

URBAN MOBILITY AND SOCIAL
EQUITY IN LATIN AMERICA

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TRANSPORT AND SUSTAINABILITY
VOLUME 12

**URBAN MOBILITY AND
SOCIAL EQUITY IN LATIN
AMERICA: EVIDENCE,
CONCEPTS, METHODS**

DR DANIEL OVIEDO
University College London, UK

DR NATALIA VILLAMIZAR DUARTE
Universidad Nacional de Colombia, Colombia

DR ANA MARCELA ARDILA PINTO
Universidade Federal de Minas Gerais, Brazil



United Kingdom – North America – Japan
India – Malaysia – China

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LIST OF CONTRIBUTORS

Ana Marcela Ardila Pinto, Federal University of Minas Gerais, UFMG, Brazil

Bruna Barradas Cordeiro, Federal University of Minas Gerais, UFMG, Brazil

Julio D. Dávila, University College London, UK

Daniela de los Santos, Universidad Católica del Uruguay, Uruguay

Gabriela Cicci Faria, Federal University of Minas Gerais, UFMG, Brazil

Friederike Fleischer, Universidad de Los Andes, Colombia

Marcos Fontoura de Oliveira, Transport and Transit Company of Belo Horizonte, BH-TRANS., Brazil

Ivis García, University of Utah, USA

Luis Ángel Guzmán, Universidad de Los Andes, Colombia

Laíse Lorene Hasz Souza e Oliveira, Federal University of Minas Gerais, UFMG, Brazil

Diego Hernández, Universidad Católica del Uruguay, Uruguay

Keuntae Kim, University of Utah, USA

Luiza Morena Alves Lopes, Federal University of Minas Gerais, UFMG, Brazil

Enerly López-Navarrete, University of Puerto Rico, Puerto Rico

Karen Lucas, University of Manchester, UK

Beatriz Mella Lira, Pontificia Universidad Católica de Chile, Chile

Daniel Oviedo, University College London, UK

Norma I. Peña-Rivera, University of Puerto Rico, Puerto Rico

Lake Sagaris, Pontificia Universidad Católica de Chile, Chile

Ivette S. Sepúlveda Sanabria, Fundación Universitaria San Alfonso, Colombia

Ignacio Tiznado-Aitken, Pontificia Universidad Católica de Chile, Chile

Natalia Villamizar Duarte, Universidad Nacional de Colombia, Colombia

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EDITOR BIOGRAPHIES

Daniel Oviedo is an Assistant Professor at the Development Planning Unit of University College London. He is a Civil Engineer and Urban Development Planner with over 10 years of experience in urban transport in Global South cities. His research focusses on accessibility, inequality, social exclusion, informal transport and sustainability. He leads INTALInC in Latin America.

Natalia Villamizar Duarte is an Associate Professor in the School of Architecture and Urbanism at the Universidad Nacional de Colombia. She has worked in urban design, urban planning and policymaking for over 15 years. Her work focusses on processes and practices of governing, public space and urban mobility, planning of urban borders and community–university partnerships.

Ana Marcela Ardila Pinto is an Associate Professor of Sociology at the Federal University of Minas Gerais. She is a sociologist with over 20 years of experience in urban sociology, urban planning and mobility. Her work focusses on public space, sociability and urban mobility policy in Bogotá, Rio de Janeiro and Belo Horizonte.

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CONTRIBUTOR BIOGRAPHIES

Bruna Barradas Cordeiro holds a Master's in Sociology from Participatory Planning Geographical Information System (PPGIS)/Federal University of Minas Gerais (UFMG) in the research field of Urban Sociology, and a Bachelor's in Social Sciences from the same university. Currently, she is a Researcher at the Center of Urban Studies at UFMG, working with urban mobility, hawkers and informal economy in mobility spaces.

Julio D. Dávila is a Professor of Urban Policy and International Development, and a Director of the Development Planning Unit, University College London. He is a civil engineer and urban development planner with 30 years' international experience in research and consultancy. His research focusses on local government and social and political transformations, and governance of urban infrastructure.

Daniela de los Santos is a Sociologist. She is a Researcher at the Interdisciplinary Centre for Development Studies-Uruguay (CIEDUR), Universidad Católica del Uruguay, Uruguay and a Research Assistant at the Catholic University of Uruguay. Her fields of interest are gender and economic inequalities, public policy, social science methodology and urban studies.

Gabriela Cicci Faria holds a Master's in Urban Sociology from the Federal University of Minas Gerais and is a Social Psychologist graduated from the same institution. Her main themes of interest in research are urban mobility, gender, space and subjectivity.

Friederike Fleischer is an Associate Professor at the Department of Anthropology, Universidad de los Andes, Colombia. Her books include *Suburban Beijing* (2010) and *Soup, Love, and a Helping Hand* (2018). She recently published 'Atravesando la Ciudad ...' (EURE, 2019) and 'The Normalization of Bogota Social Housing Residents ...' (City & Society, forthcoming).

Marcos Fontoura De Oliveira is a Civil Engineer and an Urbanist in the Federal University of Minas Gerais. He has a Master's in Public Administration from the João Pinheiro Foundation and a Doctorate in Social Sciences from PUC-Minas. He is an advisor to the Presidency of the Empresa de Transportes e Trânsito de Belo Horizonte, BH-TRANS.

Dr Ivis García is originally from Puerto Rico. She is an Assistant Professor of City and Metropolitan Planning at the University of Utah. She is a National Institute for Transportation and Communities Researcher. Her work has been published in *Urban Studies*, *Journal of the American Planning Association*, *Journal of Planning Education and Research*, among other urban planning journals.

Luis Ángel Guzmán is an Associate Professor at the School of Engineering at Universidad de los Andes. His research interests include urban mobility, transport and land-use interaction and social and economic analysis of inequalities related to urban transport and policy evaluation.

Laíse Lorene Hasz Souza e Oliveira holds Master's in Sociology from PPGS/ Federal University of Minas Gerais (UFMG) in the research field of Urban Sociology and Bachelor's in Social Sciences from the same university. Presently, she is a Researcher at the Center of Urban Studies at UFMG, working with urban mobility and waiting spaces.

Diego Hernández is an Associate Professor, at the Department of Social Sciences, Universidad Católica del Uruguay. He develops research on transport, mobility, social exclusion and equity, including topics like spatial accessibility, affordability and gender. He has published his research work in scientific journals and has worked as a consultant for national and international institutions.

Keuntae Kim is a PhD student at the Department of City and Metropolitan Planning and holds a Master's degree in City Planning from Seoul National University, and another Master's degree in Urban Design from School of City and Regional Planning at the Georgia Institute of Technology.

Luiza Morena Alves Lopes completed her graduation in Occupational Therapy (2012) and MSc in Sociology (2018) at the Federal University of Minas Gerais. Since 2012, she works as Occupational Therapist at the Universal Health System with mentally suffering individuals, including participating in the closing process of the last Psychiatric Hospital of Belo Horizonte.

Enerly López-Navarrete is an Early Childhood Specialist with studies in Urban Planning from Graduate School of Planning, UPR. Her work focusses on weaving children's play into communities. Her favourite places to do research include sidewalks, streets and unused spaces to visibilize children in open public spaces.

Karen Lucas is a Professor of Transport and Social Analysis at the Institute of Transport Studies, University of Leeds and a Deputy Director of the Leeds Social Sciences Institute. She has 20 years of experience in social research in transport. She is a world-leading expert in the area of transport-related social exclusion. She is also the Director of INTALInC.

Beatriz Mella Lira is Postdoctoral Researcher at the BRT+ Centre of Excellence, Pontificia Universidad Católica de Chile, and a former PhD Researcher at the Bartlett School of Planning, University College London. She has recently co-edited the book *A Companion to Transport, Space and Equity* (Edward Elgar Publishing).

Norma I. Peña-Rivera, PhD, is a Professor and a Director of the Graduate School of Planning at the University of Puerto Rico, Río Piedras. Her research areas include transportation and land-use planning, spatial decision support systems and social exclusion by mobility.

Lake Sagaris is an Associate Professor in the Department of Transport Engineering and Logistics, Pontificia Universidad Católica de Chile, Centre for Sustainable Urban Development CEDEUS, BRT+ Centre of Excellence. She holds a PhD in Planning and Geography. She specialises in collaborative governance, transport justice and walk–bike–bus sustainability trio from a gender and equity perspective.

Ivette S. Sepúlveda Sanabria is a Professor of Social Work at Fundación Universitaria San Alfonso, Colombia. Her research is about care policies and the care economy. Her publications include ‘Políticas sobre el cuidado en Bogotá...’ (Trabajo Social, 2017) and *Se nos va el cuidado, se nos va la vida...* (2018).

Ignacio Tiznado-Aitken is Postdoctoral Researcher at the Centre for Sustainable Urban Development, CEDEUS, Pontificia Universidad Católica de Chile. He holds a PhD in Transport Engineering from Pontificia Universidad Católica de Chile and he was a Visiting Postgraduate Researcher at the Institute for Transport Studies at the University of Leeds. His main research interests are accessibility, affordability, equity, poverty and transport justice.

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PROLOGUE

URBAN MOBILITY AND SOCIAL EQUITY IN LATIN AMERICAN CITIES: EVIDENCE, CONCEPTS AND METHODS FOR MORE INCLUSIVE CITIES

Karen Lucas

I have been researching and writing about transport inequities and their punitive social consequences for the affected individuals and communities for more than 20 years now and in numerous geographical contexts. I am pleased to say that over this time more and more academics from around the world are becoming interested in researching this topic, as well as trying to influence policymakers, planners and the funders of transport projects to think more about social equity in the design and operation of urban transport systems. It is an important issue in all geographical contexts, whether in the Global North or South, in urban, suburban or rural contexts, and everywhere in between, for all forms of transport, as well as for urban planning and for how we shape our cities and their rural hinterlands.

Inequality in all its dangerous and pernicious forms infuriates me, especially when the people who experience it have no control over the power structures that create it and no opportunities to fight against it. The mobility and accessibility inequalities caused by exclusionary transport and land-use systems are particularly insidious because almost all countries have overlooked them within their social development and welfare agendas. However, lack of access to transport resources can have hugely negative social outcomes over a person's life course, denying them participation in many activities and opportunities, and can even destroy the well-being of whole communities. In the main, these inequalities are not something that individuals can themselves resolve, although they may invent highly creative strategies to cope with them on a daily basis. Nevertheless, a fundamental overhaul of the power structures that plan and finance urban transport systems as well as dedicated evidence-based policies, integrated planning and sustained project interventions are needed to change the current trajectory, so that cities can become inclusive places for all.

Latin America is a vast subcontinent and so we are often talking about very different physical conditions, political economies and human capabilities across the different countries under consideration, as well between the urban conurbations within them. What all its countries demonstrate, in common with the rest of the world, is that mobility resources are almost always distributed unevenly (and often unfairly) and in line with traditional social divisions, so that usually lower income groups get to have much less of them, as do women, children, older people, people with disabilities and other socially disadvantaged groups. It is unsurprising that they undertake most of their trips by walking or walk long distances to access the limited transit services that are available to them. This in turn reduces their opportunities to access employment and other key activities within the rapidly expanding urban realm.

These problems can be particularly acute for low-income women, who not only have to travel to far-flung places outside their areas of residence to take up domiciliary employment in the middle-class areas of the city, but must also combine this travel with the still highly gendered responsibilities of caring for children and elderly relatives and managing the home. The high demands placed on low-income women to travel away from the home to secure a living in the far-flung and often gated communities of the middle-class households in many Latin American cities can also have severe knock-on consequences for their children and family relationships. As such, as the case studies identify, mobility poverty is a social problem from the point of view of social participation and inclusion, and one that needs full integration with other welfare policies, such as housing, employment, healthcare and education provision, in order to address a much broad set of Sustainable Development Goals for Latin American cities.

It is for this reason that the texts that Oviedo, Villamizar and Ardila have brought together in this edited collection are so important. They provide the underpinning theories, concepts and evidence base that has been missing for so long within the discourses surrounding the provision of sustainable *and equitable* mobility in developing cities. Not only do these Latin American case studies serve to highlight the negative consequences of having inadequate mobility resources for people's lives and livelihoods, but they also demonstrate how person-centric designed and context-specific projects can successfully provide inclusive accessibility for all within cities. That the authors are themselves from Latin American origins also lends a certain sense of passion and integrity to the work. That many of them are early career researchers offers the old hands, like myself, hope for the continuance of teaching, research and policy action addressing the intersectionalities between mobility inequalities and social well-being.

It is, thus, my hope that this book will receive the attention it deserves from the people who can make a real difference on the ground in these domains, and so, to recognise the important role of urban mobility in the achievement of greater social equity at every level of Latin American society.



Professor Karen Lucas
School of Environment, Education and Development
University of Manchester

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URBAN MOBILITY AND SOCIAL EQUITY: AN INTRODUCTION

Natalia Villamizar Duarte, Daniel Oviedo and Ana Marcela Ardila Pinto

URBAN MOBILITY AND SOCIAL EQUITY: AN INTRODUCTION

Urban mobility plays a significant role in shaping urban form and people's experiences in and of the city. Such a role is largely determined by both infrastructures and services for urban mobility, as well as the interactions between social actors while using them. How these infrastructures, services and interactions materialise has an impact on people's accessibility to urban services, amenities and opportunities.

Rapid demographic growth and urbanisation processes have outpaced the capacity of governments to respond to increasing mobility demands and needs of the urban population. This lack of capacity manifests in an unequal distribution of benefits and negative externalities of transport that tend to disproportionately affect already vulnerable population groups (Jones & Lucas, 2012; Oviedo & Titheridge, 2016). As such, manifested inequality is an undeniable part of our urban realities in understanding distributional issues in urban mobility that becomes a central concern in research agendas particularly in contexts facing large social inequity. This edited volume examines how spatial and social mobilities are deeply intertwined in the reproduction of both spatial and social inequities in Latin American cities. The book focuses on Latin America as a unique setting for the critical examination of the links between urban mobility and social equity. However, recognising that these links can be underpinned by similar cultural and social drivers not tied to a fixed geography, the volume includes a chapter examining experiences of Hispanic population in the United States.

The emphasis in Latin American cities gives scale and dimension to current urban challenges associated with urban mobility in the region. Latin America is at present the most urbanised region in the planet, with very high shares of urban population that are above 60% even in countries with lower comparative urban

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population rates such as Colombia and Peru. Such reality, along with continued demographic growth and increased urbanisation, poses considerable challenges for accommodating urban societies in an efficient and equitable manner (McGranahan, 2015). Available responses to such challenges are largely dependent on changing dynamics associated with urban mobility and on our understanding of the multiplicity of mobility needs and practices in different Latin American cities.

Inequalities in the distribution of costs and benefits of mobility infrastructure and services contribute to the reproduction of social inequalities and levels of exclusion in cities (Manderscheid, 2009). Low income, women, children and people with various forms of disability, among other socially vulnerable populations, endure most negative effects of poor-quality infrastructure and inefficient transport systems (Lucas, Mattioli, Verlinghieri, & Guzman, 2016; Titheridge, Christie, Mackett, Oviedo, & Ye, 2014). Most vulnerable populations not only have to tolerate longer journey times, increased exposure to pollution, increased risk of traffic and insecurity but also experience sharp differences in their ability to access opportunities, services and relations in the city (de Vasconcellos, 2001; Jirón & Zunino, 2017; Jones & Lucas, 2012; Oviedo & Titheridge, 2016).

Traditional conceptual and empirical approaches for the study of urban mobility build on functional and economic principles focussing on variables such as distance, demographics, urban functions, land uses, etc.. Under this perspective, people have been understood as abstract agents whose mobility decisions are rational and predictable (Chorley & Haggett, 2014). These traditional planning approaches see urban mobility primarily as a transport problem and focus on demand and efficiency, often overlooking social or spatial equity considerations (Keeling, 2008). Furthermore, the toolkit for mainstream transport planning rarely incorporates specific indicators to measure the contribution of mobility and transport to accessibility, equity and social development (Geurs & van Wee, 2004; Jones & Lucas, 2012; van Wee, 2016). Even less do they consider the different agents involved in the construction of diverse forms of mobility in their everyday practices (Cresswell, 2011).

The multiplicity of mobility needs and practices is still a relatively understudied issue in Latin American cities, despite many local transport and mobility plans and regulations incorporating social inclusion and equity as central objectives (Scholl, 2016). To advance in this area, it is critical to look at different social dimensions that can help explaining uneven outcomes of transport planning and urban mobility. Effective evidence-based communication of the social consequences of urban transport and mobility will contribute to improve people's ability to fully participate and be included in society. This book provides methodological, conceptual and policy insights from different contexts in the region to further explore the relationships between the state, civil society and private sector and the provision of more socially just mobility in Latin American cities.

It is essential to reflect on the intersecting social relations of class, gender, race, age and physical/mental ability in access to the city, its services and infrastructure to advance debates on social equity. Jones and Lucas (2012) proposed five categories that are central to understanding social impacts and distributional effects of transport systems and decision-making: accessibility, movement and activities, health,

financial and community. These five categories have helped define conceptual and methodological frameworks that incorporate individuals' characteristics, perspectives and experiences in urban mobility studies. Researches about differential accessibility (Oviedo & Titheridge, 2016), gender inequality in transport (Campaña, Giménez-Nadal, & Molina, 2018; Cass, Shove, & Urry, 2005; Manderscheid, 2014; Uteng & Cresswell, 2008), active travel and well-being, the role of travelling experiences, rhythms and representations of the urban agents (Cresswell & Merriman, 2011; Schonferder & Axhausen, 2016) and scales of accessibility (Jones & Lucas, 2012) have demonstrated the importance of social dimensions of movement for understanding inequality in urban mobility and transport systems.

The contributions in this volume expand on these debates by providing rigorous evidence of the social impacts of urban mobility and transport policies in Latin America. Works in this volume also discuss concepts and methods for explaining the distributional effects of transport policies and for exploring alternatives to ensure equity and non-discrimination in access for more inclusive cities. Recognising the deep relationship between accessibility, equity and inclusion, we have organised the 10 contributions in this book in three sections: *structural dimensions of accessibility*, *active travel and local accessibility* and *accessibility of emerging mobilities*. These themes are detailed enough to help us provide an overarching structure for the entire book but also are broad enough to admit very different perspectives to their debates about accessibility.

Contributions in our first section: *structural dimensions of accessibility* focus on the role of mobility and transport on the opportunity to access urban services and activities. The contributions in our second section: *active travel and local accessibility* emphasise on the intersection between sustainable forms of transport, equity, health and well-being generally. The third and final section: *accessibility of emerging mobilities* spotlights on understanding the needs and demands of very specific groups of population whose vulnerable condition represents a challenge for social equity in mobility and transport policymaking.

Structural Dimensions of Accessibility

Questions on accessibility have been central to the study of social impacts mobility and transport. Accessibility is a concept that not only has shifted the understanding of urban mobility but that is also a measure of segregation and different forms of exclusion. When access to the city becomes a desirable goal, the means for access (i.e. mobility) become indicators of attainment of such goal. Traditional accessibility studies focus on the relationship between transport and land-use based on generalised understanding of the needs and desires of travellers (Banister, Watson, & Wood, 1997; Bergmann & Sager, 2008; Cresswell, 2011). This generalisation does not necessarily account for the complexity of needs and desires of different groups of individuals. The four chapters in this section offer a remarkable analysis of equity implications of accessibility from a socioeconomic and gender perspectives.

In the first chapter, Oviedo and Guzmán examine the role of transport as an enabler of opportunities that contribute to human development and well-being. Using the case of Bogotá Metropolitan Region in Colombia, the authors discuss

accessibility metrics from an equity perspective. Using income to represent social and economic differences, this work assesses imbalances in accessibility and the implications of equity for different areas of the region. Their findings show that for mandatory accessibility, the imbalance between the population and accessibility is higher for the most vulnerable populations. For non-mandatory accessibility,¹ these figures are similar, suggesting higher costs of access for peripheral areas where low income and vulnerable population are located. Based on their findings, this chapter provides important reflections for policy and practice, stressing the role of mobility and transport as a mechanism to reduce the gap in access across social groups to promote equity and social development.

In the second chapter, Hernández and de los Santos present a descriptive analysis of patterns of mobility behaviour in Montevideo, Uruguay. Significant in this work is the methodological choice of carrying out the analysis from three different approaches: mainstream mobility indicators, care mobility indicators and tour-based analysis. While different results are presented for each approach, this work demonstrates persistent gender inequality in different levels of accessibility to services and other types of urban opportunities. Findings show that this gap is closely related to two aspects: the level of heterogeneity in daily itineraries of men and women, and access to different means of transport, particularly private transport. The study suggests that women devote more of their time to *care mobility*, largely characterised by shorter distances, more trips and more dependence on public transportation and active modes. Access to private modes of transport is an important variable in mobility patterns, posing yet another challenge for women, who generally have more limited access to motorised vehicles. Finally, these indicators of inequality increase among women in the low-income population segment.

In Chapter 3, Faria continues with an analysis of care dynamics and mobility patterns in Belo Horizonte, Brazil. This chapter also uses a gender perspective to analyse how the presence of children in a household impacts the mobility of the family members responsible for the household. As in the previous chapter, findings demonstrate a persistent gender inequality with women taking more trips associated with childcare. However, such levels of inequality vary depending on the children's level of schooling and age. Besides these findings, this work offers an important discussion about the difference between the concepts of *accessibility* and *access* where the latter incorporates not only physical but also social dimensions of mobility such as access to network, to information, to economic means and even to autonomous use of time.

In the last chapter of this section, Fleischer and Sepúlveda Sanabria offer a qualitative analysis of household employees' motility. This concept, first proposed by Kaufmann, Bergman, and Joye (2004), refers to people's capacity to be mobile and the effect of their subjective experience of mobility. Using this framework, the work demonstrates how the intersection between local labour regimes, gender and transport has unequal effects on women's mobility in Bogotá, Colombia. The authors illustrate how a negative experience of the daily commute in public transport systems highly influences household employees' desire to travel for purposes other than work. In the end, these subjective decisions are effectively limiting women access to urban space and opportunities.

Active Travel and Local Accessibility

Active travel, mainly walking and cycling, are a central issue in current transport studies. Whether related to sustainable transport (David Banister, 2007; Parkin, 2012; Pucher & Buehler, 2017), health and well-being (Delbosc, 2012), and local mobility practices and accessibility (Dávila, 2013; Jirón, 2010), these studies illustrate the intersection between active travel and social equity. While there is evidence that walking and biking have a positive impact in environmental sustainability, as well as individual health and well-being, there is also proof that these benefits are not evenly distributed among different population groups. Even more concerning is that these forms of active transport are not always a choice, but the result of larger inequalities in accessibility (Jones & Lucas, 2012). The three chapters in this section identify important equity implications of active travel from gender and racial perspectives.

In Chapter 5, the first one in this section, Sagaris and Tiznado-Aitken discuss the equity implications of women's travel patterns and sustainable transport in Santiago, Chile. Using the perspective of transport justice, the authors explore forms of discrimination based on cultural gender roles and mobility barriers for women. Their findings highlight the importance of considering non-work-related trips when assessing women's mobility patterns. Like the works of Hernández and de los Santos (Chapter 2) and Faria (Chapter 3), this work demonstrates women's higher participation in care mobilities and in walking trips, with a major impact on women in the low-income segments of population. Particular to this chapter is the complementary analysis of the effect of gender violence² on women's mobility, which demonstrates important changes in women's travel behaviours translating into significant inequalities in access to urban opportunities.

In Chapter 6, Mella Lira explores the relations between transport, accessibility and well-being through the analysis of emotional, instrumental and social reasons of female cyclists in four different Latin American cities: Santiago, Bogotá, Buenos Aires and Mexico City. While the instrumental reasons account for more traditional utilitarian evaluation of travel, emotional factors serve to complement the understanding of how travel decisions are made. As other chapters in this volume (see Chapters 2, 3 and 5) that focussed on a gender perspective, the author identifies that among instrumental reasons, care mobility is relevant, together with access to labour markets and strengthening of social relationships. In line with findings about changes in women's travel behaviours due to gender violence, presented in the previous chapter, Mella Lira identifies security and sexual harassment as one factor why many women chose not to bike, while others expressed feeling more secure on a bike compared to walking. However, in both cases, this specific topic affects negatively women's well-being which translated into limited accessibility.

In Chapter 7, García and Kim analyse whether ethnicity and other sociocultural characteristics influence active commute of high school Hispanic students in the USA. The authors found that compared with non-Hispanic groups, walking is the most predominant physical activity. Beyond the active commute to and from school, this study found an important relationship between engaging in active travel, for reasons different than commuting, and distances to public parks and other recreational public spaces. The authors also found that while perceptions of

safety influence choosing active travel – particularly walking, it does not influence Hispanics and African Americans physical activity. Age also has an impact on choosing active commute, with students more likely to walk or bike between 10th grade, when they are old enough, and 12th grade when they or their peers start owning a car. Overall, this chapter recognises that a close relationship between urban planning and health can be mediated by a better understanding of active travel patterns and behaviours.

Challenging Accessibilities

To account for the complexity of dimensions that interfere in the use of urban goods and services, recent accessibility studies have examined mobility needs and demands of diverse groups of people from their own perspective. An increased interest in examining the intersections between accessibility and gender, race and class has taken place in subfield. However, more distinct population groups, such as children, the elderly and people with disabilities, are not as visible in the policy arena. This final section contains three chapters that explore precisely the mobility needs and demand of children, individuals on psychiatric hospitalisation and people with disabilities.

We have called this section ‘challenging accessibilities’ because it compiles works that examine the experiences groups that are just emerging within the accessibility debate in academia as well as the policy arena. Making these agents visible is central for advancing accessibility studies as they challenge our understanding of normality and of the average individual. Recognising the mobility needs of these groups forces us to think about more diverse forms of accessibility and movement (Boys, 2014; Hamraie, 2017; Hine & Mitchell, 2001; Imrie, 2000). Furthermore, appreciating their practices, experiences, perspectives and, above all, their rights opens an opportunity to move towards a more accessible and inclusive city. A city conceived to ensure the accessibility of children, elderly, people with physical and mental disabilities, etc., will potentially be able to include everyone. In the end, these less visible populations can become society’s measure of (in)accessibility.

In Chapter 8, Peña-Rivera and López-Navarrete study children’s geographies to gain insights into their needs related to mobility and their opportunity to access urban space. Framed on Lucas (2012) concept of mobility poverty, the authors analyse the participation of children in city dynamics in San Juan, Puerto Rico, particularly focussing on their access to free, active play. This work reminds us how distinct children mobility can be, and its intrinsic relation with playing, which is the way in which children comprehend and experience the world. Thus, the authors of this chapter call for some specific considerations: first, to recognise play as an integral part of children accessibility; second, to keep in mind the multiple micro- and mesoscales at stake in children’s mobility; and third, to remember that children’s capacity to move primarily depends on their access to safe walking spaces. Findings from this work demonstrate that crime, adults’ perception of security and the presence of motorised vehicles limit children’s access to urban space. Also, this work illustrates how different perspectives can either

limit or promote children's access to urban space. While an adult's perspective is that playability depends on access to playgrounds, children recurrently appropriated streets as their place to play.

In Chapter 9, Lopes presents an in-depth qualitative assessment of the effect that the Brazilian psychiatric reform had on the accessibility of individuals on psychiatric hospitalisation in Belo Horizonte, Brazil. The shift from long psychiatric hospitalisation to residential therapeutic services substantially transformed the ways in which these individuals use, access and appropriate urban space. Findings from this work illustrate that the mobility of individuals with mental disability is characterised by proximity, and most trips are done walking. The use of transport systems poses limitations because the buses are overcrowded, and physical accessibility is difficult. Notable in this work are, first, identifying that people with mental disabilities have distinct and unique ways of accessing the city, and second, revealing that mobility has a direct effect on the autonomy of these individuals. In the end, this work stresses the need to further advance in our understanding of the relations between accessibility, mobility and mental disabilities.

In the last chapter in this section and this volume, Ardila Pinto, Fontoura De Oliveira, Barradas Cordeiro and Hasz Souza e Oliveira examine the accessibility of people with disabilities to urban transport systems. The authors point out that while the objective of urban policies includes universal accessibility, the city and its policymakers still do not comprehend multiple needs and demands of this population. While the analysis uses descriptive statistical analysis to compare mobility patterns between people with and without disability, this is complemented with a qualitative analysis of perceptions of people with disabilities. Results of this analysis show higher levels of immobility and greater challenges to access public transportation. The higher levels of immobility translate an uneven access to the city's goods and services, especially those related to health, education and work. As for the challenges, it is noteworthy that they do not only relate to service operation and infrastructure but also to attitudes and behaviours of service providers and other citizens. A final, yet significant, finding is the role of public spaces as key transition between the city's goods and services and the transport system. Inadequate conditions of public space in terms of surfaces, levels, doors or other accesses as well as information systems jeopardise the access to people with disabilities.

General Contributions

Contributions to this volume have been concerned with understanding and measuring inequalities from the perspective of urban agents that are exposed to multiple situations of inequality. Diverse approaches to assessing accessibility are included in this book. An equity perspective was introduced in one of the chapters (Chapter 1). The gender perspective was addressed by five of the chapters (Chapters 2–6), while inequalities related to race was addressed directly only in one of the chapters (Chapter 7). Three of the chapters focussed on segments of population traditionally overlooked in transport studies (Chapters 8–10), which offers new theoretical, methodological and political challenges to accessibility studies as well as to mobility and transport planning and policy.

The publication is a unique contribution to the international literature as it encompasses a collection of experiences, knowledge and empirical evidence, specific from Latin American cities. It will allow the reader to learn about the urban reality and mobility experiences in five different Latin American cities. In each of the eight chapters presenting a single case study, the reader will be able to identify the territorial, economic, political and social particularities of each place as well as local visions of agents that produce the urban space. The remaining two chapters offer a comparative perspective by introducing a multicity analysis: one of them including four different cities in Latin America and the other examining the active travel experiences of young Hispanics in the USA.

Works in this volume use both qualitative and quantitative methods to understand the relationship between objective and subjective aspects of accessibility and inequality. Four of the chapters carry out quantitative analysis, of which two directly discuss accessibility metrics and propose ways to improve them (Chapters 1 and 2). Four chapters draw upon diverse qualitative techniques such as ethnographic observations, interviews, workshops and focus groups (Chapters 4, 6, 8 and 10). And two contributions decided to use mix methods (Chapters 5 and 10). While findings are diverse across the different chapters, four themes emerge as central to debates in accessibility: first, the implications of the dynamics of care in accessibility; second, the not so visible conditions of immobility that result from limited accessibility; third, the importance of rethinking methods and techniques that measure accessibility; and four, the potential to learn from the mobility practices and experiences of understudied population groups.

Taken together, the different works in this volume offer a broad presentation of case studies across various Latin American cities, methodological, conceptual and policy insights from different contexts in the region in relation to social equity and transport, a largely overlooked topic in international research on the region. Chapters in this book also offer a novel reflection on intersecting social relations of class, gender, ethnicity, religion, race, age and physical/mental ability in access to the city, and its services and infrastructure in various Latin American cities. Overall, this is an original contribution to further understand issues of accessibility, equity and social development in the study of mobilities and transport planning in cities of the Global South.

This volume was possible thanks to the collaboration of researchers who are part of the Latin American Branch of the International Network for Transport and Accessibility in Low Income Communities, INTALInC LAC. This network has offered us, the editors and contributors, a space for voicing debates and exploring the implications for transport planning and urban mobility and their interaction with other dimensions of planning. This book is the first outcome of this collective effort of co-production of knowledge and policies recommendations, which recognises the diversity of each city and different groups while striving for the social construction of shared solutions. In the end, we hope this book contributes with methodological, conceptual and policy insights from different contexts in the region to further explore the relationships between the state, civil society and private sector and the provision of more socially just mobility in Latin American cities.