed population.

Beyond the challenges faced by the transport planning mentioned by Heyer et al. (2020), Smith et al. (2020) and Slovic et al. (2019) the VSI additionally brings an example of study to verify a new transport infrastructure impact on transport equity (Luo and Zhao, 2021). Impact studies considering equity issues in transport planning is another challenge to overcome. The authors examine how the development of the high-speed rail (HSR) network in the Liaoning Province in Northeast China impacted the spatial inequalities in intercity accessibility by car and rail, using the coefficient of variation as a statistical indicator and K-means clustering to study clustering patterns in areas with good, fair and poor accessibility. For decades, road traffic has dominated intercity transportation in China, but now there are 6 operational HSR routes in the Liaoning province and 56 cities in the area have at least one HSR station. The authors illustrate that the HSR network helped to reduce spatial inequalities as it increased intercity accessibility of a number of peripheral cities.

And finally, from the linkage to environmental equity, Jiang et al. (2021) in their article in the VSI found out that the high-income households can pay more for job accessibility and get more, however, they are more likely to experience the burden of the associated environmental hazards, e.g., air pollution, even if they pay more or are willing to pay more for air quality. The results thus support and complement findings in this VSI and other literature, that socioeconomically disadvantaged groups tend to have lower job accessibility while patterns for environmental quality are less clear or may even be inverse. It becomes even more complex when perceived environmental quality and subjective well-being is addressed. Rehdanz and Maddison (2008) show for Germany that differences in perceived air and noise pollution in German neighbourhoods are not capitalised into differences in house price, whereas higher local air pollution and noise levels significantly diminish subjective well-being, controlling for a range of other factors.

Brand et al. (2019), in their contribution to this VSI, expand the analysis of spatial inequalities in environmental quality of residential areas to inequalities in exposure to air pollution while commuting. In earlier studies in London, no systematic relationship between income levels and exposure to pollutant concentrations (of particulate matter) during commuting was found, and inequalities in exposure resulted from transport mode choice. Lower income workers with a predominant use of car, received the lowest doses during commute but generated the largest emissions per commuter, whereas low income commuters relying on the bus received significantly higher exposures while generating less emission per person (Rivas et al., 2017). The paper in this VSI quantifies the exposure of cyclists to air pollution in London, Rotterdam and São Paulo, considering the effect of the route choice and the period of the day, using the same set of instruments. In the Global North there are few studies on air quality exposure of cyclists, even in countries such as the Netherlands with high cycling shares in commuting, in the Global South there is hardly any study on cyclist's exposure to air pollution. The paper shows there is significant variation in cyclists' exposure for commuting trips to job centers with routes varying with road traffic levels, green and blue areas. This reinforces the considerations to avoid highly-trafficked roads by maintaining a distance from major roads, making use of green and open spaces in route choice planning, development of new green routes and the use of green barriers between cyclists and roads (where possible) are important exposure abatement measures. Moreover, the study confirmed cyclists are worse off in cities in the Global South, with the highest levels of exposure and fewer alternatives to choose greener and cleaner alternative routes, as only a small fraction of roads have cycling facilities.

3. Avenues for further research

The contributions in this VSI show that transport equity analysis is a complex and methodologically challenging task, and there is a need for research on new and more comprehensive appraisal frameworks. There are many challenges which need to be addressed in further research. It is beyond the scope of this introduction to provide a comprehensive list of future research directions, and limit ourselves to research directions which we consider to be most important. It should be clear that in all of these research areas, interdisciplinary and multidisciplinary research is needed to improve our understanding on transport impacts. Here, we highlight a number of major avenues for further research related to (1) the inclusion of multiple aspects of transportation equity, (2) integrating of transport equity impacts in planning, and (3) digital equality related to emerging forms of urban transport.

3.1. Joint analysis of multiple aspects of transportation equity

Despite the growing attention for transport equity, and despite authors arguing for a shift in focus from transportation equity to a broader consideration of transportation equity more closely aligned with models of social change promulgated in the environmental justice literature (Karner et al., 2020), there is little attention in the literature for the joint analysis of the distribution of advantages and disadvantages of transport (accessibility, air pollution, etc.), their interactions and correlations, and their evolution over time, and resulting equity implications. These relationships can be quite complex. For example, flagrant patterns of inequality in accessibility and air pollution were found in the Brussels region but these do not reflect the socio-economic structure of the region, and neither air pollution nor accessibility are significantly correlated with property values (da Schio et al., 2019).

The papers in this VSI clearly illustrate the value of examining spatial inequalities but at the same time highlight the need to go beyond the spatial equity analysis (Jiang et al., 2021; Brand et al., 2019; Heyer et al., 2020). From the papers in this VSI, however, we observe that the distribution of transportation benefits (aka accessibility) across space and socioeconomic groups need to be examined together with the distribution of its disadvantages (environmental quality). Moreover, users who benefit from having access to a car are exposed to lower levels of air pollution but increase emissions and disadvantages for others.

The need to include multiple aspects of transportation justice is also related to discussion on ethical frameworks framed in terms of increasing choices and freedom. Mullen and Marsden (2016) state that there is a strong normative tradition in the transport literature on placing value on individual choice. They argue that considering aspects of justice independently can lead to a failure to consider how solutions to one problem might impact other justice concerns. They argue that reconciling multiple aspects of transport justice prompts a reassessment of theories of justice, and reflections on underlying normative theories are needed. Also, the focus on capabilities and individual choice of the current generation also does not include concerns over future generations. Thus environmental justice needs to be included in the equation. This is an area in need for further research.

3.2. Integrating transport equity impacts in planning

Equity, accessibility and environmental effects are part of the larger planning process in the Global North and South. In the Global North, the environmental effects of transport plans and projects are well studied and integrated in transport planning frameworks. In the USA, environmental justice is an important consideration for transportation planning agencies in the U.S. following the passage of the Civil Rights Act of 1964 and subsequent Department of Transportation directives. Many studies in the USA have noted inequities with regard to the socioeconomic status or racial character of communities and their relative exposure to environmental disamenities (Brainard et al., 2002). Studies indicate that while federal law has helped to reduce inequalities, important disparities in transportation access – across all modes – persist between affluent white users and low-income minority users. Karner and Marcantonio (2018) argue that a key factor driving this disconnect is the near-absence of meaningful public involvement through which affected residents can influence and shape decisions. Also, policy efforts to incorporate equity and civil rights into transport planning remain fraught with methodological challenges (Karner and Niemeier, 2013). Heyer et al. (2020) argue that regional and local transportation plans lag important population shifts and the dynamic interactions between climate change mitigation, air quality, transit accessibility, and housing should be incorporated throughout the analysis rather than compartmentalized as individual metrics.

In the Global South there is much less attention for inclusive transport planning and many authors highlighted the need for methodology development to improve transport and environmental planning frameworks. Urban and transport development in emerging countries such as Brazil and China, have followed a similar (but far from identical) path with dynamic urban development processes, extensive urban sprawl, increasing social segregation, rapidly growing motorization, high environmental pollution and informality, inefficiency and/or corruption in the formal planning system (Pojani and Stead, 2016). Conventional approaches to analysing travel demand and transport system performance developed in the 'Global North' are typically ill-equipped to identify and understand the complexities and inequities in urban areas of the Global South (Priya Uteng and Lucas, 2019).

A first step towards more integrated policy frameworks is to shift policy focus from increasing mobility to improving accessibility. This shift will better deliver on several goals, from climate change mitigation to sustainable development and human well-being (ITF, 2021). Further development is needed to integrate climate change, other environmental and health concerns in transport and accessibility planning frameworks. Firstly, modeling the environmental effects of land use and transport in existing land use-transport models is very limited (Acheampong and Silva, 2015; Tayarani and Rowangould, 2020; Tayarani et al., 2018). Some pioneering work has been done in integrating environmental aspects in urban models (e.g., Kuehnel et al., 2021) however the impact of environmental and health variables on land-use and transport decisions is often ignored or modelled at the aggregated zone level. Kuehnel et al. (2021) presents a proof of concept for an integrated, microscopic and agent-based approach for a feedback loop between transport related noise emissions and land-use, and show that high-income households tend to relocate to more quiet dwellings compared to low-income households relocating to lower cost housing with high noise exposure. Secondly, the ability to integrate transport equity into standard modeling feedback mechanisms is simply beyond the current generation of LUTI models, and as van Wee (2015) suggests, it is unlikely the next generation LUTI models will be capable of providing such outputs with any degree of confidence. Thirdly, some work has been done to integrate GHG/CO_2 emissions in (carbon-based) accessibility instruments (Kinigadner et al., 2020), however, equity considerations were not included. Exploring in particular the relationship between air pollution and accessibility may provide arguments to support a more holistic approach to urban governance; it could contribute to bridge gaps between public health and spatial planning priorities (Verbeek and Boelens, 2016), or provide important insights to the sustainable mobility discussion, which places emphasis on the need to combine the socio-economic gains deriving from accessibility with urban liveability and environmental performance.

Inclusion of health impact assessments in transport equity analysis is another major direction for research. In this VSI, Slovic et al. (2019) revealed that areas with low accessibility are associated with shorter life expectancy, but much more should be investigated to unfold the transport related factors. There are strong links between transport, social disadvantage and health inequities but these interconnections are understudied, hidden and unacknowledged (Rydin et al., 2012; Widener and Hatzopoulou, 2016) and rarely dealt with in planning practice. The most common form of health impact assessments, in particular in the transport planning practice, is qualitative (Khreis and Nieuwenhuijsen, 2019). Existing transport and health frameworks do not typically address equity impacts. For example, the Integrated Transport and Health Impacts Model (Woodcock et al., 2009) applied around the world to quantify health effects of changes in physical activity, air pollution, and injuries (serious and fatal) produce aggregate impacts for a population. Some researchers have tried to address this weakness by segmenting the analysis of the health impacts of transportation plans by race/ethnicity and household income groups, to target interventions to achieve desired outcomes for disadvantaged populations (Wu et al., 2019).

3.3. Digital equality in transport

While the papers in this issue did not examine equity implications of emerging forms of urban transport, it is clear that the development of Information and Communication Technologies is boosting "new transport modes". Although this SVI has invested on exploring the modal mismatch as considering different modes (Smith et al., 2020; Jiang et al., 2021; Luo and Zhao, 2021; Heyer et al., 2020) it is necessary to expand it as digitalisation, development of autonomous vehicles, and shared mobility will have profound impacts on economies, spatial interactions all-around the world, and the availability of high resolution spatial and transportation data, and provide an important area of research (Macharis and Geurs, 2019). The development of app-based platforms will increase reliance on registration and digitalization which can further exclude social groups experiencing difficulties in handling new technologies or having access to banking (Pangbourne et al., 2019). The ability to navigate through a digital application obviously requires a certain level of literacy and numeracy skills. Even in the most digitised countries, a substantial share of the population lacks digital skills. In the European Union, 42% of the population still lacks at least basic digital skills. There is a lack of empirical research on the impact of digital skills on the use of public transport and app-based forms of (shared) mobility.

Moreover, digital skills also can have indirect impacts on people's capabilities to travel as access to transport also affects employment opportunities. Bastiaanssen et al. (2020), for example, found in a meta-analysis evidence that car ownership significantly increases individual employment probabilities, in particular among groups with low levels of car access, such as welfare recipients. Non et al. (2021) show that Dutch persons with at least basic skills are about 10% more likely to be employed compared to persons with no digital skills. Access for peer-to-peer car or ride shared sharing schemes, reducing cost of car ownership, could contribute to employment probabilities. There is however relatively little research on transport equity related to the presence and use of car sharing and hailing systems. Currently, carsharing is popular in European cities with a high educational level or university presence (Münzel et al., 2020). At the same time, the emergence of ride sharing (also called e-hailing) in cities in the Global South increased travel possibilities of individuals and facilitated access to labour markers, and dramatically reduced travel times of commuters previously dependent on public transport (Haddad et al., 2019). Durand et al. (2021) conclude, based on a literature review, that digital inequality in transport services is likely to follow and possibly reinforce patterns of social inequality, i.e. along the lines of age, gender, income, literacy, ethnicity, geographic region (urban vs rural). Digital inequality in transport is a major area for further research, in particular empirical studies are lacking.

4. Conclusions

This VSI aimed to shed light to the complex linkages between accessibility inequalities, housing markets, environmental quality and overlapping inequalities with spatial and modal mismatches in different urban scales. The findings show that a better understanding of multiple inequality dimensions is important for both the Global North and South. Jiang et al. (2021), for example, show that socioeconomically disadvantaged groups in Greater London tend to have lower job accessibility while patterns for environmental quality are less clear or may even be inverse. Slovic et al. (2019), for example, show in their contribution to this VSI, that residents living in areas with low levels of job accessibility by public transport live in the outskirts of the city with precarious urban infrastructure and have a life expectancy on average of five years lower than the high MHDI group. This VSI provided studies that discussed the importance of including these multiple dimensions, with empirical evidence from diverse urban contexts, and through a myriad of methods to expand the understanding on the uneven geography of the accessibility and environmental quality in the Global North and South. Moreover, the VSI has pointed out that to more meaningfully address equity in regional transportation planning, the dynamic interactions between accessibility, housing, air quality and climate change mitigation should be incorporated throughout the analysis rather than compartmentalized as individual metrics. Finally, a number of directions for interdisciplinary and multidisciplinary research on the analysis of multiple aspects of transportation equity, the integration of equity analysis in transport planning and digital inequalities related to emerging forms of urban transport.

Author statement

The three guest editors have jointly conceptualized and authored the editorial.

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