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Producing Opportunities Together: Sharing-Based Policy Approaches for Marginal Mobilities in Bogotá

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Abstract: Everyday mobility practices are increasingly an element of interest for urban policy, as well as for suggesting alternative solutions to urban issues. Amongst their manifold contributions, practices can be relevant for securing individuals' access to places and opportunities. They can do so by promoting services and behaviours based on resources that individuals may share between themselves. This role could be significant especially for those settings where the traditional provision of transport services and infrastructures is more difficult, such as in the informal settlements of the urban South. Drawing on these assumption, this paper intends to investigate policy solutions based on mobility practices, as a suitable way to enhance the access to urban opportunities from informal settlements. Policy approaches focused on mobility supply and demand are explored, addressing options such as the coproduction of mobility services and behavioural approaches based on demand matchmaking. A possible operationalization of such approaches is explored in the marginal informal neighbourhoods of Bogotá, considering their accessibility issues, how shared use mobility policies may tackle them, and what features are necessary for the implementation of such measures. The proposed policy measures emerge as suitable operational options that nonetheless require recognition and support by the institutions responsible for urban mobility planning.

Keywords: sharing; coproduction; matchmaking; urban mobility; mobility policy; accessibility; informality

1. Introduction

Increasingly, everyday mobility practices are an element of interest for urban policy, as well as for suggesting alternative solutions for urban issues. Practices are here considered as the forms in which each person shapes and uses mobility to achieve their own aims. These express new forms of mobility and reflect the spatio-temporal transformations of contemporary societies, which involve unprecedented territorial scales, temporal dimensions and modal choices [1]. Practices are based on the mobilization of manifold individual resources, which each person uses to achieve specific aims: mobility in fact is fundamental for overcoming spatial friction, accessing significant opportunities, and taking part in valued activities [2]. Given that the mobility potentials available to each person are different, individuals shape and appropriate mobility according to their personal characteristics and aims [3]. Practices are thus a relevant knowledge tool to examine how individuals use the resource of individual mobility and how collective flows affect the spatio-temporal organisation of a territory. However, practices do not simply act as a knowledge tool, but may also contribute to the social production of goods and services [4]. Practices could be significant also for urban mobility policy since they make use of existing services in unforeseen ways and create innovative solutions [5] that reflect individual mobility needs and mobilize unprecedented resources.

Within a rich debate that has extensively analysed the variegated forms, spaces and subjects of mobility practices [6], this paper focuses on the *everyday* forms in which each person shapes and uses

mobility. A practice is what any person does, intentionally or not, within a structured field [7] (p. 48), but the main thinkers who have dealt with this concept have privileged an everyday life perspective [8]. In the case of urban mobility, a practice is thus what a subject does to move, within a field structured by material and immaterial elements (such as infrastructures or service timetables). Practices can be recursive, that is, they can be repeatedly deployed to deal with similar needs and wants. In this sense, these become a *habitus* of the individual, which can be defined as a disposition of the individual that results from organizing actions and personal predispositions [9] (p. 206).

Focusing on recursive forms of everyday mobility, the relatively short trips occurring within the living areas become relevant, thus excluding non-reversible movements like relocations or migrations [10]. However, practices are not exclusively individual but may imply a collective dimension: in case these involve individual activities whose exercise generates specific social relationships, practices originate communities distinguished by the continuative deployment of an activity [11]. In terms of urban mobility policy, practices are thus significant for at least three reasons. First, they are deployed daily in urban settings, involving the spatial and temporal dimensions with which planning and policy approaches usually deal. Second, practices involve individuals and their “process of choice construction in contemporary societies” [12] (p. 17), a dimension that could be *nudged* [13] to direct individual choices toward better collective outcomes. Third, collectivities and their decisions may also be tackled, as the existence of communities of practices demonstrates.

Amongst the policy measures that practices could suggest, sharing-based approaches may contribute to address urban mobility issues. In the field of mobility, sharing is usually related to shared use mobility, that is, “travel alternatives that try to maximise the utilisation levels of the finite mobility resources that a society can realistically afford to have by disengaging their usage from ownership-bound limitations” [14] (p. 11). These may include services whose business model is based on the access to (rather than ownership of) vehicles, such as bikesharing, carsharing or ridesharing. However, the concept of shared use mobility may assume a specific meaning referring to practices: this would refer to unprecedented initiatives in which individuals share material assets (e.g., vehicles, money) and immaterial resources (e.g., individual skills, free time slots) between themselves to provide needed services or to coordinate individual needs, in order to enhance the access to places and the valued opportunities they offer. The focus on practices is in line with some distinguishing features of shared use mobility [14] (p. 11), such as providing a wider range of mobility choices, delivering first- and last-mile solutions to help riders connect with other forms of transport, cutting down transportation costs for individuals and households, and even establishing an ethos of sharing resources on an as-needed basis within communities. Furthermore, practices focus on a small part of the extensive and sometimes ambiguous field of shared use mobility, also providing a better representation of the shared-mobility users’ behaviour, an element required for also improving urban transport analysis [15] (p. 408).

The interest in sharing arises from practices that, in a given territory, show recurrent individual needs, attractive places and mobility practices: many subjects need to accomplish similar tasks but they do so individually, even if the places to reach and the activities to realize are often the same for different people. To develop devoted policy solutions, shared use mobility approaches can rely on practices in two senses. First, these are knowledge tools for ongoing forms of mobilities, showing what needs are recurring and what similar resources are mobilised by individuals. Second, these can become policy tools, for example through behavioural approaches that address individuals’ choices, behaviours, and their reflection on mobility practices. Practices can thus be relevant for securing individuals’ access to places and opportunities, by promoting services and behaviours shaped by and coordinated through communities.

Drawing on these assumption, this paper intends to investigate policy solutions based on mobility practices, which could complement the traditional provision of mobility infrastructures and services. As the next sections explain, the proposed discussion is limited to a specific setting (informal settlements) and a precise mobility issue (the lack of accessibility to valued urban functions).

The discussion focuses on a specific setting and draws on a survey on everyday mobility practices, to detect recurring features and emerging valuable resources for unprecedented policy measures. This paper's discussion considers four research questions in particular: (1) what are the recurrent needs and latent resources highlighted by mobility practices; (2) what shared use mobility measures may originate from practices; (3) what policy features are required to operationalise such measures; (4) what are the opportunities and the issues that shared use mobility measures raise from an institutional perspective? In doing so, the expected outcome is a policy framework, which considers how practices may be treated as knowledge and policy tools in the various stages of a policymaking cycle. Even if the findings will be place-specific, the paper intends to contribute to further research and practice on shared use mobility policy, by offering a framework that may be adopted when approaching other settings.

While shared use mobility measures based on practices are increasingly considered in relation to many settings and mobility issues [16], this paper focuses on informal settlements and the improvement of the accessibility available to them. Increasingly, mobility planning and policy are distancing themselves from the simple provision of infrastructures and services [17,18], and this change of paradigm is even more significant for the marginal areas of the urban South. These areas in fact suffer historically from scarce access to urban opportunities, due to their spatial distribution (a matter of land use planning) and a scarce availability of transport connections (an issue of mobility planning). Furthermore, their unplanned origin and the features of the urban fabric impede the possibility of simply providing public transport services or road infrastructures. Nonetheless, the issues of access in informal settlements are crucial to fighting against the prevailing poverty of their inhabitants [19] or the high rates of urban criminality [20] (p. 77), as well as to promote a more democratic participation in urban life [21] (p. 1). Amongst the approaches that may enhance access to urban opportunities from informal settlements in the urban South, behavioural approaches (based on mobility demand) and service coproduction (based on mobility supply) are explored. On the one hand, behavioural measures address mobility demand and allow the possibility of considering individuals' preferences and needs as reflected in their travel choices, making practices themselves a policy tool [5]. On the other hand, coproduction addresses transport supply and offers an alternative way of providing mobility services, which also proves to be more viable when the available financial resources are scarce [22]. The discussion of this paper draws specifically on research on urban mobility and individual capabilities led in Bogotá: the city was chosen due to its celebrated public transport strategies, which aimed at improving access to the city for all but were only partially able to do so for the huge marginal areas of the city [23–25].

Moving from these assumptions, the discussion of the paper is structured as follows. First, a short theoretical discussion considers why urban mobility planning should secure access to urban opportunities and examines significant shared use mobility approaches addressing both supply and demand (Section 2). Then, a possible operationalization of such an approach is explored in the setting of Bogotá, focusing on marginal informal neighbourhoods and drawing on a qualitative survey involving local inhabitants. Section 3 succinctly explains why the case of Bogotá is interesting and describes the adopted methodology. The proposed approach is then discussed referring to three stages of a policy making cycle [26] (p. 210):

- *problem setting*: defining which areas are more in need of interventions that improve their access to urban opportunities and what mobility practices are already in place (Section 4);
- *policy design*: defining how behavioural and coproduction initiatives may be articulated in these settings (Section 5);
- *policy implementation*: discussing the conditions for realizing such initiatives and considering the necessary interactions with the current mobility policies of a city (Section 6).

2. Toward Sharing-Based Policies for Urban Accessibility: Service Coproduction and Demand Matchmaking

Sharing-based practices can contribute to improving access to urban opportunities through interventions adoptable in a short temporal term. Accessibility in fact is emerging as a priority for mobility planning and policy, being crucial for the achievement of opportunities that are decisive for individuals' wellbeing and quality of life [27]. However, accessibility is primarily defined by the interplay of consolidated features such as land use and transport systems, which define where people live, where opportunities are located, and what forms of mobility are available to make them interact [28]. Insufficient access may be addressed with long-term actions, providing new infrastructures or intervening on land-use. However, in adopting a shorter temporal threshold, other courses of action may also improve the access to opportunities. Three options would be available in this sense: enhancing the usability of existing connections to existing opportunities, providing closer opportunities, and introducing new services to reach existing opportunities. In relation to the latter, new forms of intervention on both mobility offer supply and demand may be relevant.

Two options emerge as suitable operational avenues, to be further explored: the coproduction of mobility services may address the lack of required connections, while a suitable operational take on mobility demands is conveyed by matchmaking and behavioural approaches to mobility. The coproduction of services and the matchmaking of needs act complementarily: coproduction addresses the side of supply, while matchmaking and behavioural approaches deal with the demand side. Sharing is a condition that makes both options necessary and feasible. On the one hand, coproduced services may be promoted by different kinds of resources brought together by individuals who live in the same area and experience similar mobility issues. On the other hand, matchmaking relies on similar needs expressed by individuals who may share their own practices for enhancing the achievement of valued opportunities. The following sections briefly introduce coproduction and matchmaking.

2.1. Producing New Opportunities: The Coproduction of Services

Coproduction refers to “the process through which inputs used to produce a good or service are contributed by individuals who are not ‘in’ the same organization” [29] (p. 1073). In settings characterised by the absence of needed services and scarce available resources to provide them, alternative forms of provision could be significant. In fact, coproduction approaches provide several advantages when compared to traditional forms of service provisions, but their main contribution is probably the focus on individuals and the value they may bring in the production processes. In fact, “the central idea in co-production is that people who use services are hidden resources, not drains on the system, and that no service that ignores this resource can be efficient” [30] (p. 11). The value provided by individuals consists of the manifold resources they may share for coproducing services, from monetary resources to the human resources necessary for running a service. In the field of mobility, coproduced initiatives may involve public transport services designed, financed (at least partially) and sometimes even run by individuals [30]. Coproduction may even involve private car sharing initiatives made possible by different vehicle owners who bring together their own vehicles [31].

The involvement of people better conveys individual needs and includes the eventual resources, both material and immaterial, available to them. In this way, equivalent services—i.e., services that meet the same goals, but in a more efficient way [32]—can be provided with alternative production processes, or informal services may be included within regular public transport networks [33]. These processes can also overcome those governance and logistical limitations that may impede the effective delivery of services, due to complex environments or lacking resources [31]. However, bottom-up initiatives and local involvement imply that these subjects should help themselves create those services that other citizens already receive in traditional ways, “dissolving any expectation that the contract between state and society should extend to the poor, now in any case reconfigured as the resourceful” [34] (p. 484) (see also [35] for a brief review of critical voices). Therefore, it becomes crucial that coproduction approaches are proposed and evaluated according to the real improvement

they can provide to overall accessibility and individual opportunities, avoiding bottom-up solutions that are not beneficial.

2.2. Matching Existing Needs: A Behavioural Approach to Urban Mobility

Matchmaking refers to the possibility of helping two or more categories of customers find each other and engage in mutually beneficial interactions [36]. These matches could be favoured by addressing the behavioural aspects that define individual choices and defining different mobility profiles [37–40]. Forms of matchmaking drawing on behavioural elements could also be significant in settings where services are currently missing and could be the result of devoted coproduction initiatives. Behavioural elements would in fact work on the motivations that may facilitate the individuals' engagement in such measures: for example, engaging in a fulfilling activity [41], appreciating cooperation with others [42], and being involved in an activity useful for one's own and collective purposes [43]. Matchmaking examples may include private ridesharing circuits, involving neighbours or colleagues heading to nearby destinations. Another example is that of time banks, definable as time-based exchange systems between individuals accomplishing tasks on behalf of someone else.

However, behavioural approaches are subject to criticism, due to elements that may affect their effectiveness and relevance. First, behaviour-based approaches must deal with established habits, one of the main barriers for the promotion of alternative choices [44,45]. Moreover, behavioural measures may simply conceptualize citizens as passive users or consumers, rather than focusing on their self-realization as human beings: these approaches lean toward 'forced choices' assuming "the idea that rational maximization is what people should do" [46] (p. 23). This is an aspect particularly critical in urban South contexts where it may be assumed that "it is the behavioural weakness of the poor that has to be corrected" [47] (p. 580).

3. Methodology

3.1. The Setting

This paper bases its discussion on the setting of Bogotá (Colombia). The city has promoted significant public transport infrastructural investments inspired by an explicit social commitment, intending to address its significant social imbalances. Bogotá in fact has grown disorderly in the last decades and nowadays hosts approximately 8 million inhabitants; their distribution is strongly imbalanced, since the huge informal settlements in the southern areas of the city are those with the highest residential densities and the worst socio-economic conditions. The public transport strategy of Bogotá dates almost two decades, since its most significant intervention—a bus rapid transit system called TransMilenio—started its operations in the year 2000. The buses serve some of the main road corridors of the city, offering a fast service accessible to approximately half of the city inhabitants [25]. An effective and relatively economical measure that brought significant improvements to the mobility of Bogotá, TransMilenio, has been praised and imitated worldwide [48]. However, the contribution of this public transport system to the improvement of social inclusion has been partial, especially for marginal areas and the worst-off populations. Such issues have been highlighted by analyses referring to the accessibility that the city transport system provides to relevant urban opportunities [22,23].

Analyses that define what areas suffer from scarce levels of accessibility are context-dependent, since according to the examined setting the opportunities that "are assumed to be necessary to prevent households from social exclusion" [49] (p. 482), the prevailing modal choices, and the distance thresholds that determine what opportunities are available or not are different. In the research on which this paper draws, accessibility to job opportunities by public transport was estimated by assuming travel time thresholds of 30 and 60 min (see [50] for an in-depth description of the methodology). Drawing on these analyses, areas suffering from scarce levels of accessibility were defined, including a significant share of the city's marginal settlements. Amongst them, two areas in the southern part of Bogotá were chosen for a deeper analysis (see Figure 1): the neighbourhoods of La Merced del

Sur and La Torre. In the perspective assumed by the paper, these areas are relevant for their low socioeconomic conditions and their poor performances in terms of accessibility to urban opportunities. It must be noted that these areas were chosen also due to the availability of local contacts (and the consequent possibility to reach these areas and interact with their inhabitants). Both neighbourhoods are in mountainous areas and occupy an unfavourable position in relation to the job opportunities of the city (see Figure 2), but their locations and the available public transport services define a different time geography of access for the two neighbourhoods (see Figure 3).



Figure 1. Position of the two examined neighbourhoods (source: [50]).

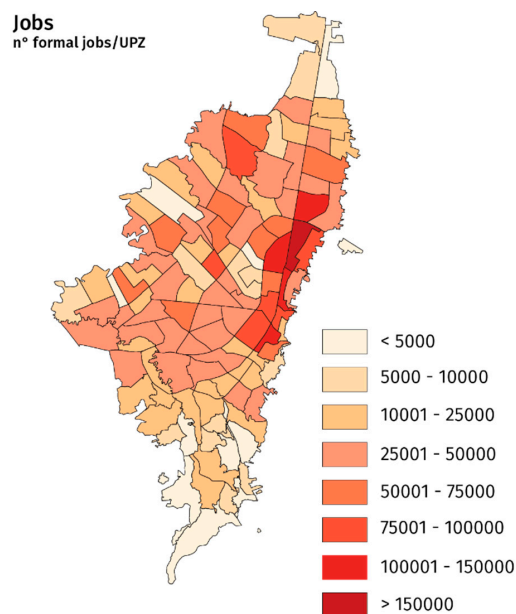


Figure 2. Job opportunities in Bogotá (source: [25]).

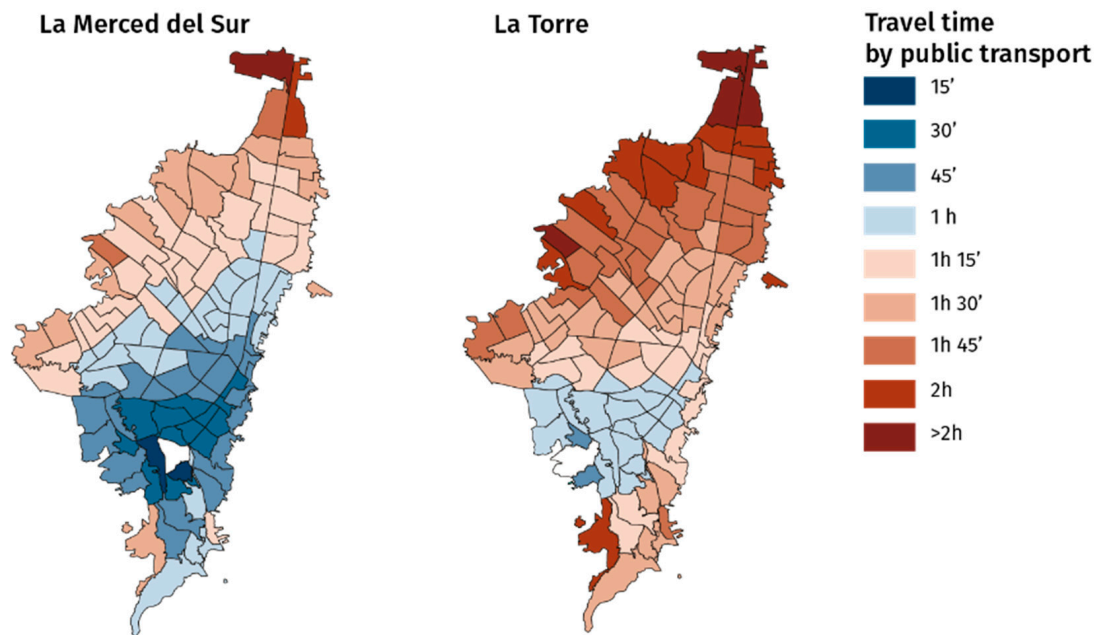


Figure 3. Travel time by public transport for the two examined neighbourhoods (source: [50]).

La Merced del Sur is in the southern part of Bogotá and was established between the Forties and the Fifties, when immigrants from other regions of Colombia arrived, attracted by the presence of productive activities such as mines and furnaces. Today the neighbourhood is a consolidated settlement, with two or three-story houses, but it still lacks paved streets, and it hosts prevalently low-income inhabitants. As part of the consolidated informal city, the neighbourhood does not suffer from severe forms of isolation from the rest of the city, but it lacks any form of formal or informal public transport. La Torre instead is located at the southern margin of Bogotá and was recently originated by the arrival of refugees from other Colombian regions, fleeing the violent civil war. Its expansion continues every year, so that the steep and unpaved streets of the neighbourhood pass by consolidated brick houses and new born shacks built with recycled objects. The socioeconomic conditions of its population are amongst the worse in the city. However, the very position of the neighbourhood is a perfect summary of what it means to be marginal in the city: the settlement is in an elevated position, has no public transport service, and can only be reached by climbing a long stairway or using an informal transfer.

3.2. Data Collection

In the chosen areas, an interview-based qualitative survey was led to detect what opportunities people value, where and when these activities occur, and what mobility practices are deployed to achieve them. Thanks to the help of two local charities, ten subjects in each neighbourhood were involved. These were mainly inhabitants (8 in La Torre, 9 in La Merced del Sur) with the additional presence of social workers (2 in la Torre, 1 in La Merced del Sur); the interviews, which lasted on average half an hour, were anonymised, audio recorded, transcribed in Spanish and then translated in English. The interviews were collected during working hours, so that the sample does not reflect exactly the social composition of the two neighbourhoods. The focus on two specific settlements allowed the involvement of a relatively small number of interviewees, which was assumed to be sufficient to grasp the constitutive features of the everyday mobilities and opportunities experienced in these areas. Microstories were collected through semi-structured interviews, realized between September 2016 and January 2017, in individual conversations with the interviewees. The interviews revolved around three elements: 1. subjects (conveying their social, economic, gender and age features; six questions); 2. valued activities (classifying them according to activity typology and frequency; two

questions, repeated for each activity) and places (where activities occur; two questions, repeated for each activity); and 3. mobility practices (what mobility practices are necessary to reach places, and what are their features—in terms of modal option, services, travel times and costs; eleven questions, repeated for each activity).

3.3. Thematic Analysis of Data

Thematic analysis was used to examine the data previously collected. The data were originally collected as part of research on urban mobility and individual capabilities in Bogotá. While interviews were transcribed, the answers related to valued activities and places were also mapped. Following the framework from [51], the features of the analysis can be summarised as follows:

- a realist method, “which reports experiences, meanings and the reality of participants” [51] (p. 81), was used to grasp the everyday mobility experiences of inhabitants;
- codes for analysing data were defined in view of four issues: destinations, activities pursued there, frequencies of the trips to the destination, and modal choices (for example, codes for modal choices included walking, going by public transport, going by informal transport, bicycling, going by car, and going by motorbike);
- themes were detected in view of the places mentioned by at least two people.

Given the initial interest in mobility and capabilities, the thematic analysis enabled a focus on the emergence of recurrent mobility practices as a base for shared use mobility policy measures. In fact, interviews did not explicitly refer to such feature, but rather the active role of the researcher highlighted such recurrent patterns and considered their possible policy relevance.

4. Problem Setting: Recurring Accessibility Issues in Marginal Settlements

To deploy shared use mobility measures for enhancing accessibility, it is necessary to set the problem to be faced by such policy. In fact, problem setting “is a process in which, interactively, we name the things to which we will attend and frame the context in which we will attend to them” [52] (pp. 39–40). To ‘name the things’, three elements are here necessary. First, define what areas are suffering from scarce levels of accessibility (as shown in Section 3.1). Second, examine the opportunities valued by local inhabitants and the mobility practices deployed to achieve them. Third, assess if favourable conditions for shared use mobility initiatives are present.

In the chosen areas, interviewees highlight several opportunities significant for them and their beloved ones. Apart from jobs, these mainly include activities necessary for the fulfilment of everyday needs, such as shopping and relational activities (that is, those related to the management of the needs of one’s closest relatives). Other relevant typologies are instead differentiated according to the neighbourhood, with a prevalence of education-related activities in La Merced and care-related activities in La Torre. Most respondents tended to move by public transport, despite highlighting the scarce quality of the available services. A good explanation is provided by one respondent, who mentioned that “the public transport is the only alternative. The only skill you need is to plan the travel in advance, so that you can reach the hospital on time for your appointment” (D., La Torre). Only few respondents could not afford to pay the bus fare or, on the contrary, they could move by using private vehicles. Instead, the deriving geography of accessible areas and available opportunities was similar (see Figure 4): while people in La Merced del Sur were able to reach a few surrounding neighbourhoods and even some central areas, the inhabitants of La Torre mainly remained confined to a portion of southern Bogotá.

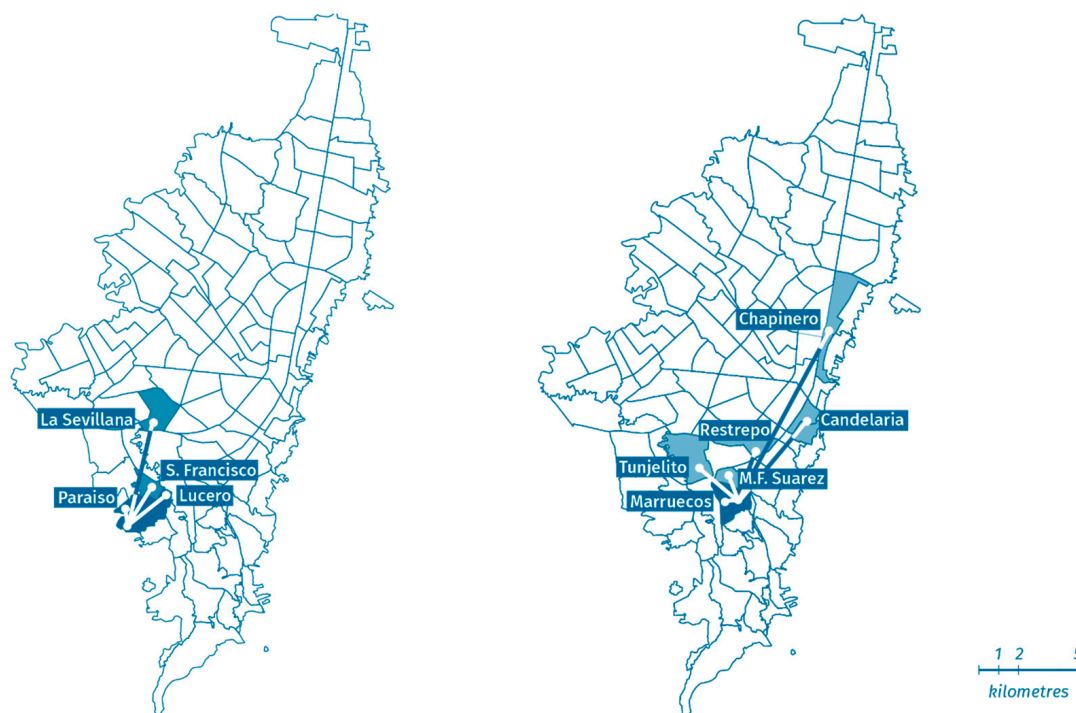


Figure 4. Principal areas of interaction for the neighbourhoods of La Torre (**left**) and La Merced del Sur (**right**) (source: [50]).

From the interviews conducted in the two marginal neighbourhoods, inhabitants confirmed the low level of accessibility available to them, highlighting features that may pave the way for shared use mobility policy measures. In fact, most of the respondents agreed that they can reach the places they need: as stated by one of them, “I can reach all the places I need for me and my family” (M., La Torre). They also recognized overall mobility issues, as in the case of V. (La Merced del Sur) who stated: “For me it is quite difficult [to move], because I only walk to the places I need; often there is no transport, or it is too expensive for me and my children”. In particular, some common features emerge. First, a recurrence of needs, places and mobility practices emerge: many subjects need to accomplish similar tasks with similar frequencies, but they do so individually, even if the places to reach and the activities to realize are often the same for different people. Such recurrence is particularly visible at the local scale (see Figure 5), where local polarities emerge in relation to basic needs such as shopping, care and relational activities (for example, schools attended by children or health care facilities needed by elderly relatives). Second, a prevalence of trips by public transport emerge but respondents also extensively mention the low quality of the existing services: the scarcity of routes, their low frequencies, and their limited ability to reach desired places are recurrent elements in the interviews.

In relation to possible shared use mobility measures, this short insight on the two neighbourhoods already offers some elements of interest. The interviewees express similar needs that they currently achieve *despite* the poor modal alternatives available to them. However, to do so they must invest significant personal resources, coping with huge efforts, monetary expenses, and temporal costs. As G. (La Merced del Sur) admitted, “I can reach most of the places I need, but if transport was better (more routes, better travel conditions), for sure I would be able to move more and do more activities in different places”. Given that institutions in Bogotá struggle to provide infrastructures or services in traditional forms [25] (pp. 11–12), shared use mobility measures could prove a viable alternative for enhancing the accessibility available in marginal areas.

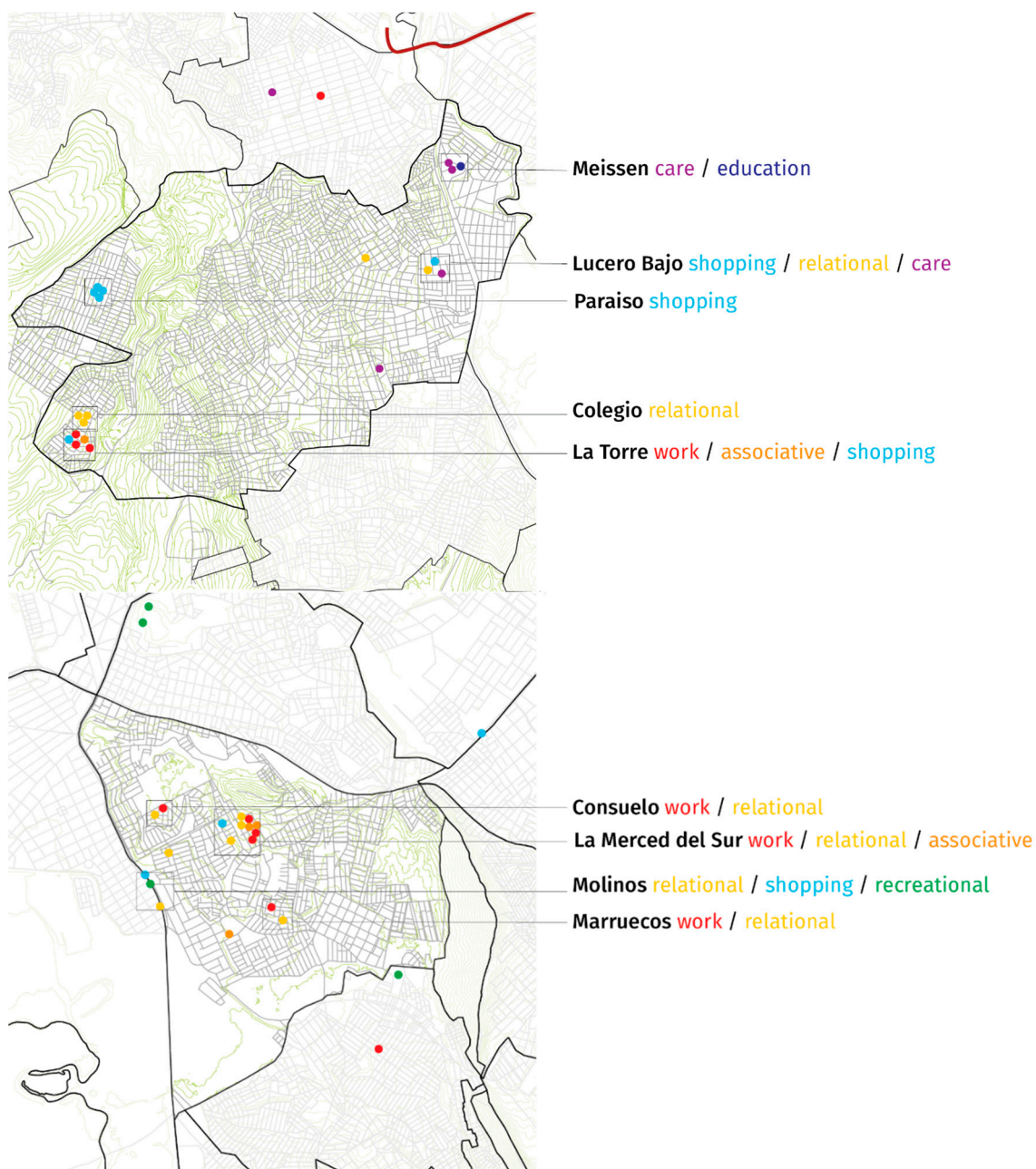


Figure 5. Locations and typologies of the activities at the neighbourhood scale, as mentioned in the interviews (source: [50]).

5. Policy Design: Operationalizing Coproduction and Matchmaking

The individual needs and the mobility issues highlighted in the previous section can contribute to the design of shared use mobility policy measures, in relation to both demand and supply. Policy design in fact is directed to define policy instruments and implementation tools for solving the problem previously set. The features of these interventions, the evaluation of their benefits and costs, and a realistic assessment of their feasibility are here discussed.

If the available modal choices remain unaltered, matchmaking provides a first operational option. In fact, inhabitants undertake recurrent activities in the same locations and with similar frequencies, suggesting the coordination of their mobility needs. As shown in Figure 5, some local polarities emerge: for La Merced del Sur, the area of Molinos (a commercial polarity near a TransMilenio station, along

the trafficked Avenida Caracas); for La Torre, the areas of Paraiso (for shopping reasons), Lucero Bajo (with commercial and care activities, in a dense neighbourhood) and Meissen (attractive because of schools and a hospital). Some recurring activities may be accomplished by a smaller number of subjects acting on behalf of a larger number of inhabitants, establishing for example a time bank (the author discussed the proposal with a local charity, which confirmed the suitability of such an initiative). Figure 6 provides a representation of how this initiative may work, assuming of course the presence of effective forms of coordination between the needs and the practices of different subjects. F. (La Torre) mentioned that some subjects need the contribution of other people to achieve some tasks: “I agree with my daughter who has the experience of travelling with an elderly and with children. If you are with these people, or if you must carry the food you just bought, travel can be very unpleasant. Moreover, you also have long travel times as well as waiting times”. Such shared accomplishment of significant tasks may nonetheless prove to be insufficient for improving the available access to valued opportunities, for which new mobility services could be significant. These may be the result of coproduction initiatives, in which inhabitants share resources of their own (be they economic, human or other) to provide a service that is currently absent.

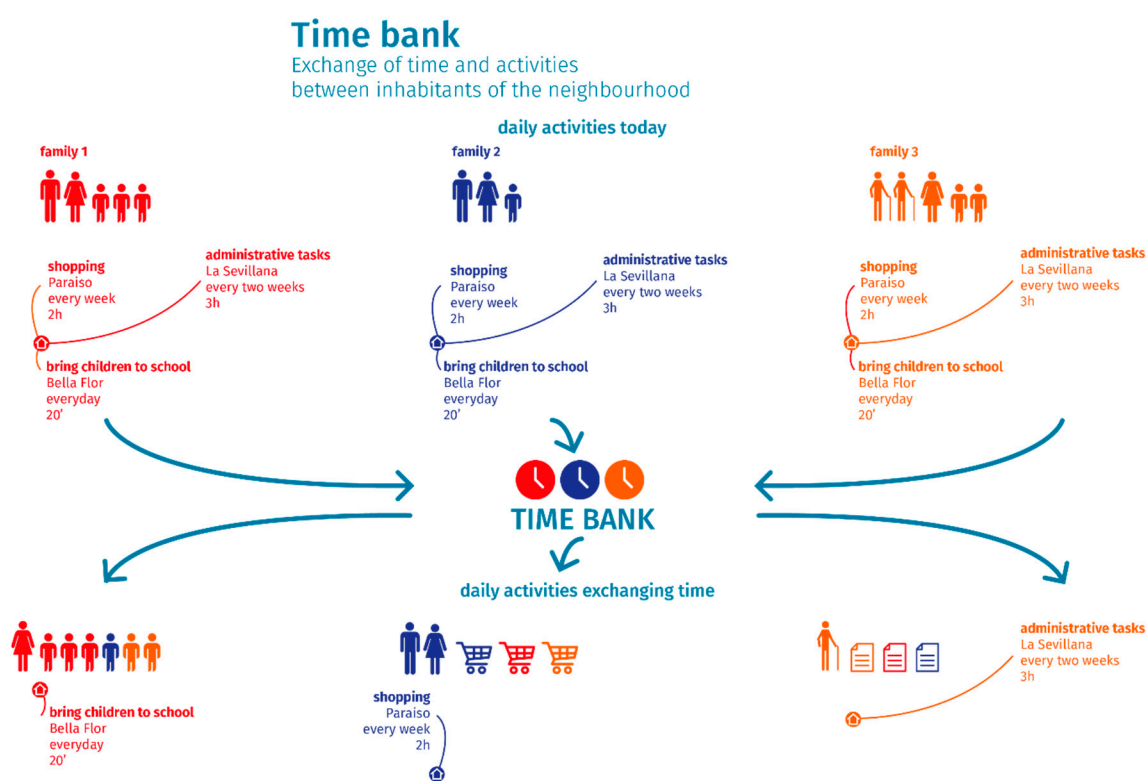


Figure 6. A suitable matchmaking example: Functioning of a local time bank for the La Torre neighbourhood (source: [50]).

Coproduction and matchmaking may contribute to the achievement of similar aims. Considering, for example, the inhabitants of La Torre going to the Paraiso neighbourhood for their shopping (as shown in Figure 5), most inhabitants currently walk to the area on a weekly basis, while going back with an informal bus if they need to carry heavy items. They may first establish a matchmaking mechanism, so that only a few of them would be responsible for groceries. Others instead would accomplish other significant activities in other areas. If this option proved ineffective, a devoted service connecting La Torre to Paraiso could be coproduced by inhabitants, who would benefit of the new connection as well as of the occasion of employment it may provide to some locals.

The neighbourhood of La Torre proves a good example to observe how the two options may also be developed in relation to other forms of intervention. Many inhabitants rely on few public transport options, so that the locations and opportunities they can reach are in many cases limited. For example, the attractive and near area of Lucero Bajo can usually be reached with at least one transfer. Improving the comfort and usability of existing public transport services may make them more usable, for example facilitating the understanding of how the public transport routes work. A matchmaking system would instead allow for the use of existing mobility practices to satisfy the needs of a wider number of local inhabitants. If these actions prove insufficient for improving accessibility due to the persisting lack of services, coproduced services may provide a possible solution, offering a required connection by using currently unused bottom-up resources. Both public and private transport providers in fact often refuse to serve these areas “They always promised us to bring a bus line to the neighbourhood, where not even taxi drivers like to come. They say that roads are unsafe due to their poor maintenance and to the presence of criminals” (J., La Merced del Sur).

Coproduction could thus be more efficient and effective than traditional courses of action. In fact, it would assess different ways of improving existing services before investing additional resources for providing new ones. Furthermore, the evaluation of each option considers the need for accessing valued opportunities, guarantying the effectiveness of the measures in responding to the specific accessibility needs of an area and its inhabitants. According to this perspective, institutions should provide new public transport services or new facilities only in case there is no room to improve existing equipment. The discussion here provided thus offers a preliminary but significant insight on suitable priority interventions for areas suffering from low levels of accessibility. In doing so, the proposed approach expands a set of options often limited to the public provision of infrastructures and services.

An evaluation of the benefits and costs for each measure is less straightforward, though. Assuming the provision of sufficient accessibility as the main aim of urban mobility planning and policy [27], this would be the target that a measure should be able to achieve. The benefits of a measure would thus depend on the number of people who would see an improvement to the accessibility available to them, eventually assuming that the generated benefit is inversely proportional to the current socioeconomic condition of the person. The benefits may be tentatively quantified attaching a monetary value to saved travel time, or to each additional new opportunity that can be reached. Nonetheless, this money-based approach is prone to limitations and should also consider the diminishing marginal value of increased accessibility [53]. In case a varied set of feasible measures could improve the accessibility available to the targeted area or population, the evaluation would consider their costs. For example, if both a coproduced bus line and a new cableway infrastructure were able to improve the basic accessibility available to La Torre, the former, cheaper option would probably be preferable.

However, the policy measures previously proposed are prone to limitations. The proposed approach is in fact not sufficient for addressing individual and collective mobility needs, especially when considering their operational implications. Other elements that influence the functioning of urban mobility require traditional approaches: for example, this is the case for the spatial distribution of significant activities to be reached, or for the infrastructures that convey huge mobility flows. The case of Bogotá and its peripheral settlements suggests that a few issues need to be faced in parallel with the provision of new services. Neighbourhoods of informal origins show difficult spatial conditions (for example, their orography) and a lack of adequate infrastructures (like roads) that function as obstacles to the provision of ordinary services. The same inhabitants acknowledge this: “In general, the inhabitants here lack a lot of basic services (water, gas, electricity . . .) as well as public equipment (like parks and sport grounds). Nonetheless, I think that the situation will improve, especially if the TransMiCable (e.g., a cableway connecting to the nearest us terminal) will be built” (L., La Torre).

Furthermore, significant conditions for the development of the discussed options must face unwelcoming local conditions. For example, subjects other than public institutions have consistent power on the peripheral settlements and often exercise it with violence. Finally, Bogotá would require a drastic change in the current approaches to urban planning and policy. Despite an explicitly declared

interest in improving access to urban opportunities for the worst-off inhabitants, these aims have only been partially pursued. Furthermore, the construction of new infrastructures is still the main strategy to address the urban mobility needs [54], while the public transport system is suffering severe financial restrictions. The approaches previously discussed may thus contribute to the economic sustainability of the existing (public) transport system of Bogotá, mobilizing additional resources to provide needed services and increasing their use by nudging individual travel choices.

6. Policy Implementation: Roles and Issues for Institutions

In the implementation phase, the policy defined in the previous stages is given form and effect, being put into practice and delivered to the public. Institutions are fundamental for implementing shared use mobility policy measures for urban mobility, having a twofold role. On the one hand, they need to recognize which areas and populations require priority interventions for enhancing accessibility. On the other hand, they should recognize what benefits would be generated by different measures and assess if the preconditions for their implementation are present. In relation to settings where such measures may be developed, institutional actors may act as facilitators, providing the conditions that would allow the creation and the growth of such initiatives.

Institutions should recognize those areas and communities that may potentially host initiatives such as service coproduction and demand matchmaking. Different forms of capital would be required: monetary resources to invest (economic capital), skilled people to run the service (human capital) and even the trust and sense of community that may inspire and sustain similar initiatives (social capital). For example, in the case of coproduced services, the necessary human resources would refer to “the human power needed to plan, manage, operate, and support local public transport systems” [55] (p. 4). In the case of matchmaking schemes, these resources would imply instead the managerial skills to run the initiative as well as the fundamental trust bounds required to keep beneficiaries together. While the social and human capital to be mobilized may also be promoted by public institutions [56], it is more suitable to address areas where local subjects (associations, community organizations, charities) are already active.

Once promising settings are recognised, institutions may have a double role as facilitators of the mentioned initiatives. First, they may provide trained figures to sustain such processes, such as ‘coproduction development officers’ [35] in charge of supporting and accompanying local coproduction initiatives. Moreover, institutions should also intervene on a normative dimension, providing the frameworks of rules within which such initiatives may develop. The explored options often challenge existing norms, leading to the “need to reconceptualise service provision as a process of social construction in which actors in self-organizing systems negotiate rules, norms and institutional frameworks rather than taking the rules of the game as given” [35] (p. 858). For example, new legal subjects may be necessary. The mentioned initiatives in fact imply that more complex forms of engagement may then be relevant, involving users in the definition of desired services as well as in their provision. This would foster the creation of community enterprises devoted to transport services. Definable as “organizations that promote innovate solutions for development, autoregulation, and management of spaces and services for local communities” [57], community enterprises may actively involve local users in the provision of needed mobility services, tailored on the exigencies directly expressed by users.

Normative frameworks are not neutral and rather directly involve a political dimension, though. A first political element implied by the mentioned options refers to their shaping. This element is highlighted by coproduction initiatives. The very interest in coproducing services and goods may appear as a political action: in fact, “while many of the collective activities undertaken by Southern residents may not involve direct political claims, nevertheless through their focus on state services (as well as other kinds of resource) they involve some engagement with the state and the realm of politics” [58] (p. 343). Moreover, the interactions between the involved actors imply the typical dynamics of policy processes, shaping not only the desired outcome, but also the relationships between

the subjects, and the subjects themselves. Such processes in fact require a mutual adjustment of expectations [59] and contribute to the formation of values and meanings [60]. However, a possibly ambiguous role of institutions emerges: institutional subjects need to have an enabling role to guarantee the success of such initiatives [61], but the political dimension of these processes implies that, anyway, they are ordinary actors deploying their own tactics and strategies. The involved subjects and the interactions they establish between themselves are thus crucial for the shaping of shared use mobility policy approaches. Nonetheless, such elements necessarily refer to small-scale initiatives, where the involved communities and areas are easily definable and can be involved within specific interactions.

A second political element refers instead to the adoption and the acceptance of the mentioned initiatives. Innovative solutions cannot be simply technically feasible but need to be recognized as socially useful, and they require that institutions support their development [62]. For example, in the case of Bogotá, the adoption of initiatives of this kind may be more suitable in peripheral settings, especially when characterized by high degrees of informality. On the one hand, the setting conditions (in terms of spatial features as well as of existing mobility demands) often do not allow the provision of traditional services, due to their infrastructural requirements (e.g., road conditions) or entry conditions (e.g., high fares, complex system functioning). On the other hand, institutions at different levels (with the municipality playing a leading role) still tend to privilege the provision of infrastructures, as the recent project for a cableway serving one of the peripheral areas investigated in this work demonstrates [63]. The presence of different institutional subjects also raises governance issues related to the cooperation between different bodies, an aspect that is generally critical in relation to urban mobility issues. Apparently, these conditions do not match with the experimentation of innovative solutions involving a wide range of actors as protagonists; nonetheless, as proven by other coproduction experiences [61], these initiatives may and should contribute to institutional change, redesigning existing institutions.

A third significant dimension refers to the acceptability that such initiatives may receive from the bottom. A first dimension refers to the actual will that local inhabitants may have to engage in such initiatives, sharing their own practices or participating in the provision of needed services. Such form of community action in fact depends on specific features of places and individuals, making it difficult to recognize replicable models [64]. Consequently, mobility practices that show similar needs and forms are simply a starting point for the eventual design of shared use mobility policy measures. Communities may thus be considered as developers of policy initiatives not a priori, but rather according to the specific inclinations they may show. A second dimension refers instead to the presence of other ongoing informal initiatives, that may base their existence also on the exploitation of current imbalances. For example, the neighbourhood of La Torre is served by an informal van connection that simply provides access to the nearest public transport stop, reachable only with a steep route. However, the violence used by the subjects operating such services impeded the provision of additional services, so that the municipality for example refused to bring a planned bus route to the neighbourhood because of the many threats received. Shared use mobility measures may thus be considered feasible when considering ongoing mobility practices but features of the local settings are crucial to determine their actual degree of feasibility.

Finally, a fourth political issue refers to the real benefits and costs generated by the discussed policy approaches, and the consequent social legitimacy of implemented measures directly involving their beneficiaries. While transport involves a specific form of justice due to the impact it has on individuals' quality of life [27], the definition of the subjects who should provide it is less straightforward. Public institutions have been traditionally in charge of planning and providing public transport services, but other actors may be relevant too. In fact, "it may be that the capabilitarian ideal society is better reached by a coordinated commitment to individual action or by relying on market mechanisms" [65] (p. 7). Nonetheless, the setting of Bogotá requires a realistic assessment of the actors who may contribute to the enhancement of the accessibility available in informal settlements through shared use mobility measures.

At least three actors may be involved in the development of these initiatives: inhabitants, institutions and private companies. Local inhabitants may be involved only if these initiatives prove to be feasible (that is, local resources are available and can be mobilised) and beneficial (for example, providing also unprecedented employment and entrepreneurial occasions). In the perspective of the inhabitants, the benefits of these measures should then go beyond the simple mobility sphere and obviously exceed costs. Institutions should be responsible for assessing what areas need accessibility improvements and, if so, under what conditions shared use mobility initiatives may be relevant. Additionally, a supportive role actively promoting the development of initiatives would be necessary. In this perspective, and contrarily to what has been feared by some scholars [33,34], institutions would not retreat from the necessary provision of sufficient levels of accessibility to areas or populations in need but would rather have a wider range of operational options at their disposal. Additionally, non-local actors may potentially intervene in the development of similar initiatives, for example in the case of private companies offering transport services. However, the settings here presented show low levels of profitability (as the current absence of significant transport services demonstrates) and, even if new initiatives were to be introduced, the benefits provided by enhanced accessibility should be realistically compared with the costs that inhabitants should pay. Considering the fundamental role of accessibility for the wellbeing of the targeted populations and the priority attributed to measures contributing in this sense [27], institutions may act as controllers of such eventual private initiatives.

7. Conclusions

The feasibility of shared use mobility policies and their significance for enhancing accessibility to urban opportunities has been observed throughout the stages of the policy making cycle. To foster their development, institutions should define areas and populations requiring priority interventions for enhancing accessibility and consequently act as facilitators for the deployment of differentiated courses of action. Interestingly, coproduction and matchmaking acquire new meanings in the marginal settings here examined. Coproduction goes beyond participation in design, but rather gives a leading role to local inhabitants for the provision of needed services. Matchmaking instead configures new forms of sharing for mobility, which do not simply imply the presence of technology-based companies offering inherited services but rather make people put their own everyday practices together.

The proposed approach seems to configure several advantages for institutions intervening on urban mobility. On the one hand, the coproduction of services may be able to mobilise additional resources by involving local communities and their economic, social and human forms of capital. On the other hand, the matchmaking of mobility demands allows the more efficient use of existent resources by intercepting and coordinating potential users who could benefit from their use. Moreover, considering local subjects as potential protagonists of mobility service provisions, it may be possible not only to respond to local mobility needs but also to offer further occasions for local development, for example, offering new employment and entrepreneurial opportunities. The new mobility opportunities would thus actively involve individuals “in shaping their own destiny” [66] (p. 53). However, the positive outcomes would involve not only the expansion of individual opportunities required to guarantee societal development [67] but also the provision of novel resources and the generation of new behaviours that may have positive collective externalities [30].

However, these approaches should be intended as complementary to traditional takes on urban mobility, promoting alternative courses of action where usual options are not viable (e.g., construction of new infrastructures or provision of new services). Some experiences from other Latin American settings [68] have proved effective in this sense. A first requirement refers to the territorialisation of these measures, defining analytical tools to define which urban settings and populations may be more in need of similar actions, as well as those areas and subjects that present conditions favourable for the implementation of such measures (e.g., the presence of various forms of capital required to coproduce services). Switching from an emphasis on transport goods provisions to their actual use, behavioural measures may instead usefully promote the use of specific infrastructures and services, reducing the

risks of realizing underused ‘white elephants’ [69]. Therefore, even the overall implications of such measures may be relevant: for example, the development of behavioural approaches may change some dynamics underlying urban mobility modelling, introducing new variables and possibly leading to different results when simulating the outcomes of planning and policy measures.

In conclusion, a focus on individual opportunities appears to be a suitable source for new policy approaches to urban issues. The discussion provided in this paper recognizes the need for proposing shared use mobility policy approaches and assesses their significance in the various settings where they could be significant, considering the local specificities that may make a focus on opportunities more relevant. Nonetheless, the main element of interest seems to be the possibility to consider sharing not only in those settings where it is already an established option for mobility, but even to address through it the urgent need for accessibility in marginal settlements.

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