



Munich Personal RePEc Archive

## **Local governments opting for PPPs in the schools sector**

Carvalho, João and Cruz, Nuno and Cunha Marques, Rui

Center of Urban and Regional Systems

April 2010

Online at <https://mpra.ub.uni-muenchen.de/22558/>

MPRA Paper No. 22558, posted 09 May 2010 14:29 UTC

# LOCAL GOVERNMENTS OPTING FOR PPPs IN THE SCHOOLS SECTOR

João Carvalho<sup>1</sup>, Nuno Ferreira da Cruz<sup>2</sup> and Rui Cunha Marques<sup>3</sup>

<sup>1</sup> CESUR, IST, Technical University of Lisbon, Portugal. E-mail: joaolc@gmail.com

<sup>2</sup> CESUR, IST, Technical University of Lisbon, Portugal. E-mail: nunocruz@civil.ist.utl.pt

<sup>3</sup> CESUR, IST, Technical University of Lisbon, Portugal. E-mail: rcmr@civil.ist.utl.pt

## Abstract:

The Portuguese government recently launched a new program to refurbish the secondary schools all over the country. Along with this process more responsibilities are being transferred to local governments concerning pre and elementary schools. This is seen as the main motivation for the settlement of new local public private partnerships (PPP) within this sector. This paper discusses the public private partnerships (PPP) contracts in the Portuguese schools sector. Four national cases and a foreign experience are analysed. In this study, some of the sound practices presented in the literature are highlighted; we argue that some of these practices are not being applied in this sector in Portugal. A risk analysis for the schools sector was developed, hoping to contribute towards an increasing number of partnerships reaching the best possible value for money (VfM). Furthermore, we suggest several contract management guidelines and draw up some improvement proposals. We conclude that there is a need to enhance the transparency of the procurement phase, to normalise the contractual documents, and to assure a better risk allocation as well as an improved monitoring of the contract.

**Keywords:** schools; contract management; public-private partnerships (PPP); public tender; risk allocation.

## 1. INTRODUCTION

Public-Private Partnerships (PPPs) in infrastructure projects are long-term relationships between a public entity and a private partner, with the objective of assuring the financing, construction, renovation and/or operation of a public infrastructure service. This kind of cooperation allows the public partner to transfer some of the risks of the project to the private partner and to benefit from its know-how. The rights and duties of both parties are established in a contract, giving way to the so-called regulation by contract (Stern, 2000).

The prominent objective in all PPP is to achieve the best value for money (VfM) or, in other words, to get the best ratio between the service or infrastructure benefits and the cost for the public. However, in the schools sector, the VfM assessment process might have some degree of subjectivity (Khadaroo, 2008). There are at least six key conditions to reach the best value,

such as a proper risk allocation, a long term contract (about this aspect see Chong, 2006), an objective oriented approach (Yuan *et al.*, 2010 provide an interesting framework regarding this issue), real competition on the access to the market, performance monitoring with incentives (including an accountability system), and the attested advantage of private over public project management (Grimsey and Lewis, 2005).

In practice, while recognizing the potential of PPPs, the academic interpretation and the empirical observations lead to ambiguous conclusions about their actual benefits. Some defend, among others, their budget advantages, best VFM, better quality of service, strict compliance with deadlines, risk allocation to the party better able to manage it, maximization of the private skills, innovation incentives and extra efficiency (see Murphy, 2008). However, there are significant transaction costs involved (Williamson, 1985) and, consequently, a requirement for a minimum project dimension. PPP projects, while requiring a lot of knowledge and practice, sometimes seem to imply a loss of control by the public sector, since they are subject to many unknown factors and, therefore, become difficult to implement (Vining and Boardman, 2008a). Furthermore, most of the PPP contracts frequently lead to *ex-post* opportunism, with the parts bargaining for the renegotiation of the contract. Renegotiation is by itself the major failure of regulatory contracts (Guasch, 2004). Moreover, the problems start right at the beginning of the project with the complexity of the public tender stage which is fundamental for the whole PPP (the access to the market). Marques and Berg (2009a) consider as the three pillars for a successful PPP the following: (1) all **relevant criteria** should be taken into account in the public tender phase (containing nothing more than the strictly necessary to choose the best bidder); (2) the suitable **risk management** is a must to defend the public interest; (3) the sound principles of **contract management** must be put into practice (as well as the framework of incentives and penalties, and the inclusion of clauses for unpredicted events). Mainly, these will be the aspects analysed in this paper concerning the Portuguese schools sector.

Good quality educational infrastructures are essential either for developed or developing countries and there is little doubt about the fact that they have adequate characteristics to be provided via PPP arrangements (Audit Commission, 2003). The major issues regarding these infrastructures correspond to the risks involved, like construction, or maintenance risks, which are well borne by the private sector. Technological risks and demand risks, which frequently jeopardize the success of many infrastructure projects, such as hospitals or transportation facilities, are here less severe. Although the literature on PPP contracts is vast and PPPs are frequently used in the schools sector, only a reduced number of studies were found and in particular countries like the UK and Ireland (see Ball *et al.*, 2004; Reeves and Ryan, 2007 and Reeves, 2008). Hence, this paper might be an important contribution to this sector. Furthermore, it provides some insights for the blooming literature on PPP contracts for financing infrastructure and particularly for the application of PPPs by the local governments which have some additional difficulties (some say local governments were thought to spend, rather than make money). The remainder of the paper is organized as follows. Section 2 goes on about some theoretical issues concerning PPPs in the schools sector and provides an overall

characterisation of the Portuguese educational system. Afterwards, in section 3 we present the analysis of four case-studies of PPPs in this sector in Portugal and one in Denmark. Section 4 comprises our suggestions for improvements and the discussion of the results. Finally, the concluding remarks are provided in section 5.

## **2. PPPs IN THE PORTUGUESE SCHOOLS SECTOR**

### **2.1 The PPP model**

As it is widely known (at least in the EU), PPPs can be of two main types: contractual and institutional (see, e.g., Essig and Batran, 2005). Within the contractual type (cPPP), concessions and leasing arrangements are particularly relevant (as well as management contracts, among others). The institutionalised PPP (iPPP) are public-private enterprises owned by both private and public partners (mixed companies) and created with the sole purpose of establishing the partnership. Therefore, it involves a Project Company (a special purpose vehicle model is commonly used) jointly owned by public and private parties.

The remuneration of private partners depends on the duration of the partnership, on the direct payments carried out by the public partner and on the rates charged to users. The combination of these three factors has to result in a project financially viable and with an adequate internal rate of return (IRR). Besides the project IRR itself, also the maximum value allowed for the equity IRR must be thoroughly considered. Otherwise the investment will not appeal to the private sector which, as referred to in the seminal research undertaken by Chadwick (1859), Demsetz (1968) and Stigler (1968), is crucial in PPPs (to have an effective and good level of competition for the market). With a generous number of bidders, the propensity for collusion decreases and the prices are most likely to be close to production costs (Bajari *et al.*, 2003). Moreover, the return on equity should not be too high considering the project risks (and the eventual renegotiation) and complexity in order to protect the public interest (Marques and Berg, 2009a).

The choice of the private partner might have a prequalification of proponents (considering the technical and financial capability of the bidders); this allows for the exclusion of subjective criteria from the evaluation methodology and for the decrease of harmful discretionary power held by the public authority. Otherwise, the project may not be attractive to the private sector due to the great costs involved in the bidding process and the reduced probability of award. Considering this, it might be suitable to choose between the restricted procedure, the negotiated procedure and the competitive dialogue. The last procedure, while allowing for additional discretion (although with limited risks), is the one that provides better conditions for innovation. On the other hand, some authors argue that the use of open procedures in PPP can minimise transaction costs (Soliño and Santos, 2010). However, this argument might not stand when the contracting entities (the public sector) have little experience with long-term contracts in infrastructure projects. Also, the right choice between all the procurement procedures depends on the total value of the project.

The accurate identification and allocation of risks are major assignments for the success of a PPP (Li *et al.*, 2005a). The purpose of this process is to reduce economic costs, compel the private partner to fulfil deadlines, meet quality patterns at pre-defined costs, increase the project efficiency (lower costs with higher incomes), and establish more consistent cost predictions (Ng and Loosemore, 2007; Deloitte, 2006). The risks should be allocated to the party most suitable to manage them (aiming at the best VfM). Furthermore, in the procurement phase, the public authority should take into account the renegotiation risks. Renegotiation is linked to several aspects (where the existence of an award criteria based on the lowest tariff could take a special place) is often seen as a disappointing outcome in PPP arrangements. With no competitive threat and the information asymmetries benefiting the operator, the new contractual arrangement is likely to be far from what would be considered the optimal solution (which maximises welfare). After a PPP is defined and awarded, it is crucial to monitor and manage the contract. In general, this implies monitoring the performance of specific factors of the project, checking availability, and managing interventions or compensations for exceptional events.

When the private partner has to be compensated, it is necessary to prepare a new base case. In this procedure, the public authority should act in such a way that the private investor does not get benefited nor harmed by the unpredictable event. Nonetheless, the scope for the public partner action is bounded by the more transactional (un-cooperative) or more relational (cooperative) character of the firm contract as well as by the trust relationship established between the parties (Reeves, 2006). These delicate renegotiations (often harmful for the public interest because the public partner is in a weak position) should occur in a way that does not modify the equity IRR and the ratio remuneration/debt of the private partner (Yescombe, 2007). On the other hand, it is also a good practice to anticipate the possibility of the private partner not corresponding to the public expectations. Generally, a set of contractual clauses is defined: the step in (take control of the project temporarily), the substitution of the private partner and the early termination of the contract.

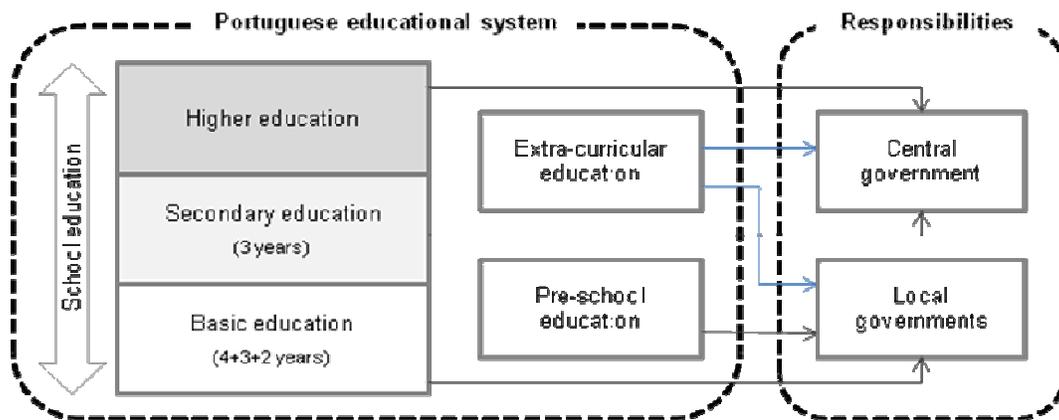
## **2.2 The renovation of the Portuguese schools**

The Portuguese educational system encompasses pre-school education, school education and extra-curricular education (law 49/2005). The school education is then divided into basic, secondary and higher education (see figure 1). Recently, the Portuguese central government carried out several reforms in the schools sector. These reforms include a massive Secondary School Building Modernisation Programme (SMP) and the decentralisation of competencies to local governments regarding basic education (compulsory education).

SMP aims to rebuild and modernise 332 of the 477 schools that provide upper secondary education in Portugal. This ambitious programme started out in 2007 and all the interventions should be completed by 2015; the first 205 schools (corresponding to the first four phases of the programme) represent a total investment of 2.45 billion Euros and should all be available in 2012. Considering the investment, the five year period seems to be short; even though the phasing is being incremental, the speed of the project hinders the process of learning and

applying good practices either in education and design issues as well as finance and budget aspects (OECD, 2009). The youth of the program does not allow for making any kind of considerations about the cost-effectiveness of the system. The source for this urgency is twofold: firstly, the government seeks to maximise the access to European Union (EU) funds (like ERDF and ESF) knowing that the national funding status will change around 2013/14; secondly, this type of investment is seen as an anti-crisis measure, with the objective of offsetting the recession with privately funded activities. The funding structure of SMP is as follows: 29% of the funds come from a mix of grants (EU structural funds and Portuguese state budget); 71% of the funds come from long-term loans from the European Investment Bank (44%), Council of Europe Development Bank (7%) and Commercial Banks (20%).

In a parallel process, with the new competences passed on to local governments (the transference framework regarding education was introduced by the decree-law 159/1999 and finally made effective with the decree-law 144/2008), the number of PPPs in the schools sector is expected to increase in the coming years. The main reason for this procurement option is related to the new debt limits imposed to municipalities (125% of the total receipts corresponding to the previous year, according to the Portuguese Local Budget Law – law 2/2007). The transfer of competencies to municipalities included basic education (three different cycles for a total of 9 years) and also nursery schools, which already motivated several new schools under the PPP scheme. These competences cover not only the construction, maintenance and management of the infrastructures, but also the non-teaching staff, school meals and other family support features, transportation, extra-curricular activities for the first cycle of basic education and other school and social activities for the remainder cycles.



**Figure 1 – Portuguese educational system**

In the beginning of 2009, the Portuguese Parliament approved a legal document (decree-law 34/2009) allowing for the use of accelerated procedures in the public procurement for 2009 and 2010, encompassing the schools (including basic and secondary education), renewable energy, technological infrastructure and urban regeneration sectors. Hence, for contracts with a global amount under 5.150.000 Euros (since January 2010, the threshold is 4.845.000 Euros), public authorities can always choose between the restricted procedure and the direct award for procuring the services. This diploma followed the conclusions of the Brussels

European Council (11<sup>th</sup> and 12<sup>th</sup> December 2008), in light of what was agreed in the summit on financial markets and the world of the G20 (15<sup>th</sup> November 2008). The consequences of this special regime are dubious. Some argue that it accelerated the renovation of the schools; however, the transparency of the processes was highly harmed (at both local and central level) with a clear distortion of competition and, probably, a still unmeasured damage of the public interest.

### **2.3 Identification of players**

In Portugal, as we have already pointed out, the utter responsibility to provide the population with the adequate basic education is exclusively municipal (the only exception is the salaries of the teaching staff). On the other hand, secondary and higher education is a competency of the central state (at least for the time being).

Besides these two main players, a lot of other entities play an important role in the provision of this public service. Specifically, the structuring of a PPP is a complex challenge involving different entities. Among all, Parpública (a holding company 100% public) and the Court of Auditors (Tribunal de Contas) stand out. The aim of Parpública (created at the end of 1991) in this scope is to guarantee that the use of PPPs endows the public services with better quality and efficiency levels. One of the tasks of the Court of Auditors is to supervise and regulate the conception of PPPs. PPPs are mainly legislated by the Portuguese code of public procurement (decree-law 18/2008) and by the laws of public-private partnerships (decree-laws 86/2003 and 141/2006). The new public procurement law is already in conformity with the recent EU Directives, which aim to simplify procedures and promote a cross-border competition (Tavares, 2008). At the local level, the Legal Regime for the Local Business Sector (law 51-F/2006) also regulates the iPPP on which municipalities have a dominant influence (direct or indirect). Several sectors have also own PPP legislation (e.g. roads, water, waste, seaports, etc.).

To manage the SMP initiative, the Portuguese government created in 2007 a public company (under public law) with total autonomy and the responsibility to plan, develop and execute the respective programme. The decree-law 41/2007 that created this company, called Parque Escolar (PE), allowed for the use of accelerated procedures in the public procurement until the end of 2007 (if the values before taxes were under the limits imposed by EU Directives). Later on (decree-law 25/2008), the special regime for procurement conceded to PE was extended until the end of 2008. However, the transparency of the processes was to be secured at all times. These diplomas, adding to the decree-law 34/2009 previously referred to, resulted in a facilitated procurement period of four consecutive years to PE. Considering the volume of investment, this seems far too long. The procedures of contract awarding to private companies carried out by PE have been publicly challenged; in fact, these doubts led the Portuguese Office of the Ombudsman to recently (29 March, 2010) launch an investigation regarding PE's activities.

Finally, it is crucial to mention the ultimate group of players: the contractors. In the schools sector (as in other sectors such as water services, urban waste and urban transport infrastructures), construction companies play a significant role as the private partners of the PPP. The companies of this sector have been adapting to the new procurement options available; frequently they appear to be far more prepared to enter PPP agreements than the entities of the public sector. Furthermore, some of these companies (usually medium-sized ones) exert a strong political influence over the local governments.

### **3. CASE STUDIES**

#### **3.1 Description**

It is possible to evoke several risks concerning PPPs in the schools sector (Binza, 2008); nonetheless, the main threats are related to political and local conditions, as well as to construction and operation issues. Regarding the political risks, it is possible to point out the support given by the public sector, law changes, costs with permissions, approvals, and population reactions against the PPPs. Local conditions risks refer to expropriations, soil conditions, old buildings conditions, environmental impacts, archaeological findings, soil contaminations, and the need to respect a timeframe to work, among others. Construction risks are related to costs, problems with the design and technical difficulties, while operation risks address the public ability to pay for the service provided, the income expected through complementary services, the need for schools to adapt to new requirements over time, and operational costs above the ones expected.

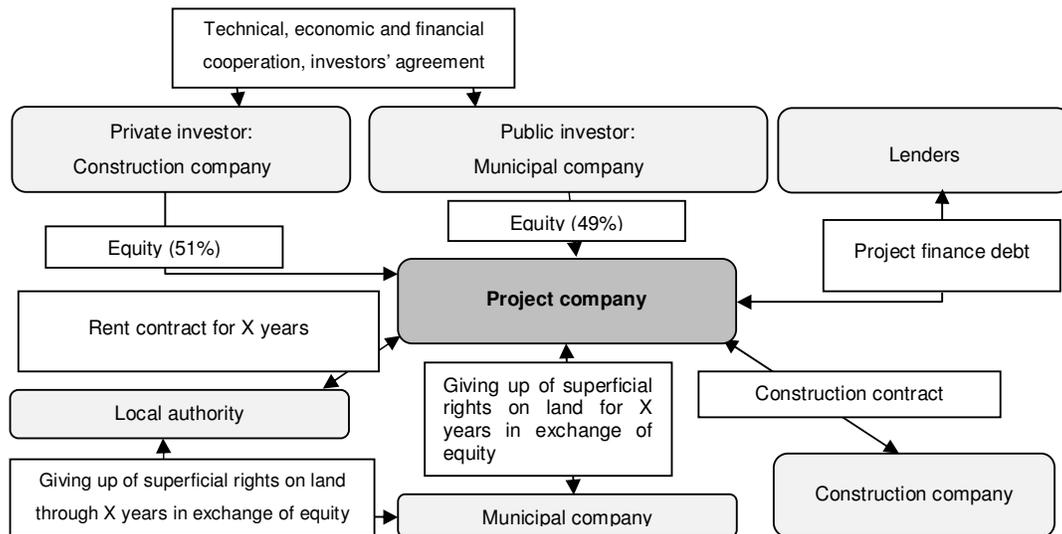
There are new trends and innovations from other European countries which could be used in the Portuguese PPP schools sector. Some examples are the standard contracts, guidelines, a public sector comparator (PSC) of reference, the promotion of pilot-projects, the development of performance indicators, the definition of design quality indicators, the use of availability indicators for the remuneration criteria, and the option for new forms of financing, such as the forfeiting model (see, for instance, Daube *et al.* 2008). Some of these measures already proved to decrease costs and speed up procedures in other countries.

As it is well-known, transparency is a principle highly encouraged within the EU (Carayannis and Popescu, 2005). PPPs are complex and should therefore be subject to public scrutiny. In Portugal, the right to access administrative documents is protected by law, although in practice the reality is quite different. It is extremely difficult to have access to PPP documents (tender documents, shareholders agreement, etc.). To carry out the following research, several public entities were contacted without any positive outcomes. Resorting to the Commission for the Access of Administrative Documents (CADA, in the Portuguese abbreviation), has proved to be the best way to get the data. CADA is an independent and quasi-judicial entity which has the competency to protect the citizens concerning the access to administrative documents. Nevertheless, this procedure takes several months to hold results and the opportunity can be

lost. The lack of transparency in every PPP process is totally evident, especially at the municipal level where our analysis is founded.

### 3.2 Analysis

We investigated five case-studies in the schools sector in this paper. One of these cases is from a Danish municipality while the remainder relate to Portuguese municipalities. This allowed for some kind of small-scale international benchmarking of the practices found in this field. The PPP model used in all cases was the institutional one (iPPP). Most models encompassed financing, design, construction, maintenance and conservation for a period between 25 and 30 years. It was quite interesting to notice that the contractual models were similar to each other. Figure 2 shows the standard contractual framework of the cases studied at the local level.



**Figure 2 – Standard contractual framework**

Among the Portuguese case-studies, only two of the PPP contracts were already awarded and are in operation (as in the Danish case). In all cases, teaching was kept a public responsibility. All the Portuguese cases, in opposition to what happened in the Danish municipality (a dedicated PPP to the design, building and maintenance of one school), bundled several schools in one single award. Another crucial difference between the contracting procedures relate to the method for the selection of the private partner. Table 1 summarises all these differences and similarities.

For the iPPP relative to case 1, 10 different private companies requested the tender documents and four bidders actually entered the public tender, which shows the existence of a PPP market in Portugal. Such level of participation is desirable, since it stimulates competitiveness and therefore helps attaining the best VfM (for an overview on this matters, see Marques and Berg, 2009a). However, this scenario was completely different for case 2. In fact, only one private initiative (comprising a consortium of four companies) bid for this contract. The lack of participation by the private sector is clearly damaging for the public interest (in the absence of competition the prices deviate from the production costs). The main reasons for this strange

behaviour of the market are related to the very short time given for the preparation of the bids (only 15 days); especially if we consider the almost non-existence of publicly available information. Furthermore, taking into account the contents of the submitted bid (which was oddly developed considering the time available) we may question the legality and ethics involved in this particular case.

**Table 1 – Summary information about the studied iPPP in the schools sector**

	Case 1	Case 2	Case 3	Case 4	Case 5*
<b>Scope of the PPP</b>	10 new schools	6 new schools and 1 multipurpose venue	Construction / refurbishment of 26 schools and 4 car parks	2 schools and 2 geriatric centres	1 school
<b>Awarding method</b>	Public tender (unrestricted)	Public tender (unrestricted)	Public tender (unrestricted)	Public tender (unrestricted)	Competitive dialogue
<b>PPP duration</b>	25 years	25 years	≥ 25 years	30 years	30 years
<b>Financing type</b>	Project finance	Project finance	Project finance	Project finance	Project finance
<b>Risks transferred to privates</b>	Construction, financing, and heavy maintenance	Design, construction, financing and maintenance	Design, construction, financing and maintenance	Design, construction, financing and maintenance	Design, construction, financing and maintenance
<b>PSC</b>	Not calculated	Not calculated	Not calculated	Not calculated	10% gains
<b>Private partner remuneration</b>	Depending on the availability	Depending on the availability	Depending on the availability	Depending on the availability	Depending on the availability
<b>Status</b>	Running	Running	Stalled in the tender phase	Stalled in the tender phase	Running

\* Danish case-study

In the majority of the cases studied, there was an attempt to coordinate the PPP with a request for funding from the central government financing program (QREN); this was not always successful, particularly due to the great amount of time spent with the applications. Furthermore, it appears that this contracting scheme was chosen in all four Portuguese cases mainly as a way of overcoming budget limitations rather than obtaining a better VfM. In fact, all the cases studied in Portugal have shown serious deficiencies in the economic and financial viability studies. More specifically, they did not show any expectations of better VfM for the PPP option (the PSC was never calculated) and only intend to postpone the payments as long as possible.

Despite the lack of investment by local governments in the public tenders (e.g. due to the absence of internal expertise and external consultants) and the clear incompleteness of the information available, a significant amount of time was wasted in the preparation and procurement phases in all Portuguese cases. There was a lot of controversy regarding the projects and, in some cases, these disagreements were responsible for delaying the award. Regardless of all these problems, in schools already in operation, the final users replied with positive feedback. Still, we argue that there were several bad decisions on the framing of the PPPs which clearly affected the best VfM of the projects. All the cases studied in Portugal had an open public tender without the pre-qualification of candidates. Due to the lack of experience of the Portuguese local councillors, this could contribute to higher transactions costs and certainly allow for greater discretionary power in the evaluation of the bids (without the

prequalification, some subjective criteria is usually included in the evaluation model in order to attest for the technical and financial capability of the bidders). One of the contracts did not cover the design of the facilities which may withdraw the possibility for innovation by the private partner in this field (and it may generate disputes in the case of bad performance of the infrastructures in the future).

Cases 1 and 2 had very incomplete contract management terms. Moreover, the risk allocation was insufficient since the responsibilities for cleaning, gardening and surveillance, as well as water, gas and electricity bill remained on the public side (see table 2). In the case 1, the bid evaluation was made by a consulting firm that did not prove to have technical qualifications to do the work. The intention to calculate the remuneration of privates as a function of the availability of the school areas is a sound principle. However, this was not always done properly. In general, the availability considered the schools as a whole; this assessment was not made considering partial availability or any kind of performance indicators related to the quality provided.

**Table 2 – Risk allocation**

Risks allocated to the public partner	Risks allocated to the private partner
Operation; repairs due to misuse; infrastructure management; cleaning; gardening; security.	Financing; construction; availability; maintenance and conservation (except repairs due to misuse).

The bundling of different kinds of projects in one single award is equally susceptible of criticism. This method may not be the most recommendable because it inhibits competition (by reducing the likelihood of having so many companies with all the required competences) and does not maximize the use of private specialization in a single type of project. It was also extremely difficult to compare the bids due to their lack of consistency, especially concerning their financial maps. The problem of comparability of the bids is crucial in PPPs; if there is not a fixed starting point or standard guidelines that every proponent has to respect, the tender information can lead to the winner's curse, where the most optimistic bidder (not necessarily the best bidder) acts hoping for subsequent renegotiation of the contract. Renegotiation is a big problem in PPPs because the agreements are made without pressure from competition and thus, the prices detach from the production costs and the final users are directly or indirectly harmed (Bajari *et al.*, 2005).

Case 5 refers to the iPPP contract firmied in a Danish municipality. This was a good example of how a PPP can be structured to enhance public sector involvement and provide innovative solutions for schools. For example, the inclusion of smart boards to improve the interaction and efficiency on the classroom and the presence of small construction details that turn the school facilities more eco-friendly (and with less energetic and maintenance costs) were only possible due to the superior involvement of the private partner (who suggested these alterations). These positive outcomes were achieved mainly through the use of the competitive dialogue procedure. Moreover, the PSC was calculated and clearly indicated an advantage of 10% in comparison

with traditional procurement. We believe that this gives us good indications on the viability of this kind of cooperation to provide new schools. However, even in this case, the procurement phase was very time consuming.

## **4. DISCUSSION OF FINDINGS**

### **4.1 Regulating the access to the market**

Despite the problems that come with every over-simplified analysis, it is not unreasonable to state that when the number of bidders increases, the propensity for collusion decreases (Bajari *et al.*, 2003). Therefore, it is crucial to facilitate the access to the market for private initiatives. Unstable or underdeveloped markets hinder competition; however, this does not seem to be the problem in the Portuguese schools sector, even at the local level. On the contrary, the problem appears to be related to the fact that every municipality has its own way of dealing with PPP arrangements. Each and every tender has its own rules, criteria and objectives. Hence, the underdevelopment is within the local public sector which has very little contracting experience when it comes to PPPs. For this reason, local governments need to heavily allocate resources to this phase. One more Euro spent in the preparation of the tender may result in dozens of Euros saved during the PPP life-cycle. The PPP contract must “force” the private partner to consider life-cycle costs. However, this must be done with an output oriented approach, giving way for innovation and the consequent efficiency gains.

The municipalities should work together, with help from the central state and from entities like Parpública and PE, for the setting of standard guidelines on how to regulate the access to the market. After the awarding, the public entities should conduct debriefing interviews with the unsuccessful bidders (like in the Irish schools sector; see Reeves and Ryan, 2007) in order to optimise subsequent PPP regarding schools of another municipality. Also, there is space for improvements in the estimation of the VfM of the projects and in the calculation of the PSC. Again, the settlement of standard guidelines could help municipalities to carry out robust viability studies (going much further than some studies that simply aim to be about the PPP merits). Finally, we noticed that, while the setting of an affordability cap should be a routine in PPP procurement processes (to have a broader perspective, considering the options available), local governments have been neglecting this practice and this has been one of major causes for financial problems.

### **4.2 Transferring the risks**

The risks of the project are strongly related to uncertainty. Usually, the concept of risk is related to the potential for events that have uncertain consequences and may constitute threats to success (Chapman and Ward, 2002). The importance of each risk depends on the project but it can be defined as the combination of the probability of an event and its consequences (Marques and Berg, 2009b). The three main phases in risk management are the risk

identification, risk allocation and risk mitigation. This assessment should be seen as a whole life-cycle process, starting right in the preparation stage and encompassing the operation/maintenance stages (Boussabaine and Kirkham, 2004). In the schools sector, as in all infrastructure services, the values at risk are the cost, the time (schedule) and the quality.

The PPP model is often seen as the preferable means to transfer risk away from the public sector. However, the transference of risks to the private partner usually comes with increases in the price of the project (Li *et al.*, 2005b). Furthermore, in the public schools sector, unlike other infrastructure services (like water and transport), the risks can only be allocated to the public sponsors (the municipalities) or to the private investors; in fact, this is not a service where the final users can be charged with higher fees (basic education in public schools is free in Portugal).

From the risk management point of view, and besides all the natural complexity involved in all PPP models, the schools sector seems to be a good one for the PPP option. In fact, despite the political risks (preferably a responsibility of the public sector, see Ke *et al.*, 2010), the main risks involved are the construction and maintenance risks (production risks) which, by tradition, are matters well managed by the private sector. In the schools sector, commercial risks (like demand, collection and competition risks) are less significant. Finally, context risks (like legal, regulation, unilateral changes and *force majeure* risks) are usually, either mostly retained by the public sector, or properly shared between the partners. Hence, with the low incidence of commercial threats, the transference of risks for the private partners in the schools sector should imply lower increases in the global price of the project, when compared to other public infrastructure services.

In the Portuguese case studies analysed, the transference of risks to the private sector was not fully effective. This problem was also observed in the first PPP in the schools sector undertaken in Canada (Vining and Boardman, 2008b). The public sector should not assume risks that are not under its control. Thus, if one municipality decides to use the iPPP model and carry out such a demanding process, the transference of the maximum number of production risks should take place. Duties such as gardening, cleaning, security and infrastructure management should be a responsibility of the private partner.

Managing the risks in PPP projects should also include managing the sources of uncertainty. The lack of data, clarity and detail as well as the lack of structure in the assumptions being used are also sources of risk. In the future, when local governments call for PPPs in the schools sector, the tender documents and the bids should show explicitly the risk allocation and propose mitigation measures.

### **4.3 Contract management**

A good measure to enable risk transfer (from public to private sector) is the bundling of different elements of an infrastructure project (e.g. design, construction, finance, operation and maintenance). In order to turn the PPP viable (especially if the financing risk is totally or partially

private) the efficiency gains must outweigh the higher financing costs. A good contract management must ensure that this effectively happens. Naturally, monitoring contracts also has costs, however without a good framework of incentives (and penalties) there is little chance of attaining success. The PPP contracts to be firmed in the basic schools sector can be efficiently monitored, as they are all geographically close (each municipality has its own responsibilities).

In spite of what was just said, the actual supervision of the PPP contracts in the Portuguese schools sector is very poor. The fact that the iPPPs operating in the Portuguese schools sector do not have to see their annual account reports approved in the municipal parliament is perplexing. This would improve the transparency and the monitoring level with practically no costs involved. Furthermore, with the exception of the bid evaluation, local governments do not usually resort to the consultancy of experts in other phases of the PPP process; the substantial difference in the resources available for the public and private parties is another factor contributing to the unbalance of the settlements. Also, the PPP contract should contain dispute clauses stipulating the procedures in case of disagreements (e.g. arbitration, mediation, etc.) to deal with future problems.

To guarantee the success of PPP in the basic education sector, a good level of communication between local governments, private partners and the schools must be assured at all times. The relationship between these three parties is fundamental for the success of the model. Focusing just on the *ex ante* phase of the PPP is too little. Hence, in the next section we provide several improvement proposals considering contract management guidelines and suggest possible criteria for the remuneration of the private partner.

#### 4.4 Improvement proposals

Besides the lack of preparation of the public sector to manage PPPs and the problems with the comparability of the bids, one of the major aspects that should be improved is related to the performance measurement of the partnership. In order to be applied in practical terms, the incentives for good performance (and penalties for bad performance) should be fairly simple and easy to implement (Cruz and Marques, 2009). Here, we propose a possible formulation to be applied in the schools sector. Hence, equation (1) was designed to assess the monthly payment to the private partner according to the pre-defined payment, service availability, and performance factors.

$$\text{Monthly payment} = \max \left\{ \begin{array}{l} \text{pre defined} \\ \text{payment} \end{array} - \begin{array}{l} \text{bad performance} \\ \text{deduction} \end{array} - \begin{array}{l} \text{unavailability} \\ \text{deduction} \end{array} \right. \quad (1)$$

0

To calculate the *bad performance deductions* related to the schools sector, we suggest a small group of indicators. The appreciation of these performance indicators is made with a scale from 0 to 20, where 0 corresponds to a bad performance and 20 to an excellent performance. Using this evaluation and equation (2), it is possible to assess the *low performance factor*, that

multiplied by 20% of the pre-defined payment should be equal to the part *bad performance deduction* (formula 3).

$$\text{Low performance factor} = \frac{n \times 20 - \sum_{i=1}^n \text{performance indicator assessment } i}{n \times 20} \quad (2)$$

Where  $n$  is equal to the number of performance indicators utilized.

$$\text{Bad performance deduction} = \text{low performance factor} \times 0,2 \times \text{pre-defined payment} \quad (3)$$

Note that we did not consider any weights in this formulae, thus every performance indicator has the same contribution to the overall assessment. Nevertheless, this can be easily changed. In table 3 we suggest several scopes to be measured by performance indicators that may be relevant for the schools sector. The performance indicators adopted, according to this formulation, must be all in the same scale.

**Table 3 – Performance indicators scope**

<ul style="list-style-type: none"> <li>• Comfort of the classrooms</li> <li>• Quality of air inside the classrooms</li> <li>• Cleanness</li> <li>• Security</li> <li>• Safety</li> <li>• Quality of the meals</li> <li>• Conservation of the educational equipment</li> <li>• Waiting time in queues</li> <li>• First aid services</li> </ul>	<ul style="list-style-type: none"> <li>• Accidents</li> <li>• Quality of telecommunications</li> <li>• Quality of the water</li> <li>• Quality of sports equipment</li> <li>• Quality of the library</li> <li>• Users level of satisfactions</li> <li>• Effectiveness in problem solving</li> <li>• Emergency equipment</li> <li>• Overall maintenance and conservation status</li> </ul>
---	---

For the calculation of the *unavailability deduction* the use of specific weights for each space/service is suggested (in order to take into account the partial availability). In case of unavailability of a space or service, the value of the *unavailability deduction* can be assessed through equation (4).

$$\text{unavailability deduction} = \frac{\sum_{i=1}^k \text{weight of space or service unavailable } i \times \varphi_i}{\sum_{j=1}^n \text{weight of space or service } j} \times 1,2 \times \text{pre-defined payment} \quad (4)$$

Where:

$k$  is the total number of spaces and services unavailable;

$n$  is the total number of spaces and services, unavailable or not;

$$\varphi_i = \frac{\text{unavailability period}}{\text{total availability period required}}$$

The coefficient of 1.2 in equation (4) increases the pre-defined payment by 20%. This measure aims at discouraging private partners to have unavailable spaces or services. Although not included in the formula, it was also recommended to add a time penalty coefficient for long

periods of unavailability (e.g. equal to 1.0 in the first month, 1.2 for the second month and 1.4 for the third and following). This payment mechanism penalizes the private party for underperforming and encourages the fast intervention with regard to service availability. A gold rule is to start the payments only after completion of the construction of infrastructures and when the operation effectively starts.

Concerning contractual changes, it is recommended that if a particular change increases the IRR, the private party shares the benefit, and if it decreases the IRR, the private party is compensated with no more (nor less) than the necessary to keep the private IRR constant. To facilitate this methodology, the public partner should have full access to the management accounts of the partnership. Considering possible contingencies such as the step in by lenders, or the capture, substitution and early termination by the public partner, the basic principle is to penalize the private partner if it is responsible for the incident and guarantee that no penalisation occurs otherwise.

According to what was stated, there seems to be an urgent need to improve the level of consensus in the public tenders, specifically through more complete financial maps easier to compare. The access to the tender documents should be facilitated and the private investors should have time to prepare their bids. There is also a need to improve the monitoring of some legal parameters; for instance, regarding the comparability among bidders, it is crucial to ensure that the discount rate used in the preparation of the bids is the one defined by law.

Having a more active participation of a specialized central entity on local PPPs, like Parública body, could also be advantageous. Besides helping with the structuring of the procurement phase, this entity could support the municipalities and users by divulging relevant information on the Internet. Likewise, it is at least odd that an entity like PE, which has been carrying out a massive yet similar activity, does not cooperate with local governments in the conception and monitoring of PPPs in the schools sector. Despite the fact that the local autonomy is a Constitutional principle, local and central governments are allowed (in fact even encouraged) to have technical collaboration. Considering the duration of the agreements, these are once in a life time projects where every contribution of know-how to implement good practices must be welcomed by local governments. In fact, Portuguese municipalities do not even consult among themselves, opting for a myopic behaviour which clearly has dreadful outcomes.

The competitive dialogue and the negotiated procedure are two models that proved to be effective in other countries. However, these methods are not currently being used in the PPPs of the schools sector in Portugal. An increase in this kind of models and the implementation of a price limit to charge for the public tenders' documentation could be beneficial. Notwithstanding, these measures should be tested before full implementation. In addition, the standardization of the bids, in particular the contractual conditions and the financial statements, as well as the requirement for consulting firms that evaluate the bids to demonstrate their technical qualifications, are also necessary measures. It is important to develop availability and

performance indicators that are more robust and adapted to each project, as well as a PSC of reference which might be released to the public.

Furthermore, there is a need to get the society closer to the projects and to promote the flexibility of the educational infrastructures (for instance, letting the private partner explore the space outside the school hours, fostering a more efficient land use). Finally, it seems that a more open and innovative mind is essential (e.g. experiencing new financing methods, like the forfeiting model). The use of PPP schemes in the schools sector, with all its specificities and special concerns, is a new yet fashionable solution in Portugal. Nowadays, the judgement of local public decision makers may be biased in favour of this option due to the demanding debt limitations imposed to municipalities. The difficult task imposed to this administrative level, which lately have been doing a lot more with considerably less resources, is acknowledgeable. Still, rushing out to PPPs might be dangerous and jeopardise the future of the populations. Unlike what happens with municipalities, private construction companies are well prepared when it comes to negotiate the clauses of the shareholders agreements and this fact puts the local governments in a weak dealing position.

## **5. CONCLUDING REMARKS**

The utilisation of the PPP model in the schools sector is starting to be a common practice in Portugal with tendency to increase. The generalized option is the institutionalised model, with the design construction, financing, maintenance and conservation being responsibilities of the private partner. However, the current model is not ensuring an effective allocation of all the risks due to the absence of performance monitoring and the allocation of some responsibilities like cleaning, surveillance, gardening and water, gas and electricity consumption.

The private sector know-how, better efficiency and capacity to innovate are not being well explored. Furthermore, municipalities have shown a lack of knowledge concerning the implementation and management of PPPs. It seems that the iPPP at local level are only being used to overcome budget limitations instead of achieving the best VfM. The Portuguese procurement phase has proved to be very time consuming and to sustain the disrespect of some international best practices, in particular the calculation of the PSC. Furthermore, there is a lack of transparency and of innovations to make the use of the schools' space more flexible and modern.

Several measures were identified which could result in a better VfM in PPP projects. The development of performance, availability and design quality indicators should be highlighted. While PPPs in the schools sector are expected to increase, it is important to correct the bad practices identified in this article, to improve the outcomes in the future. The setting of PPPs is a more demanding task for local governments than for central governments. On the one hand, it represents a more delicate situation for municipalities considering their small dimension and weak economic sustainability; on the other hand, due to the narrower scope of activity, local decision makers are not familiar with these processes nor adequately prepared to deal with

them. Furthermore, considering that there is no cooperation between the public authorities, municipalities are required to “do it right the first time”.

Nowadays, it would be useful to study the average duration of each phase of PPP structuring and compare them with traditional procurement. Any successful suggestions in this field would definitely have a positive impact in decreasing the substantial transaction costs involved with these partnerships. At that time, it would be equally useful to evaluate the expected value of those transaction costs in order to find out if there is a minimal business volume threshold to make the PPP option viable in this sector. Finally, there is a need for further research on the methods for estimation of a PSC of reference, as well as on the creation of standard contracts and indicators for performance, availability and quality of design.

## REFERENCES

- Audit Commission (2003). *PFI in Schools: the quality and cost of buildings and services provided by early Private Finance Initiative schemes*. London: the Audit Commission.
- Bajari, P.; McMillan, R.; Tadelis, S. (2003). Auctions Versus Negotiations in Procurement: An Empirical Analysis. *Journal of Law, Economics, and Organization*, v. 25, n. 2, pp. 372-399.
- Bajari, P.; Houghton, S.; Tadelis, S. (2006). Bidding for Incomplete Contracts: an Empirical Analysis, *Working Paper*, no, 12051, NBER.
- Ball, R., Heafey, M.; King, D. (2003). Some lessons from using PFI for school building projects. *Local Government Studies*. v. 29, n. 2, pp. 89-106.
- Binza, S. (2008). Public–private partnerships in metropolitan government: perspectives on governance, value for money and the roles of selected stakeholders. *Development Southern Africa*, v. 25, n. 3, pp. 297-315.
- Boussabaine, H.; Kirkham, R. (2004). *Whole Life-cycle Costing: Risk and Risk Responses*. Oxford: Blackwell Publishing.
- Carayannis, E.; Popescu, D. (2005). Profiling a methodology for economic growth and convergence: learning from the EU e-procurement experience for central and eastern European countries. *Technovation*, v. 25, n. 1, pp. 1-14.
- Chadwick, E. (1859). Results of different principles of legislation and administration in Europe: of competition for the field, as compared with the competition within the field of service. *Journal of the Royal Statistical Society*. v. 22A, pp. 381-420.
- Chapman, C.; Ward, S. (2002). *Managing Project Risk and Uncertainty: a Constructively Simple Approach to Decision Making*. Chichester: John Wiley & Sons.

- Chong, E. (2006). *Competitive Solutions for Managing Local Public Services: an Economic Analysis of Water Supply in France*. PhD dissertation, Jean Monnet Faculty, Université De Paris XI – Paris Sud.
- Cruz, N.; Marques, R. (2009). Viability of Municipal Companies in the Provision of Urban Infrastructure Services. *Forthcoming in Local Government Studies*.
- Daube, D.; Vollrath, S.; Alfen, H. (2008). A comparison of Project Finance and the Forfeiting Model as financing forms for PPP projects in Germany. *International Journal of Project Management*, v. 26, n. 4, pp. 376-387.
- Deloitte (2006). *Closing the Infrastructure Gap - The Role of Public Private Partnerships*. Deloitte Development LCC.
- Demsetz, H. (1968). Why regulate utilities? *Journal of Law and Economics*. v. 11, n. 1, pp. 55-65.
- Essig, M.; Batran, A. (2005). Public-private partnership: Development of long-term relationships in public procurement in Germany. *Journal of Purchasing & Supply Management*, v. 11, n. 5-6, pp. 221–231.
- Grimsey, D.; Lewis, M. (2005). Are public private partnerships value for money? Evaluating alternative approaches and comparing academic and practitioner views. *Accounting Forum*, v. 29, n. 4, pp. 345-378.
- Guasch, J. (2004). *Granting and Renegotiating Infrastructure Concession: Doing It Right*. Washington DC, USA: The World Bank.
- Ke, Y.; Wang, S.; Chan, A. (2010). Risk allocation in Public-Private Partnership infrastructure projects: a comparative study. *Forthcoming in Journal of Infrastructure Systems*.
- Khadaroo, I. (2008). The actual evaluation of school PFI bids for value for money in the UK public sector. *Critical Perspectives on Accounting*, v. 19, n.8, pp. 1321–1345.
- Li, B.; Akintoye, A.; Edwards, P.; Hardcastle, C. (2005a). Critical success factors for PPP/PFI projects in the UK construction industry. *Construction Management and Economics*, v. 23, n. 5, p. 459–471.
- Li, B.; Akintoye, A.; Edwards, P.; Hardcastle, C. (2005b). The allocation of risk in PPP/PFI construction projects in the UK. *International Journal of Project Management*, v. 23, n. 1, p. 25–35.
- Marques, R.; Berg, D. (2009a). Revisiting the strengths and limitations of regulatory contracts in infrastructure industries. *Forthcoming in Journal of Infrastructure Systems*.
- Marques, R.; Berg, D. (2009b). Risks, Contracts and Private Sector Participation in Water Utilities. *PURC Working paper n. 25*, University of Florida.
- Murphy, T. (2008). The case for public-private partnerships in infrastructure. *Canadian Public Administration*. v. 51, n. 1, pp. 99-126.

- Ng, A.; Loosemore, M. (2007). Risk allocation in the private provision of public infrastructure. *International Journal of Project Management*, v. 25, n.1, pp. 66–76.
- OECD (2009). *Review of the Secondary School Modernisation Programme in Portugal*. Paris: OECD Publishing.
- Reeves, E. (2008). The practice of contracting in public private partnerships: transaction costs and relational contracting in the Irish schools sector. *Public Administration*, vl. 86, n. 3, pp. 969-986.
- Reeves, E.; Ryan, J. (2007). Piloting public private partnerships: expensive lessons from Ireland's schools sector. *Public Money and Management*, v. 27, n. 5, pp. 331-337.
- Soliño, A.; Santos, P. (2010). Transaction Costs in Transport Public–Private Partnerships: Comparing Procurement Procedures. *Transport Reviews*, v. 30, n. 3, pp 389-406.
- Stern, J. (2000). Electricity and telecommunications regulatory institutions in small and developing countries. *Utilities Policy*, v. 9, n.3, pp. 131-157.
- Stigler, G (1968). *The Organization of Industry*. Chicago: University of Chicago Press.
- Tavares, L. (2008). *A gestão das aquisições públicas: Guia de Aplicação do Código dos Contratos Públicos – Decreto-Lei 18/2008 – Empreitadas, Bens e Serviços*. Lisbon: OPET – Observatório de Prospectiva da Engenharia e da Tecnologia.
- Vining, A.; Boardman, A, (2008a). Public-private partnerships: Eight rules for Governments. *Public Works Management & Policy*, v. 13, n. 2, pp. 149-161.
- Vining, A.; Boardman, A, (2008b). Public-private partnerships in Canada: Theory and evidence. *Canadian Public Administration*, v. 51, n. 1, pp. 9-44.
- Williamson, O. (1985). *The Economic Institutions of Capitalism: Firms, Markets and Relational Contracting*. New York: The Free Press.
- Yescombe, E. (2007). *Public-Private Partnerships: Principles of Policy and Finance*. London: Elsevier.
- Yuan, J.; Skibniewski, M.; Li, Q.; Zheng, L. (2010). Performance Objectives Selection Model in Public-Private Partnership Projects Based on the Perspective of Stakeholders. *Journal of Management in Engineering*, v. 26, n. 2, pp. 89-104.