THE CHALLENGE OF FINDING A ROLE FOR PARATRANSIT SERVICES IN THE GLOBAL SOUTH

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Abstract

Often considered to be an obstacle to public transport system’s modernisation and/or transformation, paratransit services can also be perceived as a vital component of the dualistic systems of most cities of the Global South. While formal modes and paratransit modes operate in a shared urban territory, their relationships are usually explained as a coexistence of discrete elements in the system. Relationships are, however, far more complex. The two types of services interact with each other, generating hidden and visible interdependencies and trade-offs in daily operations that define most public transport systems in the Global South.

Paratransit modes have continuously found new niches and innovative roles largely relying upon their inherent flexibility and demand responsiveness—two of their more cited advantages. This paper focuses on these services’ adaptability in times of public transport transformation to respond to newly re-regulated operational contexts. Through a review of international experiences, the objective of the paper is to highlight and to analyse the roles and generated externalities of untransformed modes coexisting with a formal system and the newly reformed paratransit sector, where it exists.

It is argued that while providing necessary public transport options to large urban areas, the nature of the paratransit system also results in significant externalities, mainly in the form of operational inefficiencies and pollution. Dilemmas then arise when attempting to reduce these externalities: the challenge of renewing fleets and reorganising services is closely linked to the challenge of not losing paratransit-like advantages—largely beneficial in the Global South—during the process.

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1. Introduction: Paratransit - formal duality in the Global South

According to most definitions, paratransit are conceived as the counterpart of formal services in public transport systems. A myriad of other terms are used to describe such services (or a part of them); they include: ‘informal transport’, ‘illegal transport’, ‘traditional transport’ – notably in Latin America–, ‘artisanal transport’ –in Francophone Africa– or ‘unregulated transport’. Indeed, while a precise and consensual definition of what constitutes paratransit services is often lacking\(^2\), it is widely agreed that they represent a privately developed service profiting from relaxed or non-existing regulatory frameworks. The options for providing services under these circumstances are many. Regulatory options and operational demands vary widely between cities and, similarly, business structures, while comparable, also take many forms. Paratransit operators resort to a wide range of vehicles, from conventional buses to motorcycle taxis, to provide services, but it is often accepted that the archetypical mode is the minibus (Kumar & Barrett 2008).

Paratransit services’ role as a key component of public transport services in the Global South is unquestionable. The non-exhaustive review of urban transport systems modal share percentages depicted in Figure 1 shows the substantial differences between cities in Latin America and Africa. Acknowledging that collected data has reliability issues and taking into account notable exceptions (in Figure 1, the examples of Sao Paulo, Tunis, Recife and Cape Town\(^3\)), paratransit modes can be depicted as the main component of public transport services in terms of passenger modal shares.

Often presented as a transport mode that acts as an obstacle to the modernisation of public transport services (Maillet 2008), paratransit services undoubtedly require transformation. This transformation has two main components: (1) business structure and organisation and (2) operations –routes, schedules or frequencies, fleet, etc.–. Approaches to transformation vary widely from one city to another: they take different forms that range from recognition coupled with gradual formalisation to, more radically, full substitution by newly established formal services.

\(^2\) Various definitions add elements that characterise those services. Wilkinson et al. (2012), for instance, indicate that variables pertaining to official endorsement of services, low-performing and aging small vehicles, service flexibility and lack of sufficient regulation. Godard (2013) explains that paratransit services are those based on individual initiatives that result in fragmented ownership and on a structure based on given drivers entire operational responsibility to produce financial surplus. Behrens et al. (2014) define three variables (regulation, business and services) that define paratransit services comparing them to formal public transport services; in this sense, paratransit services are largely unregulated and display unplanned services. In general, paratransit services are often perceived as simply as those that are not formal, thus resulting in a wide variety of possibilities.

\(^3\) It is necessary to note that, in Cape Town, the modal share for paratransit services has been consistently increasing in recent years. The latest survey suggests that, in 2012, 44% of all-purpose daily trips are the responsibility of minibus-taxis (i.e. paratransit modes) (CoCT 2013). This number was 11% in 1987 and it was 24% in 2000 (Grey 2006).
As a result, not all paratransit services are included in transformational programmes and they often maintain a role—albeit a new or modified one—in the city’s transport system. Consequently, remaining services (i.e. those not targeted for formalisation or substitution) coexist and keep interacting with formal modes, new ones and already established ones. In this sense, in public transport systems of the Global South, paratransit and formal modes cannot be considered discrete elements (i.e. with limited or no interaction) of a system. Any transformation programme meant for either one of the two elements will inevitably impact the element not targeted for reform.

This document is structured around a secondary sources case study review. Its objective is not to produce generalisation of the outcomes, rather its purpose is to highlight how paratransit services have responded to changing environments and to identify what role they have taken in public transport systems. After introducing the characteristics of paratransit services and presenting a classification of current transformational experiences in Section 2, a review of three cases depicts widely different experiences in paratransit reform. First is the case of Santiago where drastic change to the road-based system was brought upon with the overnight citywide implementation of Transantiago. The second case is that of Bogota where initial progressive corridor-by-corridor BRT implementation has had substantial and unforeseen consequences in parallel corridors. And, finally, the third case is Dakar where the analysis focuses on the fleet renewal scheme for paratransit minibuses and how they have reacted to it. The fourth and final section of the document introduces the dilemma that arises when formalising paratransit modes as the city loses it advantages. It also introduces questions
pertaining to how pollution control and energy efficiency policies are integrated into formalisation programmes in the Global South.

2. The role of the paratransit sector

3.1. Advantages of the paratransit sector versus its externalities

Pertaining to the consequences of the growing numbers of paratransit services in most cities of the Global South, a number of negative externalities have been linked to these modes. Amongst these, congestion, accident rates and pollution problems are often first cited when describing damaging effects of the paratransit sector (cf. Figueroa 2005; Gauthier & Weinstock 2010; UATP & UITP 2010). These externalities are particularly important on main corridors and in central urban areas (cf. Gilbert 2008; Okoye et al. 2010; etc.).

Other externalities have also been identified: operational inefficiencies (route duplication, excessively long routes, etc.) and disruptive competition as the result of a system based on competition ‘in the market’ as opposed to competition ‘for the market’. Furthermore, the disorganised and fragmented nature of the paratransit sector is often viewed as an obstacle to optimised operations and modern transport systems (cf. Kumar & Barrett 2008; Pardo 2009; etc.).

Yet, paratransit operations also provide certain advantages to public transport systems in the Global South. Amongst these, demand-responsiveness, operational flexibility and territorial coverage appear as important advantages in the urban contexts of most cities of the Global South (Goddard 2008). Often cited as another advantage, adaptability in terms of schedules and/or frequencies is a characteristic that can be contested. Indeed, adaptability to, for instance, peak periods and off-peak periods combines scheduling flexibility of paratransit operators and, at the same time, forced adaptation by users that suffer practices of reduced service. Additionally, pertaining to general advantages of paratransit services and even if sometimes challenged or questioned, comparatively lower fares and the possibility to negotiate fares between a driver and a user and, most importantly, the lack of direct capital or operational subsidies can also be included as benefits of the paratransit sector.

Advantages and externalities of the paratransit sector are closely linked together: they express in the transport system the fragmented and demand-driven nature of the sector. In recent analyses and diagnostics of current public transport systems conditions have suggested that, partly as a result of the growing dominance of paratransit modes, transport systems are in a state of crisis (i.e. in need of urgent change) (cf. Kumar & Barrett 2008; Lupano & Sanchez 2009; UATP & UITP 2010; etc.). According to these analyses, systemic crises are mostly evidenced in congestion as its archetypical expression on urban roads. Local and national authorities have recently initiated or planned a number of attempts at ‘formalising’ paratransit modes and/or ‘organising’ and ‘professionalising’ these same public transport modes. Approaches vary and so do outcomes.

3.2. Options for paratransit in times of reform
At first, three families of approaches can be distinguished: (1) those that aim at gradual or immediate citywide transformation based on implementing a new formal mode; (2) those that are based on gradual transformation of selected public transport corridors or main axes through the introduction of a formal mode; and (3) transformations based on fleet renewal schemes and professionalization initiatives. Within each one of these families of cases, more or less radical approaches to transformation can be identified. Approaches to transformation dictate the possible role for remaining paratransit services (i.e. those that are not targeted for formalisation, if they exist). It is also important to note that, in some cities, it is possible to plan and/or implement programmes from two different families, notably when combining the third set of cases with one of the first two families.

In relation to the first family of cases, experiences that seek citywide—usually immediate—transformation of the entire public transport system, most radical approaches aim at fully substituting paratransit services with new or existing formal modes. One such approach can be identified in Santiago’s recent Transantiago programme where most paratransit operators were either excluded from the system or absorbed into recently created operational companies without paratransit-like characteristics (the experience is further detailed below). In such cases, paratransit services are often marginalised and likely forced out of the system without this resulting directly in improved citywide transport conditions in terms of accessibility. Curitiba’s transformation in the 1970’s can also be included in this family. Indeed, the trinary road system—later designed for BRT operations—is the main element of the system but it is not the only one: secondary transport routes and area distribution are important elements of the initial model of the 1970s and 1980s (cf. Macedo 2004). Systemic transformation was implemented citywide by professionalising and formalising incumbent operators early in the process (Ardila Gomez 2004).

![Figure 2: BRT implementation surge, by number of corridors](source: BRT database by EMBARQ, url: http://brtdata.org. Last visited in July 2014.)

The second set of cases includes a large number of examples. The recent surge in BRT planning and construction across the Global South (see Figure 2) relying on progressive phased corridor implementation is at the base of this family of cases. Emblematic cases include Quito (cf.
Hidalgo & Grafiteaux 2006), Bogota (this experience is further detailed below) and Mexico (cf. Flores & Zegras 2012) in Latin America; and Lagos (cf. Kaenzig et al. 2010), Johannesburg and Cape Town (cf. Gauthier & Weinstock 2010) in Africa. In the same manner as the previous family of cases, approaches vary from aggressive paratransit substitution in selected corridors to formalisation of existing operators through the creation of operating companies. However, contrary to the previous family of cases, an important number of incumbent operators is not included in (initial) corridors and, as a result, no transformation is envisioned for them. In all, this set of cases exhibits a duality in the systemic transformation approach: parallel to new formal and formalised corridors, paratransit operators not having experienced significant levels of transformation persist. Thus, it is not unusual to find alternative or additional reform programmes that aim at complementing corridor-by-corridor implementation.

The third family or set of cases includes cities that have attempted or that are planning paratransit’s reorganisation using most notably paratransit upgrade (e.g. Accra (cf. Finn 2008)), fleet renewal schemes (e.g. Dakar (this case is further detailed below)) and professionalism and re-regulation initiatives (e.g. Buenos Aires (cf. Gutierrez 2004) and Casablanca (cf. Le Tellier 2007)). Similar to previous groups of cases, authorities in these cities seek to introduce regulations in terms of operations, business structures and roadworthiness that aim at upgrading the quality of the entire public transport system in the city. This type of approach affects all paratransit services. It also tends to be less radical than the two previous families of cases. While a new formal mode implementation is not necessarily excluded, these cases do not rely on catalytic projects such BRT implementation or similar.

![Figure 3: Conceptual interpretation of approaches to finding a role for remaining and/or existing paratransit services in selected transformational experiences](source)

Arguably a fourth group of cities could be considered: cases where no transformation is imminently planned. Analyses of such public transport systems where paratransit services are one of the main modes, if not the more important in terms of modal shares, describe the sector’s original forms of self-regulation (including relative lack of operational regulation) and organisation. These cases will not be detailed in this document.
The above conceptual typology of cases is synthesised in Figure 3. Selected cases were placed according to the interpretation of their recent or current transformational programme. From the large list of possible cases, three cases were selected to describe the roles and adaptations of paratransit services included in each family. Case analyses do not claim generalisation of consequences of paratransit practices and behaviours during or after transformational programmes. On the contrary, cases are used to explore what possibilities paratransit operators have found to maintain a place in the system. In this sense, three experiences are analysed: Santiago, Bogota and Dakar. The following section focuses on the new or modified roles paratransit operators have found in these cities and what consequences followed.

3. Roles for paratransit services: Three experiences

3.1. Santiago, Chile

Santiago’s recent BRT project is part of a larger programme referred to as Transantiago that includes programmes for road infrastructure, rail-based public transport services and road-based public transport services. Pertaining to road-based public transport services, its premise was to modernise the entire system (Maillet 2008): incumbent paratransit modes, in the form of conventional buses and collective taxis, were included in the transformation programme but a reduction of the number of operating companies was envisioned (Forray & Figueroa 2011). Muñoz & Gschwender (2008) explain the initial situation for existing paratransit operators:

> Although public opinion was against any participation in the Transantiago process by the incumbent [paratransit] operators who were members of the owner cooperatives, in the end they were permitted to take part. The Transport Ministry had no legal grounds on which to limit their involvement and banning them risked triggering a serious social conflict.

Source: Muñoz & Gschwender 2008:48

Initially, then, paratransit services in the form of conventional buses –“micros amarillos”– and collective taxis were to be absorbed into the road-based public transport services systemic transformation programme. But, the situation quickly changed; ultimately few incumbent operators were effectively included in the recent system.

First, in relation to former paratransit conventional bus services, before Transantiago’s trunk and feeder model was implemented in 2007, operators were presented with two options: (1) to create or take part in feeder area formal operating companies or (2) to fully and immediately withdraw from the new system. Incumbent operators – irrespective of their size or affiliation– were, hence, not expected to be a part of trunk BRT operations. Distinction between trunk services and feeder services was decided early in the process:

> The decision of dividing the bus system in two separate networks was made with the aims of (1) reaching a better adjustment between demand and offer, through the

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4 Minteguiaga (2006) explains that, even considering the paratransit sectors evident advantages to users, the service was poorly rated by inhabitants. Advantages, in this case, included: large territorial coverage, high accessibility in terms of distance to bus stops, frequency of services (less than 4minutes waiting time, on average) and low flat fare (Minteguiaga 2006).
use of bigger vehicles in the main routes and smaller ones in the feeder lines, and
(2) allow the authority to make a good planning of the main routes. In effect,
considering the difficulty that the design of the main routes (where the city
development and the patronage are more consolidated), and that the adjustment of
the feeder lines should be proposed by the operators themselves. So it was necessary
to give them adequate incentives in this direction. On the other hand, the available
data and the design tools developed by the authority were able to give adequate
answers to the route designs in the main lined, but were not so reliable in the
periphery of the city, where the demand is spread across and changes quickly.
Source: Gschwender 2005:10-11

Another consequence of one such approach was that smaller paratransit conventional bus
companies were effectively removed from the system, while larger incumbent companies
formed formalised feeder area companies and remained in the system–albeit with radical
changes to their practices and organisation–. Authors have argued that the formalisation of a
part of paratransit services and the withdrawal of the rest of paratransit bus operators has
resulted in problematic conditions in peripheral areas of the city (Jouffe & Lazo Corvalan
2010).

Second, pertaining to incumbent collective taxi operators, the initial proposal to include them
or to reorganise their services according to Transantiago’s feeder area division of the city was
ultimately aborted and a different type of programme changes was designed for the collective
taxi sector. The relatively limited transformation allowed these services to remain highly
adaptable and to maintain some of the characteristics most appreciated by users: door-to-door
services at night when other options are not available and, importantly, territorial coverage
(Figueroa 2007).

In terms of the aborted proposal, the first objective was to encourage collective taxi paratransit
services to consolidate and create operating companies attached to one of the ten predefined
areas (Figueroa 2007). The implemented programme primarily sought a rationalisation of
routes and an optimised used of rank infrastructures. It is also noteworthy that fare integration
was not contemplated between collective taxis and the rest of the road-based system; the only
condition is that they remained above the fares for bus services in order to avoid disruptive
competition (Beltran & Flores 2005). The programme consisted of awarding tendered routes to
incumbent operators without prioritising the larger existing collective taxi associations. Of the
300 tendered routes, 73% of them (219 routes) were awarded to associations operating less than
40 vehicles; what is more, a total of 91 routes (30%) were awarded to the smallest associations
(Figueroa 2007). This transformation was enacted without it resulting in paratransit reform:
operators’ consolidation as a condition for implementation was ultimately not achieved
(Figueroa 2007).

Before the implementation of Transantiago’s trunk and feeder model and before the
implementation of the collective taxis reorganisation initiative, collective taxis were responsible
for approximately 6% of motorised public transport demand5 (Rivasplata 2008). During the
chaotic Transantiago implementation, and as a result of the disappearance of former paratransit

5 Public transport modal shares for Santiago, before the implementation of Transantiago, were estimated at: Metro
network 14%; conventional bus services 80% and collective taxis 6% (Rivasplata 2008).
bus services, collective taxis were forced, in the same manner as the Metro network, to take on a larger role in the system (Figueroa 2007). Furthermore, considering that paratransit collective taxis were not formalised as initially planned, they managed to preserve important flexibility and demand-responsive characteristics that allowed them to serve users living in urban peripheries where new formalised bus services had become scattered (cf. Briones 2009; Forray & Figueroa 2011).

The transformational experience of Santiago’s road-based public transport system, when analysing paratransit-related reforms, consisted of two distinct programmes: (1) a conventional bus programme that sought substitution of paratransit services citywide and (2) a collective taxi programme that was modified to allow paratransit services to continue operating. While the conventional bus programme effectively managed to formalise the conventional bus paratransit operators through consolidation and substitution, and as a result it introduced a system based on competition ‘for the market’; the collective taxi programme failed to consolidate operators. However, after formalisation of conventional bus services, advantages of the previous system in terms of territorial coverage, frequencies and demand-responsiveness were lost, with important consequences for inhabitants in the peripheral areas of the city. Collective taxi services preserved those qualities and ensured services to these urban zones.

3.2. Bogota, Colombia

Bogota’s experience with introducing BRT corridors in an otherwise strictly paratransit-dependent system is renowned for the substantial – mostly positive – changes it brought to the public transport system. Indeed, prior to the implementation of Transmilenio in 2000, the city was solely dependent on a privately supplied system based on conventional buses, micro and midi-buses:

<table>
<thead>
<tr>
<th>Bogota’s transport system matched the city perfectly. Its fleet of poorly maintained buses, driven by lowly paid semi-formal drivers was a mirror image of the city’s lack of effective planning, its poverty and inequality, and the general neglect of most people’s quality of life.</th>
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Source: Gilbert 2008:445

The Transmilenio programme’s implementation initially consisted of four phases to be completed in 2016 (Duarte Guterman & Cal y Mayor 2006). This timeframe was later modified to propose eight phases finishing in 2031 (Duarte Guterman & Cal y Mayor 2006). Implementation relied on corridor-by-corridor BRT trunk and feeder construction.

The premise of Bogota’s approach to BRT implementation was to negotiate with selected incumbent operators in order to include them as operators to the new formal mode (Ardila Gomez 2004; Gilbert 2008). This strategy effectively created two types of operators in the public transport system: (1) those that were consolidated and formalised and (2) those that have not gone through formalisation processes that was required for their eventual inclusion in the BRT network (Lleras 2005). Broadly, once the implementation of Transmilenio began, paratransit operators were presented with two options: consolidate and formalise or withdraw from the corridor where the system is planned. Indeed, the first option was only presented to operators whose lines used the road where BRT was planned (i.e. affected operators).
Concerning the first set of operators, those included in the BRT programme, implementing local authorities chose to negotiate with the top level of the paratransit hierarchy: associations. One such approach has been sometimes criticised:

Since the owners and drivers seem to earn very little and the city continues to suffer from high rates of unemployment, many feel that it is socially irresponsible not to involve them in the new system.

Source: Gilbert 2008:450

Reform of affected operators focused on incumbent transport companies, in the form of associations or cooperatives exploiting route licenses, affiliating vehicle owners and relying on daily fees collected by drivers. In order to participate in bidding processes for BRT trunk and feeder services, companies or associations were asked to consolidate (i.e. group or merge into larger companies) and create formal operating companies where they would become majority stakeholders. The strategy did not contemplate guarantees for all operators and a number of affected paratransit operators were thus forced out of the corridor. The strategy was also accompanied by an initiative to reduce oversupply of buses in the city; transformed operators were asked to scrap old vehicles when introducing newer articulated buses into the city. For the initial phase, the number of buses to scrap per articulated bus was set at 2.7 vehicles; this was later increased to 7.7 vehicles for the second phase (Gilbert 2008).

Indeed, as BRT implementation was being carried through, authorities did not manage to reduce vehicle oversupply in the system. In 2005, it was estimated that the oversupply in the public transport system amounted to 7,500 buses (Ardila Gomez 2005) for a fleet of 20,500 vehicles excluding Transmilenio’s vehicles (Ardila Gomez 2007). A consequence of Bogota’s strategy was that, true to their nature, paratransit operators circumvented the programme’s demand and they managed to transfer their vehicles to other roads in the same urban territory.

Ardila Gomez (2007) explains that operators scrapped a number of old buses but then immediately replaced them with newer ones resulting in fleet numbers staying broadly the same citywide. It was estimated that, in 2005, of the 6,080 vehicles expected to be withdrawn from the system, approximately 4,670 were simply relocated in other roads (Echeverry et al. 2005). In all, the city’s paratransit services quickly adapted to new conditions. It also resulted in roads not directly concerned by Transmilenio BRT trunk implementation experiencing worsening levels of congestion and pollution (Echeverry et al. 2005).

__Fleet numbers are however contested. A different estimation suggests that the total fleet for the city was estimated at 14,545 vehicles (CAF 2010). This number includes conventional buses and microbuses. It is also important to note that, compared to other cities in the region, the case of Bogota shows an elevated number of public transport vehicles per inhabitant: Lima 7veh/1000inhab; Bogota 4veh/1000inhab; Santiago 2veh/1000inhab; Quito 1veh/1000inhab (Avellaneda Garcia 2007).__

__The analysis presented by Echeverry et al. (2005) has been contested by Peñalosa (2005) who argues that there is uncertainty as to whether worsening conditions are the responsibility of Transmilenio because the analysis does not consider the theoretical increasing role of private vehicles. Nonetheless, other analyses tend to indirectly confirm conclusions by Echeverry et al. (2005) (cf. Ardila Gomez 2005; Lleras 2005).__
Pertaining to paratransit services directly affected by BRT corridors, the city’s approach to using catalytic and phased BRT implementation has been criticised by certain authors:

Bogota’s impressive project showed that BRT could be implemented in massive corridors but offered few answers to the more system-wide problems.  
Source: Muñoz & Gschwender 2008:46

Initial evidence from Quito and Bogota show that even if high-quality public transport networks were implemented, these have only partial coverage of the city, often limited to few corridors leaving other main axes unattended and in the hands of low-quality traditional services.  
Source: Translation from Figueroa 2005

The progressive phased approach used in Bogota effectively formalised several former paratransit operators. It also forced the rest of incumbent paratransit operators into parallel roads where they were forced to compete for passengers with public transport services already operating in these corridors. Problematically, as more BRT corridors are planned and implemented, remaining unreformed paratransit services are able to operate on fewer roads but competing with more public transport vehicles than before. Displaced paratransit services – directly and indirectly – resulting from BRT implementation enter coverage areas of unaffected paratransit operators. Yet, there are unexpected advantages to this approach. The group of paratransit operators maintain adequate coverage in the peripheries isolated from newly formalised operators (Lleras 2005; Gilbert 2008).

The lack of integration between the formal BRT network – operated by transformed former paratransit services – and the untransformed paratransit sector has been identified as one of the main problems in Bogota’s public transport system (cf. Rivasplata 2008; Duarte & Rojas 2012). Yet, integration of formal and paratransit modes is a highly complex task: formal modes require clear regulations and planning, while paratransit modes thrive and are most beneficial to users in contexts of relative deregulation and limited scheduling.

Recently, Bogota’s strategy to systemic transformation has changed. Planning authorities are in the midst of implementing a citywide programme – referred to as the Integrated Public Transport System (SITP) – that seeks to include existing paratransit operators. The objective is to reorganise the system while also attempting to forcefully remove as few incumbent operators as possible. Of the existing 66 paratransit companies, in the form of route associations, 52 would effectively be included in the programme (Kash & Hidalgo 2012). This recent programme has not come without problems and, currently, its outcomes are uncertain.

3.3. Dakar, Senegal

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8 The original text, in Spanish, is: Las primeras evidencias en Quito y Bogotá muestran que a pesar de la consecución de redes de transporte público de alta calidad, ellas tienen una cobertura parcial en la ciudad, limitándose a ciertos corredores y dejando otros desatendidos y servidos por los sistemas tradicionales, de muy baja calidad.
Dakar’s case, contrary to Santiago and Bogota, did not seek the outright implementation of a new mode. Its focus was on formalising existing paratransit operators through a bus renewal scheme (SSATP 2003). The premise was that operators would more easily accept new regulatory measures introduced by authorities when benefitting from vehicle renewal financial advantages (Godard 2013). Authors explain the characteristics of the programme:

In Dakar, the fleet renewal programme was aimed at leveraging bus finance to introduce long-term reforms in the transport sector. The proposed reforms focused on the formalization (or professionalization) of the sector with the introduction of a formal system of route allocation and an official fare structure […] The minibus operators were expected to finance up front 25 percent of the cost of the new buses, pay back the loan […], and operate the minibuses as business as usual, without any direct subsidy from the state.

Source: Kumar & Diou 2010:2

Irrespective of the programme’s success, the inclusion of paratransit operators was arguably limited. Explanations can point to financial difficulties of implementing one such programme in the Global South. Be it as it may, the programme focused only on paratransit minibus services (referred to as “cars rapides”); it dealt with approximately 20% of “cars rapides” (Godard 2013). As a result, a large number of existing minibus operators and all collective taxi (referred to as “clandos”) operators were left out of the initial process. Minibus and collective taxi operations experienced different consequences directly or indirectly linked to the renewal programme.

Pertaining to paratransit operators included in the renewal programme, authors have argued that a positive outcome of the project has been an improved level of service for these vehicles (cf. UATP & UITP 2010). Godard (2013), however, claims that improvement is directly linked to the newer vehicles and not necessarily to the introduction of regulatory variables in the system. This critique resonates with others that claim that effective minimal regulation of operators has not been successful as, even with the incentive of fleet renewals, they refuse to accept new demands – in the form of schedules and/or frequencies and maintenance practices – proposed by planning authorities (cf. Kumar & Diou 2010).

Minibus operators not involved in the fleet renewal process have not been directly affected by the introduction of new regulatory measures. These operators continue to use their old vehicles in a largely unregulated environment. What is more, part of the incentives presented to operators involved in the programme was that they would find a certain exclusivity in selected areas of the city; yet, untransformed operators continue using the roads they have always used thus maintaining practices linked to competition ‘in the market’ and hampering newly established formalised operations (Kumar & Barrett 2008).

Relatively foreign to the minibus reform, collective taxis have maintained the unregulated practices. Considered the ‘parasites’ of the public transport system (Lammoglia et al. 2012), “clandos” operators kept their already established niches: (1) as the sole public transport option

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9 According to Kumar & Barrett (2008), estimations suggest that the average age of minibuses’ fleet is between 15 and 20 years. This number is relative elevated when compared to other cases in the region: Abidjan 15 years; Conakry 10 to 15 years; Doula 15 to 20 years (Kumar & Barrett 2008).
in some areas and (2) as an additional mode in roads where public transport supply has not met demand (Lammoglia et al. 2012). The general perception of these services is negative, yet they provide users with an option where no other alternative is at hand. Indeed, their modal share is not marginal in the public transport system: in 2005, they represented 17% of public transport all-purpose demand (Godard 2013).

Indirectly, collective taxis of Dakar have shown substantial resilience in times of systemic transformation. Their place in the system is a complex one: they are viewed as problematic elements of the transport system in the eyes of authorities while, at the same time, being considered as a competitive service—in terms of quality, fare and travel time—by users (Lammoglia et al. 2012). Not included in formalisation or professionalization initiatives, based on their flexibility, they have maintained a relatively stable place in the transport system, filling gaps and taking advantage of regulatory and enforcement weaknesses of public authorities:

The transport provision network is organized in the first place according to the trip flows towards the modern sector employment sources located in the Plateau in Dakar. The road network is also designed according to this dominant scheme. The institutional system is not equipped to assume other types of transport provision at a reasonable cost, especially in the illegally urbanised areas with a low accessibility level where small-scale [paratransit] operators provide a better adapted service.

Source: Godard 2001:7

4. Conclusion: A role for paratransit services?

Finding a role for paratransit services is a complex challenge for planning and regulatory authorities. When seeking more structured and planned services through reform, paratransit’s fragmented and disorganised nature certainly represents an obstacle to such programmes. The objectives of systemic operational efficiency, eventually accompanied by energy consumption reduction and pollution control targets, rely on consolidated and corporatized operational companies capable of respecting new regulatory measures and they clash with the nature of paratransit services.

Nonetheless, it is argued that paratransit services have a role to play in urban contexts of the Global South. Flexibility and demand-responsiveness, as well as the relative low cost, are assets often overlooked and lost during radical formalisation initiatives. In Santiago, users have been less than satisfied with the new trunk and feeder model performance, mainly because of increased transfer times and loss of accessibility in peripheral areas (Jouffe & Lazo Corvalan 2010; Muñoz 2012). This last element is of importance. Lazo Corvalan (2008) argues that inhabitants in the low-income peripheries are more isolated after the implementation of the new trunk and feeder system than they were with the previous paratransit dominant bus-based model.

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10 Public transport modal share, in 2005, was estimated to be: 17% for collective taxis, 77% for minibuses (thus, 94% for paratransit services) and 6% for formal conventional buses (Godard 2013). Public transport’s share in the transport system was calculated at 77,5% (Godard 2013).
Finding a role for paratransit services in the Global South will hence likely require finding novel models where formal services and paratransit services are complementary. Indeed, implementation of formal modes coupled with formalisation initiatives can bring about positive changes. For instance, in Bogota, not only has Transmilenio been presented as a key element in the reversal of the urban crisis (Salazar 2008), even critics point to the benefits of the new BRT system in corridors where it was implemented: travel times reduced by 32%, speed increases, carbon emissions reduced by 9% and accident rates reduced by 90% (Echeverry et al. 2005). However, in Bogota, the role for paratransit operators not involved in the reform was overlooked, leading to increasingly complex conditions for public transport outside of Transmilenio’s corridors.

Indeed, another layer of complexity is added when energy consumption and environmental targets are involved. The nature of paratransit services is not aligned with these purposes. Environmental, noise and optimised operational efficiencies are not top priorities for paratransit operators. Yet, effects of hiking fuel costs affect all public transport operators and formal services appear best equipped to manage these costs. Godard (2013) introduces two examples to illustrate this argument. First, in Doula in 2008, when after fuel prices increased, collective taxi operators conducted a strike arguing that such rises reduced even more their already meagre revenues (Godard 2013). And, second, in Lagos in 2012, when riots ensued after fuel price increases enacted by authorities (Godard 2013). In the case of Dakar, the renewal process also appears vulnerable to fuel price increases. It is calculated that fuel expenses are approximately 40% of operational costs for new “cars rapides” (Kumar & Diou 2010; Godard 2013). Fuel increases are thus likely to be of concern to new vehicles, as it will hamper revenues that, in turn, will have a negative impact on loan amortisation and incomes.

Transformational initiatives concerning paratransit services often overlook the inherent dilemma of formalising paratransit operators. The review of cases presented in this document, depicts three different approaches to transformation with different results, both in terms of success of the formalisation initiative and in terms of consequences of the programme for the role of formal and paratransit services. One the one hand, as formalisation attempts become more radical and seek to fully substitute or replace the element in the system considered to be problematic, benefits of such element are lost. Flexibility, demand-responsiveness and adaptability –characteristics that are arguably beneficial in urban contexts of the Global South– are eroded when paratransit services disappear from the system. On the other hand, when introducing programmes that attempt to maintain advantages of the paratransit nature of services, regulatory measures are difficult to implement and incumbent operators often revert to traditional practices linked to informal modes.

In all, attempts at formalising –accompanied by objectives of improved energy consumption and pollution reduction– are likely to clash with the advantages of the paratransit sector. Public transport systems in the Global South require modifications that, in some cases, call for consolidation of operators and corporatisation. However, paratransit operators have proven to be highly adaptable: helped by rapid urbanisation, they continuously change finding new roles and gaps in the public transport system.\*\*\*

\*\*\* When describing the informal sector of economies, Daniels (2004) explains that informality is a “floating, kaleidoscopic phenomenon, continuously changing in response to shifting circumstances and opportunities”. This
Formal services undoubtedly have a role in the envisioned and future public transport systems of the Global South. It can be argued that paratransit services can also have a role in those systems. They bring about territorial coverage, demand-responsiveness and flexibility that are useful in urban contexts such as those in the Global South. Arguments for complementarity between formal and paratransit services are to be studied and encouraged. Original models for formal-paratransit complementarity are yet to be developed. Harmonious coexistence of formal and paratransit modes is difficult to achieve due to their contradictory natures, yet approaches to transformation that allow paratransit services to have a role in the system might end up being more adapted to the cities in the Global South that still experience drastic transformations.

References

Corporacion Andina de Fomento (CAF), 2010: *Observatorio de movilidad urbana para America Latina*. CAF. Bogota, Colombia.

City of Cape Town (CoCT), 2013: *Household survey report*. City of Cape Town. Cape Town, South Africa.


description fits the nature of paratransit services in public transport systems of the Global South when faced with transformational projects.


ECHEVERRY Juan Carlos, IBAÑEZ Ana Maria & MOYA Andres, 2005: Una evaluacion economica del sistema Transmilienio. Revista de Ingenieria no.21, pages 68-77.


FINN Brendan, 2008: Market role and regulation of extensive urban minibus services as large bus service capacity is restored. Transportation Economics no.22, pages 117-125.


GSCHWENDER Antonio, 2005: Improving the urban public transport in developing countries: The design of a new integrated system in Santiago de Chile. 9th Conference on Competition and Ownership in Land Transport. Lisbon, Portugal.


LLERAS German Camilo, 2005: Transmilenio y el transporte colectivo tradicional, una relacion incierta. Revista de Ingenieria no.21, pages 84-93.


MACEDO Joseli, 2004: City profile – Curitiba. Cities vol.21 no.6, pages 537-549.


