

TERMS OF REFERENCE

POVERTY, INEQUALITY AND URBAN TRANSPORT: INSIGHTS AND METHODS FOR POLICY AND PRACTICE FROM A GENDER PERSPECTIVE

Background:

The Latin American region has the highest levels of social and economic income inequality in the world. Although inequality declined from 2002 to 2014, from 2014 to 2018, declines in inequality stagnated, with average Gini indices ranging from 37 to 49 percent in 2018 (CEPAL, 2019). Argentina, El Salvador, and Uruguay had the lowest inequality while Brazil, Colombia, and Paraguay displayed the highest inequality levels. In addition, rates of poverty and extreme poverty are highly persistent. In 2018 poverty rates in the region were 30.1%, and extreme poverty rates stood at 10.7%. In addition, over 224 million inhabitants in Latin America (38%) of the population are in conditions of economic vulnerability¹ and approximately 32.5 million people in Latin America and the Caribbean are in multidimensional poverty, accounting for 6.5% of the population of the region (UNDP, 2015).

Although the region is highly urbanized, poverty rates are substantially higher in rural compared to urban areas. In 2018, the rural poverty rate in the LAC region was 40% versus 26.3 in urban areas. Nevertheless, in terms of absolute numbers half of the poor live in urban areas. Poverty rates are highly heterogeneous by age, gender, and ethnicity. In 2018, poverty rates for indigenous populations were 48.8 (compared to non-indigenous, non-afro descendant), youth 46.2% (compared to 18% for individuals above 14 years of age), women, 26.9 (compared to 23.8 for men), and 41.6 percent amongst unemployed (compared to 24.0% for employed individuals).

Unplanned urban growth and income inequality have prompted the poor to settle in informal housing on the periphery of large cities, often in areas difficult to serve with traditional or formal public transit systems (Cervero 2000). Spatial segregation of the poor from skill-appropriate job centers decreases the affordability of job search and access, and thus increases unemployment (Kain 1992). As a result, the urban poor either forgo trips or endure long and costly travel times to get to their jobs or carry out other tasks, a circumstance that aggravates social inequalities (Ardila-Gomez 2012). Women, particularly those from lower-income segments, are negatively impacted by service availability, due to their travel patterns (public transport does not serve routes within the communities, only serves at limited times or it is infrequent) (Dominguez Gonzalez et al. 2020). In addition, women have less accessibility and mobility due to personal safety concerns and high rates of harassment in crowded transit systems (Osmond and Woodcock 2015; Simicevic et al. 2016).

Furthermore, informality in the public transit sector has led to a decrease in the quality of public transportation for many of these urban spaces and has decreased access to jobs and other economic opportunities among the poor, who depend on public transit for a large share of their trips (Box 2.1 and Carruthers, Dick, and Saurkar 2005). This lack of access to affordable and efficient transport, generates social exclusion, impeding access to *formal* employment opportunities, services, and markets. While they incur long travel times to the central business districts, many also take trips to more dispersed locations. Travel expenditures can consume 30% or more of daily wages, adding to the already-high travel time costs, which in some cases can exceed two hours (Kalthier 2002; Vasconcellos 2001).

The new agenda for sustainable development adopted with a view to 2030 recognizes the transformative role of cities as catalysts for the development of not only more sustainable

¹ Defined as people with incomes between 4 and 10 USD/day.

societies, but ones that can be more inclusive and resilient (UN-HABITAT, 2016). As reflected by the Sustainable Development Goal (SDG) number 13.1, it is aimed that by 2030 cities throughout the world provide “**access** to safe, affordable, **accessible** and sustainable transport systems for all, improving road safety, **notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women**, children, persons with disabilities and older persons” (UNDP, 2016).

The different roles women and men have in society influence their behavior and travel patterns (Curtis & Perkins, 2006; Wachs, 1996). For example, to fulfil their care and household responsibilities, women tend to work closer to their home, they need to take more chained trips and make more stops than men (Sermons & Koppleman, 2001; Taylor & Mauch, 2000). In addition, mobility analysis in different Latin American cities have found that women are the main users of public transportation, while men have more access to private vehicles and motorcycles (Dominguez Gonzalez et al., 2020). Furthermore, when deciding their transportation mode, women prioritize safety over speed or cost as they are more likely to experience sexual harassment or robberies (Dominguez Gonzalez et al., 2020; Gardner et al., 2017; Gekoski et al., 2017).

The lack of research analyzing women's uses and needs in public transportation in developing countries presents a barrier for transportation planners in the design of effective policies to reduce the mobility gaps associated to gender (Kash, 2014). In Latin America, women represent between 8% and 21% of the workers in the transportation sector. The low participation of women in decision-making, planning and operational jobs in the sector (Duchéne, 2011; Kunieda and Gauthier, 2007; Peters, 2006) might enhance the biases in the design of transport systems (Peters, 2006).

Barriers regarding availability, affordability, and accessibility in public transportation may limit women's economic opportunities. Developing countries tend to have significantly lower levels of female labor force participation, compared to males as the result of socio-economic factors that deter women from engaging in the labor market (Martinez et al., 2018). In fact, the International Labor Organization (ILO) found that limited access to safe transportation is estimated to reduce women's labor force participation in 15.5 percentage points in developing countries (ILO, 2017).

By reducing transport costs and improving accessibility, public transit investments may also have effects on facilitating access to markets and services, which is particularly salient for reducing poverty and inequality in urban areas. Scholl et al. (2018) rely on a combination of individual-level DID and area-level propensity score-based overlap analyses to evaluate the Metropolitano BRT of Lima, Peru. They find that several years after the introduction of the system, there are positive effects on employment outcomes (employment, formal employment, hours worked, and monthly labor income) for individuals living close to the BRT stations, but not for those who live close to the feeder lines. Tsivanidis (2018) looks at the aggregate and distributional effects of TransMilenio. The author finds that while the system caused increases in welfare and output larger than its cost, gains accrued slightly more to high-skilled workers. The analysis of mechanisms suggests a potential increase in residential segregation by skills.

Recent studies looking at employment outcomes of bus services show that the effects are especially strong for women (Yanez, et al, 2019). Martinez et al. (forthcoming) look at both BRT and metro systems in Lima and explore the differential effects on employment by gender. Using DID regressions looking at comparable areas (selected through overlap in propensity score at the area level) that are closer and farther away from the systems, they show increases in the probability of being employed among women living closer to the systems and no significant changes for men. Changes are driven by women not previously in the labor market and, although there is an increase in earnings per hour, no improvements are observed in job quality. Abu-Qarn

and Lichtman-Sadot (2019) provide evidence of a trade-off between investment in education and time allocated to work by women after the introduction of bus services in Arab towns in Israel. Forthcoming research by (Scholl, 2020, et al) has found that women in informal settlements in the province of Buenos Aires suffer from time deficits and incur high levels of transport costs related to transporting children to school, resulting in opportunity costs related to education and labor market participation. While this emerging research on gender and urban transport provides key policy insights, more research is needed in order to inform operations and effectively mainstream gender concerns within the design and execution of the transport portfolio of the Bank.

The team's mission

At the Inter-American Development Bank (IDB), we're devoted to improving lives in Latin America and the Caribbean (LAC). Since 1959, we've been a leading source of long-term financing for economic, social, and institutional development in LAC. We do more than lending though. We partner with our 48-member countries to provide Latin America and the Caribbean with cutting-edge research about relevant development issues, policy advice to inform their decisions, and technical assistance to improve on the planning and execution of projects. For this, we need people who not only have the right skills, but also are passionate about improving lives.

The IDB's Transportation Division (INE/TSP) supports the development of transportation infrastructure (roads, ports, airports, railways, etc.) in the Bank's member countries. The IDB envisions the transportation infrastructure as a mean towards a more inclusive region and to promote sustainable development. The Transport Division's experience includes activities such as planning, preparation and evaluation of projects, investments in new and existing infrastructure, development and recommendation of sector public policy and regulations, institutional strengthening programs, regional dialogue with countries and other multilateral organizations, climate action programs in the sector (mitigation and adaptation practices), among others.

The knowledge strategy of the transport Division focuses on 5 strategic areas: Urban Transport, Mega Projects, Freight Logistics, Road Safety and Intelligent Transport Systems (ITS). In addition, it also focuses on four cross-cutting major challenges: gender equality, sustainable transport, regional integration and impact evaluation. Furthermore, the division is actively promoting the adoption of innovative technologies for improving project planning, preparation and/or operation.

Objectives:

The main objective of this consultancy is to generate empirical evidence on the links between inequality and urban transport with a gender perspective, which will be used as an input for the development of transport policies in the cities analyzed. The consultancy will address three research areas² where these variables intersect: i) the impacts that mobility of care (mostly exercised by women) and the lack of affordable school transportation for lower-income families have on women's access to employment and educational opportunities; ii) the differences in the conditions of access and participation in society that poor women and low-income persons with disabilities must face, and the consequences for social and economic development. For example, how does women's limited time impede their participation in the labor market and what is the role of safe, fast and well-connected public transport (to the workplace) to enable women to access quality jobs?; and iii) the impacts of transport affordability on access to opportunities for women by assessing how should public transit subsidies for both supply and demand-side be targeted to most effectively and efficiently improve accessibility for women and other vulnerable populations

² The analysis will benefit cities that are members of the IDB Transport GenderLab.

(persons in conditions of poverty, children, indigenous) to opportunities in both urban and rural areas?

What you will do

The consultancy will:

- Prepare a conceptual framework identifying the links between gender, affordability, inequality, and public transit.
- Conduct a literature review analyzing the links between gender, transport affordability, inequality, and public transit, with especial focus on: i) transport affordability, gendered immobility and poverty traps in urban areas; ii) the relationship between the lack of access to children's school transportation and women's barriers to employment and educational opportunities; iii) the differences in the conditions of access and participation in society that poor women and low-income persons with disabilities must face.
- Analyze available administrative data to prepare a preliminary characterization of the target population in each research question (OD surveys, household surveys, time use surveys, among others)
- Develop a methodology to collect and analyze qualitative and quantitative information: define the study's population, sample and data collection instruments. Considering the current context and the mobility limitations, remote data collection instruments should be prioritized (surveys and interviews should be conducted by telephone or videocall until travelling is allowed and social distance measures are relaxed).
- Develop a questionnaire as part of an interception survey to capture quantitative. It is encouraged to use a geo-referenced survey instrument for the data collection process.
- Organize the data collected and prepare databases with the primary information, including all the socioeconomic variables of the participants and indicators to measure access to jobs, education, health, wellbeing.
- Analyze the data collected and produce policy recommendations based on the results obtained.
- Produce a final report, which will include the objectives, methodology, analysis and policy recommendations.

Deliverables

Deliverable 1. Conceptual framework proposal: Conceptual framing on the links between gender, affordability, inequality, and public transit and work plan.

Deliverable 2. Literature Review and methodological approach: Written report with review of the literature, sources of empirical data and explaining project methodology.

Deliverable 3. Technical report with preliminary data findings.

Deliverable 4. Final report with all the activities related with the ToRs.

Deliverable 5. Clean and organized datasets in format CSV or XLSL.

Reporting requirements:

- Every report and power point must be submitted to the Bank in an electronic file.
- The report should include cover, main document, and all annexes. Consultant will present all graphs and data collected in *.png and *.csv file.
- Zip files will not be accepted as final reports, due to Records Management Section regulations. Every report and power point shall be submitted in English. The consultant will have access to a OneDrive folder drive. All data collected, and background information will be stored in the OneDrive folder, including other reports and information collected as part of this consultancy.

What you'll need

Citizenship: You are a citizen of one of our 48-member countries.

Consanguinity: You have no family members (up to fourth degree of consanguinity and second degree of affinity, including spouse) working at the IDB Group.

Education: Master of Science in Transport, Engineering, Economics or Finance, PhD preferred.

Experience: Over ten (10) years of experience with demonstrated analytical and/or research experience in statistical analysis and data management.

Languages: Full professional fluency in English and Spanish.

Opportunity Summary:

- Type of contract and modality: International Products and External Services Consultant (PEC)
- Length of contract: 60 non-consecutive days over a period of XX calendar months.
- Starting date: XXX, 2020
- Location: Country of residence of the consultant and one trip to Washington DC.
- Responsible person: Patricia Lynn Scholl (LSHOLL@iadb.org) and Laureen Montes (laureenm@iadb.org) in Headquarters.

Our culture: Our people are committed and passionate about improving lives in Latin-America and the Caribbean, and they get to do what they love in a diverse, collaborative and stimulating work environment. **We are the first Latin American and Caribbean development institution to be awarded the EDGE certification, recognizing our strong commitment to gender equality.** As an employee you can be part of internal resource groups that connect our diverse community around common interests.

We encourage women, afro-descendants, people of indigenous origins, and persons with disabilities to apply.

About us: At the IDB, we're committed to improving lives. Since 1959, we've been a leading source of long-term financing for economic, social, and institutional development in Latin America and the Caribbean. We do more than lending though. We partner with our 48-member countries to provide Latin America and the Caribbean with cutting-edge research about relevant development issues, policy advice to inform their decisions, and technical assistance to improve on the planning and execution of projects. For this, we need people who not only have the right skills, but also are passionate about improving lives.

Our team in Human Resources carefully reviews all applications.

TERMS OF REFERENCE

KNOWLEDGE PRODUCT: THE IMPACTS OF PLATFORM-BASED SHARED MOBILITY ON SUSTAINABLE URBAN TRANSPORT: TRENDS AND REGULATORY CHALLENGES

Background:

The Latin American region has the highest levels of social and economic income inequality in the world, with Gini indices ranging from 37 to 49 percent in 2018 (CEPAL, 2019) and extreme poverty and poverty rates of 30.1%, and 10.7%, respectively. In addition, according to UNDP's definition, over 224 million inhabitants in Latin America (38%) of the population are in conditions of economic vulnerability³. Approximately 32.5 million people in Latin America and the Caribbean are in multidimensional poverty, accounting for 6.5% of the population of the region (UNDP, 2015).

Unplanned urban growth and income inequality have prompted the poor to settle in informal housing on the periphery of large cities, often in areas difficult to serve with traditional or formal public transit systems (Cervero 2000). Spatial segregation of the poor from skill-appropriate job centers decreases the affordability of job search and access, and thus increases unemployment (Kain 1992). As a result, the urban poor either forgo trips or endure long and costly travel times to get to their jobs or carry out other tasks, a circumstance that aggravates social inequalities (Ardila-Gomez 2012). Women, particularly those from lower-income segments, are negatively impacted by service availability, due to their travel patterns (public transport does not serve routes within the communities, only serves at limited times or it is infrequent) (Dominguez Gonzalez et al. 2020). In addition, women have less accessibility and mobility due to personal safety concerns and high rates of harassment in crowded transit systems (Osmond and Woodcock 2015; Simicevic et al. 2016).

In addition, informality in the public transit sector has led to a decrease in the quality of public transportation for many of these urban spaces and has decreased access to jobs and other economic opportunities among the poor, who depend on public transit for a large share of their trips (Box 2.1 and Carruthers, Dick, and Saurkar 2005). This lack of access to affordable and efficient transport, moreover, generates social exclusion, impeding access to *formal* employment opportunities, services, and markets. While they incur long travel times to the central business districts, many also take trips to more dispersed locations.

The rapid growth in availability of information and communication technologies (ICT), combined with smartphone and mobile internet connections, has catalysed a plethora of mobility innovations and services globally, including ride hailing, ride-splitting (e.g. Uberpool), dockless bike sharing and electric scooters, among others. Transport Network Companies (TNCs), and other emerging share mobility services have been disrupting urban transportation by offering innovative, on-demand, ride-sourcing services, and transforming the way to mobility needs are met across the globe. Rapidly expanding in the US and abroad, TNC's, and more recently microtransit systems, have recently made their way into emerging and large cities of Latin America. Between March 2009 and February 2018, Uber has introduced on-demand ride services in 633 cities worldwide (Kim et al., 2018), out of which 173 are in Central and South America (Uber, 2018). Uber, alongside close competitor company Lyft, have become the poster cases for what has been

³ Defined as people with incomes between 4 and 10 USD/day.

described by both researchers and practitioners as an explosive increase in innovative services for urban mobility that include microtransit and micromobility categorized under the umbrella term of 'shared mobility' (Cohen and Shaheen, 2016). While these app based mobility services have brought many benefits in terms of the provision of flexible on-demand mobility and seamless payment systems, they have also sparked fierce public policy debates around potential unintended negative side effects such as potential increased congestion, motorization, unfair competition with the taxi industry, safety regulations, and potential competition with public transit systems. In addition, there may be potential negative effects in terms of social inclusion given the higher costs of the services and the fact that access to these services will depend on access to broadband Internet, smartphones, and bank accounts.

More recently, a number of other services in which shared shuttles or vans, operating on flexible or semi-fixed routes, and can be reserved in advance or on-demand have emerged. These innovations not only increase the number of transport service options, but when integrated with public transit systems, provide potential new avenues for flexible on-demand, first-mile last-mile connections to public transit. These emerging microtransit services have begun incorporating informal transit services, and in so doing, have begun to address some of the negative externalities⁴ associated with the informal transit sector, through incentives for vehicle upgrades, offboard payment, the ability to monitor speeds, locations, and optimized routing and scheduling.

Previous evidence on perception of users suggests that Jetty, a Mexican microtransit private venture, has contributed to reduce the number of cars on the road by transporting passengers that would have completed their last trip on a car or taxi if Jetty did not exist as a result of a lack of public transportation coverage (49% of surveyed passengers), and also it has contributed to improve the perception of safety transportation for women (58% of frequent users are female). Moreover, international and local entrepreneurs have started introducing new forms of individual mobility such as bike sharing and electric scooters which have become increasingly popular across different socioeconomic groups in cities throughout Latin America.

Such trends are currently taking place in a context of increasing levels of social economic and social inequality (CEPAL, 2019) prompted, among other factors, by rapid urbanisation in growing cities in an uncontrolled and sprawled way. As these new models for urban mobility become more mainstream in the Latin American region, understanding their dynamics, drivers, regulations, and to what extent and how they affect social inclusion and poverty, become timely challenges for both research and practice in urban and transportation planning and policy. Car-oriented historical development, with often weak and non-existent land use regulations, have permanently excluded low-income and poor households to the disconnected peripheries, limiting their ability to move within cities and access its opportunities and services. "1 in 5 Latin Americans cannot access any form of public transportation within 10 minutes of their home." (Alvarez & Estrada, 2018, p.60). Moreover, despite a contribution of informal transport and paratransit to closing gaps in urban public transport supply, "about 15% of slum inhabitants in the region do not have access to any form of public transportation" (Alvarez & Estrada, 2018, p.61). As a result, the urban poor either forgo trips or endure long and costly travel times to get to their jobs or carry out other tasks, a

⁴ Such externalities include oversupply of small vehicles in high demand corridors, limited enforcement of traffic regulations, aggressive driving behavior, prevalence older and polluting vehicles, among many others. Informality in the public transit sector has continued to pose significant challenges in LAC cities. While reforms have in some cases been effective in high demand corridors (e.g. BRT systems), they are not only challenging politically, but are difficult in environments characterized by high rates of informal urban development, uneven topographies, and in lower density, peripheral areas. As a result, informal modes often continue to operate in parallel or completion with formal modes (Salazar Ferro, 2015); while fraught with significant negative externalities, they often filling in important gaps in services and providing an affordable alternative for low-income populations.

circumstance that aggravates social inequalities (Ardila-Gomez 2012). In addition, women, particularly those from lower-income segments, have less accessibility and mobility due to personal safety concerns and high rates of harassment in crowded transit systems (Osmond and Woodcock 2015; Simicevic et al. 2016). Affordability of transportation is another challenge, as travel expenditures consume 30% or more of labor income of the poor in the region, adding to already high travel time costs (Kalthier 2002; Vasconcellos 2001).

Growing interest in improving transportation systems and mobility in the region have led to noticeable increases in public investment in transport, "between 2008 and 2015 approximately 44 per cent of total investment in LAC was in transport... [representing] 1.6 percent of regional GDP" (Serebrisky et al., 2018 p.10). In the last two decades, much of such capital investment has focused on developing BRT systems, which today operate in 54 cities in Latin America and 167 across the world (WRI Brazil Ross Center for Sustainable Cities, 2018). As these systems have matured, and in many cases have reached ridership saturation levels, larger cities in higher-income LAC countries have begun investing in metro systems and light rail. In 2014, 157 cities around the world had an operational metro system. There are 54 networks in Asia, 46 in Europe, and 18 in LAC, where Mexico City is the busiest network (UITP 2015). Other cities, based on their geographic characteristics and given the advantages in terms of construction costs and lower displacement of people, have implemented aerial cable cars systems.

Increases in transport capital investment reflect a shift in urban transport policy priorities across the region underpinned by global policies targeting transport as a driver of urban development. The new agenda for sustainable development adopted with a view to 2030 recognizes the transformative role of cities as catalysts for the development of not only more sustainable societies, but ones that can be more inclusive and resilient (UN-HABITAT, 2016). As reflected by the Sustainable Development Goal (SDG) number 13.1, it is aimed that by 2030 cities throughout the world provide "access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons" (UNDP, 2016). While this suggests a focus on the social and environmental relevance of urban transport, current research and policy agendas still have not fully addressed the potential implications of new platform-based urban mobility services in relation to accessibility, equity, and social inclusion.

These issues have been compounded recently by the novel Covid-19 respiratory virus pandemic, perhaps the most difficult challenge faced by humanity in generations. A range of measures to contain the spread of the deadly virus by increased sanitation efforts in public transit, social distancing (meaning transit vehicles must operate at lower load factors, tracing and isolating infected cases, and subsequently deal with the high levels of morbidity and mortality that risk overwhelming even the most advanced health and increasing costs for public transit systems operations. The measures taken to contain it have placed a huge fiscal and monetary burden on their governments – and on public transit systems.

The pandemic has also struck at the core of the issue of mobility, and potentially threatens some of the policy gains made in the past few decades. Mindful of the heavy carbon and health cost of car-centric urban plans implemented in the richer nations in the 1950s and 1960s and subsequently copied elsewhere, in recent years progressive policy prescriptions have sought to avoid the need to travel, shift essential transport towards non-motorised or efficient public transport modes, and improve the fuel-efficiency and lower the emissions of all forms of transport (the 'avoid-shift-improve' model). Urban and transport planners have sought to align more closely their plans to make cities more compact with diverse activities closer to each other so the need to travel is reduced. If well thought out, these policies can potentially contribute towards more equitable cities, as poorer citizens who tend to travel longer distances and spend a higher share

of their income on transport can instead devote more time to their personal development and the wellbeing of their families. In the rare case of an epidemic such as the present one, or some threat to street life such as a terrorist attack on public transport systems, unless stringent measures are taken to make public transport safe for all, people will take matters into their own hands by, for example, shifting to private cars or motorbikes if they can afford them, or else spend even longer time walking to work. This would reverse any social and economic gains sought by a succession of progressive policies.

The widespread temporary city lockdowns forcing people to leave home only for essential trips such as shopping have sharply reduced demand for public transport. In Latin American cities, only some white-collar workers can continue working from home while those working in factories, retail, hospitality, personal services and as street traders who must travel to work risk being deprived of an income during a lockdown. As those able to work from home using the internet will also tend to earn higher incomes than those in manual occupations, such measures are likely to further exacerbate already wide income inequalities at least in the short term. Once the data becomes available, evidence from lockdowns is likely to show that the ability to travel safely and efficiently is central to generate wealth, reduce income inequalities and, therefore, improve social equity. These issues will be taken into consideration in the proposed research conducted as part of this consultancy.

The team's mission

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The knowledge strategy of the transport Division focuses on 5 strategic areas: Urban Transport, Mega Projects, Freight Logistics, Road Safety and Intelligent Transport Systems (ITS). In addition, it also focuses on four cross-cutting major challenges: gender equality, sustainable transport, regional integration and impact evaluation. Furthermore, the division is actively promoting the adoption of innovative technologies for improving project planning, preparation and/or operation.

Objectives

The main objective of this consultancy is to understand how shared mobility services can be harnessed to promote socially inclusive and sustainable transportation and the regulatory responses that would be most effective in enhancing their integration with other transportation systems to improve overall mobility and urban accessibility in Latin American Cities for vulnerable groups. The research agenda will assess how new approaches of shared mobility in the LAC

region are being integrated in transportation systems. It will also explore the potential of modern Intelligent Transportation Systems (ITS) and exponential technologies to both enhance the benefits of these systems and to regulate informal public transport. It will also evaluate alternative policy responses aimed at enhancing the integration of shared mobility services with current transportation systems and the potential for collective shared mobility platforms as a tool to reduce informality in the public transit sector, examining the accessibility and social inclusion implications of new forms of urban mobility in cities of Latin America. The research agenda seeks to identify cross-cutting concepts and issues that can be explored across different modes of transport and social groups, seeking to develop a holistic understanding of the social relevance of TNCs, Microtransit and Micromobility, in general and considering the potential changes introduced by the recent COVID-19 pandemic in the short and medium term. For instance, Grin in Mexico City provides an environmentally friendly alternative for short journeys of around 10 minutes in length that are either too far to walk, or too close by car or public transit, to be a cost effective option for people from different socioeconomic backgrounds, while assuring the need social distancing in urban mobility. The consultancy will address four objectives surrounding the intersections between dimensions of social exclusion and accessibility and proposes understanding of different aspects of supply and demand of new mobility alternatives as well as a deeper understanding of how they fit in the social, spatial and economic structure of each city of analysis.

1. How do platform based shared mobility services (including TNCs, microtransit and micromobility services) affect accessibility to opportunities (such as jobs, health care, education) and space-time inclusion, affordability, and economic exclusion for different social groups?

This question cuts across various components of accessibility and transport-related social exclusion, focusing on the interaction with incumbent transport systems, particularly mass and collective transit. The analysis will be carried out in three dimensions: spatial, temporal, and social. The spatial dimension considers access levels and the distribution of travel demand and supply of new forms of mobility in relation to existent supply of other modes of transport (e.g. Routes of collective (informal and formal) and mass transit, non-motorised infrastructure), characteristics of the city (land use) and population (levels of income, occupation, gender). The temporal dimension seeks to understand the distribution of availability of new forms of urban mobility through different times of the day/week highlighting potential changes in services that may have an influence on specific social groups or areas of the city. The third lens, social, seeks to find spatial correlations between supply of new forms of urban mobility (or lack thereof) and the spatial distribution of crime, gender violence, poverty, and informality. This approach will give insights on the spatial distribution of supply and demand from a perspective of social exclusion and understand the degree of adaptability of new forms of urban mobility to drivers of social exclusion such as time poverty, fear of crime and insecurity, long distance to clusters of opportunities, and spatial segregation. It also focuses on the effects of pricing schemes for different systems (for example measuring willingness or ability to pay), and how their different degree of complementarity and/or competition with other forms of urban transport, particularly transit, for varying segments of the demand throughout the day and the week.

2. How do new forms of urban mobility affect transport affordability and economic exclusion for different social groups?

This question cuts across various components of accessibility and the economic and facilities dimensions of social exclusion. It focuses on the effects of pricing schemes for different systems and how their different degree of complementarity and/or competition with other forms of urban transport, particularly transit, for varying segments of the demand throughout the day and the week. This analysis will also draw on the spatial analysis covered in question 1 to determine the influence of pricing on affordability and exclusion from the main centres of productive, social, and

cultural activities throughout the case study cities. One of the main objectives of this research question is the development of a multi-modal affordability index that enables the analysis of different scenarios of complementarity and substitution between public transit, shared mobility, and other relevant modes. Such indices will contribute to inform scenarios and policies for improving access and affordability to mass transit by socially vulnerable populations, building on evidence about use, potential and distribution of conditions of access and exclusion.

3. How do different drivers of transport-related social exclusion influence the choice of new forms of urban mobility for vulnerable social groups and what policy instruments could improve accessibility to shared mobility services for vulnerable social groups?

This question seeks to focus on user and non-user preferences and subjective perceptions in relation to different transport modes in various cities. This question seeks to address all dimensions of transport-related social exclusion emphasising on the physical, fear-based, time-based and space exclusion. This analysis requires collection of primary data through tailored instruments that enable the team to collect information about users' perceptions regarding priorities for mode selection, influence of time and place, crime and disabilities or physical and cognitive impairments in their choice and perception of new forms of urban mobility. This question seeks to produce regression and mode choice analysis that link various objective and subjective factors to the behaviour of users and non-users. The use of geo-questionnaires (e.g. Maptionnaire) is suggested to capture both quantitative and spatial data for the analysis. The data and insights produced as part of this research question will inform policy scenarios and recommendations both for context-specific decision-making and more general policy insights at the regional level. Policy outputs will be summarized in a tailored policy brief.

4. How to best integrate the new micro-transit and paratransit services to increase the social inclusion of population located in excluded urban areas with low levels of accessibility?

Combining existing jitney or paratransit services with TNC apps and regulations, new companies seek to optimize and improve long-standing minibus and often informal transit services. The areas where paratransit and informal transit services operate often can be found on the periphery of urban areas where poorer or low-income populations tend to reside and where formal public transit services are difficult to provide. Thus, a new potential has arisen to look for avenues to harness the popularity of app-based shared mobility to encourage and increase access to public transit. These modes have the potential to be a viable and safer alternative to traditional public transit services in areas that, as was mentioned, lack the density needed to justify a high-volume transit corridor investment such as BRT or Metro. The recent surge in the application of shared mobility apps to the paratransit market, for the first time, provides an opportunity for improved mobility and regulation of these services. This question seeks to provide evidence on which type of regulations has the potential to increase social inclusion for the mentioned type of neighborhoods while reducing the number of informal operators by properly integrating these alternatives to the public transportation system. To this end, surveys will be implemented in cities with the aim of understanding under which circumstances individuals from low-income and marginal areas would use these services as a complement to public transit and affordability and coverage issues associated with them.

5. How to best integrate the new micro-transit and paratransit services to reduce the informality of transit operators in the excluded urban areas?

The areas where semi-formal and informal transit services (paratransit) can often be found operating in the periphery of urban areas where poorer or low-income populations tend to reside and where formal public transit services are difficult to provide. Informality in the public transport

sector leads to a decrease in the quality of mobility, and access to economic opportunities among the poor, who depend on public transport for a large part of their trips (box 2.1, Carruthers, Dick and Saurkar 2005). Therefore, designing effective policies is important to enable the improvement and integration of informal transit services. Such policies could include subsidies for paratransit operators to finance vehicle upgrades and operating costs, conditioned on meeting service quality standards, regular vehicle maintenance regimes, coverage in lower profit areas that otherwise would lack services, and safe driving practices monitored through technology (geolocation devices, cameras, and speed detectors). As informal operators are often displaced during public transit reforms, technology-based regulation of informal providers provides an alternative to elimination of the services. This becomes more relevant since these informal jobs are being strongly impacted by the effects of the COVID-19 pandemic; according to the ECLAC special report, an increase of 4.4 points in the average poverty rate in Latin America is expected, from 30.3% in 2019 to 34.7% in 2020. As well as, the increase in the population of extreme poverty that represented 11% in 2019 and could amount to 13.5%. This component will open a new area of research regarding micro-transit and para-transit services that have adopted a TNC scheme in the region by assessing general implications and consolidating preliminary evidence on the effects of these new approaches to shared mobility and how to integrate them to the massive public transit modes.

What you will do

The consultancy will:

- Collect and analyze existing data sets relevant to the research questions outlined above.
- Develop a questionnaire as part of an interception survey to capture quantitative and spatial data for the analysis. It is encouraged to use a geo-referenced survey instrument for the data collection process.
- Run spatial correlational analysis of supply and demand characteristics from a perspective of social exclusion. These analyses must help to understand the degree of adaptability of new forms of urban mobility to drivers of social exclusion such as time poverty, fear of crime and insecurity, long-distance clusters of opportunities, and spatial segregation. The analysis conducted will consider the gender differences in the mobility patterns/security perception of users.
- Model the effects of pricing schemes for micro-transit and para-transit modes on their different degree of complementarity and/or competition with other forms of urban transport, particularly public transit, for varying segments of the vulnerable demand throughout the day and the week.
- Model the effects of these micro-transit and paratransit schemes on the degree of transportation informality under a scenario of critical reduction in mobility due to the pandemic of covid-19 during the following six months.
- Explain policy scenarios and recommendations both for context-specific decision-making and more general policy insights at the regional level. Policy outputs will be summarized in a tailored policy brief.

Deliverables

1. A report outlining the methodological design for the questions outlined above.
2. Geo-referenced questionnaire for the interception survey that will be used for the spatial analysis and later to estimate the impact of regulatory schemes of micro-transit and paratransit in social inclusion and informality.
3. A methodological report regarding the implementation of the survey and related data consolidation process.

4. A technical report that assesses the effect of different regulatory schemes for micro-transit and paratransit on the degree of complementarity and/or competition with other forms of urban transport, particularly public transit, for varying segments of the vulnerable demand.
5. A technical report that assesses the effect of different regulatory schemes for micro-transit and paratransit on the degree of informal transit operators under a critical reduction in the urban mobility scenario due to the pandemic of covid19 in the following six months.
6. Clean and organized datasets in format CSV or XLSL.

Estimated dedication:

What you'll need:

Citizenship: You are a citizen of one of our 48-member countries.

Consanguinity: You have no family members (up to fourth degree of consanguinity and second degree of affinity, including spouse) working at the IDB Group.

Education: Master's degree or higher in Transportation Economics, Urban and Regional Planning, Transport Engineering, with a focus on Urban Transport and Social Equity, PhD preferred.

Experience: 8+ years and Relevant experience in analytical research on social exclusion and transportation, ride hailing, shared mobility services.

Languages: Proficient in at least one of the official languages of the Bank (Spanish, English, Portuguese, and French), preferably with a working knowledge of a second one.

Core and Technical Competencies:

Analytical research and writing, GIS, spatial and statistical analysis, advanced econometrics.

Opportunity Summary:

- Type of contract and modality: Individual consultant
- Length of contract: 7 months
- Starting date: TBD
- Location: TBD
- Responsible person: Patricia Lynn Scholl (lscholl@iadb.org), Sr. Transport Specialist, Transport Division
- Requirements: You must be a citizen of one of the IDB's 48 member countries and have no family members currently working at the IDB Group.

Our culture: Our people are committed and passionate about improving lives in Latin-America and the Caribbean, and they get to do what they love in a diverse, collaborative, and stimulating work environment. **We are the first Latin American and Caribbean development institution to be awarded the EDGE certification, recognizing our strong commitment to gender equality.** As an employee you can be part of internal resource groups that connect our diverse community around common interests.

We encourage women, afro-descendants, people of indigenous origins, and persons with disabilities to apply.

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on the planning and execution of projects. For this, we need people who not only have the right skills, but also are passionate about improving lives.

Our team in Human Resources carefully reviews all applications.

TERMS OF REFERENCE

AFFORDABILITY AND SOCIAL INCLUSION: INSIGHTS AND METHODS FOR POLICY AND PRACTICE

Background:

The Latin American region has the highest levels of social and economic income inequality in the world. Although inequality declined from 2002 to 2014, from 2014 to 2018, declines in inequality stagnated, with average Gini indices ranging from 37 to 49 percent in 2018 (CEPAL, 2019). Argentina, El Salvador, and Uruguay had the lowest inequality while Brazil, Colombia, and Paraguay displayed the highest inequality levels. In addition, rates of poverty and extreme poverty are highly persistent. Although between 2002 to 2014 poverty rates fell substantially in the region, from 45.4% to 27.8%, in 2018 the rates rose again to 30.1%, with extreme poverty rising to 10.7%. In addition, according to UNDP's definition, over 224 million inhabitants in Latin America (38%) of the population are in conditions of economic vulnerability⁵. Approximately 32.5 million people in Latin America and the Caribbean are in multidimensional poverty, accounting for 6.5% of the population of the region (UNDP, 2015).

Unplanned urban growth and income inequality have prompted the poor to settle in informal housing on the periphery of large cities, often in areas difficult to serve with traditional or formal public transit systems (Cervero 2000). As a result, the urban poor either forgo trips or endure long and costly travel times to get to their jobs or carry out other tasks, a circumstance that aggravates social inequalities (Ardila-Gomez 2012). In addition, women, particularly those from lower-income segments, have less accessibility and mobility due to personal safety concerns and high rates of harassment in crowded transit systems (Osmond and Woodcock 2015; Simicevic et al. 2016).

Spatial segregation of the poor from skill-appropriate job centers decreases the affordability of job search and access, and thus increases unemployment (Kain 1992). Additionally, low-income populations often bear the highest burdens related to negative transport externalities in cities, including longer travel times and higher exposure to pollution and risk of traffic accidents. In addition, informality in the public transit sector has led to a decrease in the quality of public transportation for many of these urban spaces and has decreased access to jobs and other economic opportunities among the poor, who depend on public transit for a large share of their trips (Box 2.1 and Carruthers, Dick, and Saurkar 2005). This lack of access to affordable and efficient transport, moreover, generates social exclusion, impeding access to *formal* employment opportunities, services, and markets. While they incur long travel times to the central business districts, many also take trips to more dispersed locations. Travel expenditures can consume 30% or more of daily wages, adding to the already-high travel time costs, which in some cases can exceed two hours (Kalthaei 2002; Vasconcellos 2001).

Mobility analysis in different Latin American cities have found that women are the main users of public transportation, while men have more access to private vehicles and motorcycles (Dominguez Gonzalez et al., 2020). Furthermore, when deciding their transportation mode, women prioritize safety over speed or cost as they are more likely to experience sexual harassment or robberies (Dominguez Gonzalez et al., 2020; Gardner et al., 2017; Gekoski et al., 2017). The different roles women and men have in society influence their behavior and travel patterns (Curtis & Perkins, 2006; Wachs, 1996). For example, to fulfil their care and household responsibilities, women tend to work closer to their home, they need to take more chained trips

⁵ Defined as people with incomes between 4 and 10 USD/day.

and make more stops than men (Sermons & Koppleman, 2001; Taylor & Mauch, 2000). Furthermore, these differences in travel patterns might negatively impact women affordability to public transportation and the disproportionate time and cost burden also affects women's access to the job market (Dominguez Gonzalez et al., 2020).

The new agenda for sustainable development adopted with a view to 2030 recognizes the transformative role of cities as catalysts for the development of not only more sustainable societies, but ones that can be more inclusive and resilient (UN-HABITAT, 2016). As reflected by the Sustainable Development Goal (SDG) number 13.1, it is aimed that by 2030 cities throughout the world provide “**access** to safe, affordable, **accessible** and sustainable transport systems for all, improving road safety, **notably by expanding public transport, with special attention to the needs of those in vulnerable situations**, women, children, persons with disabilities and older persons” (UNDP, 2016).

The team's mission

The IDB's Transportation Division (INE/TSP) supports the development of transportation infrastructure (roads, ports, airports, railways, etc.) in the Bank's member countries. The IDB envisions the transportation infrastructure as a mean towards a more inclusive region and to promote sustainable development. The Transport Division's experience includes activities such as planning, preparation and evaluation of projects, investments in new and existing infrastructure, development and recommendation of sector public policy and regulations, institutional strengthening programs, regional dialogue with countries and other multilateral organizations, climate action programs in the sector (mitigation and adaptation practices), among others.

The knowledge strategy of the transport Division focuses on 5 strategic areas: Urban Transport, Mega Projects, Freight Logistics, Road Safety and Intelligent Transport Systems (ITS). In addition, it also focuses on four cross-cutting major challenges: gender equality, sustainable transport, regional integration, and impact evaluation. Furthermore, the division is actively promoting the adoption of innovative technologies for improving project planning, preparation and/or operation.

Research objectives:

The research will address guiding question of how public transit subsidies should be designed (amounts, and targeted to most effectively and efficiently improve accessibility for vulnerable populations (persons in conditions of poverty, women, children, indigenous) to opportunities in both urban and rural areas?

As part of this research, the consultant will:

- Review the literature on transport affordability in developing countries.
- Explore and collect administrative data such as household surveys, expenditure surveys, employment census, OD surveys, information from fare cards, etc.
- Conduct a case studies on affordability for 3 cities building and improving on existing methodologies in LAC.
- Develop an affordability tool to evaluate public transit subsidies in terms of their equity and efficiency effects. The tool designed should consider the relationship between mobility of care and affordability and the different travel patterns of men and women. Public transport fares should include options that accommodate families and provide affordable options for trip chaining, such as fare-capping that can minimize the daily financial burden on lower-income population and or attract potential new users.

- Develop an affordability and fare policy evaluation tool kit to help cities assess public transit affordability under varying public transit subsidy schemes.
- The tools would be used as inputs georeferenced information on schools and health care installations on urban density, distance to formal and informal (to the extent data allows) job centers, major universities and health care facilities, and housing prices (real or imputed), public transit fare scenarios, and estimated shares of formal versus informal public transit pass trips.
- Propose a pilot diagnosis of the number of jobs, schools, and health centers reachable in a city (assuming a basket of trips per month and an affordability benchmark of % of combined housing and transport expenditures) and simulate scenarios of public transit pricing models to estimate distributional and efficiency impacts (conditional on data availability compare to affordability of traveling by private car).
- Propose a protocol for estimations of impacts of cross subsidies across income groups or modes (private versus public transit) to analyze equity and consumer welfare impacts.
- Explore opportunities to earmark congestion, parking, and road use charges to help finance subsidies in a financially sustainable way that both discourages unsustainable transport and promotes social inclusive mobility and accessibility for all.
- Analyze subsidy and regulatory frameworks considering the challenges and limitations of the financial and public budget schemes that support the operation of formal and informal transportation systems. And consider the legal frameworks that enable / restrict the inclusion of subsidies and other affordability mechanisms

Deliverables:

1. Conceptual framework and methodological proposal: Conceptual framing on the links between affordability, inequality, and public transit.
2. Literature Review and methodological approach: Written report with review of the literature and sources of empirical data and explaining project methodology and data inventory.
3. Proposal of framework and method for affordability policy evaluation: Develop a set of affordability criteria for evaluating transport policies in Latin American cities building on existing frameworks, literature and data on transport expenditure, poverty, and other relevant variables in LAC.
4. Proposal of affordability toolkit for urban transport in LAC: Develop a set of observed affordability measures and potential affordability measures applicable to the Latin American context under different conditions of availability of information.
5. Diagnosis of household travel expenditure in selected cities and an analysis of transport and household expenditure in selected case studies to develop affordability and accessibility maps to different opportunities.
6. Development of subsidies scenarios and other policy instruments to improve affordability and defining and testing policy scenarios for the promotion of transport affordability under different scenarios of subsidies and targeting in selected case studies.
7. Develop a framework for pricing policies seeking to improve affordability and sustainability, building on scenarios and affordability framework, identify opportunities and areas for policy development in urban transport pricing, including targeted subsidies and charges to specific social groups or users of forms of transport.

8. Dissemination material: Policy brief- a five-page policy brief, summarizing the main results of the Technical report, a blog draft, a PPT, and brief for an internal IDB training on data collection and analysis for mobility

9. Working paper: Working paper to be submitted for peer evaluation and academic journal.

Reporting requirements:

- Every report and power point must be submitted to the Bank in an electronic file.
- The report should include cover, main document, and all annexes. Consultant will present all graphs and data collected in *.png and *.csv file.
- Zip files will not be accepted as final reports, due to Records Management Section regulations. Every report and power point shall be submitted in English. The consultant will have access to a OneDrive folder drive. All data collected, and background information will be stored in the OneDrive folder, including other reports and information collected as part of this consultancy.

What you'll need:

Citizenship: You are a citizen of one of our 48-member countries.

Consanguinity: You have no family members (up to fourth degree of consanguinity and second degree of affinity, including spouse) working at the IDB Group.

Education: Master of Science in Transport, Engineering, Economics or Finance, PhD preferred.

Experience: Over ten (10) years of experience with demonstrated analytical and/or research experience in statistical analysis and data management.

Languages: Full professional fluency in English and Spanish.

Opportunity Summary:

- Type of contract and modality: International Products and External Services Consultant (PEC)
- Length of contract: 80 non-consecutive days over a period of XX calendar months.
- Starting date: XXX, 2020
- Location: Country of residence of the consultant and one trip to Washington DC.
- Responsible person: Patricia Lynn Scholl (LSHOLL@iadb.org) in Headquarters.

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