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# Public-private partnerships (PPP) in mega-sport events: a comparative study of the provision of sports arenas for the 2014 Fifa World Cup in Brazil

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Due to its recent adoption, little is known about the performance of public-private partnerships (PPP) and their determinants. The present study aims to investigate the behavior of PPP and their contractual variations in the provision of sports arenas for the 2014 Fifa World Cup in Brazil, using a comparative perspective on traditional public and private provision modes. The research adopts a qualitative approach with an exploratory perspective and multiple case studies. The results suggest that, for Brazilian public administration, PPP presented good value for money, especially in terms of the time schedule, costs, diversified revenues and bidding process as a result of incentive structures coming from PPP contracts and private partner flexibility.

**Keywords:** public-private partnerships; value for money; incentive structures; mega sporting events.

## Parcerias público-privadas (PPP) em megaeventos esportivos: um estudo comparativo da provisão de arenas esportivas para a Copa do Mundo Fifa Brasil 2014

Em função do caráter recente de sua adoção, pouco se sabe ainda sobre o desempenho de projetos de Parcerias Público-Privadas (PPP) e seus condicionantes. O presente estudo tem por objetivo investigar o comportamento das PPP e suas variações contratuais na provisão de arenas esportivas para a Copa do Mundo Fifa Brasil 2014 numa perspectiva comparada às modalidades de provisão pública tradicional e estritamente privada. Para tanto, utilizou-se uma abordagem metodológica qualitativa, inserida numa perspectiva exploratória por meio de estudo de casos múltiplos. Os resultados sugerem que os projetos de PPP geraram *value for money* para a administração pública brasileira, sobretudo no que se referente aos aspectos de prazo, custos, receitas diversificadas e processo licitatório em decorrência das estruturas de incentivos oriundas dos contratos de PPP e da própria flexibilidade gerencial inerente aos atores privados.

**Palavras-chave:** parcerias público-privadas; valor adicional; estruturas de incentivos; megaeventos esportivos.

## Asociaciones público-privadas (PPP) en megaeventos deportivos: un estudio comparativo en la provisión de los estadios deportivos para el Mundial Fifa Brasil 2014

Debido al carácter reciente de su adopción, aún se conoce poco sobre lo desempeño de proyectos de Asociaciones Público-Privadas (PPP) y sus condiciones. El presente estudio tiene como objetivo investigar el comportamiento de las PPP y sus variaciones contractuales en la provisión de los estadios deportivos para el Mundial Fifa Brasil 2014 bajo una perspectiva comparada a las modalidades de provisión pública tradicional y estrictamente privada. Para este propósito, se utilizó un enfoque cualitativo, incluido en una perspectiva exploratoria a través del estudio de casos múltiples. Los resultados sugieren que los proyectos de PPP generan un valor agregado para la administración pública brasilera, principalmente con relación a plazos, costos, ingresos diversificados e proceso licitatorio como consecuencia de las estructuras de incentivos provenientes de los contratos de PPP y de la propia flexibilidad gerencial, inherentes a los actores privados.

**Palabras clave:** asociaciones público-privadas; valor agregado; estructuras de incentivos; megaeventos deportivos.

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## 1. INTRODUCTION

Scholars in the area of public administration and strategy have been drawing attention recently to the interdependence between public and private actors and the need to understand the mechanisms that could lead to better (or worse) performance standards (Mahoney, Mcgahan and Pitelis, 2009; Bel, Brown and Warner, 2014). They figure in these various collaborative forms between government officials and private actors for the provision of public utility services, such as Public-Private Partnerships (PPPs), like the ones that appear in this section. Fostered under the winds of the liberalizing reforms that have been undertaken over the last few decades, PPPs are a relatively recent phenomenon that still lack a lot of clarification, particularly pertaining to the evaluation of the performance and their constraints (Forrer et al., 2010; Kivleniece and Quelin, 2012). Brazil is no exception, of course, and although some recent studies have addressed the issue of PPPs within the country (Peci and Sobral, 2007; Thamer and Lazzarini, 2015), little is known about the concrete results of the Brazilian experiences.

As a way to fill in this gap, this study seeks to investigate the behaviour of PPPs used for the construction and renovation of the stadiums that were used in the 2014 Fifa World Cup, in a perspective compared to traditional public provisions and to strictly private provisions. The matter is of importance insofar as the mechanisms that affect PPP performance in Brazil and the real pertinence of non-state forms in the provision of infrastructure equipment are not yet clear. Even in the international sphere, there are few studies that deal with the provision of sports and cultural equipment under the PPP (Cabral and Silva Jr., 2013). Despite the contributions of this study to literature on public administration, strategy in organizations and sports management, it should be stressed that the authors' goal is not to debate whether or not to hold mega sporting events. The objective is restricted to the understanding of the implications of the forms of the chosen provision, taking as principle that the decision to hold events such as the World Cup was determined exogenously.

In the Brazilian case, the choice of Brazil as a 2014 Fifa World Cup venue in October 2007 placed the country in a prominent position in the international landscape due to the event's high visibility, unequivocally the object of interest by many countries over the last few decades. Sporting events like this, however, generally require high investments for the construction or adaption of a series of equipment, most notably football stadiums and complementary infrastructure. Faced with this, government investments are often needed through involvement in their different spheres. After picking out the tournament's 12 host cities in May 2009, the availability of stadiums in standards of excellence became a latent demand in the face of the decaying state of Brazilian sporting arenas. In fact, nine of the 12 Brazilian football stadiums chosen to host the huge sports event boasted out-dated infrastructure averaging about 55 years old.[1] Following the tradition of other large-scale sporting events (Roche, 2000; Cabral and Silva Jr., 2013; Preuss, Solberg and Alm, 2014), the public sector played a critical role in the provision of nine of the 12 stadiums planned to host the games for the tournament, with emphasis on the use of the PPP method for the provision of 5 of the 12 football stadiums.

[1] This descriptive statistic was generated by the authors based on the arithmetic mean of the age of the nine public stadiums used in the mega-event.

In order to comply with the proposed objectives, qualitative research was used, inserted in an exploratory and comparative perspective through a multi-case study on the five stadiums provided by PPP for the 2014 Fifa World Cup Brazil (Belo Horizonte, Fortaleza, Natal, Recife and Salvador). These initiatives are compared with the stadiums provided under the traditional public provision (Brasília, Cuiabá, Manaus and Rio de Janeiro, built under the traditional modes and later granted to private initiatives) and strictly private (Curitiba, Porto Alegre and São Paulo). The methodological instances of the field research and its results are presented below after a brief theoretical discussion related to the state of the art of the literature on PPP and large-scale sporting events.

## 2. MEGA SPORTS EVENTS: THE STATE'S ROLE

Mega sports events are major events involving participants from different locations and are held in a relatively brief period of time (Florek, Breitbarth and Conejo, 2008). Generally speaking, large-scale sporting events involve high investments in infrastructure (Malfas, Theodoraki and Houlihan, 2004), often taking on an important role in urban development and contributing to a generation of potential legacies in the regions where they are hosted (Gursoy and Kendall, 2006).

Literature regarding mega sporting events does not, however, provide a consensus on the scope of potential legacies, making it difficult to measure aspects affected by mega-events (Preuss, 2007). To this end, Preuss (2007) defines legacy as any change in the structure - be it planned or unplanned, positive or negative, tangible or intangible — created for and by the large-scale sports event that remains long after the event itself has ended. Yet, the idea of a legacy is generally thought of as consistently positive, something that may be misleading. This is due to the fact that, depending on the circumstances of holding the mega-event, adverse legacies can also be generated (Pillay and Bass, 2008). Examples of unfavourable legacies are highlighted in the literature: the elevated costs for constructing sports equipment, investments in unnecessary structures and the debt within the public sector (Roche, 2000; Malfas, Theodoraki and Houlihan, 2004; Gursoy and Kendall, 2006).

In this respect, Preuss, Solberg and Alm (2014) illustrate that the Fifa World Cup is a mega-sport event requiring substantial investments, both in the construction of new stadiums and in the provision of infrastructure surrounding these sports venues. Arenas that were constructed or renovated for this mega-event are generally considered a legacy, since intervention (renovation or construction) for the infrastructure of venues is often only feasible because of the event (Fifa, 2011). In the meantime, some host cities already have infrastructure that allows them to hold major sporting events with a very low level of investment, while other cities need to invest substantially in their infrastructure to meet the standards demanded by Fifa, whose requirement levels increase each year due to their learning curve in holding each event.

However, due to the need for huge investments, Roche (2000) stresses that it is often necessary to involve institutions from the public sector and private enterprises in the organisation and preparation for these events, in order to combine efforts to carry them out successfully. Siegfried and Zimbalist (2000), however, show that public subsidies for the construction of new sports arenas are commonly justified on the grounds that economic benefits will be produced for the local economy. However, future demand for the use of these sports venues carries a high degree of uncertainty and risk because there is a positive correlation between the quality and performance of the club and the demand for

the purchase of stadium tickets (Forrest and Simmons, 2002). Conversely, Mules (1998) contends that public investments in the execution of large scale sporting events can also be justified by the possibility of market failures, mainly due to the presence of public assets and externalities that are often associated with the long-term effects of huge sports events of this type, which can inhibit investments on the part of the private sector. Thus, many governments have subsidized the construction of sports arenas for use by professional sports teams, claiming that such projects generate valuable public assets and positive externalities for the local economy, although these benefits are difficult to measure (Johnson and Whitehead, 2000). With this in mind, one of the ways governments can reduce public spending without compromising the event is through Public-Private Partnerships (PPP), which should theoretically balance the construction of venues, their use during the event and, most importantly, their long-term sustainability (Cabral and Silva Jr., 2013). Such methods are discussed below.

## 3. PPP IN THE SUPPLY OF INFRASTRUCTURE AND PUBLIC SERVICES

Various contractual arrangements between public institutions and private enterprises can be adopted in the provision of public assets and services, including sports related facilities. Facing this, governments began to look for new provision methods through the involvement of private initiative in supplying public assets and services, and in this context, PPPs arise as a hybrid organizational arrangement formed between the public sector and the private initiatives. Two aspects are essential in understanding the potential of PPPs: value for money and incentives.

### *3.1 VALUE FOR MONEY*

According to Marques and Berg (2011), the implementation of PPP projects in the infrastructure sector have garnered many benefits in terms of efficiency and quality in providing public assets and services. This is due to the fact that joint action by the private sector with the public sector can generate a greater *value for money*[2] when compared to the traditional public provision method (European Commission, 2003; IMF, 2004; World Bank, 2012). The comparison of the benefits of the economic intervention between the traditional public provision and the private provision has been the subject of a continuous debate, as PPPs have been seen as a provision method that renders a qualitative leap in the effort to combine the forces of the public and private sector (Hodge and Greve, 2007).

However, the use of PPP should also be related to the economic rationality provided by the interaction between both public and private partners (Grimsey and Lewis, 2005; Välilä, 2005). The private partner's role is to add value so that the public-private arrangement is economically superior to the traditional public offering. The value for money measurement, in accordance with the European Commission (2003), generally uses the comparative evaluation technique between the lesser Net Present Value (NPV) of disbursements generated by the PPP project and the traditional public provision, which is normally known as the public sector comparator (PSC). According to Grimsey and Lewis (2005), the PSC concept has been widely adopted as a test to find out if a PPP project reaches a lower

[2] The expression "value for money" is used in literature regarding PPPs to express an improved economic advantage for the Public Administration in relation to the traditional public provision method.

NPV of disbursements when compared to the project implemented through the traditional public provision method. In short, the PPP method can have economic advantages if, when an analysis of the value for money is completed, the public-private arrangement exhibits the following factors in the provision of the public asset/service: (1) reduced costs; (2) shorter deployment time; (3) better quality; (4) better risk allocation; and (5) generating new diversified revenues (European Commission, 2003; IMF, 2004; World Bank, 2012).

### *3.2 INCENTIVES IN PPP*

The contractual aspects of a PPP favour the production of incentives when the project is being deployed because the private partner is encouraged to adopt a holistic vision of the entire life cycle of the project, stimulating the efficiency and the best quality in the provision of a public service (Hart, 2003). To this end, some sources of incentives (asset ownership, integration of construction/operations and risk allocation) can add value to a PPP project because they affect the productive efficiency in the provision of the public assets and services (Hart, 2003; European Commission, 2003; World Bank, 2012).

The first potential source of incentives relates to asset ownership. In a PPP, the private partner can hold large portions of property rights throughout the project's life cycle. The concentration of property and decision rights in the private partner sphere would promote productive efficiency (a reduction of operating costs), particularly in areas of contractual incompleteness (Tirole, 1999; Hart, 2003). In this case, the private partner would have added motivations to carry out new investments in order to improve their productive performance. Innovations for improving cost efficiency, however, can happen at the expense of reduced quality (Hart, Shleifer and Vishny, 1997), which requires monitoring mechanisms by the public-sector to curb self-interested behaviour by private stakeholders (Cabral, Lazzarini and Azevedo, 2010).

Now with the second potential source of incentives, PPP methods were seen in which there is a higher integration of activities on the part of the private sector encouraging productive efficiency (European Commission, 2003; IMF, 2004; World Bank, 2012). According to Hart (2003), the BOT and DBOT methods are associated with the fact that the private partner is responsible at the same time for the construction of the equipment and operation of the public service, which is often called *bundling*. In view of this, according to the World Bank (2012), bundling made possible by PPPs encourages the private partner to complete each phase of the project (construction, operation and maintenance) with more operational efficiency, minimizing the total costs incurred in the provision of equipment and public service. As a matter of fact, the integration between construction and operation creates additional incentives to mitigate behaviours that lead to a deterioration in *ex post* quality (Cabral and Saussier, 2013).

Lastly, the third potential source of incentives lies in the allocation and the distribution of risks and benefits between the parties. According to Bing et al. (2005), the public entity should identify the risks inherent to the PPP project, establishing the most relevant problems for each step, the probability of an occurrence of each risk event and the potential financial consequences. This is needed so that the responsible public entity can define the type and amount of risks that should be transferred to the private partner. In this area, one of the main sources of risk in PPP projects is demand risk (IMF,

2004, World Bank, 2012). Objected to a rigorous analysis by PPP project lenders, the uncertainties associated with demand raise the public sector's offer of minimum cash flow guarantees to make PPP projects more attractive as it pertains to economic sustainability (Cabral and Silva Júnior, 2013).

## 4. METHODOLOGY

The methodological approach used in this study is essentially characterized as qualitative, placed in an exploratory, comparative and analytical descriptive perspective (Flick, 2004; Poupart et al., 2010). This is not because measuring variables is an objective, but rather to perform analyses of organizational phenomena related to the stages of implementation and management for PPP projects (chart 1) adopted in the provision of sports venues for the 2014 Fifa Brazil World Cup.

**CHART 1 PROVISION METHODS USED IN THE 12 SPORTS ARENAS**

| Nº | Stadium | State | Asset Ownership | Type of Action | Provision Method | Contractual Choices % |
|---|---|---|---|---|---|---|
| 1 | Arena Fonte Nova | BA | Public | Reconstruction | PPP | |
| 2 | Arena Pernambuco | PE | Public | Construction | PPP | |
| 3 | Arena das Dunas | RN | Public | Reconstruction | PPP | 42% |
| 4 | Arena Mineirão | MG | Public | Renovation | PPP | |
| 5 | Arena Castelão | CE | Public | Renovation | PPP | |
| 6 | Arena Maracanã | RJ | Public | Renovation | Public/PPP | |
| 7 | Arena Mané Garrincha | BSB | Public | Reconstruction | Public | 33% |
| 8 | Arena da Amazônia | AM | Public | Reconstruction | Public | |
| 9 | Arena Pantanal | MT | Public | Reconstruction | Public | |
| 10 | Arena Corinthians | SP | Private | Construction | Private | |
| 11 | Arena Beira-Rio | RS | Private | Renovation | Private | 25% |
| 12 | Arena da Baixada | PR | Private | Renovation | Private | |

**Source:** Elaborated by the authors.

Advances in analysing value for money suggest that the qualitative aspects in the comparison of projects and evaluations done after agreement has been signed provide the analysis with more accurate data, as well as systemising future knowledge gathering for the preparation and execution of new

PPP projects (Coscarelli et al., 2014). Additionally, the methodological approach of case studies was employed to deepen the knowledge regarding the similarities and differences of PPP projects, seeking to distil the empirical knowledge through the theoretical systematization of this study's theme (Yin, 2001). To this end, the methodological route for the collection and processing of data went through four phases: documental analysis, semi-structured interviews, participant observation in public events related to the Fifa 2014 World Cup, and a content analysis.

For collecting secondary data, an exploratory documentary analysis was initially adopted relating to all sports arenas (public, private and PPP) that pointed out the following documents: public bidding documents and contracts for PPP projects and public projects; the economic proposals of the bid winners; business plans; economic feasibility studies; project performance indexes; financing agreements; balance sheet reports on the World Cup; reports on external control agencies; and others.

Thirty semi-structured interviews[3] were conducted with the public and private stakeholders involved in the construction of the 12 sports arenas for the first phase of data collection (16 public managers and 14 private managers), totalling 28 hours and 48 minutes of recorded audio interviews. Choosing the key stakeholders to be interviewed had been done based on the criteria of their formal position in the public and private institutions involved in the management of projects (chart 2). Naturally, the availability of the key participants limited any expansion of the sample, which was compensated by the documentary analysis.

**CHART 2 PROFILE OF INTERVIEWEES**

| INTERVIEW CODE | HOST CITY | INTERVIEWER CODE | INTERVIEWER POSITION | LINKED ISTITUTION |
|---|---|---|---|---|
| E1 | Salvador | Public Manager #1 | State Secretary | Bahia State Government (Secopa-BA) |
| E2 | | Private Manager #1 | President | Fonte Nova Stadium |
| E3 | | Private Manager #2 | Director | Bahia Sports Club |
| E4 | | Private Manager #3 | Director | Bahia Sports Club |
| E5 | Recife | Public Manager #2 | State Secretary | Pernambuco State Government (Secopa-PE) |
| E6 | | Private Manager #4 | President | Pernambuco Stadium |
| E7 | Natal | Public Manager #3 | State Secretary | Rio Grande do Norte State Government (Secopa-RN) |
| E8 | Belo Horizonte | Public Manager #4 | Chief of Staff | Minas Gerais State Government (Secopa-MG) |
| E9 | | Private Manager #5 | Manager | Mineirão Stadium |

*Continue*

[3] The interviews held in the 12 host cities were subsidized with funding from the Ministry of Sports and the National Council for Scientific and Technological Development (CNPq).

| INTERVIEW CODE | HOST CITY | INTERVIEWER CODE | INTERVIEWER POSITION | LINKED ISTITUTION |
|---|---|---|---|---|
| E10 | Fortaleza | Public Manager #5 | State Secretary | Ceará State Government (Secopa-CE) |
| E11 | | Private Manager #6 | Manager | Castelão Stadium |
| E12 | | Private Manager #7 | President | Lagardère/Arena Castelão |
| E13 | | Private Manager #8 | Director | Ceará Sporting Club |
| E14 | | Private Manager #9 | Construction Supervisor | Galvão Engenharia |
| E15 | Brasília | Public Manager #6 | District Secretary | Government of the Federal District (UGP Copa) |
| E16 | | Public Manager #7 | Director | Mané Guarrincha Stadium/Fundação Vila Olímpica |
| E17 | Manaus | Public Manager #8 | UGP Copa Coordinator | Amazonas State Government (UGP Copa) |
| E18 | | Public Manager #9 | Director | Amazônia Stadium/Fundação Vila Olímpica |
| E19 | Cuiabá | Public Manager #10 | State Secretary | Mato Grosso State Government (Secopa-MT) |
| E20 | | Public Manager #11 | Manager | Pantanal Stadium |
| E21 | Porto Alegre | Public Manager #12 | State Secretary | Rio Grande do Sul Government (Secretary of Sports and Leisure) |
| E22 | | Public Manager #13 | Coordinator UGP Copa | Rio Grande do Sul Government (UGP Copa) |
| E23 | | Private Manager#10 | Manager | Arena Beira-Rio/Sport Club Internacional |
| E24 | Curitiba | Public Manager #14 | Municipal Secretary | Curitiba Municipal Government — PR (Secopa) |
| E25 | | Private Manager#11 | President | Arena da Baixada/Clube Atlético Paranaense |
| E26 | São Paulo | Public Manager #15 | Executive Coordinator | São Paulo State Government (World Cup Steering Committee) |
| E27 | | Public Manager #16 | Consultant | City of São Paulo (World Cup Steering Committee) |
| E28 | | Private Manager#12 | President | Corinthians Stadium/Sport Club Corinthians |
| E29 | | Private Manager#13 | Sports Specialist | Jornal *Agora São Paulo* |
| E30 | Rio de Janeiro | Private Manager#14 | Director | Maracanã Stadium |

**Source:** Elaborated by the authors.

Following the data collection stage, a content analysis was deployed as a data-processing technique, combining bibliographical material, documental sources and transcripts from the interviews. Lastly, data triangulation was adopted to enhance the reliability of the research findings (Bardin, 2009), as well as using the NVivo 10 for Windows software for the coding, analysis and application of the content analysis, as shown in chart 3.

**CHART 3 CODING USED FOR THE CONTENT ANALYSIS**

| Empirical Sources | Subjects for Analysis | Codes |
|---|---|---|
| (1) Theoretical reference; (2) Transcripts from interviews; (3) PPP public bids notices and annexes; (4) PPP contracts and annexes; (5) Public bidding projects notices and annexes; (6) Contracts and annexes for Public Projects; (7) Financing agreements; (8) PPP feasibility studies; (9) Business Plans; (10) World Cup balance sheet reports; (11) Reports by external control agents. | Value for Money | Implantation Period<br>Provision Costs<br>Diversified Revenues |
| | Contractual Incentives | Asset Property Right<br>Bundling Method and Performance Measurement<br>Risks and Earnings Sharing |

**Source:** Prepared by the authors.

## 5. CASES STUDIED

### *5.1 CONTEXT AND PUBLIC NEED FOR PPP PROJECTS*

The PPP projects that were analysed (table 1) resemble some characteristics of the bidding process (the bidding and competition method) and differ in other aspects (capacity, concession terms and contract value).

**TABLE 1 PPP PROJECT DATA SUMMARY**

| Stadium | Host City | Total Capacity (Fixed + Temporary) | Bidding Method | Competition Type | Type of Auction | Concession Period (Years) | Contract Value (in R$) |
|---|---|---|---|---|---|---|---|
| **Arena Mineirão** | **Belo Horizonte** | 62,170 | International Competition | Administrative Concession | Lowest Price and Best Technique | 27 | 677,353,021.85 |
| **Arena Castelão** | **Fortaleza** | 63,763 | International Competition | Administrative Concession | Lowest Price and Best Technique | 8 | 518,606,000.00 |
| **Arena das Dunas** | **Natal** | 42,024 | International Competition | Administrative Concession | Lowest Price and Best Technique | 20 | 400,000,000.00 |
| **Arena Pernambuco** | **Recife** | 46,154 | International Competition | Administrative Concession | Lowest Price and Best Technique | 30 | 379,263,314.00 |
| **Arena Fonte Nova** | **Salvador** | 55,045 | International Competition | Administrative Concession | Lowest Price and Best Technique | 35 | 591,711,185.00 |

**Source:** Elaborated by the authors based on PPP contracts.

Taking a look at the public need for PPPs, the research revealed that the primary motivating factors for implementing the projects are related to: (1) expectations on generating potential legacies for the host city and state; and (2) the feasibility of the construction and/ or renovation of modern multipurpose sports venues to meet the technical requirements of Fifa's specifications. Two factors stand out regarding the reasons for choosing a particular PPP method: (1) the absence of public financial resources for direct investments; and (2) the search for a better value for money for the state government.

### *5.2 RISK MANAGEMENT AND ALLOCATION*

For the risk allocation process, different organizational arrangements between the public sector and the private sector were established, particularly regarding construction risks (implementation period and provision costs) and the risks involved with operating the stadiums (demand risk). What is striking is the fact that, in two of the five PPP projects, the public entity shared such risks, assuming a higher burden of risk in relation to the other states (table 2).

**TABLE 2 MECHANISMS FOR ALLOCATING CONSTRUCTION AND OPERATION RISKS ADOPTED IN THE PPP PROJECTS**

| Stadiums | Level for Assuming Risks by the Public Entity (Construction and Operation) | Level for Assuming Risks by the Private Partner (Construction and Operation) |
|---|---|---|
| Arena Fonte Nova | Shared | Shared |
| Arena Pernambuco | Shared | Shared |
| Arena Mineirão | 0% | 100% |
| Arena Castelão | 0% | 100% |
| Arena das Dunas | 0% | 100% |

**Source:** Elaborated by the authors and based on PPP contracts.

Moreover, three of the five PPP projects with the best performance standards in terms of deadline and cost compliance (Arena Mineirão, Arena Castelão and Arena das Dunas) are projects for which the grantor assigned 100% of the construction risks to the private partner. On the other hand, the two PPP projects (Bahia and Pernambuco) that had the worst performance in these two benchmarks compared to the other PPP projects that have been analysed are the projects in which the public entities have assumed a greater burden of these risks in relation to other states. The implication was clear: there were additional public disbursements that the state governments of Bahia and Pernambuco did not predict. For operating the stadiums, a greater assumption of the demand risks was seen coming from the granting authority of Bahia and Pernambuco contributed

to the potential increase of future public disbursements, in case the private partners do not obtain the minimum cash flow established in the PPP agreement (table 3). On the other hand, the high degree of risk assumed by the private stakeholders for the Belo Horizonte, Natal and Fortaleza Stadiums could lead to future contractual revisions, in the case that a real demand does not at the limit guarantee economic and financial feasibility, causing the governments of these states to assume the entire operation and all their burdens if the private partners do not find a financial balance in the contract. The research pointed out that all the PPP projects that were analysed had adopted mechanisms to share additional gains (chart 4), in the case that the actual demand is higher than what was initially projected, which may contribute to a reduction of future public disbursements through deductions in the public counterpart.

**TABLE 3 RULES FOR SHARING THE DEMAND RISKS IN PPP PROJECTS FOR THE STATES OF BAHIA AND PERNAMBUCO**

| Stadiums | Annual Operating Income of the Base Case (R$ millions) | Event triggering the sharing of demand risk | Methodology for the sharing of demand risk |
|---|---|---|---|
| Arena Fonte Nova | 23.76 | Variations taking place in the annual operating revenue earned by the private partner, the least, verified below 100% of the corresponding annual operating income of the base case | Share of the loss of operational revenue between both public and private partners, in a 50% ratio for each of the parties. |
| | | Variations taking place in the annual operating revenue earned by the private partner, the least, verified between 90% and 50% of the annual operating income of the base case. | Sharing the loss between both public and private partners, in a 50% ration for each of the parties. |
| Arena Pernambuco | 73.26 | Variations taking place in the annual operating income earned by the private partner, the least, verified below 50% of the annual operating income of the base case, in a less than six-month period. | Sharing the loss between both public and private partners, in a 50% ratio for each of the parties. |
| | | Variations taking place in annual operating income earned by the private partner, the least, verified below 50% of the base year's annual operating income in six consecutive months. | 100% of the corresponding losses will be the responsibility of the public partner. |

**Source:** Elaborated by the authors and based on the PPP contracts of the states of Bahia and Pernambuco.

**CHART 4 RULES FOR SHARING ADDITIONAL GAINS FROM PPP PROJECTS**

| Stadiums | Revenue to be Shared | Event triggering the sharing of additional gains | Methodology for sharing additional gains |
|---|---|---|---|
| Arena Fonte Nova | Total Operating Revenue | Variations in the real annual operating revenue earned by the private partner, the greater, verified above at 100% of the base case's operating income (R$ 23.76 million). | Sharing of additional gains between both public and private partners, at a 50% percentage for each party that exceeds 100% of the operating revenue. |
| Arena Pernambuco | Total Operating Revenue | Variations in the real annual operating revenue earned by the private partner, the greater, verified above at 110% of the base case's operating income (R$ 73.26 million). | Sharing of additional gains between both public and private partners, at a 50% percentage for each party that exceeds 110% of the operating revenue. |
| Arena Mineirão | Total Operating Revenue | Variations in the real annual operating revenue earned by the private partner, the greater, verified above at the monthly consideration in the amount of R$ 3.7 million (Reference Value - VRR), whose value was established by the private partner itself in the bidding process. | Sharing of additional gains between both public and private partners, at a 50% percentage for each party that exceeds the Reference Value (VRR). |
| Arena Castelão | Additional revenue (Non-sporting events, advertising, parking etc.) | The calculation of complementary and ancillary revenues by the private partner. | Sharing of complementary and ancillary revenues at a 50% percentage for each of the parties. |
| Arena das Dunas | Additional revenue (Non-sporting events, advertising, parking etc.) | The calculation of complementary and ancillary revenues by the private partner. | Sharing of complementary and ancillary revenues at a 50% percentage for each of the parties. |

**Source:** Elaborated by the authors based on PPP contracts.

### *5.3 FINANCIAL MODELLING*

Pertains to the financial modelling of PPPs, also taking into account the different organizational arrangements between the parties (chart 5).

Based on chart 5, it is to note that in three of the five PPPs analysed, the private partners were responsible for a low financial contribution in relation to the total cost of the PPP (Bahia and Pernambuco) or for any contribution of financial resources (Ceará), representing a contradictory logic of the PPP method, given that this type of public-private arrangement expects the private partner to have a greater participation in the contribution of financial resources. With this in mind and based on the cases studied, it is evident that the granting authority assumed almost all of it (Bahia and Pernambu-

co) or the entire cost of providing public sports facilities (Ceará). Even in cases in which the private partner became responsible for covering 100% of the total cost of providing sports stadiums (Minas Gerais and Rio Grande do Norte), a mechanism of public consideration was established that enables the coverage of almost all the costs of provision of such sports facilities in the operational modelling of both PPP contracts. With respect to the structure of the guarantees offered to the private partners, the cases of the PPPs for Pernambuco and Ceará stand out, which have adopted the payment of 75% and 100%, respectively, as a guarantee mechanism for the construction costs of their stadiums. As a result, these experiences contradict the argument that there is a scarcity of public financial resources invoked by public entities to justify the choice of the PPP method. Regarding the methodology for the re-composition of the economic-financial balance, it should be pointed out that Bahia and Pernambuco used the model of sharing demand risks as a mechanism, creating additional incentives for the generation of further revenues in facilities beyond football, such as shows and corporate events. Such mechanisms to share demand risk may however contribute to an additional increment of disbursements for future public resources, in the case of a non-fulfilment of the minimum limit of the demand guarantee during the contract's implementation, being characterized in a potential risk for the public administration due to the possibility of increasing future public debt (Cabral and Silva Jr., 2013).

**CHART 5 SUMMARY OF THE FINANCIAL MODELLING OF PPP PROJECTS**

| Stadiums | Financing Structure | | Structure of the Guarantees offered by the Public Entity | Methodology for Financial Rebalancing |
|---|---|---|---|---|
| | Public Entity | Private Partner | | |
| Arena Fonte Nova | Assumed 61% of the PPP's total value (R$ 689.4 M), using: (1) financing with BNDES ProCopa at R$ 323.6 M; (2) contribution of their own resources in the amount of R$ 97.7 M coming from the State Treasury. | Assumed 39% of the PPP's total value, using R$ 250 M of financing with the BNB and R$ 18 M from their own resources. | Transfer of 12% of financial resources from the FPE for Desenbahia instituted as a guarantor agent. | Based on the sharing of demand risks. |
| Arena Mineirão | ----- | Assumed 100% of the PPP's total value, using R$ 400 M of financing with the BNDES ProCopa and R$ 277.3 M from financial institutions and/or their own resources | (1) Credit rights from the Development Incentive Fund (Findes), in the amounts of R$ 386.8 M (Pro-Invest) and R$ 406.7 M (Pro-Giro); (2) Securities from federal public debt in the amount of R$ 100M. | Taking into consideration the premise that the private partner is fully responsible for all the risks inherent in the construction (period and costs) and operation (demand) of the public sports venue. |

*Continue*

| Stadiums | Financing Structure | | Structure of the Guarantees offered by the Public Entity | Methodology for Financial Rebalancing |
|---|---|---|---|---|
| | Public Entity | Private Partner | | |
| Arena Pernambuco | Assumed 75% of the total value of PPP (R$ 532.6 M), using R$ 392.8 M of financing from BNDES ProCopa. | Assumed 25% of the PPP's total value, using R$ 218 M of financing with the BNB (part of this financing was paid by the State) and R$ 34.6 M coming from financial institutions and/or their own resources. | (1) The state of Pernambuco contracted financing from BNDES Pro-Copa to repay the loan initiated by the concessionaire with the BNDES and part of the financing with BNB; (2) Creation of a guaranteed account linked to the 2014 World Cup Multipurpose Arena (FAMC) for a six-month guarantee of public consideration. | Based on the sharing of demand risks. |
| Arena Castelão | Assumed 100% of the total value of the PPP, using: (1) financing with BNDES ProCopa in the amount of R$ 351.5 M; (2) provision of its own funds in the amount of R$ 167 M from the State Treasury. | ----- | (1) Full assumption of the payment for the construction of public sports venues by the state of Ceará; (2) Creation of an escrow account with Caixa Econômica Federal (PPP contract does not specify value offered in guarantee). | Taking into consideration the premise that the private partner is fully responsible for all the risks inherent in the construction (period and costs) and operation (demand) of public sports venues, as well as the fact that the state has fully paid the cost of Construction of the stadium in the delivery of the project. |
| Arena das Dunas | ----- | Assumed 100% of the value of PPP, using R$ 396.6 M of financing from BNDES ProCopa and R$ 3.4 million from financial institutions and/or their own resources. | (1) Constitution of the Guarantor Fund for Public-Private Partnerships in Rio Grande do Norte (FGPPP/RN) with a minimum value of R$ 70 M, and the state may use FPE resources; (2) Offer of public assets from the state, totalling R$ 412 M. | Taking into consideration the premise that the private partner is fully responsible for all the risks inherent in the construction (period and costs) and operation (demand) of public sports venues. |

**Source:** Elaborated by the authors and based on PPP contracts and financing agreements with the BNDES and BNB.

### *5.4 OPERATIONAL MODELLING*

The research also shows how different the organizational arrangements between the parties are in reference to the operational modelling of PPPs, especially regarding the payment mechanisms of public compensation (fixed and variable). In three of the five PPP projects (Bahia, Minas Gerais and

Rio Grande do Norte), the public entities adopted the fixed compensation for the amortization of financing costs and the variable consideration for the amortization of part of the operational costs for the sports stadiums. Conversely, in the other PPP projects (Pernambuco and Ceará), public entities adopted only the variable compensation mechanism to amortize part of the operating costs, as fixed costs were settled at the time of delivery. With mechanisms for assessing the performance of the private partner, there are potential negative implications seen that may arise during the contractual execution due to the current evaluation methodology that shows a low penalization for the private partner in the case of a future unsatisfactory evaluation (table 4).

**TABLE 4 MECHANISMS FOR EVALUATING THE PERFORMANCE OF PRIVATE PARTNERS IN PPP PROJECTS**

| Stadiums | Variable consideration amount (R$) | Variable consideration / total consideration ratio (%) | Maximum percentage to reduce the variable compensation (%) | Negative implications |
|---|---|---|---|---|
| Arena Fonte Nova | 7.9 M | 7.30% | 60% | Low absolute value of variable public compensation. |
| Arena Mineirão | 44.4 M | 38% | 60% | --- |
| Arena Pernambuco | 3.9 M | 100% | 5% | Low absolute value + Low maximum percentage limit for a reduction of variable compensation. |
| Arena Castelão | 0.4 M | 100% | 38% | Low absolute value + Low maximum percentage limit for a reduction of variable compensation. |
| Arena das Dunas | 16,4 M (1st to the 8th year) 11,5 M (8th to the 12th year) | 15% | 86% | Low absolute value of variable public compensation. |

**Source:** Elaborated by the authors and based on PPP contracts.

To sum up, the lesson that can be drawn from all the cases studied is that the existence of contractual variations presented among PPPs, as previously demonstrated in relation to the dimensions of risk allocation, financial modelling and operational modelling, influences the performance of such projects and, consequently, the generation of value for money for the public administration, resulting in the following implications: (1) an increase in provision costs as a result of the high risk assumed by some public entities; (2) an increase in public debt in cases where the state has assumed almost the total or all of the project financing; and (3) low potential for penalising the private partner in relation to the possibility of a possible inefficiency in the provision of the public service, in cases where public entities have not adopted adequate mechanisms for measuring performance.

## 6. DISCUSSION

### *6.1 EVALUATION OF THE VALUE FOR MONEY FOR PPP PROJECTS*

The first indicator to be analysed refers to the implementation period, a period considered to be a critical success factor for infrastructure projects, taking into account that a failure to comply with the execution schedule may influence an increase in the costs for the provision (Cabral and Silva Jr., 2013). Given this context, the PPP projects performed better in terms of stadium delivery times as compared to totally state stadiums and strictly private stadiums, with the exception of the PPP project in Bahia, which showed a slight however minor relevant delay (table 5).

**TABLE 5 TIME PERIOD FOR IMPLEMENTING THE 12 SPORTS ARENAS**

| Stadium Name | Type of Provision | Type of Intervention | Contract Signing Date | Start of Work | Delivery Schedule Outlined in the Contract | Actual Delivery Schedule | Total Estimated Time (months) | Total Actual Time (months) | Var. (%) |
|---|---|---|---|---|---|---|---|---|---|
| Arena Castelão | PPP | Renovation | Nov. 2010 | Dec. 2010 | Apr. 2013 | Dec. 2012 | 29 | 24 | 83% |
| Arena Pernambuco | PPP | Construction | Jun. 2010 | Jan. 2011 | Jun. 2013 | Apr. 2013 | 36 | 34 | 94% |
| Arena das Dunas | PPP | Reconstruction | Apr. 2011 | Aug. 2011 | Dec. 2013 | Dec. 2013 | 32 | 32 | 100% |
| Arena Mineirão | PPP | Renovation | Dec. 2010 | Jan. 2011 | Dec. 2012 | Dec. 2012 | 24 | 24 | 100% |
| Arena Beira-Rio | Private | Renovation | Not published | Jul. 2010 | Dec. 2013 | Feb. 2014 | 41 | 43 | 105% |
| Arena Fonte Nova | PPP | Reconstruction | Jan. 2010 | Jun. 2010 | Dec. 2012 | Mar. 2013 | 36 | 39 | 108% |
| Arena Maracanã | Public/PPP | Renovation | Aug/10 | Aug. 2010 | Feb. 2013 | May 2013 | 30 | 33 | 110% |
| Arena Corinthians | Private | Construction | Not published | May 2011 | Dec. 2013 | Apr. 2014 | 31 | 35 | 113% |
| Arena Mané Garrincha | Public | Reconstruction | Jul/10 | Jul. 2010 | Dec. 2012 | Jun. 2013 | 30 | 36 | 120% |
| Arena da Amazônia | Public | Reconstruction | Jul/10 | Jul. 2010 | Jun. 2013 | Mar. 2014 | 36 | 45 | 125% |
| Arena da Baixada | Private | Renovation | Not published | Oct. 2011 | Jun. 2013 | May 2014 | 21 | 30 | 143% |
| Arena Pantanal | Public | Reconstruction | Apr/10 | May 2010 | Dec. 2012 | May 2014 | 32 | 49 | 153% |

**Source:** Elaborated by the authors and based on the Transparency Portal of the Brazilian Federal Government.

It is worth noting that the Arena Fonte Nova Stadium was the only PPP project that exceeded the estimated initial implementation period due to Fifa's new requirements, whose launch (2011) of the new specifications took place after the signing of the PPP agreement (2010), leading to an increase in costs for the project. On the other hand, the PPPs in Pernambuco and Ceará completed their work ahead of schedule, a result of a political decision by their governors with a view towards anticipating the construction period of the stadium in order to apply as a host city for the 2013 Fifa Confederations Cup. This anticipation was not estimated and contributed to an increase in PPP costs in Pernambuco. With both the Arena Mineirão and Arena das Dunas Stadiums, it was noted that both projects managed to complete the work within the deadline established in the initial schedule, which can be justified by the contractual modelling of both PPPs.

All in all, it can be inferred that there was a faster execution of PPP projects because of the flexibility and managerial agility of the private partner, coupled with the strong involvement and participation on the part of the public authority in implementing the project (Grimsey and Lewis, 2002). This last aspect becomes clear in the strictly private projects of Arena Corinthians and Arena da Baixada Stadiums, which, despite having the same benefits of a PPP related to the flexibility and managerial agility of the private actor, had significant delays in their implementation schedules. The results of the study suggest that the impossibility of the public sector to take financing from strictly private projects can impact the larger fundraising process, resulting in delays in project implementation. With respect to public projects, it can be seen that the managerial rigidity imposed by Federal Law No. 8.666 of 1993[4] on public projects generated delays and increased project costs.

> [...] We were only able to speed up the work schedule because it was a PPP. If it had been a project through Federal Law No. 8.666, we would not have had time to quickly execute the project because we would not have the flexibility to adapt the construction process by implementing modern engineering techniques that had not been initially foreseen [...]. [Private Manager #9]

As to the indicators for provision costs — a critical factor in the provision of infrastructure services (Välilä, 2005) — compliance with the costs initially forecast and the cost-per-seat indicator was analysed (table 6).

Standing out in table 6, two of the three sports stadiums built under the private philosophy (Arena Beira-Rio and Arena da Baixada) showed a lower cost of provision per seat as compared to sports arenas built under the PPP philosophy and under the philosophy of traditional public provision. However, the lesser degree of physical intervention in these renovation projects should be accounted for in relation to other projects in which new facilities were built. In comparing PPP projects with traditional public provision projects, the inference is that PPPs performed better in terms of the cost-per-seat indicator and the budget that was first forecast. It is worth noting that the Mané Garrincha and Maracanã Stadiums - both renovated under the traditional public provision method - were the stadiums that obtained the highest respective costs of provision, and both presented indications of over-invoicing according to external control agencies (TCDF, 2013; TCU, 2013). The PPP for Maracanã Stadium referred only to the operation stage. However, despite evidence of above-budget costs and signs of over-invoicing on the part of some public sports facilities, the provision costs for Brazilian stadiums are consistent with

[4] Brazilian federal public procurement law for traditional public provision contracts.

the costs of similar stadiums built in other countries for the 2006 Germany Fifa World Cup, in all likelihood because of the tireless performance of Brazilian control agencies (Cabral and Silva Jr., 2014). These authors, based on a comparative analysis of relatively similar projects of the stadiums provided in both mega sporting events (construction and stadium size/capacity) and taking into account the correction of inflation rates and the Euro - Real exchange rate variances in the period between 2006 and 2013 (table 7), they found that the Munich stadium had a higher cost (EUR 5,782 per seat) than the strictly private Corinthians Stadium (EUR 4,330 per seat), as well as the Cologne stadium (EUR 5,227 per seat) posting a higher cost than the cost for the Fonte Nova PPP stadium (EUR 4,950 per seat). On the other hand, these authors also demonstrate that even the purely public Arena da Amazônia stadium (EUR 5,500 per seat), whose real budget was higher than expected, had a provision cost that was consistent with the stadiums built in Germany. Brasília's strictly public stadium (EUR 7,000 per seat) had the highest costs and was the worst performing in terms of costs when compared to the stadiums from both countries, demonstrating that there is an indication in Brazil that the purely public stadiums have higher costs than strictly private or PPP arenas, which is in-line with the results found in this study.

**TABLE 6 PROVISION COSTS FOR THE 12 SPORTS STADIUMS**

| Stadium Name | Provision Type | Intervention Type | Total Capacity (Fixed + Temporary) | Total Cost Expected in the Contract (R$) | Total Real Cost (R$) | Var. (%) | Estimated Cost Per Seat (R$) | Real Cost per Seat (R$) | Var. (%) |
|---|---|---|---|---|---|---|---|---|---|
| Arena Castelão | PPP | Renovation | 63,763 | 518,606,000 | 518,606,000 | 100% | 8,133 | 8,133 | 100% |
| Arena das Dunas | PPP | Reconstruction | 42,024 | 400,000,000 | 400,000,000 | 100% | 9,518 | 9,518 | 100% |
| Arena Mineirão | PPP | Renovation | 62,170 | 677,353,022 | 677,353,022 | 100% | 10,895 | 10,895 | 100% |
| Arena Beira-Rio | Private | Renovation | 49,989 | 330,000,000 | 330,000,000 | 100% | 6,601 | 6,601 | 100% |
| Arena Fonte Nova | PPP | Reconstruction | 55,045 | 591,711,195 | 689,482,086 | 117% | 10,750 | 12,526 | 117% |
| Arena Pantanal | Public | Reconstruction | 44,335 | 518,900,000 | 676,014,467 | 130% | 11,704 | 15,248 | 130% |
| Arena Corinthians | Private | Construction | 68,000 | 820,000,000 | 1,080,000,000 | 132% | 12,059 | 15,882 | 132% |
| Arena da Amazônia | Public | Reconstruction | 44,480 | 499,508,704 | 669,500,000 | 134% | 11,230 | 15,052 | 134% |
| Arena da Baixada | Private | Renovation | 42,381 | 234,000,000 | 326,700,000 | 140% | 5,521 | 7,709 | 140% |
| Arena Pernambuco | PPP | Construction | 46,154 | 379,263,314 | 532,600,000 | 140% | 8,217 | 11,540 | 140% |
| Arena Maracanã | Public/PPP | Renovation | 78,639 | 705,589,144 | 1,201,740,672 | 170% | 8,973 | 15,282 | 170% |
| Arena Mané Garrincha | Public | Reconstruction | 72,777 | 696,648,486 | 1,438,590,437 | 207% | 9,572 | 19,767 | 207% |

**Source:** Elaborated by the authors and based on the Transparency Portal of the Brazilian federal government.

**TABLE 7 COMPARISONS BETWEEN THE COSTS OF PROVIDING STADIUMS BUILT AT THE 2006 GERMANY FIFA WORLD CUP AND AT THE 2014 BRAZIL FIFA WORLD CUP**

| German Stadiums | Cost per Seat (in EUR) | Brazilian Stadiums | Cost per Seat (in EUR) | Per Seat Cost Ratio for Brazil × Germany Stadiums (%) |
|---|---|---|---|---|
| Munich Stadium | 5,782 | Arena Corinthians | 4,330 | 74.9% |
| Cologne Stadium | 5,227 | Arena Fonte Nova | 4,940 | 94.5% |

**Stadium:** Elaborated by the authors and based on Cabral and Silva Jr. (2014).

Based on the diversified revenue indicator, it can be seen that PPP stadiums and private stadiums have a great potential for generating alternative operating revenues (Figure 1), while sports arenas under traditional public management cannot charge additional revenue for the commercial operation of public equipment due to the limits imposed by Federal Law No. 8.666 of 1993. In this way, private stakeholders can reduce the uncertainties associated with operating revenues from the football box-office (Cabral and Silva Jr., 2013). Obtaining these revenues requires a business structure, whose competencies are rarely found within traditional public administration, which demonstrates the potential of PPPs compared to traditional public provision.

**FIGURE 1 POSSIBILITIES OF GENERATING REVENUES FROM PPP STADIUMS AND PRIVATE ARENAS**


**Source:** Elaborated by the authors.

Lastly, in keeping with the discussion regarding value for money and based on the cases studied, it can be seen that the PPP bidding processes in the majority of cases showed a shorter execution time compared to the traditional public provision when the difference of between the date of releasing the public tender notice and the date of contract being signed for the construction of the sports stadiums is analysed (table 8). It is worth noting that the Fonte Nova and Mineirão stadiums were the only PPP arenas that adopted the inversion mechanism between the bidding phases of eligibility and the

judgment for the technical/economic proposals, which is only provided for in PPP Law 11.079 of 2004[5] and can contribute to accelerating the bidding process, making it possible to only analyse the eligibility of the winning bidder. In this case, in the event that the winning bidder is not approved, subsequent proposals were analysed. This expedient is an economic advantage in the implementation of infrastructure projects through PPP, as the total execution period of a project directly influences its provision costs (Grimsey and Lewis, 2002). This is an essential factor in the context of mega-sporting events like the Fifa World Cup, characterized by a strict schedule that needs to be rigorously complied with in order for the competitions to be held on time (Fifa, 2011).

**TABLE 8 IMPLEMENTATION TIME FOR THE BIDDING PROCESSES OF PPP AND PUBLIC SPORTS STADIUMS**

| Stadium | Type of Provision | Publication Date of Public Bid | Contract Signature Date | Implementation Time (months) |
|---|---|---|---|---|
| Arena Fonte Nova | PPP | Oct. 2009 | Jan. 2010 | 3 |
| Arena das Dunas | PPP | Dec. 2010 | Apr. 2011 | 4 |
| Arena Pernambuco | PPP | Feb. 2010 | Jun. 2010 | 4 |
| Arena Maracanã | Public/PPP | Mar. 2010 | Aug. 2010 | 5 |
| Arena Mineirão | PPP | Jun. 2010 | Dec. 200 | 6 |
| Arena Pantanal | Public | Oct. 2009 | Apr. 2010 | 6 |
| Arena da Amazônia | Public | Nov. 2009 | Jul. 2010 | 8 |
| Arena Castelão | PPP | Jan. 2010 | Nov. 2010 | 10 |
| Arena Mané Garrincha | Public | Jul. 2009 | Jul. 2010 | 12 |

**Source:** Elaborated by the authors and based on public bidding notices and PPP/public works contracts.

Another potential advantage of PPPs that was found in relation to traditional public provision concerns the fact that all PPP bidding notices were international competition types, making it possible for bidding consortia to associate with foreign companies that have expertise in the management of multipurpose sports facilities, which contributes to maximising the potential for generating value for money *ex post* throughout the contractual execution of such projects. In the case of sports venues built under the traditional public provision, the national competition type of bid was adopted in all cases without the possibility of having an international manager with expertise in the management of multipurpose arenas, in view of Federal Law No. 8.666 of 1993, which imposes the state itself as responsible for the operational management of public sports facilities. This, contrarily, contributes to minimizing the potential of generating value for money *ex post* for public administration.

In terms of the level of competitiveness in the biddings being researched that are considered a critical success factor in infrastructure projects (Tiong, 1996), based on the cases studied, there is

[5] Brazilian federal public procurement law for public-private partnership (PPP) contracts.

a relationship between the number of companies/consortia bidders and the amount of the initial budget envisaged for public sports facilities (table 9), as can be observed in the case of the PPP stadiums (Castelão and Pernambuco), which had a higher competition and lower initially estimated costs per seat among the PPP venues, as well as in relation to the solely public Mané Garrincha stadium that had the highest competition and the lowest cost per seat initially planned between strictly public arenas, although its actual cost per seat was the highest among all mega-sporting event stadiums. The exception arises with the Pantanal stadium that, even with the second largest number of companies/consortia bidders, showed the highest initially estimated cost per seat between strictly public stadiums.

**TABLE 9 COMPETITIVENESS LEVEL OF THE BIDDING PROCESS FOR PPP AND STRICTLY PUBLIC SPORTS STADIUMS**

| Stadium Name | Type of Provision | Number of Companies/ Consortia Bidders | Estimated Cost per Seat at Start of Contract (R$) |
|---|---|---|---|
| Arena Castelão | PPP | 4 | 8,133 |
| Arena Pernambuco | PPP | 2 | 8,217 |
| Arena Maracanã | Public/PPP | 2 | 8,973 |
| Arena das Dunas | PPP | 1 | 9,518 |
| Arena Mané Garrincha | Public | 8 | 9,572 |
| Arena Fonte Nova | PPP | 1 | 10,750 |
| Arena Mineirão | PPP | 1 | 10,895 |
| Arena da Amazônia | Public | 2 | 11,230 |
| Arena Pantanal | Public | 6 | 11,704 |

**Source:** Elaborated by the authors and based on PPP and Brazil contracts (2014).

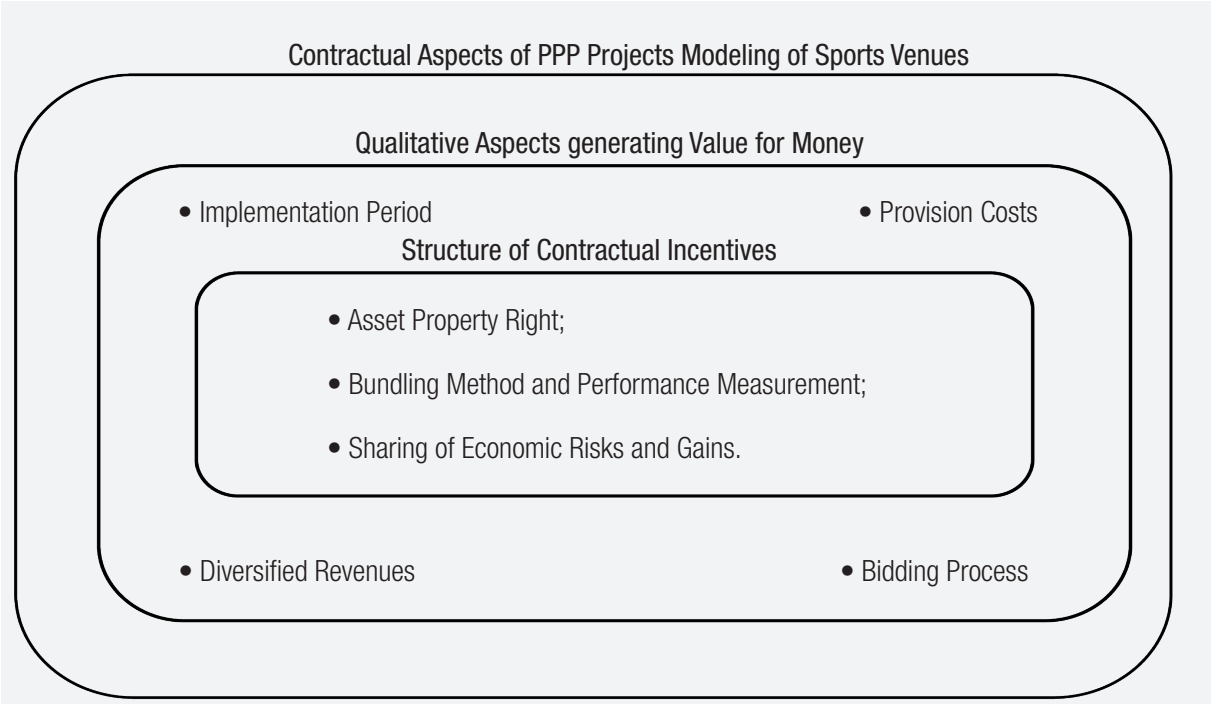
Based on table 9, as observed in the other cases of PPP and strictly public stadiums, it can be inferred that the low competition contributed to minimize the potential for generating value for money for public administration in the construction phase of public sports facilities. In this manner, the results of this research show signs that the initially envisaged costs per seat could have been minimized, in the case of any higher competitiveness in the bidding processes investigated.

In this scenario, this research suggests that the analysed PPP projects contributed to the generation of a higher value for money for the Brazilian public administration, especially in terms of time period, costs, diversified revenues and the bidding process (execution time and method of international competition).

### *6.2 THE IMPLICATIONS OF INCENTIVE STRUCTURES IN THE IMPLEMENTATION OF PPP PROJECTS*

The results suggest that the contractual incentive structures found in PPP projects contribute to generating value for money for the public administration. This is due to the fact that the totally state method of such incentives are not provided for in public works contracts, which are prepared based on Federal Law No. 8.666 of 1993. The central idea coming from figure 2 is a result of the inspection of the previously presented results.

**FIGURE 2 CONTRACTUAL ASPECTS OF PPP PROJECT MODELING**




**Source:** Elaborated by the authors and based on literature about PPPs.

The asset property rights granted to the private partner throughout the contractual execution contributes to a gain of managerial flexibility in the management of the contract (Hart, Shleifer and Vishny, 1997). This is due to the fact that the concessionaire has a margin of autonomy for the execution of the construction and operation of the stadium without the need for bidding procedures for each specific type of investment. This encourages the private partner to carry out new investments in public sports facilities due to its greater autonomy to solve potential contingencies that could occur during the construction and operation of the stadium, also minimizing the potential risks arising from the possibility of contractual incompleteness in the execution of the contract (Tirole, 1999). On the contrary, this cannot be done in sports venues under the traditional public provision method, in view of the need to hold bidding procedures for each type of contracted product and/or service,

as determined by Federal Law No. 8.666 of 1993, which is configured in the absence of contractual flexibility in the implementation of the project (Brito and Silveira, 2005). For example, in the specific case of sporting facilities constructed under the traditional public philosophy (Arena Mané Garrincha, Arena da Amazônia, Arena Pantanal and Arena Maracanã), several bidding processes were conducted to procure different contractual objectives, which contributed to the occurrence of delays in the implementation schedule and, consequently, boosting the costs in the provision of public projects.

> [...] As it is a PPP and the responsibility as a private partner for the execution of the project is ours, we had the flexibility and agility to carry out the work. If the project had been under Federal Law 8.666, this process would be hampered because we would have to ask the government's approval for every change we might need to make throughout the project, which could result in months of delays [...]. So, we can attribute our efficiency to the aspects of a flexibility in executing the engineering and structure of the PPP contract [...]. [Private Manager #9]

As for contractual incentives coming from the bundling method (an integration of the sports venue's construction and operation under the responsibility of a sole agent) and the performance measurement of the private executing partner of the contract (Hart, 2003; European Commission, 2003; IMF, 2004; World Bank, 2012; Cabral and Saussier, 2013), the private partners of the five PPP projects received a greater incentive for improved performance in the indicators of implementation time period and stadium provision costs. This is because the concessionaire's poor performance in the construction and/or operation of public equipment influences the payment value of the variable public compensation, which could suffer a reduction depending on the performance measured, weighing the problems identified and presented in the section dealing with the cases being studied. Contrarily, the sports arenas built under the traditional public method are characterized by unbundling, as the private agent responsible for building the stadium (through the bidding procedure in Federal Law 8.666 of 1993) is different from the agent that will operate the sports facilities - the public entity itself. Therefore, the stadium-building consortium does not earn future benefits or sanctions due to its performance in the stadium's construction, which does not create any kind of incentive mechanism for a better performance in the construction phase of public facilities (Hart, 2003).

> [...] During the stadium construction phase, we had the possibility of getting both penalties as well as bonuses. Although these penalties are not immediately financial, this penalty could apply during the future operation of the facility. Therefore, we realized that we could not only think about the facility's construction, but also think about both the construction and the operation throughout the concession [...]. [Private Manager #5]

With regard to the critical process of risk sharing between the parties (Oudot, 2005), there were different organizational arrangements, particularly those related to construction risks (implementation period and the cost of the provision) and operation of public sports facilities (demand risk). Faced with this, although this analysis is neither sample nor conclusive, it can be inferred that four variables influenced the process of risk allocation between the parties (chart 6). Given this, the research suggests that an adequate distribution of the risks for PPP projects between the parties increases the genera-

tion of additional public value in the interaction between public and private partners, and generates a better performance when it comes to executing the project, especially due to positive incentives (in the event of the work being delivered inside the deadline/costs and/or fulfilment of the operation indicators) and contractual penalties (if it is contrary to the previously presented situations).

> [...] With PPP, if we divide the risks in a way that does not overwhelm any of the partners, both parties will engage in a more balanced and equitable manner for the success of implementing the venture [...]. [Public manager # 1]

**CHART 6 SUMMARY CHART ON THE MAIN VARIABLES THAT INFLUENCED THE ALLOCATION RISK OF PPP PROJECTS**

| Stadiums | Risk allocation of the construction (term and costs) and operation (demand) | Main influence variables |
|---|---|---|
| Arena Fonte Nova | Risks shared between the public entity and the private partner. | (1) The need to attract private initiative to the public project; (2) medium-low potential of generating demand for sporting events by local football clubs; and (3) the political will of public entities in Bahia and Pernambuco to assume a greater burden of PPP costs. |
| Arena Pernambuco | Risks shared between the public entity and the private partner. | |
| Arena Castelão | Risks wholly delegated to the private partner. | Despite the (1) necessity to attract private initiative to PPP and (2) the low potential for generating demand from local football clubs, (3) the decreased financial capacity of both public entities to assume a higher burden of construction costs and a possible increase in a public consideration in the PPP operations phase, as well as (4) the lack of expertise in the PPP preparation contributed to risk aversion on the part of both public entities of Ceará and Rio Grande do Norte. |
| Arena das Dunas | Risks wholly delegated to the private partner. | |
| Arena Mineirão | Risks wholly delegated to the private partner. | (1) Reduced need for additional actions to attract potential private partners to the PPP, due to: (2) high potential demand from local football clubs; (3) absence of political will to take on more of the PPP costs; and (4) expertise of the Minas Gerais public entity in the preparation of PPP due to its pioneering and tradition in the use of this type of provision. |

**Source:** Elaborated by the authors.

In the sharing of economic gains, PPP projects have mechanisms to stimulate the reduction of public compensation over the contractual execution of the projects so that the greater the gains earned by private partners, the smaller the public compensation payments will be. This is due to the possibility of sharing the operational revenues between the parties in case the private partner gains operating revenues above a certain limit set in the PPP projects, despite the potential problems identified and already discussed about the Fonte Nova and Pernambuco Stadiums. As a result, it follows

that this provision method contributed to higher public funding allocation efficiency on the part of the granting authority and to greater production efficiency by the private partners, due to the better allocation of risks between the parties (Oudot, 2005; Bing et al., 2005). On the other hand, projects executed under the traditional public management philosophy do not have any type of contractual mechanism that establishes the possibility of decreasing public payments during the operation of public facilities (Brito and Silveira, 2005).

> [...] Among the many advantages of PPP, one that we can cite is that, depending on the performance of the private partner, the State government can reduce its disbursement in public compensation over the duration of the contract, thanks to the possibility of sharing the additional gains with the private partner [...]. [Public manager #4]

In this perspective, this research suggests that a greater performance of PPP in terms of the value for money indicators that were analysed can be justified by the incentive structures, specifically the flexibility and lower restrictions imposed on the private partner in carrying out the contract, which is in line with literature on PPPs (European Commission, 2003; World Bank, 2012).

## 7. CONCLUSIONS

Based on the debate over public and private efficiency in the provision of public assets and services, this study sought to investigate the behaviour of the PPPs used for the construction of stadiums used for the 2014 Fifa World Cup, in a perspective compared to the traditional public provision and to the strictly private provision. To this end, although it cannot be considered a panacea, it can be deduced that the PPP projects adopted for providing new sports arenas generated a better value for money for the public administration with respect to the indicators that were analysed, highlighted by the swiftness and lower costs as compared to the traditional public provision method, which can be justified according to the incentive structures identified in the five PPP contracts investigated.

In this context, the results from this study contribute to the growing debate related to on-going public-private interactions in the fields of public administration and strategy in organizations (Mahoney, Mcgahan and Pitelis, 2009). Some theoretical and practical implications can be drawn from this research. More specifically, the examination of PPPs in Brazilian football stadium: it can contribute as part of educating public and private agents in the structuring and delivery of future PPP projects. In other words, the experiences and competences accrued by those involved in the structuring of projects designed for football stadiums are likely to be explored in other public utilities, enabling a generation of public value (Kivleniece and Quelin, 2012). Additionally, the PPPs analysed here can provide spillover for other public and private sector projects through the accumulation of idiosyncratic competencies related to the management of public-private interactions (Cabral, Lazzarini and Azevedo, 2013).

However, based on the experience of football stadiums, if it is not well planned and prepared it can be deduced that the PPPs can potentially have negative impacts on public administration, underlined by the possibilities of: (1) shifts in the optimal financing structure due to the critical timetable for implementing the projects which, in the cases studied, stems from the Fifa 2014 World Cup's tight

schedule, which negatively influenced the value for money indicators (terms and costs) for some of the projects; (2) greater assumption of risk for the project by the granting authority because of the rigid schedule, leaving governments in an unfavourable position in terms of bargaining with private partners; (3) higher public indebtedness due to the low contribution of private financial resources in relation to the total cost of the PPP; (4) an increase of the projects' initial costs due to low competition in the bidding processes, which implies the need to improve incentive structures to increase the attractiveness of PPPs for the perception of private initiatives; and (5) the need to build competencies in the public sector to monitor behaviour and evaluate the effective performance of PPPs. Future projects focusing on PPP experiences in other sectors can verify whether the previous propositions are conformed or refuted.

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