



Review

Strategies to Foster Competition for the Market in the Urban Bus Sector in Developing Countries

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Abstract: Different mechanisms have been adopted by developed and developing countries over the last decades to provide urban bus services. Although competitive tendering has been considered the standard method to procure urban bus services, it cannot be treated as a ready-made solution. Contracts are incomplete by nature and, after the tender, to avoid ex-post opportunism they must be properly monitored. Additionally, developing countries, in general, have weak regulatory bodies and limited capacity to oversee public contracts. This paper aims to review the literature to gather actions that can increase the competition in public tenders and improve service quality during the life of the contract in developing countries.

Keywords: regulation; contracts; public transportation; bus; developing countries

1. Introduction

Public transport is a crucial aspect of the promotion of justice and equity in terms of accessibility in the urban environment. According to Pereira, Schwanen, and Banister [1], from a justice perspective, accessibility can be defined as the ease with which citizens can reach places and opportunities from a given location. In addition, as noted by Ferreira da Cruz and Marques [2], public transport services are considered as services of general economic interest due to their particular importance for the citizens and the society, so they should not be produced without public authorities' intervention.

Urban bus services provision has adopted different configurations throughout the countries, some operated directly by the local government and others by competitive public tenders. In some cases, the market can even be completely deregulated, as it happened in Chile, during the early 1980s, and currently in the UK (outside London), for instance Hensher et al. [3] argue that in developing countries, competitive tendering is the only option capable of providing the required transparency in a context of weak institutions and the risk of regulatory capture.

The purpose of this paper is to review the literature (concerning the developed and developing countries) to gather strategies that can increase the competition in public tenders and improve service quality during the life of public bus contracts. We expect that this review can help decision-makers from developing world cities to look at their urban bus systems and the corresponding contracts critically. Furthermore, an additional objective of this study is to find gaps in the literature that can be tapped in future research regarding urban bus contracts and public tenders. Fundamentally, this paper aims to answer one question: What mechanisms can be used in public tenders for urban bus provision to enhance competition for the market in developing countries?

To perform the literature review, we mainly searched two electronic databases: Scholar Google and SCOPUS. In this study, we only considered papers that were peer-reviewed and published in English. The method used to select the papers was snowballing, and we did not specify a time frame,

since experiences from the past decades can enrich the analysis and may be overhauled to match the present needs.

After this brief introduction, the next section sheds light on the market failures that may occur in the bus market (especially when it is deregulated). Section 3 summarizes the main advantages of competitive tendering. Section 4 discusses strategies that can be used to increase competition for the market, promote trust between authorities and operators, and improve service quality. Finally, Section 5 concludes the paper.

2. Market Failures in the Urban Bus Market

In a broad perspective, examples of market failures are: failure of competition; increasing returns to scale (strong market power and monopoly features); under-provision of public goods; externalities; information failures; unemployment; inflation; unequal distribution of wealth; and inequitable market practices [4]. In a specific way, these shortcomings are also present in the urban bus market when regulation does not exist or when it is not well applied. Different authors [5–10] have identified major failures associated with urban bus market which are next discussed.

2.1. Routes That Are Not Commercially Viable and Social Exclusion

Some routes in suburban and disperse areas can be unfeasible from a commercial perspective because of the lack of demand. Furthermore, in developing countries, these areas are more likely to be poorer than central areas [3]. Therefore, in a deregulated market, peripheral areas may stay unserved by regular lines, increasing the social exclusion process. The experience concerning deregulation of urban bus services in Santiago, Chile, is worth highlighting.

According to Estache and Gómez-Lobo [6], in the short run, the effects of deregulation generated benefits to users as waiting times were reduced and the distance to the nearest bus route was shortened. Nevertheless, a completely open and contestable market allowed the entry of a large and excessive number of small and independent operators. Since the market became very crowded, the competition began to be predatory and financially unhealthy. The stock of buses had become too large, and the operations focused only on the most revenue attractive areas (cherry picking), leaving poor and scattered (low density) areas ignored.

Cross-subsidies from profitable to unprofitable lines only occur with government imposition and regulation. Laffont [11] claims that cross-subsidies between high-cost areas and low-cost areas are a major feature of public services provided by public or regulated private monopolies. The main motivations of these cross-subsidies are wealth redistribution. In a public tender, the government can compel the winner to operate lines with a social role in exchange for the exclusivity right over the specified territory. As pointed out by Laffont [11], the regulation of the price of public services is central for the reduction of poverty.

Nonetheless, it is worth noting that in developed countries cross-subsidies from profitable to unprofitable lines may have a regressive effect. The phenomenon of suburbanization in developed countries often created low-density areas with high income and high car ownership, which tends to have a deficit bus operation. In that sense, the areas with higher public transit usage, which usually have lower income and car ownership could be subsidizing more affluent regions.

2.2. Environmental Externalities

In a scenario without any entry barriers, any operator can run lines throughout the territory. For instance, during the deregulation period, Santiago, in Chile, had environmental problems (emissions of greenhouse gases) with the excess of buses moving within the central areas. This situation worsened the air quality in these areas causing health problems and increasing congestion [6]. Without regulation, particularly in populated and dense areas, competition in the market can be aggressive and unsustainable, both from a financial and environmental perspective. In these situations,

the government should intervene, placing restrictions over the market entrance and having a more proactive role in planning the bus lines and fleet requirements [12].

2.3. Lack of Curb Rights and Road Safety

When no barriers for entrance exist, competition can be fierce on the streets. Operators can battle for passengers freely and adopt different strategies to gain market share. This may lead to aggressive driving, once drivers will drive fast and make dangerous maneuvers to get to bus stops earlier than the competition. In some cases, drivers may even stop outside the bus stops to embark passengers. As expected, this behavior can impact directly on road safety and cause accidents.

Another issue regarding curb rights is explained by Estache and Gómez-Lobo [6]. According to them, when the urban bus market is open, formal and informal (usually with smaller vehicles and lower quality) companies can fight for passengers, with the latter “stealing” passengers from the former. This behavior may induce the formal company to reduce investment, thus decreasing the service quality. Since curbsides are public property and, therefore, there is no way to avoid this “business stealing”, the formal company cannot recover its original investment. Knowing this, the formal company does not invest in the first place, demand is not induced, and the public transport service might disappear [6].

2.4. Service Quality Degradation

Intense competition in the market, with lots of operators willing to increase margins in an adverse environment, may induce less investment in maintenance. As the revenue is not guaranteed, one possible strategy is to reduce the periodical maintenance to cut cost in the short term while reducing tariffs, like a dumping strategy. In the medium term, it will impact on the quality of the vehicles and their safety.

Sohail, Maunder, and Cavill [10] conducted a research about regulation (and deregulation) in the urban transport sector in three cities in developing countries, respectively, Colombo (Sri Lanka), Faisalabad (Pakistan) and Dar es Salaam (Tanzania). They have concluded that deregulation has led to an increase in the number of individual operators (minibus or shared taxi services), whose main aim is to maximize profits. According to them, reckless driver behavior to pick up/drop off passengers has been affecting passenger safety and comfort and damaging the urban environment. It was also noted that vehicles were working with little preventive maintenance, so breakdowns in route became a frequent occurrence.

2.5. Incompatibilities in Operational Integration

In a deregulated market prospect, competition may lead to non-cooperative behavior among players. In the case of the bus market, operators may prefer isolation than establishing cooperation with each other fearing to lose market share. Consequently, it is challenging to integrate fares and schedules among routes operated by different operators. In New Zealand, an extensive review of the public transport legislation and the associated procedures for procuring contracted services was undertaken over the period 2005 to 2008 [8]. One of the main findings was the perception that regional transport authorities faced difficulties in achieving integration between service provided by different operators (particularly in cases where some services were provided commercially, and others were contracted by competitive tendering).

2.6. Market Consolidation and Abuse of Dominance

As previously discussed, a completely open market may result in different kinds of harmful externalities. One of them is financial unsustainability. Comparing to other markets, the bus market does not have major differences among products; that is, the product itself is essentially a journey. A subtle differentiation can be made with the introduction of some perks for the passengers, such as air conditioning, wi-fi, more comfortable seats, mobile apps, etc.

When markets have this configuration, financial power is extremely important to survive among the competition. Therefore, big companies with financial resilience can take over the market, acquiring small ones or forcing them to abandon the market due to financial problems and insolvency. In the medium term, this may lead to a strong market power (with monopoly characteristics) and abuse of dominance, thus, fares may easily increase by the will of the survivor operator. Therefore, “stronger” companies can damage their rivals using their political, economic, or social resources, with strategies like predation and monopoly prices.

Preston and Almutairi [13] argue that the patronage of the UK bus market outside London has reduced over the years. According to their findings, since the market was deregulated in 1986, bus deregulation suppressed demand in the long run by around 36% and might have led to an oligopolistic competition.

3. Competitive Tendering and Regulation

As shown in the previous section, when the urban bus market is deregulated, and the competition is “in the market”, many externalities may occur, that is, the market cannot operate to satisfy the broad public interest. Competition “for the market”, instead of in the market, can be efficient to promote social welfare [6,14,15].

Estache and Gómez-Lobo [6] claim that procure bus services through competitive tendering can be a powerful regulatory instrument to address the asymmetry of information problems that arise from the need to choose among potential service providers. Public tenders allow competitors to bid to get the exclusivity to provide services in a monopolistic position. Competitive tendering has been based on the “New Public Management” approach which aspires to introduce market-like disciplines into public sector decision-making [16].

Competitive tendering, when compared with previous government-provided bus services, can reduce the cost of services by 10–50% [17]. Wallis and Hensher [17] highlight that the scale of savings depends on the efficiency of the previous monopoly operator, a range of factors related to the design and management of the tendering process and whether a strong market of potential bidders existed. The tender winner is selected based on the criteria specified in the tender rules/documents that generally increase the public benefit and value for money. After the awarding, the service is enforced by a contract signed between the local government and the private operator.

Ferreira da Cruz and Marques [2] claim that establishing contracts properly between the local governments and the operators might insulate “management” from “politics.” This is achieved by setting on contracts clear targets to be attained (e.g., financial and quality indicators), the financing mechanisms (due to the fulfilment of certain public-service obligations), the powers and competences of managers (operator) and regulators (local government), and other relational guidelines.

In the bus market, concession contracts may be categorized into three groups [14]: In cost-plus contracts (also called management contracts), the operator is paid for all of its allowed expenses, plus an additional payment to guarantee a fair and reasonable profit. In this type of contract, both production and revenue risks are borne by the authority. In gross-cost contracts, the operators bid to receive a specific amount to cover their costs (including some level of profit), while local authorities keep the fare revenues and bear the relative risk. In addition to reducing the risk faced by the winning operator, gross-cost contracts also have the advantage of reducing the information asymmetry between new entrants and incumbents regarding the level of the revenues. Net-cost contracts, formerly called full-risk contracts, under which the operator bears all operating risks (costs and revenue). Under this arrangement, the forecast operating deficit determines the amount paid by the authority to the operator. At the end of the accounting period, if the actual difference between operating costs and income does not match the forecast deficit, the operator bears the loss.

In accordance with Gómez-Lobo and Briones [5], from a conceptual point of view, the optimal trade-off in the design of robust concession contracts may be different between developing and developed countries. Hensher et al. [3] argue that in developing countries, competitive tendering is

the only option capable of providing the required transparency in a context of weak institutions and the risk of regulatory capture.

4. Strategies to Increase Competition and Foster Service Quality

As discussed in the previous section, establishing contracts between the government and operators through public tendering seems to be the middle road between state-owned provision and total deregulation. Firstly, regulation should be used to pursue effective competition for the market and establishes entry barriers to guarantee minimum standards of safety and quality. Then, after the tender, contracts specify how services should be provided by the operator and the regulator only oversees whether the rules of the contracts are being respected. Moreover, the contract should lay down the procedures available to take when something out of expected happens.

Regulation, nonetheless, may be subject to malicious biases. As pointed out by Shleifer [18], the government and regulators can be captured and corrupted, working to increase their own benefits instead of pursuing the public interest. This is the main assumption of the capture theory, an important component of the public choice field of economics. According to this theory, interest groups (from the private sector) and other political participants will use the regulatory and coercive powers of government to shape laws and regulations (as well as contracts) in a way that is beneficial for them.

In addition, quoting Laffont [11], an implicit assumption of the theory of regulation for developed countries is that regulatory contracts are enforced by a Court of Law. However, this assumption of perfect enforcement presumes a quality of institutions which does not exist in developing countries and may be weak or captured in some developed countries. Although after the public tender the “hand” of regulation is lighter, since the service is regulated by a contract, it is still present and should perform properly [19]. If the incumbent operator does not perform as expected, respecting the rules specified in the contract, the regulator needs to be a watchdog and intervene to guarantee that the operation keeps on the right track.

As highlighted and summarized by Hensher et al. [3], transaction cost theory can help explain the major problems associated with competitive public tendering. In a nutshell, transaction cost theory deals with how people (and firms) are influenced by competitive self-interest. The fathers of this theory, the economists Ronald Coase and Oliver Williamson [20], claim that there are three types of transaction costs in real markets: (1) search and information costs: costs associated with looking for relevant information; (2) bargaining costs: costs associated with coming to an agreement among the parties involved around a contract; and (3) policy and enforcement costs: costs related to making sure that the parties comply with their obligations defined in the contract.

In line with this theory, these problems come from the existence of transaction costs in public services contracts. The three main challenges in public tenders are that (1) the initial award criterion may be inadequate since the service put out to tender may be complex and, therefore, difficult to describe. Bray and Mulley [21] identified that the lack of transparency and other good governance principles in tender assessment, the use of qualitative (and subjective) factors in tenders, and the potential for optimism bias tend to result in bids that are not financially sustainable; (2) renegotiations ex-post are likely to occur as contracts are naturally incomplete (i.e., they cannot encompass all possible problems/obstacles that can appear in the future); and (3) the incumbent service provider, due to asymmetric information, has an advantage over its rivals since it has previous experience and relationships are already established [22]. In addition to that, when a previously commercial service is incorporated in a concession contract for the first time, the incumbent’s knowledge of its revenue enables it to be more competitive in a net-cost contract bid.

Consequently, competitive tendering must not be taken as a self-sufficient coordination mechanism. The efficiency of the public services procurement models depends not only on the way auctions are organized ex-ante, but also on the way contractual relationships are maintained and enforced ex-post [3]. The main strategies found in the literature review to deal with the challenges herein discussed are summarized in the following topics.

4.1. Overcome Weak Regulatory Capacity

As stated by Gómez-Lobo and Briones [5], in developing countries, institutions are often underskilled, enforcement capacity is low, legal systems are slow and cumbersome, access to financial markets limited, and budgetary resources for investment and subsidies scarce. Barrett and Kumar [23] produced a report for the World Bank about urban transport in 14 large cities in Africa. One of the main problems and challenges that they found during their research was the lack of regulation and law enforcement. Klopp and Cavoli [24] also state that many institutional, structural, and political complexities, including concerns with illegality and even violence in the sector exist around regulating buses in African cities.

Laffont [11] argues that developing countries usually suffer from the lack of up-to-date technology, well-developed accounting and auditing systems due to the lack of proper training programs for public servants, and corruption is often present in relations between the private and public sectors. As pointed out by Hensher et al. [3] and Brasileiro, Santos, and Rolim [25], in Brazil, for instance, urban bus service is treated as a service mainly for the poor and is delivered by the informal sector and/or by groups of stronger incumbent operators which have largely succeeded in capturing regulation and in avoiding, at least, really competitive procurement procedures. Nonetheless, Gwilliam [7] claims that collusion in the bus market between regulators and regulated companies are not restricted to developing countries but it may happen in developed countries as well.

Hensher et al. [3] suggest two strategies to fight collusion and regulation capture. First, contracts should be designed including effective risk management clauses. These clauses of the contract need to foster mutual trust and clearly specify the risks that are borne by the principal and by the agent. Hensher, Mulley, and Smith [26] go further as they propose a simplified performance-linked payment (SPLP) model that can be used in both gross and net cost contracts, simply linking the subsidy to patronage. Second, the debate about public transit must be brought back to the governmental agenda and openly shared with society.

In addition, Estache and Wren-Lewis [27] concluded in their research that there are two types of solutions when regulatory capacity is limited. The first is centralization of the regulatory function into a single multisectoral agency, thereby the costs associated with regulation can be diluted and the capability might be optimized. A second approach is to share expertise by contracting out parts of regulation to third parties, for instance, contracting consultants to invest in capacity building. Finally, watchdog agencies can be harnessed to oversee operations.

4.2. Agent Behavior, Incentives, and Ex-Post Opportunism

Contracts between the local government (the principal) and a bus operator (the agent) need to have mechanisms to avoid ex-post opportunism mainly by the latter. That is, contracts should have tools to stimulate operators to operate properly, for instance, stopping in the bus stops, respecting the timetables and service frequencies, doing maintenance as expected, and following the itineraries correctly. Contracts with these tools are called incentive contracts or performance-based contracts.

Incentive contracts have been applied in different countries with diverse socioeconomic backgrounds, such as England, Sweden, Colombia, Chile, Peru, Norway, Australia, and New Zealand [5,28,29]. As explained by Gómez-Lobo and Briones [5], there are two main categories of financial incentives that can be applied to stimulate good performance in a urban bus service contract: One is the payment mechanism, in other words, the way operators are compensated (make profits). Usually there are three options: fixed payments, payments tied to operational variables, or payments tied to passengers transported. In some cases, a mixed configuration may be applied. Secondly, it is the use of fines, penalties and rewards linked to service standards.

When operators are paid a fixed price, they do not feel the stimulus to foster patronage. Furthermore, they have an indirect incentive to reduce costs, aiming to increase margins (possibly reducing service quality). In this scheme, authorities must be duly capable of overseeing the operation and must have powers (and freedom) to impose sanctions. In developed countries, a common

practice is to pay operators based on operational metrics, such as seat-kilometers or seat-miles, offered. This scheme has the advantage of reducing external revenue risk to operators but maintains incentives to provide an adequate level of service, at least in terms of capacity supply. This mechanism may be particularly important for low-density routes or non-peak hours, when demand is low, and services may not be privately profitable [5]. Nonetheless, when payment is linked to operational variables, operators may not have the incentive to seek new users whereas having an indirect stimulus to oversupply (run empty buses).

Finally, payments tied to passengers also have pros and cons. On the one hand, linking profits to passengers transported may induce the operator to maintain a satisfactory quality to retain consumers. Additionally, it may stimulate the operator to be creative and go after new costumers, suggesting new routes or adapting the existing ones to the demand requirements. This configuration, therefore, encourages innovation and reduces planning costs for the transport authority. On the other hand, transferring demand risk to operators may be counterproductive in situations where maintaining or increasing patronage growth is very difficult, possibly because of rising motorization rates or high car dependency. It is also true when the economy is weakening, as higher unemployment rate reduces the displacements to work. In these cases, high dependency on fare revenue may transfer uncontrollable financial risks to operators and may be a recipe for very volatile services and quality degradation.

Another way to enforce the correct provision of the services is by setting performance targets on the contract and monitoring them afterwards. If the operators accomplish all the targets, they can be paid a financial reward (or get other form of non-financial stimulus, like a contract term extension, for example). In contrast, if the operator fails to deliver the service, as it was previously agreed, the transport authority can charge a penalty/fine. It is important to emphasize that monitoring must rely on metrics that are easy to collect and must be proportional to the regulator's capacity and budget. Complex calculations and excessive metrics can undermine the well-intentioned objectives of the regulator. London and Stockholm, for instance, use simple metrics for paying the urban bus operators [30].

4.3. Sunshine Regulation

Basically, sunshine regulation involves the public display of performance indicators and regular comparison between service providers from the same sector [31]. According to Marques and Simões [32], the awareness of their performance is accomplished by pressure exerted over them from the customers and citizens at large, by means of their defense and representative groups, the media, the politicians (Government and political parties) and non-governmental organizations. The operators with a poor performance become "embarrassed" and will try to correct the deviations. This method does not set tariffs and most of the time its coercive power is limited. However, very positive results are obtained with the public display and discussion of the regulated firms' behavior as it introduces competitiveness between them and leads to a progressive increase of performance in the respective market [32].

Marques and Simões [32] studied the use of sunshine regulation in the urban waste sector in Portugal and concluded that this strategy has helped to increase customer satisfaction and service quality. In addition, Nunes, Brandão, and Rego [33] examined the use of sunshine regulation on the healthcare system in the UK. The method applied to the National Health Service (NHS) comprises the star rating on a wide range of indicators, such as waiting times for general practitioner referral to first outpatient appointments, vacancies in medical staffing and the percentage of patients waiting on trolleys for more than four hours. They concluded that sunshine regulation takes on a special relevance as, by promoting publicity of the performance indicators and of the decision-making processes, it contributes directly and indirectly to an overall improvement of the healthcare system.

A similar approach can be applied to bus operators within a region. A lot of performance indicators that can be used in this market are available in the literature. Institutions, for instance, such as the World Bank, Transportation Research Board (TRB), World Resources Institute (WRI), and the Institute for Transportation and Development Policy (ITDP) have reports summarizing performance

indicators that can be used in the urban bus sector. A practical example of sunshine regulation in the bus market is the incentive contracts promoted by Transport for London (TfL), which reward operators for reducing excess waiting time (EWT). Performance on the EWT criterion is published quarterly by named operator.

4.4. Depot Ownership

In dense cities where land space is scarce, depot ownership can be an advantage for the first comers. Finding available space to settle a new depot in strategic places may not be financially feasible due to constant increases in land prices and the real estate market. Either the newcomer buys land on the outskirts, or it will need to pay a huge amount for a plot in the city centre. The former will result in long distances travelled by the buses from the depot to the initial stops of the lines (resulting in higher operational costs and mileage waste) and the latter will increase capital expenditure. Both, therefore, can harm the financial stability of the service.

In the case of privatization of the bus subsidiaries of London Transport, depots as well as vehicles were sold off. According to Hensher et al. [3] and Iossa and Waterson [34], this may have given incumbents a substantial advantage due to the difficulty that newcomers face in acquiring land and planning permission for new operating bases. Ownership of depots/garages being fixed in the short term may constitute a barrier to entry, favoring owners of a garage, who are presumably the incumbent firms [34]. As noted by Hensher et al. [3], a more competitive market might have been secured by retaining depots in public ownership, making their use open to newcomers as well as incumbents.

4.5. Contract Term

The contract term is directly related to the internal rate of return of a business (and then to its attractiveness). Therefore, the life of the contract needs to match the time required to cover the depreciation costs of the assets. In a hypothetical scenario without subsidies, the more the need for capital investment, the longer the term should be.

OECD [14] concludes that in some countries long term contract are seen as a barrier to entry because they close up the market for long periods. However, since new and smaller operators need some long-term commitment to depreciate their investments, contracts should not be too short. Hence, the appropriate balance between these two requirements needs to be sought. Contract duration is a perennial issue with short contracts having advantages in terms of applying competitive pressure but disadvantages in terms of promoting strategic investments [35].

Therefore, it is paramount that the transport authority understands that the level of commitment, risk-bearing, and investment imposed in the contract must be in line with its term. If the requirements of fleet specifications and technology are too disruptive and audacious, in comparison with the service currently provided, the contract length must be consistent with all these investment costs. This logic can also be applied when the incumbent operator owns the depots. If the newcomer needs to acquire a new depot, a short-term contract can benefit the incumbent, harming the competition for the market.

4.6. Public Engagement

The central focus of urban bus systems, as in every public service, is to provide sound, fair, and inclusive service for the population. Therefore, civic engagement is crucial to urban and transport planning, helping to back the planning process of lines, schedules, and fare policy. As underlined by Sohail, Maunder, and Cavill [10], stakeholders (operators, administrators of public transport, users, and regulators) should be consulted to increase accountability and ensure a kind of 'self-regulation'. The transport planning and development process must consider the opinions, problems, wishes, and issues of the community (as users) and the operators (as suppliers).

During the ex-ante stage of a public tender, the community should be invited to participate in the planning process of reviewing the existing bus lines or suggest new ones. Public hearings and media networking can be used to promote engagement among all stakeholders. After the awarding

(ex-post stage), public engagement is crucial to oversee the operations and to press the operator and the regulator when services are not delivered as they should be. Sunshine regulation, as discussed later, can help empower the users and raise awareness over the entire population.

4.7. Assets and Staff Transference

As previously discussed, depot ownership can be an entry barrier for newcomers. The same logic is true in terms of staff and assets (buses) transference. Although there is a second-hand market for buses, it is easier for the newcomer to acquire the existing fleet that was owned by the previous operator instead of buying new ones. In the case that this obligation is stated in the contract, it is essential that the regulator has tools to supervise/audit the conservation and maintenance of the fleet during the life of the contract.

This strategy, therefore, can reduce transaction costs both for the incumbent that lost the tender and for the newcomer. The same is true regarding the staff (mainly the drivers). In a scenario where the supply of drivers is scarce, contract clauses that enable the newcomer to opt for hiring the previous operator staff can be helpful as the transition between operators will be smoother [3].

4.8. Fare Collection and Revenue Inspection

As reported by Estache and Gómez-Lobo [6], revenue collection by drivers or other personnel on buses can also generate inefficiencies, since they may not report all revenue earned to the owner. According to their research, in Santiago, bus drivers can supplement their incomes by around 20% through this type of fraud. Another issue regarding fare collection is fare evasion. It is estimated that the BRT system from Rio de Janeiro is suffering losses around R\$ 5,000,000.00 (approximately 15% of the total revenue) per month due to fare evasion [36].

Thus, investments in electronic payment mechanisms, avoiding cash on buses, can help reduce fare evasion. Another advantage of the use of electronic payment methods is overseeing the cash inflow to operators, thereby the financial sustainability of the contract can be followed by the regulator and society, helping to reduce information asymmetries. Additionally, measures like using CCTV cameras and police enforcement can also be helpful to curb losses. Public awareness about the effects of fare evasion (e.g., quality degradation) might be, for instance, achieved through social networking.

4.9. Uncertainty, Flexibility, Incompleteness and Negotiation

United Nations foresee that by 2050 the world's urban population will nearly double. Populations, economic activities, technology disruption, social and cultural interactions, as well as environmental and humanitarian impacts, are increasingly concentrated in cities, and this poses massive sustainability challenges in terms of housing, infrastructure, basic services, food security, health, education, decent jobs, safety and natural resources, among others [37]. This trend, as expected, will impose challenges to public transport services in a scenario with rising uncertainty.

Almost every economist would agree that actual contracts are or appear quite incomplete. Many contracts are vague or silent on many key features [38]. Unforeseen contingencies are one of the major arguments in favor of incomplete contracting and contracts with more flexibility [39]. Many problems of public procurement are problems of ex-post adaptations to unforeseen contingencies rather than ex-ante screening [40].

An incomplete contract will have gaps, missing provisions and/or ambiguities that will create situations in which some aspects related to the use of non-human assets will not be specified in the contract [3]. Therefore, contracts must consider opportunities for ex-post negotiations between operators and authorities to overcome future challenges that are not recognized today.

Flexibility to perform correctly, however, requires more accountability, trust, and transparency. In the current setting, with increasing political concerns about collusion and corruption, ex-post negotiation must be accompanied by transparent processes relying on measurable metrics associated with public awareness and disclosure. Merkert et al. [35] gathered enlightening

recommendations from experts about competitive tendering on transport sector that had been discussed on a Thredbo (Thredbo 15—International Conference Series on Competition and Ownership in Land Passenger Transport hosted in Stockholm in 2017) Conference. Their main findings were: (1) Meaningful and measurable KPIs (key performance indicators) to evaluate the performance may help build trust between transport authorities and operators; and (2) Transport authorities must manage the contracts over their whole life, show endurance, properly use bonuses/penalties and show enough flexibility to change conditions along the way.

Hensher and Stanley [41] suggest that accountability and transparency can be achieved following some conditions: (1) performance benchmarking to ensure that operator performance is efficient and effective; (2) an open-book approach to costs, with a third-party auditor to verify the data; (3) appointment of a probity auditor to oversee the negotiation process; and (4) public disclosure of the contract.

Kavanagh [16] reviewed the application of negotiated performance-based contracting (NPBC) in Victoria, Australia, on the procurement of existing bus services. NPBC is applied when an existing service contract expires and would have to be re-tendered. Instead of engaging in a new competitive public tender, the Victorian government (Director of Transport) negotiates directly with the Bus Association of Victoria to extend the existing contract in return of the accomplishment of performance indicators established in the new contract.

Although Kavanagh has not presented figures comparing NPBC with contracts awarded through competitive tendering, it was concluded that NPBC could be an efficient tool to procure existing bus services. In Victoria, it has been considered that the bus services awarded through NPBC are delivering value for money and services with good quality. Moreover, NPBC can also cut the administrative cost of the competitive tendering process.

The German experience, nevertheless, has not shown the same level of success when contracts are negotiated directly between authorities and operators without competitive tendering. Beck [42] identified a series of entry barriers for the market of commercial lines, which are awarded through the procedure named competition for commercial lines or services (CCL). It was found that, in many cases, CCL was not transparent, and the level of uncertainty was much higher than in competitive tendering procedures.

4.10. Allotment

Last but not least, allotment can be an effective strategy in a scenario with financial constraints. Allotment can be defined as the horizontal segmentation of public works and services into different lots. These lots are partitions of a same service, and they can be awarded to different private operators [14]. In procuring urban bus systems, for instance, allotment can be done by grouping routes together or dividing the region where the services will take place into different areas (like in Rio de Janeiro and São Paulo).

The allotment can increase the number of bidders (hence increasing competition) which is generally associated with lower costs. By dividing the service to provide it into several lots, allotment allows small and medium-sized operators to participate in public tenders since the capital requirements are more moderate. In a context where authorities have strong financial constraints, this may explain why they use allotment in public procurement [40]. They may prefer to procure services in lots instead of only one big contract as the former is likely to decrease costs and maximize payoffs.

Although allotment can decrease service costs, it is worth noting that monitoring costs can be higher. Thus, in a scenario with only one contract, the authority would oversee only one firm, and in an allotment scenario, it would need to oversee more firms.

5. Conclusions

The procurement of urban bus services has experienced different approaches during the previous decades in a variety of countries. Experiences with deregulation have shown that market failures can

occur, and they are more sensitive in developing countries due to socioeconomic settings. The choice of competitive tendering, however, does not guarantee that these failures will be overcome. For instance, the blind desire for save money; that is, the choice for the cheapest bid, can undermine other strategic objectives. From the literature review carried out in this paper, we can conclude that depot ownership on the hands of the incumbent operator, inappropriate term and size of the contracts, lack of operational and revenue information (information asymmetry), and the lack of options for the newcomer regarding the assets and staff transference from the incumbent, constitute the key entry barriers in a competitive public tender.

This paper, therefore, gathered a series of actions that can help local governments and authorities in developing countries in the task of procuring urban bus services by competitive tendering. We found that performance incentives (rewards and penalties applied based on KPI's) can help maintain a good level of service and discourage ex-post opportunism after the contract awarding. Although the use of KPI's is very recommended, we highlight that in the case of limited regulatory capacity, a commonly scenario in developing countries, KPI's must be simple and intuitive to be easily monitored and reported. Furthermore, public awareness and participation before the public tender are crucial to help authorities understand the public desire and set clear objectives and targets.

During the contract lifetime, public engagement achieved by sunshine regulation and public/media influence may help pressure regulators and operators to perform well. Measures that increase transparency and accountability can be an efficient way to curb collusion and corruption. The KPI's, the revenue figures, and the contracts must be easily available to the public. Technology, therefore, can be a good ally and play a central role in promoting transparency. Through electronic ticketing and GPS tools, that are well-developed and easily available in the market, citizens and regulators can have access to a range of performance indicators.

As other types of contracts, bus service contracts are incomplete by nature. We found a rich debate over contract incompleteness and negotiated performance-based contracts in the urban bus sector, primarily in developed countries. Nevertheless, we have not seen practical guidelines and real examples/case studies on how to make these contracts more flexible and incomplete in an environment with weak regulatory capacity and risk of capture. In addition, concession contracts have to build trust among operators and authorities. This can be achievable through risk management clauses, where risks are allocated properly to the side that can handle them better. When subsidies are necessary to balance the operation costs, it is recommended that they are linked to patronage to stimulate the operator to go after new passengers. However, in this case, the contract must allow the operator to change (in a limited and controlled degree) the operation in an innovative way (frequencies and itineraries) in order to fit the demand needs.

Finally, there is no magic formulae for preparing a competitive tendering in developing countries. Each situation will demand different approaches. However, the pursue of transparency, trustable partnerships among authorities and operators, accountability, and balanced risk sharing must be the cornerstone in all cases.

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