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## Why not regulate PPPs?

Rui Cunha Marques

CESUR-CERIS, Universidade de Lisboa, Av. Rovisco Pais, 1049-001 Lisbon, Portugal

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### ABSTRACT

Regulation of public utilities and infrastructure is being generalized worldwide. However, when there are public-private partnership arrangements, it is assumed that the contract signed by the parties is adequate to protect the public interest, and therefore, external regulation is not necessary. Even though explicit regulation also has its shortcomings, we disagree with the preconceived idea that contracts alone always protect the public interest. Contracts avoid the discretion left to regulators, but they are imperfect and incomplete. Therefore, we defend the need for regulation and posit that it should be combined with a contract, resulting in a game of positive sum.

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### 1. Introduction

The seminal article of Harold Demsetz, published in 1968, raised the question of the regulation of utilities (Demsetz, 1968). He argued that if it is possible to write all the duties (and the rights) of the parts (public and private) in a contract, and if there is enough competition for the market, the contract solution would avoid regulation, which is costly, discretionary and sometimes captured. It would also reduce the excessive rents usual in infrastructure and public services with market power (Bajari et al., 2009). Although not explicitly assigned to him, Demsetz might be considered a pioneer of the PPP (public-private partnership) arrangement. The major principles of PPP contracts applied to infrastructure worldwide include the possibility to regulate the relationship between public and private partners of an infrastructure and/or public service using a contract and the guarantee of normal profits by eliminating the monopolistic rents through competition for the field (e.g., by public tender). However, the same benefits noted by Demsetz are simultaneously the major shortcomings emphasized by other well-known authors, such as Oliver Williamson, Victor Goldberg and Oliver Hart. They identify the incompleteness of contracts because it is difficult to write complete contracts that predict and include all possible contingencies (Williamson, 1976; Goldberg, 1976; Hart, 1988). Furthermore, they also highlight the distortion of competition in the infrastructure sectors where the market power is usually great and normally few companies

compete, the long time and cost of the public tenders, which can take several years, the complexity of the award process when several criteria are adopted (Crew and Zupan, 1990) and the struggle to monitor, supervise and enforce the service standards (Cruz and Marques, 2013a). For example, the quality of service is multidimensional (results of variations in stated preferences) and changes in time; therefore, it is nearly impossible to predict the adequate quality of service for 30 years or more in a written contract. The award process is always controversial as well as time and cost-consuming (Marques and Berg, 2010). In England, the privatization of the electricity sector for the entire country was prepared in a few months and the documentation involved comprised 214 pages, while the contracting of the electricity service of the London underground took 3 years, cost £15 million and comprised 2500 pages (Littlechild, 2002).

Most of the infrastructure sectors are dominated by a limited number of transnational companies (e.g., in water and sanitation, Veolia, Suez and Aqualia or in urban transportation, Arriva, Stagecoach and Transdev) or the strong local firms drive out the other competitors (e.g., Foz or CAB in the water sector in Brazil or the national champions in the Southern European motorways), and therefore, the type of competition that truly eliminates excessive profiting does not exist in these areas and the asymmetric information and know-how differences between these companies and the public authorities are huge. Furthermore, the risks involved in these contracts are numerous, not only because of the weak preparation of the tender packages and the required up-front investments but also because of the hypothesis of ex-post

E-mail address: [rui.marques@tecnico.ulisboa.pt](mailto:rui.marques@tecnico.ulisboa.pt).

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opportunism by the governments and the constraining 'political' risk involved (Marques and Berg, 2011). Hence, sooner or later, PPP contracts in infrastructure enter into a renegotiation process (Guasch, 2004). Thus, both the authors mentioned and the historical data have shown that some kind of regulation is required for these PPP contracts. In some countries, the solution for these issues has been delegated to the contract manager, who is a sort of regulator, but who is a part of the public sector (examples are found in Australia, the UK and Canada). We argue that contract management is important and required but that it is not enough because it is not (nor should it be) independent, and therefore, some type of external regulator is essential. This paper will address the need for regulating the PPP contracts. In it, we respond to the following research topics: Does competition for the field can avoid regulation of PPP contracts? Is contract management of the PPP arrangements enough? or do PPP contracts require contract management and independent regulation simultaneously? As far as the authors know, this matter has not been discussed in the literature, but investigating it in detail is useful for both academics and practitioners. The paper is organized as follows. After this brief introduction, section two discusses the market failures in the infrastructure sector and the corresponding contract failures when regulation is absent. Section three justifies the need for contract management of the PPP contracts and section four argues that contract management is not enough. Section five justifies the need for regulation. Section six presents some empirical examples from two different countries and section seven presents the major conclusions of the study.

## 2. Problems of PPP contracts in infrastructure

Infrastructure and its associated public services generally experience market failures for a variety of reasons (Baldwin and Cave, 1999), such as asymmetric information (moral hazard and adverse selection), externalities (positive and negative), provision of public goods or quasi-goods (with social value that is greater than their financial value), excessive market power, monopolistic features and the production of undesirable results (increasing the lack of economic and social cohesion). Furthermore, as a rule, infrastructure and its associated public services demand a large up-front investment that tremendously increases the risk involved and are very prone to ex-post opportunism by governments (Vickers and Yarrow, 1989). Because they provide essential services or facilities that affect the collective needs of the public, they are politically sensitive. Thus, politicians, who are often considering the electoral cycle and are guided by patronage rather than the infrastructure life and sustainability, may breach their commitments (Berg, 2013). These features require the existence of explicit regulation. Both the economic literature and the historical data show that this is reasonably well-accepted by governments and decision makers, primarily in network industries (e.g., electricity utilities and fixed telecommunications) and, to a lesser extent, in transportation and water utilities, irrespective of their ownership (e.g., private companies or state-owned companies). Regulation is implemented to mitigate or correct these market failures, mimicking the market, to defend public interest and social welfare (Viscusi et al., 2005).

Similarly, these market failures that demand regulation remain when PPP arrangements are developed. They can even be exacerbated because imperfect contracts can increase the failures of the 'infrastructure markets' (Cruz and Marques, 2013a). On the one hand, the rules are defined and the capacity to intervene, in general, is shorter. As discretion is curtailed, there is no flexibility to adjust to unexpected contingencies or to newly arising needs. This complex environment leads to an ex-ante gaming strategy (Burger and

Hawkesworth, 2011) by the competitors accessing the market (underpricing and optimistic bias leading to the winner's curse (Reeves, 2008)) and to ex-post opportunism by the winner forcing renegotiation, which by its nature and usual lack of transparency, almost always damages the public sector (Guasch, 2004). On the other hand, when the contract is signed and the infrastructure or public service is constructed or transferred to the private company, the public party frequently 'forgets' its role as owner and contract manager and, therefore, does not follow-up on the compliance of the contractual obligations, thus losing all familiarity of the infrastructure or public service functions (Marques and Berg, 2011). This reality, which increases asymmetric information, places the public party in an unfavorable position when the contract is renegotiated (Bajari et al., 2006; Brux, 2010). Actually, infrastructure or public service management can be delegated to an external company but not the ultimate responsibility for it (Marques and Berg, 2010). Unfortunately, the historical data contain many such examples (Soomro and Zhang, 2015; Williams, 2010). This type of contract failure is likely to be more serious than the market failures and the intervention of the regulator might be even more necessary in this case (Diaz, 2016).

## 3. The need for contract management

Because it is impossible to write 'perfect' and 'complete' contracts, the contract should, at minimum, describe how it will be administered and managed by the parties (UN, 2006). Therefore, the public party should be represented by someone (a small commission or even one person) to interact with the private party in the day-to-day execution of the contract. As stated above, one of the major contributors to the failures of PPP contracts is the lack of the public party engagement in the PPP contract after award, which, unfortunately, is the norm (Stern, 2012). Moreover, before signing the contract, the parties should agree on the terms of the contract management manual (Partnerships Victoria, 2003). The terms should be outlined in a document that systematizes the relationships, the procedures and the actions between the parties during the contract execution. Contract management, among other aims, helps to a) ensure compliance with the contractual clauses and defend their stability; b) ensure compliance with the objectives of the project and guarantee the public interest; and c) keep a constructive and healthy relationship with the private partner. Fig. 1 illustrates the three major domains of contract management, i.e., the administrative management, the operational management and the relationship management (Cruz and Marques, 2013a). All of them are important and decisive in the attainment of the project goals. Furthermore, they involve different domains which increase considerably the complexity and the difficulty to accomplish this task efficiently. Fig. 2 shows the major activities involved in PPP contract management (Cruz and Marques, 2013a). In the view of the authors, these activities can be categorized into internal and external activities, depending on the focus. Internal activities focus on the internal processes of contract management and are more instrumental. External activities are aimed at the outside, intervening directly with the project performance. In the figure, they correspond to the inner and outer orbits. Internal activities include contract governance, information analysis and collection, contract administration and regular reviews. External activities include the management and the solution of conflicts and problems (Edkins and Smyth, 2006), information management, knowledge management, performance monitoring, contingency planning and the management of change. The need and demand for these activities are completely different from the traditional public procurement of public works because the duration and complexity of the contracts, which involve not only the construction of the project but also its

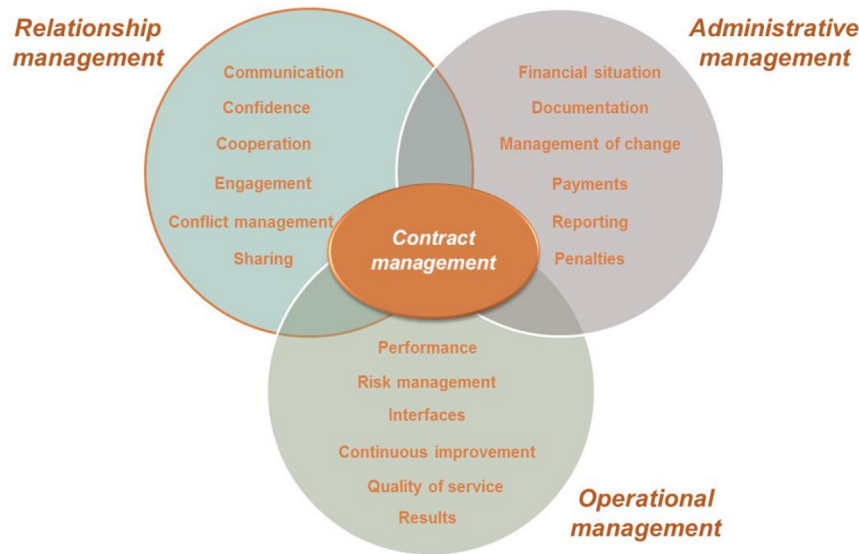


Fig. 1. The domains of the PPP contract management.

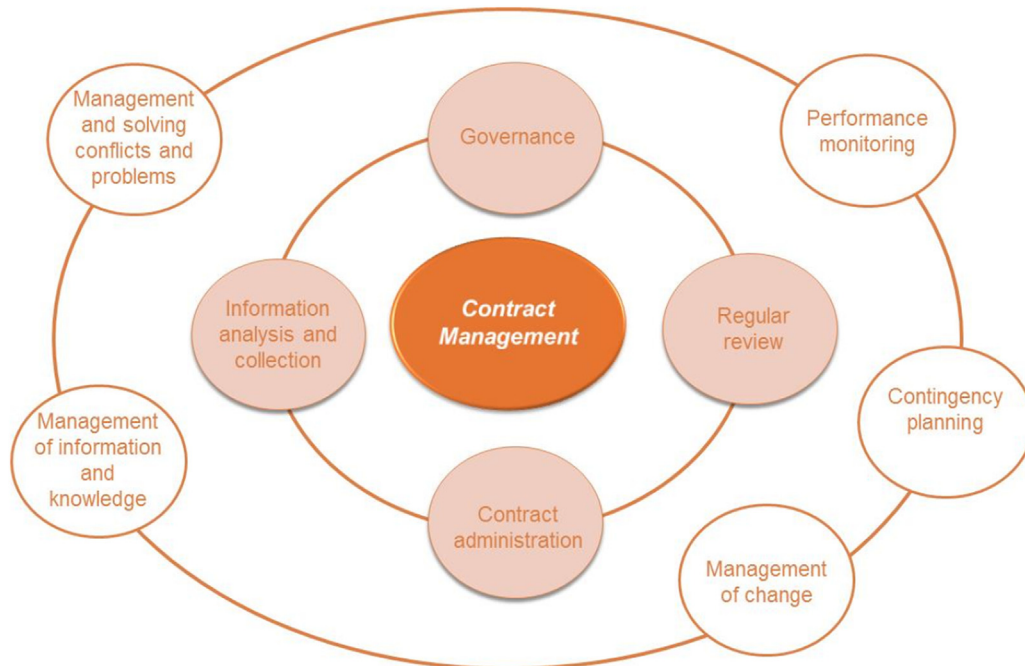


Fig. 2. The major activities of PPP contract management.

operation, results in more demanding and challenging contract management (Ross and Yan, 2015).

#### 4. Contract management alone is not enough

We have previously argued that contracts are always 'imperfect' and 'incomplete'. The contract failures are also exacerbated when infrastructure is involved. There are some issues that can be addressed effectively by contract management; however, there are others that require some kind of decision or judgment but that might have financial consequences or impact the image of each party and should not be decided by the contract manager. In extreme cases, on the one hand, we mean the simple complaints

and queries of the customers/users, and on the other hand, we refer to restoring the economic-financial equilibrium or even the early termination of the contract.

The contract manager can verify that the letter and the spirit of the contract are followed but he represents only one of the parties, the public party (Cruz and Marques, 2013a). The contract manager, seeking the compliance of the contract, is responsible for defending the public party and is not necessarily interested in protecting the public interest, mainly the long-run sustainability that can imply short-term unpopular decisions (e.g., increasing tolls). However, the contract manager presence is important because he might reduce the information asymmetry, improving the equilibrium between the parties, and helping to mitigate the escalation of

conflicts, promoting a relational contracting approach (Spiller, 2008). However, because the contract manager represents the public party in a conflict or litigation, whatever the decision, he is always constrained. Therefore, the contract manager is not independent and neutral, and it follows that contract management is not enough and does not replace regulation.

## 5. The need for regulation

If we accept or defend that State should intervene for the sake of the public interest (the visible hand of Adam Smith), to regulate the markets which are dominated by failures, there are no reasons for the PPP contracts in infrastructure not to be included (Jensen and Wu, 2016). The same market failures exist, and therefore, some kind of independent arbiter, i.e., a regulator, is required to address the opportunism of both parties (public or private) and to protect the public interest (Stern, 2003). Independence of the regulation is a *sine qua non* condition for its implementation. Regulation of PPP contracts has several benefits, such as the following:

- Addressing conflict management conveniently;
- Protecting and handling the complaints of customers and users;
- Protecting the public interest in the unavoidable renegotiations;
- Defending fair play and the contract in the long-run; and
- Allowing for better, simpler and more transparent contracts.

To help in conflict-solving and to answer complaints is a laborious and systematic task (Abdala, 2001). Infrastructure and public services, even when performing well, always experience many complaints and queries (van Thiel and Leeuw, 2002). It is a part of normal business. Therefore, it is important to avoid the escalation of conflicts, which is not profitable to either party (Quick, 2003). The neutrality and credibility of the regulator aid in the mediation and conciliation of conflicts and allow for a better reception of the decisions (Massarutto and Ermano, 2013). Small and fragile users or customers may also be better protected. However, some people note that this role can also be provided by a customer protection association and that regulation is not required. We disagree, because many of the complaints have a technical or sector-specific nature, thus a sector-specific regulator can be more credible, productive and effective. However, the major benefit of regulation might be in renegotiations. This is a major issue for PPP contracts (Hart and Moore, 1988; Engel et al., 2009). They are unavoidable, and a typical contract may be renegotiated several times during its lifecycle. Others note the renegotiation as a primary failure of the contract (Marques and Berg, 2011), and others see this as an opportunity to improve the contract and benefit the welfare of the parties (Brux, 2010). In theory, both are correct. The most striking features in renegotiations is the lack of competition (there is no public tender at this stage) because of the existing bilateral relationship (public and private), the existence of asymmetric information (the private sector has the inside knowledge because it is managing the infrastructure and is the core of the current activity) and the best capacity of any private party to prepare, hire consultants and develop studies in the short time period of the renegotiation discussion (Marques and Berg, 2010). Thus, as a rule, the public sector is penalized, and regulation might have an important role. Regulation can help the public party to avoid the temptation to push some of the current obligations to the next contract term (e.g., by increasing the deadline of the contract, reducing the competition or postponing charges until a future date), thus jeopardizing the intergenerationality, sustainability or possible capture of the contract. It can also reduce, at least in part, the information and knowledge supremacy of the private sector and balance the negotiation process with its expertise, knowledge and monitoring of the

contract. As Stern notes, regulation allows the ‘modification of the contracts and contracts terms in an ordered and accountable way’ (Stern, 2012). Rigid contracts may be replaced by more flexible contracts because the regulatory agency is there, has limited discretionary power to act and is accountable. Regulation has further benefits, e.g., a) the regulatory agency can issue opinion regarding the public tender documents, b) it can supervise performance and encourage its improvement (e.g., by benchmarking) and c) it can increase transparency and information sharing. A scrutiny of the quality of the tender package is important, first, to verify that the prediction of assumptions and risks are reasonable and that the business model is on the right track, e.g., avoiding optimism bias, second, to moderate the temptation of possible upfront or unreasonable rents requested by the granter, and third, to consult and provide technical assistance in the design of the final tender documents. Regulation also allows for more flexible contractual terms because the problem of incomplete contracts is mitigated and therefore ‘the use of simpler, better-written and shorter contracts’ are encouraged (Stern, 2012). The use of contract clauses better tailored to the specific conditions of the project (Guasch et al., 2002) are also encouraged. Regulation is also important to monitor and encourage performance improvement in PPP infrastructure (Shleifer, 1985). As they have almost always a strong market power, sometimes monopolistically, stimulating the market via regulatory benchmarking can be a very strong tool to avoid complacency (the quiet life of Hicks, 1935) and the inefficiency-X (Leibenstein, 1966). The use of benchmarking by the regulator is also important in knowledge-sharing and transparency (Berg, 2010). Because infrastructure normally corresponds to a collective provision of essential goods or services, additional governance issues, like transparency, participation or accountability, are required, and regulation becomes more important (Beecher and Kalmbach, 2013).

We discuss how PPP contracts in the highway sector are being addressed using examples in Portugal and Brazil. The two examples highlight the drawbacks of the lack of an independent arbiter (regulator) to regulate the contract and how this could be useful. Note that in one of the cases, atypically there was a supposed regulator but as it was a toothless and non-independent body, the benefits of its existence were few.

## 6. Empirical examples in the highway sector

### 6.1. Case study in Portugal

The first toll road PPP in Portugal was awarded in 1972. It included the construction, maintenance, and operation of the motorway linking Lisbon to Porto (A1). In the period between 1996 and 2009, the Portuguese highway network experienced a significant development, increasing by more than 110% (Cruz and Marques, 2013b). Currently, there are 12 road concessions in operation and several (10) concessions have been recently awarded (meanwhile, some of them have stopped because of the financial crisis). There are approximately 8500 km of national road network that have been constructed in Portugal, of which 2729 km are motorways under a PPP model. The majority of them are toll roads.

Having the Portuguese state as its single shareholder, Estradas de Portugal (Roads of Portugal; EP) was awarded the concession to develop and maintain the entire main road network. For the construction, financing, and maintenance of new roads, EP can either adopt a traditional procurement method (public works contract) or develop PPP arrangements through subconcessions, as it did with the motorways. EP is the official contract manager in the PPP arrangements, but its performance in this role has been limited.

With the increase in private sector participation, a regulatory

body was created, the Institute for the Road Sector I.P. (InIR), recently included in the Institute of Mobility, with the following responsibilities: supervising and overseeing the management and operation of roads; controlling compliance with laws, regulations, and concession contracts; guaranteeing the implementation of the National Road Plan; ensuring the efficiency, equity, quality, and safety of the road infrastructure; and protecting the rights of the road users. However, its statutes are confusing, mixing its role as regulator with that of contract manager, overlapping roles associated with the EP, the 'grantor' and the historical stakeholder. During the contract, many weaknesses were apparent in the InIR relationships, both with the private concessionaires and with the EP. The primary reasons for its failure were, without doubt, that it was not an independent regulatory authority, the contracts were not written with the existence of a regulatory authority in mind, and the contract management activities were weakly defined. In some cases, ineffective regulation can be worse than no regulation at all. In this particular case, InIR did not participate at all in the most important issues, such as in the renegotiation processes. As a consequence, there was no supervision or monitoring of the contracts, the users were not protected, conflicts occurred frequently, and the renegotiations (which have taken place on average every two or three years) have led to a substantial increase in tolls and/or in charges for the State (TC, 2008), sometimes more than 100%. Some of these impacts could have been avoided if there was independent regulation and if appropriate contract management had occurred.

### 6.2. The case of Minas Gerais state in Brazil

The highway sector in Brazil has a key role in cargo transportation, primarily because there is no effective rail transport alternative. The physical network has severe quality and capacity problems, with adequate pavement on only 12% of the existing roadways (Cruz et al., 2015).

This deficit in the road infrastructure has had a negative impact on the mobility of both citizens and cargo. The Brazilian government has announced massive programs of investments for infrastructure, but has had difficulty leveraging the projects. Unlike many countries, the delay in the provision of infrastructure is not primarily related to a lack of financial resources, but rather to the bureaucracy and maladministration of the Brazilian public administration. Thus, PPP arrangements are good alternatives to overcome these deadlocks.

The State of Minas Gerais was the first to enact PPP legislation, and it is seen as the 'leading state' in implementing this procurement model. The MG-050 motorway, developed in Minas Gerais, is one of the first PPP road projects in Brazil. Its success has led to its replication in other states. This PPP project includes the upgrade, expansion, maintenance and operation of the MG-050 until the year 2032, having been established in 2007. The grantor is the Secretary of State for Transportation and Public Works (STPW). The regulator is the Department of Roads (DR). The DR is not a regulator *strictus sensu* because it is under the responsibility of the STPW. Additionally, the DR role is more that of contract management than of regulation. This raises some concerns, particularly if potential conflicts arise between the concessionaire and the grantor, as the DR is not an independent regulator. The concessionaire is the joint venture *Concessionária Nascentes das Gerais*, with two shareholders: Atlantia (an Italian road operator) and Bertin (a Brazilian infrastructure group). As in most PPP projects, a special purpose vehicle (SPV) was created. The Brazilian legislation established a third entity, an independent controller, whose function is to monitor the contract execution. This independent controller develops periodic performance reports. Based on these reports,

premiums (or penalties) on the payments are defined. It is important to clarify that although the existence of this controller increases the degree of independence and transparency in monitoring the contract, this should not be seen as any form of regulation; rather, it is a mechanism to guarantee adequate contract management.

There is a concession contract between the Federal Government and the SPV that validates the PPP arrangement. Because the project is non-profit, there is a public compensation included in the contract, which is not fixed. It depends on quantitative objectives that are supervised by the controller to 'compensate' or 'punish' the concessionaire based on performance.

The MG-050 has suffered from public complaints over the last years because of the increase in tolls and the delay in investments. The investment plan has been revised several times, and the concessionaire has acknowledged those delays; although, to the best of our knowledge, no meaningful penalties have been applied.

In this case, as in many other countries, there is no independent regulatory body. The establishment of a contract should not limit the existence of a regulator, but, contrariwise, proper regulation should be in place to ensure that negotiations between the grantor and the concessionaire, including toll increases, protect all the stakeholders, particularly the users, for which there is no active mechanism of protection.

In this contract, the existence of a regulator would be particularly useful because the rules for the restoration of economic and financial equilibrium do not provide direct compensation, and therefore, it is very likely that any change in investment will be accommodated by toll increases.

### 6.3. Discussion

The two examples provided above highlight how the absence of effective regulation can damage the public interest. In both cases, the increase in charges (tolls or others) is borne by the public sector and then transferred to the users directly or to the taxpayers indirectly. Both in Portugal and in Minas Gerais, Brazil, because of the inefficiency of contract management and the absence of a clear and independent regulation of the contracts, the public sector loses the ability to negotiate and, as a result, assumes more risk. Some of the events that led to the renegotiations would have occurred even with regulation, but the effects would have been handled differently. For example, in the first case (Portugal), neither penalties nor sanctions were applied, even when the contracts were in noncompliance, which occurred several times. Moreover, there are no records of complaints; there are only performance comparisons over time for specific matters; and there are no comparisons with peers or best practices in the sector. The independent controller seemed to be a sound solution *a priori*, but it actually worked like an auditor for particular issues related to payments (e.g., performance indicators) in the Minas Gerais case. The independent controller had no role in the renegotiations or in the compliance of the contract for issues other than those related to payments.

We argue that the existence of a watchdog regulator would have mitigated the impact of the renegotiations, improved the quality of service and stimulated performance improvements by using benchmarking and yardstick competition (De Witte and Marques, 2010). Moreover, if the regulator intervened prior to the public tender stage, there would be more benefits because the regulator would have reviewed and issued an opinion about the bidding documents, the related studies and the major regulatory issues, such as the targets for the service standards. The regulator can also safeguard the information to share and publicize and ensure the effective application of sanctions. Another result is likely to be simpler, better-written, sector-tailored and shorter contracts.

## 7. Concluding remarks

In this paper, we address the issue of the regulation of PPP contracts. Note that all around the world PPP contracts are mostly deregulated since categorical contract management is still little usual and external regulation is almost always nonexistent. We discuss the market failures in the infrastructure sector and the corresponding contract failures when regulation is absent that show that, although contract management of PPP contracts is required, it is not enough, and therefore, there is a need for explicit regulation. Other recent studies support also this principle (see Stern, 2012; Diaz, 2016; Jensen and Wu, 2016). Here, some historical examples are also presented from two different countries in the highway sector to illustrate the importance of external and effective regulation combined with contract management in infrastructure.

We conclude that contract failures are similar to market failures and the same public interest argument justifies the existence of regulation. We also defend contract management as important but because it is not (and should not be) independent, an arbiter (regulator) will always be required to solve disputes and replace the market when renegotiations occur. Although agency failures can also be pointed out and may lead to the PPP project unsuccessfulness, we believe that contracts and regulation together are positive-sum games and despite not being sufficient, they are necessary conditions to the accomplishment of the projects.

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